SAE World Congress & Exhibition

Technical Session Schedule

As of 04/26/2009 07:40 pm

Monday, April 14

Status of POF in Automobiles

Session Code: ***AE12-2***

Room TBD ***Session Time:***

Panelists - *Henry Muyshondt, The Most Corporation and SMSC;*

Monday, April 20

The Road Map to 35MPG: What Technologies Will Get Us There?

Session Code: ***ANN200***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***10:00 a.m.***

The new fuel economy regulations present a major challenge to the auto industry. The panel will discuss in some detail the technologies that are most likely to be utilized to attain the federal mandate. The discussion will also reveal what changes the energy industry must make in order for some of the technologies to generate the efficiency increases that will be necessary for adoption.

Moderators - *Floyd E. Allen, Senior Consultant, FEV, Inc.; Gary W. Rogers, President & CEO, FEV, Inc.*

Panelists - *John M. German, Senior Fellow, Intl Council for Clean Transportation; Trevor O. Jones, Chairman, NRC Comm on Fuel Economy Tech for L.D. Vehicles; John W. Juriga, Director, Pwtrn, Hyundai-Kia America Technical Center, Inc.; Charles Klein, Director, Global Mass, Energy & Aerodynamics, GM Product Dev; Norbert Krause, Director, Engrg & Environmental Off, Volkswagen of America; Johannes Jorg Rueger, Sr VP, Diesel Systems N.A. Engrg, Robert Bosch LLC;*

Monday, April 20

New Control System Technologies for Green Powertrain Concepts: What Solutions Present the Most Promise

Session Code: ***ANN204***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***1:30 p.m.***

New, "green" powertrain concepts will require a completely new thought process when designing the control systems for the future systems. Plug-in hybrids, hybrids, dual fuel engines, etc. will demand new control systems to optimize the efficiency and operating costs for the consumer. The panel will discuss what is in the pipeline and what partnerships are necessary for the new systems to be realized.

Moderators - *Mazen Hammoud, Ford Motor Co.*

Panelists - *Roberts Abele, Vice President - Powertrain Electronics, Continental; Raymond Anton, Engineering Director, Powertrain Electronics, Delphi; Kent Helfrich, Director, Software Engineering, General Motors Corp.; Peter J. Maloney, Principal Consulting Engineer, The MathWorks Inc.; Alan Rooke, NA Auto FAE Director, Freescale Semiconductor;*

Monday, April 20

What Lies Over the Horizon? Industry Thought Leaders Forecast the Global Economic/Policy Climate that Automotive Executives Need to Know

Session Code: ***ANN300***

Room SAE Executive Business Theater ***Session Time:*** ***1:00 p.m.***

Automotive decision makers are inundated with opportunities and challenges they must face today in an ever-changing financial, economic, political and regulatory environment. How do you know your biggest challenge and opportunity may lie just beyond the business decisions you make today?

Fast forward to 2010. You are representing your company at a global awards banquet. You are with your CEO who wants to understand how you knew how to navigate through rough waters and follow this winning course.

This session will introduce you to key people who could give you that outside perspective that will be essential for your company's future. You will hear an open and blunt discussion about trends that will have real impact in the coming decade, including questions addressing:

-What are the economics behind the move to more eco-friendly vehicles?
-What are emerging local, regulatory and political considerations that may expand into global policies?
-Will capital markets reward those companies that go green?

-Does green mobility mean something different in emerging markets?

-Does the promise of alternative-fueled mobility outweigh the realities of local markets?

-How smart companies will survive the volatile economy.

-Where capital investment should be made for long-term growth.

Moderators - *Larry L. Fobes, Dir, Inst for Org & Ind Competitiveness, Wayne State Univ.*

Panelists - *Iain Carson, Europe Business Editor, The Economist; Richard G. Goetz, International Practice Group Leader, Dykema; Michael Granoff, Head of Oil Independence Policies, Better Place; David Hemmings, President & CEO, PRA Global Business Development; Michelle Krebs, Editor, Edmunds' AutoObserver;*

Monday, April 20

Green Mobility - The Long View

Session Code: ***ANN100***

Room AVL Technology Leadership Theater ***Session Time:*** ***10:00 a.m.***

Green mobility in the future necessitates radical thinking. In this panel we will examine game-changing technologies on the far horizon and new concepts ranging from individual personal mobility to city-wide break-through thinking towards the making of a new, sustainable mobility future.

Organizers - *Shane Chang, Honda Research Institute USA Inc.*

Moderators - *Paul J. Ingrassia, Wall Street Journal (retired)*

Panelists - *Robert Cervero, Prof, Dept of City & Regional Planning, Univ. of CA-Berkeley; Christopher F. Edwards, Director of the Advanced Energy Systems Lab, Stanford Univ.; Luca Guala, Rep, Masdar Initiative; John B. Heywood, Sun Jae Prof of Mech Engrg, & Dir, Sloan Auto Lab, MIT; Sebastian Thrun, Professor, Stanford Univ.;*

Monday, April 20

Energy: Field to Wheel Part II

Session Code: ***ANN104***

Room AVL Technology Leadership Theater ***Session Time:*** ***2:30 p.m.***

This panel discussion is a follow-up to the 2008 discussion which outlined where the energy sources will comes from in the future and the infrastructure needed to optimize the energy mix. The recent tremendous price fluctuation for carbon based fuels and the increasing movement to find "green" sources of energy has and will continue to have a profound effect on the transportation sector. The panel of experts will examine what has changed in the last year, whether the list of energy sources in last year's discussion that were expected to rise to the top are still seen in that light,, the effect of the price variations has had on new sources and how the global community is preparing for the future. In addition, the debate on "food versus energy" will be discussed in the context of the effect on future transportation energy sources.

Moderators - *Norman D. Brinkman, Technical Fellow, General Motors R&D Ctr.*

Panelists - *Nazeer A. Bhore, Sr Tech Advisor, Corp Planning, Exxon Mobil Corp.; Ric Fulop, Founder & VP Mktg Business Development, A123 Systems Inc.; Dale A. Gardner, Assoc Lab Director, Renewable Fuels & Vehicle Sys, NREL; Magdi K. Khair, Institute Engineer, Southwest Research Institute;*

Monday, April 20

Safety-Critical Systems (Part 1 of 4)

Session Code: ***AE5***

Room D2-08 ***Session Time:*** ***9:30 a.m.***

The focus of the session is software and system hazard analysis, implementation of safety-relevant systems and software, fail-safe strategies, distributed fault tolerant systems. Application areas include: active safety, active chassis and alternative energy systems. The draft international standard for functional safety, ISO 26262 is topic of high current interest.

Organizers - *Sabrina Moertl, TTTech Automotive GmbH; Brian T. Murray, Delphi Corp.; Markus Plankensteiner, TTTech Automotive GmbH*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0759***	***Achieving ASIL D for Microcontroller in Safety-Critical Drive-by-Wire System***
		Ziqing Zhai, Shanghai Jiao Tong Univ.; Thierry Corbiere, Atmel
10:00 a.m.	***2009-01-0758***	***Application of ISO 26262 in Distributed Development ISO 26262 in Reality***
		Reinhold Hamann, Jürgen Sauler, Stefan Kriso, Walter Grote, Jürgen Mössinger, Robert Bosch GmbH
10:30 a.m.	***2009-01-0745***	***Decomposition Scheme in Automotive Hazard Analysis***
		David D. Ward, MIRA Ltd.; Roger S. Rivett, Land Rover Ltd.; Peter Jesty, Peter Jesty Consulting Ltd.
11:00 a.m.	***2009-01-0743***	***ISO-26262 Implications on Timing of Automotive E/E System Design Processes***
		Rolf Johansson, Thomas Heurung, Mentor Graphics
11:30 a.m.	***2009-01-0755***	***Integrated Safety Planning According to ISO 26262***
		Horst Schubotz, MBtech Group

The papers in this session are available in a single publication, SP-2222, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

Safety-Critical Systems (Part 2 of 4)

Session Code: ***AE5***

Room D2-08 ***Session Time:*** ***1:30 p.m.***

The focus of the session is software and system hazard analysis, implementation of safety-relevant systems and software, fail-safe strategies, distributed fault tolerant systems. Application areas include: active safety, active chassis and alternative energy systems. The draft international standard for functional safety, ISO 26262 is topic of high current interest.

Organizers - *Sabrina Moertl, TTTech Automotive GmbH; Brian T. Murray, Delphi Corp.; Markus Plankensteiner, TTTech Automotive GmbH*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0763***	***Combining the Advantages of Simulation and Prototyping for the Validation of Dependable Communication Architectures: The TEODACS Approach***
		Eric Armengaud, Daniel Watzenig, The Virtual Vehicle Competence Center; Michael Karner, Christian Steger, Reinhold Weiß, Graz University of Technology; Christian Netzberger, Martin Kohl, Univ. of Applied Sciences FH Joanneum Kapfenberg; Markus Pistauer, CISC Semiconductor GmbH; Felix Pfister, AVL List GmbH; Harald Gall, austriamicrosystems AG
2:00 p.m.	***2009-01-0762***	***DeSCAS Design Process Model for Automotive Systems - Development Streams and Ontologies***
		Jan Gacnik, German Aerospace Center (DLR); Henning Jost, University of Oldenburg; Daniel Beisel, Technical Univ. of Braunschweig; Juergen Rataj, Frank Koester, German Aerospace Center (DLR)

2:30 p.m.	***2009-01-0738***	***Semi-Automatic FMEA Supporting Complex Systems with Combinations and Sequences of Failures***
		Yiannis Papadopoulos, Martin Walker, David Parker, Univ. of Hull; Henrik Lonn, Volvo Technology Corp.; Martin Törngren, DeJiu Chen, Royal Institute of Technology; Rolf Johansson, Mentor Graphics; Anders Sandberg, Mecel Engine Systems AB
3:00 p.m.	***2009-01-0760***	***A Quantitative Safety Assessment Methodology for Safety-Critical Programmable Electronic Systems Using Fault Injection***
		Michael Reynolds, Carl Elks, Nishant George, Meenakshi Sekhar, Todd DeLong, Barry Johnson, Univ. of Virginia
3:30 p.m.	***2009-01-0749***	***Efficient Safety Analysis of Automotive Software Systems***
		Mario Trapp, Soeren Kemmann, Fraunhofer IESE; Christian Denger, Siemens AG; Ralf Kalmar, Fraunhofer IESE
4:00 p.m.	***2009-01-0747***	***Applying Model-Based Design and Automatic Production Code Generation to Safety-Critical System Development***
		Dirk Fleischer, Michael Beine, Ulrich Eisemann, dSPACE GmbH

The papers in this session are available in a single publication, SP-2222, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

Intelligent Transportation System - Safer, Smarter, Faster (Part 1 of 2)

Session Code: ***AE26***

Room D2-09/10 ***Session Time:*** ***9:30 a.m.***

Intelligent Transportation Systems (ITS) includes smart vehicles, smart roads and infrastructure, and wired and wireless communications to link them together. This session will provide insights and progress reports on the latest ITS research, development, and deployment around the world. Time to collision estimations, embedded processor control, adaptive cruise control and image recognition along with discussion on the management of safety and safety systems.

Organizers - *David L. Acton, The-Transformation-Network LLC*

Chairpersons - *David Acton, The-Transformation-Network LLC*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0156***	***A Rule-Based Collision Avoidance System - Scene Interpretation, Strategy Selection, Path Planning and System Intervention***
		Ali Khanafer, Dirk Balzer, Adam Opel GmbH; Rolf Isermann, TU Darmstadt
10:00 a.m.	***2009-01-0157***	***Real-Time Simulation Environment for the Test of Driver Assistance Systems***
		Dirk Tellmann, Mohamed Ayeb, Ludwig Brabetz, Universitaet Kassel
10:30 a.m.	***2009-01-0159***	***A Reconfigurable SIMD-MIMD Processor Architecture for Embedded Automotive Vision Processing Applications***
		Ketaki Adi, NEC Electronics America, Inc.
11:00 a.m.	***2009-01-0161***	***Development and Evaluation of Distance Control Assist System with Active Accelerator Pedal***
		Yasuhiko Takae, Nissan Motor Co. Ltd; Yoji Seto, Nissan Technical Center NA Inc.; Tomohiro Yamamura, Nissan Motor Co. Ltd.
	2009-01-0158	***Developing Integrated Vision Applications for Active Safety Systems (Written Only -- No Oral Presentation)***
		Adam Prengler, NEC Electronics

	2009-01-0160	***Design of a Lane Departure Prevention System with Enhanced Drivability (Written Only -- No Oral Presentation)***
		Yasuhisa Hayakawa, Kenichi Egawa, Nissan Motor Co., Ltd.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

Intelligent Transportation System - Safer, Smarter, Faster (Part 2 of 2)

Session Code: ***AE26***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

Intelligent Transportation Systems (ITS) includes smart vehicles, smart roads and infrastructure, and wired and wireless communications to link them together. This session will provide insights and progress reports on the latest ITS research, development, and deployment around the world. Time to collision estimations, embedded processor control, adaptive cruise control and image recognition along with discussion on the management of safety and safety systems.

Organizers - *David Acton, The-Transformation-Network LLC*

Chairpersons - *David Acton, The-Transformation-Network LLC*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0162***	***Improving Time-to-Collision Estimation by IMM Based Kalman Filter***
		Yixin Chen, Delphi Corp.; Manohar Das, Devendra Bajpai, Oakland Univ.
2:00 p.m.	***2009-01-0163***	***Communication in Future Vehicle Cooperative Safety Systems: 5.9 GHz DSRC Non-Line-of-Sight Field Testing***
		Radovan Miucic, Tom Schaffnit, Honda R&D Americas Inc.
2:30 p.m.	***2009-01-0164***	***A Fusion Architecture for Object Detection using Replaceable Sensors***
		Michael Skutek, Wladimir Fischer, Thomas Eisenbach, Hella KGaA Hueck & Co.
3:00 p.m.	***2009-01-0165***	***Prioritized CSMA Protocol for Roadside-to-Vehicle and Vehicle-to-Vehicle Communication Systems***
		Jun Kosai, Shugo Kato, Toshiya Saito, Kazuoki Matsugatani, Hideaki Nanba, DENSO Corp.
3:30 p.m.	***2009-01-0166***	***Optimization for Shared-Autonomy in Automotive Swarm Environment***
		Sue Bai, Honda R&D Americas Inc.
4:00 p.m.	***2009-01-0167***	***Development of a Pedestrian Traffic Safety Support System using Cellphones***
		Masao Fukushima, Nissan Motor Co., Ltd.
	2009-01-0168	***Intelligent Vehicle Technologies that Improve Safety, Congestion, and Efficiency: Overview and Public Policy Role (Written Only -- No Oral Presentation)***
		Eric Sauck, Univ. of Michigan / SAE WISE Program

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

Thermal Management Systems (Part 1 of 2)

Session Code: ***HX1***

Room D2-11/12 ***Session Time:*** ***9:30 a.m.***

Providing thermal comfort to the occupants and thermal management of components in an energy efficient way has challenged the automotive industry to search for new and innovative approaches to thermal management. Hence, management of heat flow, coolant flow, oil flow, and airflow is extremely important as it directly affects the system performance under full range of vehicle operating conditions.

Organizers - *Ales Alajbegovic, Exa Corp.; Alaa El-Sharkawy, Chrysler LLC; Ramesh Kumar Goyal, General Motors Corp. (ret.); Gursaran D. Mathur, CalsonicKansei North America Inc.*

Time	Paper No.	Title
9:30 a.m.	***ORAL ONLY***	***HFO-1234yf Low GWP Refrigerant Optimization***
		Mark Spatz, Honeywell Intl. Inc.; Barbara Haviland Minor, DuPont Fluoroproducts
10:00 a.m.	***ORAL ONLY***	***Emerging Thermoelectric Technology Solutions for Thermal Management***
		John LaGrandeur, Douglas T. Crane, Dazhi Wang, BSST LLC
10:30 a.m.	***2009-01-0169***	***Development of a Cost Effective Power Train Cooling System for a Passenger Car with Rear Engine***
		Rajesh Adhikarath Tharayi, Sharad Sambhaji Pol, Tata Motors, Ltd.
11:00 a.m.	***2009-01-0170***	***Current Possibilities of Thermoelectric Technology Relative to Fuel Economy***
		Masayoshi Mori, Honda R&D Co., Ltd.
11:30 a.m.	***2009-01-0171***	***Numerical Investigation of Phase Change Materials for Thermal Management Systems***
		Taha Aldoss, Jordan Univ. of Science & Technology; David Joseph Ewing, Yan Zhao, Lin Ma, Clemson Univ.
12:00 p.m.	***2009-01-0172***	***Production Solutions for Utilization of both R1234yf and R134a in a Single Global Platform***
		John J. Meyer, Visteon Climate Control

Planned by Thermal Management Activity / EMB Land and Sea Group

Monday, April 20

Thermal Management Systems (Part 2 of 2)

Session Code: ***HX1***

Room D2-11/12 ***Session Time:*** ***1:30 p.m.***

Providing thermal comfort to the occupants and thermal management of components in an energy efficient way has challenged the automotive industry to search for new and innovative approaches to thermal management. Hence, management of heat flow, coolant flow, oil flow, and airflow is extremely important as it directly affects the system performance under full range of vehicle operating conditions.

Organizers - *Ales Alajbegovic, Exa Corporation; Alaa El-Sharkawy, Chrysler LLC; Ramesh Kumar Goyal, General Motors Corp. (ret.); Gursaran D. Mathur, CalsonicKansei North America Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0173***	***Development of an Automatic Defogging System for Automobile Windshield***
		Choongyu Kwon, Ki-Lyong Jang, Chang Won Lee, Seunggyoon Jung, Hyundai Motor Co.; Lee Foster, Hyundai-Kia America Technical Center Inc.
2:00 p.m.	***2009-01-0174***	***Rankine Cycle for Waste Heat Recovery of IC Engines***
		Juergen Ringler, Marco Seifert, Vianney Guyotot, Walter Huebner, BMW Group Research and Technology

2:30 p.m.	***2009-01-0175***	***Downstream Blockage Corrections of Automotive Cooling Fan Module Performance***
		Alexander Graham Hunt, Eric Savory, Univ. of Western Ontario; Robert Martinuzzi, Univ. of Calgary; Nick Gifford, General Dynamics Canada
3:00 p.m.	***2009-01-0176***	***Cooling Effects of Air-Cooled Finned Cylinder Utilizing Contracted Flow***
		Kohei Nakashima, Masayuki Fujiyoshi, Soichi Ishihara, Yoshio Murakami, Masago Yamamoto, Meijo Univ.; Masao Yoshida, Aichi Univ. of Technology
3:30 p.m.	***2009-01-0177***	***Effect of New Cooling System in a Diesel Engine on Engine Performance and Emission Characteristics***
		Kyungwook Choi, Kibum Kim, Kihyung Lee, Hanyang Univ.
4:00 p.m.	***2009-01-0178***	***A Correction Method for Stationary Fan CFD MRF Models***
		Peter Gullberg, Lennart Löfdahl, Chalmers University of Technology; Steven Adelman, Volvo Trucks North America; Peter Nilsson, Volvo Truck Corporation
4:30 p.m.	***2009-01-0179***	***HFO-1234yf Low GWP Refrigerant LCCP Analysis***
		Mary Koban, DuPont Fluoroproducts

Planned by Thermal Management Activity / EMB Land and Sea Group

Monday, April 20

Vehicle Aerodynamics (Part 1 of 5): Aero Acoustic

Session Code: ***B50***

Room D2-13/14 ***Session Time:*** ***9:30 a.m.***

Papers in this session explore the measurement, generation, theory, and prediction of aerodynamically induced noise. The work includes detailed flow field studies on full vehicles and simplified components. Paper topics include work completed in the wind tunnel and using CAE techniques.

Organizers - *Joel Walter, Jacobs; Bill Gulker, Ford Motor Co.*

Chairpersons - *Joel Walter, Jacobs; Bill Gulker, Ford Motor Co.*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0180***	***Scaling Laws in Automotive Aeroacoustics***
		Gerhard Wickern, Audi AG; Martin Brennberger, AUDI AG
10:00 a.m.	***2009-01-0181***	***Window Buffeting Measurements of a Full Scale Vehicle and Simplified Small Scale Models***
		Paul Slaboch, Scott Morris, Ruolong Ma, Daniel Shannon, Univ. of Notre Dame; Mark Gleason, Mitchell Puskarz, Chrysler LLC
10:30 a.m.	***2009-01-0182***	***Side Window Buffeting Investigation by Stereposcopic Particle Image Velocimetry in Low and High Turbulence Regime***
		Marco Maffei, Giuseppe Carlino, Antonello Bianco, Pininfarina Spa
11:00 a.m.	***2009-01-0183***	***Helmholtz Resonators Acting as Sound Source in Automotive Aeroacoustics***
		Gerhard Wickern, Martin Brennberger, Audi AG
11:30 a.m.	***2009-01-0184***	***WInd Noise Measurements for Automotive Mirrors***
		Kuo-Huey Chen, GM R&D Center; James Johnson, Urs Dietschi, General Motors Corp; Bahram Khalighi, GM R&D Center
12:00 p.m.	***2009-01-0185***	***Lessons Learned from a Full-Scale Real World Wind Noise Modeling Project***
		Thomas N. Ramsay, Ann Boh, Honda R&D Americas Inc.

The papers in this session are available in a single publication, SP-2226, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Monday, April 20

Vehicle Aerodynamics (Part 2 of 5): Turbulence and Unsteady Aero

Session Code: ***B50***

Room D2-13/14 ***Session Time:*** ***1:30 p.m.***

Organizers - *Bahram Khalighi, GM R&D Center; Todd H. Lounsberry, Chrysler Engineering*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0001***	***The Effect of High Turbulence Intensities on Surface Pressure Fluctuations and Wake Structures of a Vehicle Model*** *David Schroeck, Nils Widdecke, Jochen Wiedemann, IVK / FKFS Universität Stuttgart*
2:00 p.m.	***2009-01-0002***	***On-road Turbulence: Part 2*** *Scott Wordley, Monash Univ.*
2:30 p.m.	***2009-01-0003***	***The Effect of Free Stream Turbulence on A-pillar Airflow*** *Jeff Howell, Tata Motors European Technical Centre; Martin Passmore, Joshua Baden-Fuller, Loughborough Univ.*
3:00 p.m.	***2009-01-0005***	***Analysis of a Vehicle's Longitudinal Response to an Unsteady Wind Environment*** *Guenter Bischof, FH-Joanneum Graz*
3:30 p.m.	***2009-01-0004***	***Flow Structures above the Trunk Deck of Sedan-Type Vehicles and Their Influence on High-Speed Vehicle Stability _1st Report: On-Road and Wind-Tunnel Studies on Unsteady Flow Characteristics that Stabilize Vehicle Behavior*** *Yoshihiro Okada, Takahide Nouzawa, Takaki Nakamura, Satoshi Okamoto, Mazda Motor Corp.*
4:00 p.m.	***2009-01-0006***	***Flow Structures above the Trunk Deck of Sedan-type Vehicles and their Influence on High-speed Vehicle Stability 2nd Report: Numerical Investigation on Simplified Vehicle Models using Large-Eddy Simulation*** *Takuji Nakashima, Hiroshima Univ.; Makoto Tsubokura, Hokkaido Univ.; Takahide Nouzawa, Takaki Nakamura, Mazda Motor Corp.; Masashi Ichimiya, Tokushima Univ.*
4:30 p.m.	***2009-01-0007***	***Development of an Unsteady Aerodynamic Simulator Using Large-Eddy Simulation Based on High-Performance Computing Technique*** *Makoto Tsubokura, Hokkaido Univ.; Takuji Nakashima, Hiroshima Univ; Kozo Kitoh, Kozo Kitoh Technology; Yoshihiro Sasaki, AdvanceSoft Co. Ltd.; Nobuyuki Oshima, Hokkaido Univ; Toshio Kobayashi, Japan Automobile Research Institute*

The papers in this session are available in a single publication, SP-2226, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Monday, April 20

CI and SI Power Cylinder Systems (Part 1 of 2)

Session Code: ***PFL500***

Room D2-15 ***Session Time: 9:30 a.m.***

This session covers topics regarding the power cylinder of the engine. This includes analytical as well as experimental studies.

Organizers - *Yong-Ching Chen, Dwight Andrew Doig, Cummins Inc.; Mikhail A. Ejakov; Dan Earl Richardson, Cummins Inc.*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0196***	***Weight Reduction of Reciprocating Parts with a Spherical Joint Piston*** *Masayoshi Kawaguchi, Masahiko Asanuma, Takeomi Okimitsu, Hiroyuki Tsukagoshi, Honda R&D Co.,Ltd.*
10:00 a.m.	***2009-01-0192***	***Design and Application of Composite Piston for High Power Diesel Engine*** *Jung Ho Son, Sung Chan An, Sung-Soo Jung, Wook-Hyeon Yoon, Hyundai Heavy Industries Co., Ltd.; Man-Yeong Ha, Pusan National University*
10:30 a.m.	***2009-01-0187***	***Transient Analysis of the Piston Temperature with Consideration of In-cylinder Phenomena Using Engine Measurement and Heat Transfer Simulation Coupled with Three-dimensional Combustion Simulation*** *Hideaki Mizuno, Koichi Ashida, Atsushi Teraji, Kenshi Ushijima, Shinichi Takemura, Nissan Motor Co., Ltd.*
11:00 a.m.	***2009-01-0193***	***Part 3: A Study of Friction and Lubrication Behavior for Gasoline Piston Skirt Profile Concepts*** *Kwang-soo Kim, Federal-Mogul Powertrain Group*
11:30 a.m.	***2009-01-0189***	***Piston Pin Dynamics and Temperature in a C.I. Engine*** *Kent Clark, Cummins Inc.; Daniel Kemppainen, Glen Barna, IR Telemetrics; John Antonevich, Cummins Inc.*

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

CI and SI Power Cylinder Systems (Part 2 of 2)

Session Code: PFL500

Room D2-15 ***Session Time: 1:30 p.m.***

This session covers topics regarding the power cylinder of the engine. This includes analytical as well as experimental studies.

Organizers - *Yong-Ching Chen, Dwight Andrew Doig, Cummins Inc.; Mikhail A. Ejakov; Dan Earl Richardson, Cummins Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0195***	***An Experimental Study on Relationship between Lubricating Oil Consumption and Cylinder Bore Deformation in Conventional Gasoline Engine*** *Naoki Iijima, Takeo Sakurai, Masaaki Takiguchi, Musashi Institute of Technology; Yasuo Harigaya, Utsunomiya University; Takeshi Yamada, Hideki Yoshida, Riken Corp.*
2:00 p.m.	***2009-01-0188***	***Lubricating Condition of Piston Ring and Cylinder for Significantly Reducing Piston Friction Loss*** *Ryo Wakabayashi, Kazuya mochiduki, Hideki Yoshida, RIKEN Corp.*
2:30 p.m.	***2009-01-0190***	***Improved Criterion for Ring Conformability Under Realistic Bore Deformation*** *Eduardo M. Tomanik, Mahle Metal Leve SA*

3:00 p.m.	***2009-01-0191***	***Dynamic and Kinematic Evaluations of Automotive Variable DisplacementVvane Pumps for Reliability Characterization***
		Nicola Novi, Pierburg Pump Technology Italy Spa; Francesco Frendo, University of Pisa (Italy); Raffaele Squarcini, Pierburg Pump Technology Italy Spa
3:30 p.m.	***2009-01-0197***	***Strength Analysis of a Cylinder Head Gasket Using Computer Simulation***
		Kenji Sato, Tadao Nishiyama, Osamu Murakami, Honda R&D Co., Ltd.; Yoshinori Chiba, Nippon Leakless Corp.; Koki Kunieda, Fasotec Co., Ltd.
4:00 p.m.	***2009-01-0186***	***Study of the Mechanism of Accessory Drive Belt Noise***
		Motoyasu Sakaguchi, Tomoaki Nishio, Toshimitsu Shinohara, Hiroshi Takagishi, Honda R&D Co., Ltd.; Atsushi Nagakubo, PSG Co., Ltd.
4:30 p.m.	***2009-01-0198***	***Timing Chain Wear and Effects of Different Types of Lubricants (Written Only -- No Oral Presentation)***
		Ozay Polat, Ford Engine Design; Ali Ebrinc, Cem Ozen, Serdar Akca, Ford Otosan AS

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Fire Safety (Part 1 of 2)

Session Code: ***B11***

Room D3-19 ***Session Time:*** ***9:30 a.m.***

Organized by the Fire Safety Committee, this session will cover a broad range of vehicle fire issues including statistical analysis of vehicle fires, ignition mechanisms, hydrogen vehicle safety and testing, fire suppression, and vehicle fire case studies.

Organizers - *Jeff D. Colwell, Exponent Inc.; Steven E. Hodges, Alion Science & Technology; Jeffrey Santrock, General Motors Corp.*

Chairpersons - *Jeff D. Colwell, Exponent Inc.; Steven Hodges, Alion Science & Technology*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0009***	***Case Studies in Germany Examining the Effect of Recent Service Work on Vehicle Fires***
		Dieter Wolpert, Markus Egelhaaf, DEKRA Automobil GmbH
10:00 a.m.	***2009-01-0016***	***Hot Surface Ignition of Gasoline - Ethanol Fuel Mixtures***
		Manoj S. Modi, Roy E. Ebersole, Linda C. Matusz, Ronald E. Orlando, General Motors Corp.
10:30 a.m.	***2009-01-0013***	***Engine Exhaust System Temperatures Under Normal Driving Conditions***
		Jeff D. Colwell, Exponent Inc.; Kaushik Biswas PhD, Exponent Failure Analysis
11:00 a.m.	***2009-01-0008***	***Fire Occurrence in Side Crashes Based on NASS/CDS***
		Kennerly H. Digges, George Washington Univ.

The papers in this session are available in a single publication, SP-2227, and also individually.

Planned by Fire Safety Committee / Automobile Body Activity

Monday, April 20

Fire Safety (Part 2 of 2)

Session Code: ***B11***

Room D3-19 ***Session Time: 1:30 p.m.***

Organized by the Fire Safety Committee, this session will cover a broad range of vehicle fire issues including statistical analysis of vehicle fires, ignition mechanisms, hydrogen vehicle safety and testing, fire suppression, and vehicle fire case studies.

Organizers - *Jeff D. Colwell, Exponent Inc.; Steven E. Hodges, Alion Science & Technology; Jeffrey Santrock, General Motors Corp.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0014***	***Evaluation of Risk Trade-Offs in Passenger Compartment Fire Retardant Usage*** *Leland E. Shields, Leland E Shields, Inc.; Daniele Staskal, ToxStrategies, Inc.; Rose Ray, Exponent, Inc.; Linda Birnbaum, U.S. Environmental Protection Agency; Robert R. Scheibe, GT Engineering*
2:00 p.m.	***2009-01-0012***	***Rationale for Options in Validation Testing of Compressed Hydrogen Storage*** *Christine S. Sloane, SloaneSolutions LLC*
2:30 p.m.	***2009-01-0011***	***Developing Safety Standards for FCVs and Hydrogen Vehicles*** *Glenn W. Scheffler, Gws Solutions of Tolland LLC; Jake DeVaal, Ballard Power Systems; Gery Kissel, General Motors Corp; Jesse Schneider; Michael Veenstra, Ford Motor Co; Tommy Chang, American Honda Motor Co Inc; Naoki Kinoshita, Honda R&D Co Ltd; Matt McClory, Toyota Motor Engineering & Manufacturing North America, Inc.; Hajime Fukumoto, Japan Automobile Research Institute; Marcel Halberstadt, MLH Consulting*
3:00 p.m.	***Panel***	***Fire Safety Panel Discussion*** *The panel will focus on current vehicle fire protection issues. Active and passive app applied to commercial and military vehicles, will be considered. Experts on the panel representing users, suppliers and designers, will share their experience in response t posed to them prior to and during the session. Suggestions for topics to be consider submitted prior to or at the session. Contact: Dr. Steve Hodges, 805-455-5777, steven.e.hodges1@us.army.mil* ***Moderators -*** *Steven Hodges, Alion Science & Technology* ***Panelists -*** *George Karbowski, Foothill Transit; Steven J. McCormick, TARDEC; Joey Peoples, Kidde Aerospace & Defense; J. Craig Voelkert, Amerex Corp.; Donald E. Warren, Safecraft;*

The papers in this session are available in a single publication, SP-2227, and also individually.

Planned by Fire Safety Committee / Automobile Body Activity

Monday, April 20

In-Vehicle Software (Part 1 of 2)

Session Code: AE24

Room D3-20/21 ***Session Time: 9:30 a.m.***

This session concentrates on the development of embedded software that resides in production vehicle electronic modules. With a focus on current technical, business, and legal issues relevant to the auto industry, this session covers all aspects of embedded software development including requirements, implementation, algorithms, modeling, and autocode generation. Expert speakers from the embedded software community are encouraged to share their experiences and opinions.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Chairpersons - *James Weinfurther, Ford Motor Co.; Peter Abowd, Altia; Ronald Brombach, Ford Motor Co.*

Time	Paper No.	Title

9:30 a.m.	***2009-01-0273***	***Implementation of Timers in Model-Based Design for Body Control Software Applications***
		Jinming Yang, Jason Bauman, Al Beydoun, Lear Corp.
10:00 a.m.	***2009-01-0269***	***Fixed-Point ECU Code Optimization and Verification with Model-Based Design***
		Thomas Erkkinen, The MathWorks Inc.
10:30 a.m.	***2009-01-0267***	***Automatic Checking of MISRA TargetLink and AUTOSAR Guidelines***
		Ingo Stuermer, Model Engineering Solutions; Stamat Stamatov, dSPACE Inc.; Ulrich Eisemann, dSPACE GmbH
11:00 a.m.	***2009-01-0264***	***Software Assessment Repository***
		Gary Rushton, General Motors Corp.; Peter Abowd, Altia
	2009-01-0270	***XMLing and Standardizing the Datasheet towards Autocode Generation (Written Only -- No Oral Presentation)***
		Uday Haleangadi Prabhu, Infosys Technologies, Ltd.

The papers in this session are available in a single publication, SP-2231, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

In-Vehicle Software (Part 2 of 2)

Session Code: ***AE24***

Room D3-20/21 ***Session Time:*** ***1:30 p.m.***

This session concentrates on the development of embedded software that resides in production vehicle electronic modules. With a focus on current technical, business, and legal issues relevant to the auto industry, this session covers all aspects of embedded software development including requirements, implementation, algorithms, modeling, and autocode generation. Expert speakers from the embedded software community are encouraged to share their experiences and opinions.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Chairpersons - *Ronald Brombach, Ford Motor Co.; Timothy Mortimer*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0268***	***Optimal Scheduling in Graphical Modeling Environments***
		Michael McMaster Burke, The MathWorks Inc.
2:30 p.m.	***2009-01-0266***	***Integration of Hardware-Specific Features of the Microcontroller into the Autosar Standard***
		Guangyu Wang, Infineon Technologies AG
3:00 p.m.	***2009-01-0262***	***Secure Feature Activation***
		Kai Michael Schramm, Marko Wolf, escrypt Inc.
3:30 p.m.	***2009-01-0272***	***Secure Software Flashing***
		Andre Weimerskirch, escrypt Inc.
4:00 p.m.	***2009-01-0271***	***A Verification and Validation Workflow for IEC 61508 Applications***
		Guido Sandmann, The MathWorks GmbH; Mirko Conrad, The MathWorks Inc.
	2009-01-0265	***Software Optimization Techniques in Automotive Applications (Written Only -- No Oral Presentation)***
		Guangyu Wang, Infineon Technologies AG

The papers in this session are available in a single publication, SP-2231, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

Castings Design

Session Code: ***M25***

Room D3-22/23 ***Session Time:*** ***9:30 a.m.***

An innovative, conceptual approach to the design of metal castings is emphasized throughout this seminar. Selection of an alloy and how it impacts the design boundaries of a casting are considered. The seminar also examines a systems approach to casting design. Communications between designer, patternmaker and casting producer are stressed throughout the seminar. The correlation between costing processes and the design of the casting is reviewed.

Organizers - *Kathryn M. Doherty, American Foundry Society; Thomas E. Prucha, Steve Robison, Alfred T. Spada, American Foundry Society Inc.*

Chairpersons - *Thomas E. Prucha, American Foundry Society Inc.*

Assistant Chairpersons - *Alfred Spada, American Foundry Society Inc*

Planned by Non-Ferrous Committee / Materials Engineering Activity

Monday, April 20

Casting Technology

Session Code: ***M2***

Room D3-22/23 ***Session Time:*** ***1:30 p.m.***

This session will focus on metalcasting applications in the transportation industry. Topics of interest include: Die Materials; nano particulates in aluminum alloys; applications for brake drums and rotors; inline-inspection of aluminum castings; multi-modality NDT; 3D-reconstruction and defect detection; vacuum die-casting; failure analysis; casting porosity in cylinder heads; lost foam; ATM high pressure die casting technology; and automatic 2D X-ray inspection of cast parts.

Organizers - *Kathryn M. Doherty, Steve Robison, American Foundry Society Inc.*

Chairpersons - *Thomas Prucha, American Foundry Society Inc*

Assistant Chairpersons - *Alan Druschitz, Univ of Alabama Birmingham*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0208***	***Toolox - Prehardened Tool Steels Aimed for Die-Casting Applications Enabling Faster Mould Manufacturing***
		Per Hansson, SSAB
2:00 p.m.	***2009-01-0209***	***Application of High Level Vacuum Die Casting for the Automotive Parts***
		Dongha Kang, Hyundai-Kia R&D Center
2:30 p.m.	***2009-01-0211***	***Vehicle Weight Reduction Opportunities Offered by the ATM High Pressure Die Casting Technology***
		Dayalan R. Gunasegaram, CSIRO Light Metals Flagship
3:00 p.m.	***2009-01-0215***	***Development of Thermal Fatigue Resistant Ferritic Cast Steel for Turbine Housing of Diesel Engine Automobile***
		Hiroyuki Takabayashi, Daido Steel Co., Ltd.
3:30 p.m.	***2009-01-0216***	***A Low-Cost Material Design of Gray Iron for Heavy Duty Brake Drums***
		YJ (Yanjun) Huang, Key Safety Systems Inc.
4:00 p.m.	***2009-01-0213***	***Advanced Lost Foam Casting Processes and Materials***
		Alan Druschitz, Harry Littleton, Univ. of Alabama Birmingham

4:30 p.m.	***2009-01-0212***	***Improvements in Detector Design for X-Ray Inspection of Cast Parts***
		Oliver Scholz, Peter Schmitt, Matthias Kube, Fraunhofer IIS; Norman Uhlmann, Fraunhofer EZRT; Rolf Behrendt, Fraunhofer IIS
	2009-01-0218	***Development and Property Evaluation of Aluminum-Alloy Reinforced with Nano-ZrO2 Metal Matrix Composites (NMMCs) for Automotive Applications (Written Only -- No Oral Presentation)***
		Joel Hemanth, Siddaganga Institute of Technology
	2009-01-0219	***Casting Porosity Elimination in CGI Cylinder Head (Written Only -- No Oral Presentation)***
		Ozgur Ozdemir, Ali Ebrinc, Bulent Unuvar, Ford Otosan A.S.

Planned by Ferrous Committee / Materials Engineering Activity

Monday, April 20

Advances in Instrument Panels and Interiors (Part 1 of 2)

Session Code: ***M10***

Room D3-24/25 ***Session Time:*** ***9:30 a.m.***

The session discusses new technology and industry insights in automotive interiors. Part one is comprised of technical papers in areas such as materials, perceived quality, environmental concerns, manufacturing, safety, and durability. Part two is an industry panel of senior engineering and design executives who will discuss challenges of developing a global interior, such as consumer styling preferences, vehicle performance requirements, material selection, and supply base availability.

Organizers - *Robert G. Egbers, Chisso-Comusa LLC. ; Norm Kakarala, Stephen M. Pitrof, Inteva LLC; Michael R. Shoemaker, Dow Automotive; Ravi S. Thyagarajan, Visteon Corp.; Jeffrey P. Webb, Ford Motor Co., Ltd.*

Chairpersons - *Robert Egbers, Chisso-Comusa LLC.*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0017***	***Determining Perceptual Characteristics of Automotive Interior Materials***
		Vivek D. Bhise, Univ. of Michigan; Pankaj Mallick, Univ of Michigan-Dearborn; Vishnuvardhan Sarma
10:00 a.m.	***2009-01-0019***	***Development of bio-based plastics for injection molding***
		Terufumi Takayama, Kentaro Komabayashi, Masafumi Itou, Yuichi Miyake, Toyota Motor Corporation
10:30 a.m.	***2009-01-0018***	***Tufted PET Automotive Carpet - Next Generation Flooring System***
		Duane Michael Juriga, Futuris Automotive Interiors
11:00 a.m.	***ORAL ONLY***	***Material Characterization of Long Glass-fiber Composites for Automotive Semi-Structural Applications***
		Matthew D. Marks, SABIC Innovative Plastics; Warden Schijve, DSM Research; Manish Chaturvedi, SABIC Innovative Plastics
11:30 a.m.	***2009-01-0021***	***Volatile Organic Compound (VOC) Reduction within the Interior Cabin***
		Jessica Alessandro, Tetsuya Oda, Honda R&D Americas Inc
	2009-01-0020	***The Absorption Technique for Road Noise Reduction - Reduction of the Particle Velocity by the Trims (Written Only -- No Oral Presentation)***
		Naoko Yorozu, Mazda Corporation

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Monday, April 20

Challenges in Globalizing the Automotive Interior (Part 2 of 2)

Session Code: ***M10***

Room D3-24/25 ***Session Time:*** ***1:30 p.m.***

The session discusses new technology and industry insights in automotive interiors. Part one is comprised of technical papers in areas such as materials, perceived quality, environmental concerns, manufacturing, safety, and durability. Part two is an industry panel of senior engineering and design executives who will discuss challenges of developing a global interior, such as consumer styling preferences, vehicle performance requirements, material selection, and supply base availability.

Organizers - *Robert G. Egbers, Comusa; Norm Kakarala, Stephen M. Pitrof, Inteva LLC; Michael R. Shoemaker, Dow Automotive; Ravi S. Thyagarajan, Visteon Corp.; Jeffrey P. Webb, Ford Motor Co., Ltd.*

Chairpersons - *Stephen Pitrof, Inteva LLC*

Moderators - *Stephen Pitrof, Inteva LLC*

Time	Paper No.	Title
1:30 p.m.	***Panel***	***Challenges of the Global Interior***
		Panelists - *James N. Lyijynen, Chrysler; Peter Montero, Hyundai Kia America Technical Center; Robert J. Reuter, General Motors Corp.; Michael Tsay, Honda R&D Americas Inc.; Mike Whitens, Ford Motor Co.;*

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Monday, April 20

Welding and Joining and Fastening (Part 1 of 3)

Session Code: ***M16***

Room D3-26/27 ***Session Time:*** ***9:30 a.m.***

This session provides a unique opportunity to learn about the latest developments in welding and fastening for automotive manufacturing. Topics will include new strategies for welding/joining, dissimilar material joining, application of traditional welding processes to new materials, and the mechanical behavior of joints and welded components.

Organizers - *Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Michael L. Santella, Oak Ridge National Laboratory; Tau Tyan, Ford Motor Co.; Shicheng Zhang, Daimler AG*

Chairpersons - *Tau Tyan, Ford Motor Co; Sheng-Dong Liu, Generalety LLC*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0026***	***A Theoretical Model for the Elastic-plastic Behaviour of Spot Welded Joints***
		Francesco Vivio, Pierluigi Fanelli, Univ. di Roma Tor Vergata
10:00 a.m.	***2009-01-0032***	***Dynamic Failure of Resistance Spot Welds***
		Yuh J. Chao, Yil kim, Univ. of South Carolina; Zhili Feng, Srdjan Simunovic, Oak Ridge National Laboratory; Kangping Wang, GM Engineering Center; Min Kuo, Mittal Steel USA Inc
10:30 a.m.	***2009-01-0029***	***Effects of Specimen Width and Specimen Length on Stress Intensity Factor Solutions for Spot Welds in U-Shape Specimens***
		Pai-Chen Lin, National Chung Cheng Univ.; Dung-an Wang, National Chung Hsing Univ.

11:00 a.m.	***2009-01-0028***	***Fatigue Behavior of Laser Welds in Lap-Shear Specimens of High Strength Steels***
		Kulthida Sripichai, Wonho Jo, Univ of Michigan-Ann Arbor
11:30 a.m.	***2009-01-0025***	***Modelling of Riveted Joints with a New Rivet Element***
		Francesco Vivio, Michele Ferracci, Univ. di Roma Tor Vergata

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 20

Welding and Joining and Fastening (Part 2 of 3)

Session Code: ***M16***

Room D3-26/27 ***Session Time:*** ***1:30 p.m.***

This session provides a unique opportunity to learn about the latest developments in welding and fastening for automotive manufacturing. Topics will include new strategies for welding/joining, dissimilar material joining, application of traditional welding processes to new materials, and the mechanical behavior of joints and welded components.

Organizers - *Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Michael L. Santella, Oak Ridge National Laboratory; Tau Tyan, Ford Motor Co.; Shicheng Zhang, Daimler AG*

Chairpersons - *Jwo Pan, Univ of Michigan-Ann Arbor; Sheng-Dong Liu, Generalety LLC*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0024***	***Fatigue of Spot Friction Welded Joints of Mg-Mg, Al-Al and Mg-Al Alloys***
		Pankaj Mallick, Univ of Michigan-Dearborn; Lavish Agarwal, Emergent Systems
2:00 p.m.	***2009-01-0036***	***Fatigue Behavior of Dissimilar Spot Friction Welds Between Aluminum and Steel Sheets in Lap-Shear Specimens***
		Van-Xuan Tran; Jwo Pan, Univ of Michigan-Ann Arbor; Toshiyuki Gendo, Koujirou Tanaka, T. Ezaki, Mazda Motor Corp
2:30 p.m.	***2009-01-0033***	***FricRiveting: A New Technique for Joining Polymer-Metal Hybrid Structures***
		Sergio T. Amancio-Filho, Jorge F. Dos Santos, GKSS Forschungszentrum
3:00 p.m.	***2009-01-0031***	***Friction Bit Joining of Dissimilar Material Combinations of High Strength Steel DP 980 and Al Alloy AA 5754***
		Michael Miles, BYU; Zhili Feng, Oak Ridge National Laboratory
3:30 p.m.	***2009-01-0023***	***Friction Stir Spot Welding for Structural Aluminum Sheets***
		Tsung-Yu Pan, Consultant; Michael Santella, Oak Ridge National Laboratory; Nicholas Blundell, Warwick Manufacturing Group

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 20

Steering and Suspension Technology Symposium: (Part 1 of 2) Steering

Session Code: ***AC2***

Room D3-28 ***Session Time:*** ***9:30 a.m.***

Organizers - *Paul K. Webber, TRW Steering & Suspension Systems*

Chairpersons - *Paul O. Davis*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0044***	***A Control Method Utilizing EPS to Reduce Steering Pull When Driving on Rutted Roads***
		Kyohei Koyama, Takanori Matsunaga, Mitsubishi Electric Corp.
10:30 a.m.	***2009-01-0046***	***Magneto-Rheological Coupling Based Hydraulic Power Steering: Low-cost Solution for Fuel Economy Improvement***
		Balarama Murty, Suresh Gopalakrishnan, Chandra Namuduri, Ken Shoemaker, Steve Opiteck, Bradley Bezzina, General Motors Corp.
11:00 a.m.	***2009-01-0048***	***Artificial Steering Feel***
		Daniel Williams, Kenneth Sherwin, TRW Commercial Steering Systems
11:30 a.m.	***2009-01-0050***	***Measurement of Open and Closed Loop Frequency Response of Belt Drive Electric Steering System in Rolling Vehicles***
		Kevin McLaughlin, Roger Lahoud, TRW Automotive US LLC; Miguel Bahena, Ford Motor Co.
	2009-01-0045	***An Online Estimation Method of Stability Factor of A Vehicle for Steering (Written Only -- No Oral Presentation)***
		Hiroaki Kitano, Masahiko Kurishige, Takanori Matsunaga, Mitsubishi Electric Corp.
	2009-01-0049	***A New Electrical Power Steering Control to Compensate The Frequency Response of Steering Torque from The Vehicle Dynamics (Written Only -- No Oral Presentation)***
		Ippei Yamazaki, Toyota Motor Corp.

Planned by Steering and Suspension Committee / Automobile Chassis Activity

Monday, April 20

Steering and Suspension Technology Symposium: (Part 2 of 2) Suspensions

Session Code: ***AC2***

Room D3-28 ***Session Time:*** ***1:30 p.m.***

The Suspension session invites papers about the practical application of analysis and technology to suspensions. Papers include new concepts, improving existing concepts and suspensions being manufactured. Papers about computer algorithms must demonstrate use of the algorithm on actual suspension hardware.

Organizers - *Paul O. Davis; Robert J. Ackley, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0224***	***The Development of Multi-link Suspension for Hyundai Genesis***
		Seon Pyung Kim, Jae Kil Lee, Hyundai & Kia Corp.; Young Ho Oh, Un Koo Lee, Hyundai Motor Co
2:30 p.m.	***2009-01-0220***	***On "VZN" Smart and Cheap Shock Absorber Concept***
		Adrian Ioan Niculescu, Dan DUMITRIU, Tudor SIRETEANU, Institute of Solid Mechanics
3:00 p.m.	***2009-01-0223***	***Analysis of Dynamic Behavior of Twin-Tube Vehicle Shock Absorbers***
		Alexander Kruse, Mathias Eickhoff, Andreas Tischer, ZF SACHS AG

3:30 p.m.	***2009-01-0226***	***Setup of a 1D Model for Simulating Dynamic Behaviour of Motorcycle Forks***
		Stefania Falfari, Federico Brusiani, Giulio Cazzoli, Universita di Bologna
4:00 p.m.	***2009-01-0222***	***High Efficiency 2 Channel Active Roll Control System***
		Edmund F. Gaffney III, General Motors Corp; Jonathan T. Nicols, Pratt & Miller Engineering; James C. Keane, ArvinMeritor, Inc.
4:30 p.m.	***2009-01-0225***	***Compliant Link Suspension***
		John C. Ziegert, Beshahwired Ayalew, Clemson Univ.; Andreas Obieglo, BMW Group; Vincent Lee, Souharda Raghavendra, Clemson Univ.
	2009-01-0221	***Elastokinematic Analysis of Compound Crank Axle Suspensions (Written Only -- No Oral Presentation)***
		Francesco Frendo, Emilio Vitale, University of Pisa (Italy)
	2009-01-0227	***Permanent-magnet DC Motor Actuators Application in Automotive Energy-regenerative Active Suspensions (Written Only -- No Oral Presentation)***
		Yongchao Zhang, Fan Yu, Kun Huang, Shanghai Jiao Tong Univ.

Planned by Steering and Suspension Committee / Automobile Chassis Activity

Monday, April 20

Control and Optimization in Hybrid Powertrains (Part 1 of 2)

Session Code: ***PFL302***

Room M2-29 ***Session Time:*** ***9:30 a.m.***

Papers in this session examine controls and optimization for production and new concept hybrid powertrains. Additional papers examine system integration issues for hybrid components.

Organizers - *Mrdjan Jankovic, Ford Motor Co.; Ron Stence, Freescale Semiconductor; Junmin Wang, Ohio State Univ.*

Chairpersons - *Mrdjan Jankovic, Ford Motor Co*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0143***	***Application of Model-Based Design for the control development and optimization of a hybrid-electric vehicle***
		Kerem Koprubasi, General Motors Corporation; Pinak Tulpule, Andrea Pezzini, Shawn Midlam-Mohler, Giorgio Rizzoni, Yann Guezennec, Ohio State Univ
10:00 a.m.	***2009-01-0145***	***Energy Management Strategies for Hybrid-pneumatic Engine Studied on an Markov Chain Type Generated Cycles***
		Andrej Ivanco, Yann Chamaillard, Alain Charlet, Pascal Higelin, Universite D'Orleans
10:30 a.m.	***2009-01-0146***	***Development of Model Predictive Controller for SOFC-IC Engine Hybrid System***
		Anita Chaudhari, Alexandros Plianos, Richard Stobart, Loughborough Univ.
11:00 a.m.	***2009-01-0147***	***Dual Drive Hybrid System Vehicle Model Development***
		Judy Che, Poyu Tsou, Mark Jennings, Lawrence Rose, Ford Motor Co.
11:30 a.m.	***2009-01-0148***	***Object Oriented Plant Models for HEV Controller Development***
		Leonardo Poeti, James Marco, Nicholas Vaughan, Cranfield University, UK

12:00 p.m.	***2009-01-0144***	***Automated Manual Transmission Shift Strategy for Parallel Hybrid Electric Vehicle (Written Only -- No Oral Presentation)***
		Weihua Wang, Jilin Univ.; Qingnian Wang, Jilin University

The papers in this session are available in a single publication, SP-2247, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Control and Optimization in Hybrid Powertrains (Part 2 of 2)

Session Code: ***PFL302***

Room M2-29 ***Session Time:*** ***1:30 p.m.***

Papers in this session examine controls and optimization for production and new concept hybrid powertrains. Additional papers examine system integration issues for hybrid components.

Organizers - *Mrdjan Jankovic, Ford Motor Co.; Ron Stence, Freescale Semiconductor; Junmin Wang, Ohio State Univ.*

Chairpersons - *Mrdjan Jankovic, Ford Motor Co*

Assistant Chairpersons - *Junmin Wang, Ohio State Univ*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0228***	***Transient Control Strategy of Hybrid Electric Vehicle during Mode Change***
		Sangjoon Kim, Joonyoung Park, Jeongho Hong, Myungwon Lee, Hyunsung Sim, Hyundai Motor Co.
2:00 p.m.	***2009-01-0231***	***Control System Development for the Dual Drive Hybrid System***
		Anthony M. Phillips, Ryan McGee, John Lockwood, Raymond Spiteri, Judy Che, John Blankenship, Ming Kuang, Ford Motor Co.
	2009-01-0232	***Modeling and Optimization of Vehicle Acceleration and Fuel Economy Performance with Uncertainty Based on Modelica (Written Only -- No Oral Presentation)***
		wei chen; hongyan chen, Yunqing Zhang, gang qin, Huazhong University of Science and Tech.

The papers in this session are available in a single publication, SP-2247, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Calibration Optimization

Session Code: ***PFL300***

Room M2-29 ***Session Time:*** ***3:00 p.m.***

Engines are equipped with an ever increasing number of actuators, allowing parameters once fixed by engine hardware design to be varied based on vehicle operating conditions. New actuators offer better tradeoffs of performance, fuel economy, and emissions control, but at the cost of greater system complexity. Conventional methods of engine characterization, needed to schedule the actuators, result in an exponential increase of data collection. New methods are investigated in this session.

Organizers - *Peter J. Maloney, The MathWorks Inc.; Junmin Wang, Ohio State Univ.*

Time	***Paper No.***	***Title***

3:30 p.m.	***2009-01-0236***	***Analysis of US and EU Drive Styles to Improve Understanding of Market Usage and the Effects on OBD Monitor IUMPR***
		Ritchie Daniel, Thomas Brooks, David Pates, Mahle Powertrain Ltd.
4:00 p.m.	***2009-01-0238***	***Parameter Optimization of a Turbo Charged Direct Injection Flex Fuel SI Engine***
		Mark J. Christie, Nick Fortino, Ricardo Inc.; Hakan Yilmaz, Robert Bosch LLC
4:30 p.m.	***2009-01-0246***	***Objective Determination of Minimum Engine Mapping Requirements for Optimal SI DIVCP Engine Calibration***
		Peter J. Maloney, The MathWorks Inc.
	2009-01-0241	***Real-Time Engine Control Parameters Optimization Method for Small Diesel Engine by Multi Objective Genetic Algorithm (Written Only -- No Oral Presentation)***
		Atsushi Sakawaki, Hirotaka Kaji, Minoru Yamamoto, Shigeho Sakoda, Yamaha Motor Co., Ltd.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Combustion Sensing and Control (Part 1 of 2)

Session Code: ***PFL301***

Room M2-30 ***Session Time:*** ***9:30 a.m.***

The Combustion Sensing and Control session covers both spark and compression ignited engine combustion diagnostics and control developments related to combustion characteristics such as start of combustion, engine knock, heat release, etc. Diagnostics and control systems of engine combustion are among the software-related topics presented; and sensor and actuator designs are among the hardware-related topics presented.

Organizers - *David L. Hung, Visteon Corp.; Matti K. Vint, Ricardo Inc.; Guoming Zhu, Michigan State Univ.*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0234***	***The Influence of Gasoline - Ethanol Blends on Engine Torque Variation***
		Massimo Milani, Federica Franzoni, Davide Bottazzi, Luca Montorsi, University of Modena & Reggio Emilia
10:00 a.m.	***2009-01-0235***	***Peak Pressure Position Control of Four Cylinders through the Ion Current Method***
		Nicholas Rivara, Paul Dickinson, Andrew Shenton, Univ. of Liverpool
10:30 a.m.	***2009-01-0242***	***Application of the Time-frequency Selection of the Vibration Signal for Misfire Sensing in Diesel Engines***
		Jerzy Merkisz, Franciszek Tomaszewski, Grzegorz Szymanski, Marek Waligorski, Poznan Univ. of Technology
11:00 a.m.	***2009-01-0240***	***An Experimental Investigation on OBD II Techniques for Fuel Injection System Monitoring in a Common Rail Passenger Car Diesel Engine***
		Federico Millo, Carlo Ferraro, Paolo Ferrero Giacominetto, Politecnico di Torino; Francesco Cianflone, GM Powertrain Europe
11:30 a.m.	***2009-01-0239***	***High Speed H2O Concentration Measurements Using Absorption Spectroscopy to Monitor Exhaust Gas***
		Laura Ann Kranendonk, James Parks, Vitaly Prikhodko, William Partridge, Oak Ridge National Laboratory
12:00 p.m.	***2009-01-0237***	***Statistical Analysis of Indicating Parameters for Knock Detection Purposes***
		Enrico Corti, Claudio Forte, Univ. of Bologna

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Combustion Sensing and Control (Part 2 of 2)

Session Code: ***PFL301***

Room M2-30 ***Session Time:*** ***1:30 p.m.***

The Combustion Sensing and Control session covers both spark and compression ignited engine combustion diagnostics and control developments related to combustion characteristics such as start of combustion, engine knock, heat release, etc. Diagnostics and control systems of engine combustion are among the software-related topics presented; and sensor and actuator designs are among the hardware-related topics presented.

Organizers - *David L. Hung, Visteon Corp.; Matti K. Vint, Ricardo Inc.; Guoming Zhu, Michigan State Univ.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0243***	***A Method for Obtaining Optimum Fuel Economy Performance using Transient Combustion Measurements***
		Dennis Soltis, David Hollenbeck, Chrysler Corp.
2:00 p.m.	***2009-01-0244***	***Real-time IMEP Estimation for Torque-based Engine Control using an In-cylinder Pressure Sensor***
		Seungsuk Oh, Daekyung Kim, Junsoo Kim, Byounggul Oh, Kangyoon Lee, Myoungho Sunwoo, Hanyang University
2:30 p.m.	***2009-01-0245***	***Non-Intrusive Low Cost Cylinder Pressure Transducer for Internal Combustion Engine Monitoring and Control***
		Michael J. Andrie, Univ. of Wisconsin

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Variable Valve Actuation

Session Code: ***PFL307***

Room M2-30 ***Session Time:*** ***3:30 p.m.***

Variable Valve Actuation mechanisms, devices, and systems; and the impact and control of such systems on thermodynamics, combustion, fuel economy, emissions, and performance

Organizers - *Timothy Kunz, Delphi; Ronald Pierik, GM Powertrain*

Time	Paper No.	Title
3:30 p.m.	***2009-01-0230***	***Comparison of Control Strategies of an Electro Hydraulic Valve Actuation System***
		Mika Herranen, Tapio Virvalo, Kalevi Huhtala, Matti Vilenius, Tampere Univ. of Technology; Gosta Liljenfeldt, Wartsila Finland Oy
4:00 p.m.	***2009-01-0229***	***Simulation and Test Results for Several Variable-Valve-Actuation Mechanisms***
		Burak Gecim, Madhu Raghavan, GM R&D Center

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Occupant Protection: Safety Test Methodology (Part 1 of 2)

Session Code: ***B38*** ***9:30 a.m.***

Room M3-31 ***Session Time:***

This session presents papers in advancement of testing of automotive safety-related technologies, covering topics that deal with (1) interior head impact, (2) angular rate sensor evaluation and applications to dummy head motion and rollover, (3) test fixture for combined load testing (4) rear impact analysis including front seat performance and influence seating position of dummy response, and (5) special subjects such as motorcyclist brain injury and methodology in calculating neck loading.

Organizers - *Clifford C. Chou; P. Michael Miller, MGA Research Corp.*

Chairpersons - *P. Michael Miller, MGA Research Corp.; Robert W. McCoy, Ford Motor Co.*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0052***	***Energy Dissipation Test : Effect of After Market Interior Fitments on Deceleration Values and Sharp Edges in Passenger Cars*** *Ratnadeep Dewan, Mukesh Sharma, Maruti Suzuki India Limited*
10:00 a.m.	***2009-01-0053***	***Implementation of Interior Fitting Regulation (ECE R21) in India: Common Failures and Countermeasures in Instrument Panel Development*** *Rachit Pandey, Mukesh Sharma, Piyush Manocha, Maruti Suzuki India Limited*
10:30 a.m.	***2009-01-0054***	***Crash Test Data Acquisition - a Review of Requirements, Technologies and Standards*** *Steve Moss, Michael Beckage, DTS Diversified Technical Systems*
11:00 a.m.	***2009-01-0055***	***Using Trial-Axial Angular Rate Sensor and Accelerometer to Determine Spatial Orientation and Position in Impact Tests*** *Jianping Wu, Yibing Shi, Jian Kang, Guy Nusholtz, Chrysler LLC*
11:30 a.m.	***2009-01-0056***	***Motion Tracking in Crash Test Applications with Inertial Measurement Units*** *Kai Schoenebeck, Joachim Melbert, Ruhr-Universitaet Bochum; Florian Weiser, Volkswagen AG*

Planned by Occupant Protection Committee / Automobile Body Activity

Monday, April 20

Occupant Protection: Safety Test Methodology (Part 2 of 2)

Session Code: ***B38***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

This session presents papers in advancement of testing of automotive safety-related technologies, covering topics that deal with (1) interior head impact, (2) angular rate sensor evaluation and applications to dummy head motion and rollover, (3) test fixture for combined load testing (4) rear impact analysis including front seat performance and influence seating position of dummy response, and (5) special subjects such as motorcyclist brain injury and methodology in calculating neck loading.

Organizers - *Clifford C. Chou; P. Michael Miller, MGA Research Corp.*

Chairpersons - *P. Michael Miller, Helen A. Kaleto, MGA Research Corp.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0248***	***Likelihood of Serious Brain Injury Following Motorcycle Accidents: A Comparison of Novelty and DOT-Approved Helmets*** *Irving Scher, Erin Harley PhD, Reed Thomas, Darrin Richards, Exponent Failure Analysis*

2:00 p.m.	***2009-01-0249***	***A New Device for Multi-Axial Tissue Testing: Application to Combined Bending, Compression and Shear Loading of the Spine***
		Aditya Belwadi, King Yang, Wayne State University; Joseph Mazur, Edward Burley, BGM Engineering
2:30 p.m.	***2009-01-0250***	***Influence of Seating Position on Dummy Responses with ABTS Seats in Severe Rear Impacts***
		David C. Viano, Chantal S Parenteau, ProBiomechanics LLC; Roger A Burnett, Ford Motor Company; Michael B James, Collision Safety Engineering LC
3:00 p.m.	***2009-01-0251***	***Validation and Application of a Methodology to Calculate Head Accelerations and Neck Loading in Soccer Ball Impacts***
		James Funk, Joseph Cormier, Charles Bain, Herbert Guzman, Enrique Bonugli, Biodynamic Research Corp
3:30 p.m.	***2009-01-0252***	***Front Seat Performance in Rear Impacts: Effect on 1st and 2nd Row Occupant Injury***
		David C Viano, Chantal S Parenteau, ProBiomechanics LLC

Planned by Occupant Protection Committee / Automobile Body Activity

Monday, April 20

Automotive Lighting Technology (Part 1 of 3)

Session Code: ***B20***

Room M3-32 ***Session Time:*** ***9:30 a.m.***

The light emitting diode technologies have been drawn great attention in almost all lighting applications. In the automotive industry, not only visible light emitting diodes, but IR LED and laser applications are now been integrated into vehicle systems for safety including drivers visibility, occupants and pedestrians detection. In expanding LED lighting applications, the corresponding standards and regulations have been widely discussed in lighting industry.

Organizers - *Jianzhong Jiao, Osram Opto Semiconductors Inc.*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0057***	***Energy Efficiency of Car Lighting Systems***
		Michael Kleinkes, Hella KGaA Hueck & Co.; Detlef Decker, Hella KGaA Hueck & Co
10:00 a.m.	***2009-01-0058***	***Green Lighting: Analysing the Potential for Reduction of CO2-Emissions in Full LED Headlamps***
		Michael Hamm, Automotive Lighting
10:30 a.m.	***2009-01-0059***	***LEDs: Lighting Solutions to Reduce Vehicle Power Consumption***
		Benoit Reiss, Pierre Albou, Valeo Lighting Systems
11:00 a.m.	***2009-01-0061***	***LED Lamps: Issues in Testing and Standards***
		Newel L. Stephens, Grote Industries LLC
11:30 a.m.	~~***2009-01-0062***~~	***Update on LED Headlighting Sources***
	ORAL ONLY	*Josef Schug, Philips Automotive Lighting*
	2009-01-0060	***Thermal Consideration of LED Array for Rear Lamp by Simulation and Measurement (Written Only -- No Oral Presentation)***
		Kazushige Kikuchi, Ichikoh Industries, Ltd.; Yuya Iida, Ichikoh Industries Ltd

The papers in this session are available in a single publication, SP-2223, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Monday, April 20

Automotive Lighting Technology (Part 2 of 3)

Session Code: ***B20***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

Improving drivers' visibility which leads to road safety has been the essential objective for the automotive lighting. The new light sources such as HID and LED are the major contributors for this objective. The on-going researches and studies have provided useful information for the benefits of these new light sources to manufacturers as well as consumers.

Organizers - *Jianzhong Jiao, Osram Opto Semiconductors Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0254***	***Solid State Infrared Light Sources for Active Safety Applications***
		Sevugan Nagappan, Rolf Weber, Osram Opto Semiconductors Inc.
2:00 p.m.	***2009-01-0253***	***Future Lighting Technology: Improved Safety Features versus Consumer Expectations***
		Rainer Neumann, Visteon Deutschland GmbH
2:30 p.m.	***ORAL ONLY***	***The Next Generation of Automotive HID Bulbs***
		Norbert Lesch, Philips Automotive Lighting

Planned by Human Factors Committee / Automobile Body Activity

Monday, April 20

Panel Discussion - Technical Judgments and Cost-Benefit Trade-Offs when Collecting and Using Limited Information for Design Under Uncertainty

Session Code: ***IDM30***

Room O2-33 ***Session Time:*** ***9:30 a.m.***

This panel focuses on Technical Judgments and Cost-Benefit Trade-Offs when Collecting and Using Limited Information for Design Under Uncertainty.
Topic to be discussed:
-Statistical testing for Validation
-Stochastic Modeling
-Building response surface models
-Updating stochastic models based on evidence
-Effect on limited data on stochastic models
-Cost function selection
-Setting boundaries between interacting stochastic subsystems
-Framework for engineering decisions

Organizers - *Dan Ghiocel, GP Technologies Inc; Efstratios Nikolaidis, Univ of Toledo*

Moderators - *Dan M. Ghiocel, GP Technologies Inc.; Efstratios Nikolaidis, Univ. of Toledo*

Panelists - *Dan M. Ghiocel, GP Technologies Inc.; David J. Gorsich, US Army RDECOM; Roger Logan; Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo;*

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Monday, April 20

Diesel Fuel Injection and Sprays (Part 1 of 3)

Session Code: ***PFL204***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

This session is devoted to experimental and computational work in the area of diesel fuel injection systems and sprays. Topics include: Spray characterization, cavitation, multiphase jet modeling, CFD models for spray processes, wall films and impingement, hydraulic circuit analysis, and dissolved gas effects.

Organizers - *Tarek M. Abdel-Salam, East Carolina University; Essam M. El-Hannouny, Argonne National Laboratory; Zhengbai Liu, Navistar Inc.; Gerald Micklow, East Carolina University*

Time	Paper No.	Title
1:30 p.m.	2009-01-0832	**The Influence of Variable Fuel Properties in High-Pressure Diesel Injectors** *Emmanouil Giannadakis, Manolis Gavaises, City University, London; Andreas Theodorakakos, Fluid Research Co, Athens*
2:00 p.m.	2009-01-0833	**LES Predictions of Vortical Flow Structures in Diesel Injector Nozzles** *Emmanouil Giannadakis, City University, London; Andreas Theodorakakos, Andreas Papoutsakis, Fluid Research Co.; Manolis Gavaises, City University, London*
2:30 p.m.	2009-01-0854	**Characteristics of Evaporating Diesel Spray: A comparison of laser measurements and empirical/theoretical predictions** *Jian Gao, Univ. of Wisconsin; Keiya Nishida, Seoksu Moon, Yuhei Matsumoto, Univ of Hiroshima*
3:00 p.m.	2009-01-0835	**Spray Modeling for Diesel engine performance analysis** *Fulvio Palmieri, Roma Tre University*
3:30 p.m.	2009-01-0837	**Coking Phenomena in Nozzle Orifices of DI Diesel Engines** *Jens Tang, Stefan Pischinger, Institute for Combustion Engines; Dean Tomazic, FEV Inc; Matthias Lamping, Thomas K., FEV Motorentechnik GmbH; Marek Tatur, FEV Inc*
4:00 p.m.	2009-01-0838	**Development and Validation of a Primary breakup model for Diesel Engine Applications** *Sibendu Som, Anita Ramirez, Suresh Aggarwal, Univ. of Illinois at Chicago; Alan Kastengren, Essam El-Hannouny, Douglas Longman, Christopher Powell, Argonne National Lab.; Peter Senecal, Convergent Science Inc.*
	2009-01-0834	**Effects of Fuel properties on Diesel spray behavior under high temperature and high pressure conditions (Written Only -- No Oral Presentation)** *Hiroshi Matsuoka, Hayato Yamashita, Nippon Soken Inc.; Koji Kitano, Toyota Motor Corp.*
	2009-01-0855	**An Experimental Investigation of Combustion and Soot Formation of Sprays from Cluster Nozzles for D.I. Diesel Engines (Written Only -- No Oral Presentation)** *Peter Hottenbach, Gerd Grunefeld, Thorsten Brands, Aachen Univ.*

The papers in this session are available in a single publication, SP-2240, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Nanotechnology for Automotive Applications: Nano-Composites (Part 1 of 3)

Session Code: ***M26***

Room O2-35/36 ***Session Time:*** ***9:30 a.m.***

Nano composite deals with application of nano materials for automotive applications. Effect of nano-composite on mechanical and chemical properties of light-metals such as Magnesium will be reviewed. Science and technology of NanoSpray combustion for production of metal, and ceramic powders with their application in energy storage systems, automotive coatings and paints will be presented.

Organizers - *Ray Jahn, United Technologies Research Center; Gholdm-Abbas Nazri, General Motors Corp.; Minjuan Zhang, Toyota Technical Center USA Inc.*

Chairpersons - *Minjuan Zhang, Toyota Technical Center USA Inc.*

Assistant Chairpersons - *Ray Jahn, United Technologies Research Center; Gholdm-Abbas Nazri, General*

Motors Corp.

Time	Paper No.	Title
9:30 a.m.	***ORAL ONLY***	***Review of Magnesium-Matrix Composites: Opportunities and Challenges***
		Bob R. Powell, General Motors Corp.; Anil Sachdev, GM Research Labs
10:00 a.m.	***ORAL ONLY***	***NanoEngineered Materials for Automotive Applications***
		Andrew T. Hunt, nGimat Co.
10:30 a.m.	***ORAL ONLY***	***Tailor-Made Nano Materials and Composites for Potential Automotive Applications***
		Toshihiko Tani, Toyota Research Institute of NA
11:00 a.m.	***ORAL ONLY***	***Nano-Particles: Development and Application in Automotive OEM Coatings***
		Karl Friedrich Doessel, Herberts GmbH
11:30 a.m.	***ORAL ONLY***	***Hierarchical Ultrastrong Materials and new Methods of Composite Design***
		Nicholas Kotov, Univ. of Michigan-Ann Arbor
	2009-01-0118	***Fabrication of Alumina Composite Microengine parts Using Softlithography (Written Only -- No Oral Presentation)***
		Hany S. Hassanin, Kyle Jiang PhD, Univ. of Birmingham

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 20

Nanotechnology for Automotive Applications: Nano Material for Engery (Part 2 of 3)

Session Code: ***M26***

Room O2-35/36 ***Session Time:*** ***1:30 p.m.***

Application of nano-materials in development of new generation of advanced batteries, fuel cells, and hydrogen storage systems will be reviewed. Synthesis of carbon/ceramic nanocomposites for fuel cell electrodes, semiconductor/ceramic nanocomposite for direct thermal energy conversion, and porous metals for hydrogen storage will be discussed. Application of nano-material for thermoelectric converter, and new concepts to improve efficiency of thermoelectric materials will be reviewed..

Organizers - *Ray Jahn, United Technologies Research Center; Gholdm-Abbas Nazri, General Motors Corp.; Minjuan Zhang, Toyota Technical Center USA Inc.*

Chairpersons - *Minjuan Zhang, Toyota Technical Center USA Inc.*

Assistant Chairpersons - *Ray Jahn, United Technologies Research Center; Gholdm-Abbas Nazri, General Motors Corp.*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***Plasmonic Effect as a Novel Characterization Tool for Nano-materials***
		Ricardo Aroca, Univ. of Windsor
2:00 p.m.	***ORAL ONLY***	***Novel approach for production of nano-materials for energy conversion devices***
		Gholdm-Abbas Nazri, General Motors Corp.
2:30 p.m.	***ORAL ONLY***	***Design and synthesis of nanostructured energy materials***
		Yunfeng Lu
3:00 p.m.	***ORAL ONLY***	***Thermoelectric Properties of LAST-m, Role of Nanostructures****
		S. D. Mahanti, Michigan State Univ.

3:30 p.m.	***ORAL ONLY***	***Nanostructured Thermoelectric Materials and Their Potential Applications***
		Gang Chen, Massachusetts Institute of Technology
4:00 p.m.	***ORAL ONLY***	***Segmented Thermoelectric Technology for Waste Heat Recovery***
		Jeff Sakamoto, MSU
4:30 p.m.	***ORAL ONLY***	***Charge Compensation Studied In situ on Novel Intercalation Materials using Synchrotron X-ray Techniques***
		Sanjeev Mukerjee
	2009-01-0120	***Inhibitory Effect of Increasing Milling Time on Anatase to Rutile phase Transformation of mecanochemically synthesized Titania Nanoparticles (Written Only -- No Oral Presentation)***
		Maryam Salari, Masih Rezaee, Pirooz Marashi, Amirkabir University of Technology

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 20

Advances in OEM Topcoat Testing

Session Code: ***M31***

Room O2-37 ***Session Time:*** ***9:30 a.m.***

This new coating session will address items critical to topcoat durability. Presentations will consist of both OEM practitioners and topcoat suppliers. Topics to be address include: Flaws in accelerated OEM topcoat testing, The Importance of Water in the Weathering of Automotive Coatings, Acid Etch Testing Improvements, and New Accelerated Weathering Testing.

Organizers - *Daniel G. Wright, BASF Corp.*

Chairpersons - *Daniel G. Wright, BASF Corp.*

Time	***Paper No.***	***Title***
9:30 a.m.	***ORAL ONLY***	***Acid Etch Testing Improvements***
		Jeffrey Quill
10:00 a.m.	***ORAL ONLY***	***Flaws in Accelerated OEM Topcoat Testing***
		Karen Henderson, Bayer Corp.
10:30 a.m.	***ORAL ONLY***	***The Importance of Water in the Weathering of Automotive Coatings***
		John Boisseau, BASF Corp.
11:00 a.m.	***ORAL ONLY***	***Considerations in Designing Accelerated Weathering Tests***
		Mark Nichols, Ford Motor Co.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Monday, April 20

Analysis, Improvement and Sustainability of Automotive Related Materials, Emissions and Serviceability

Session Code: ***SDP1***

Room O2-37 ***Session Time:*** ***1:30 p.m.***

This ½ day session will present and discuss a variety of issues and activities related to analysis, improvement and sustainability in the manufacturing, use and disposal of motor vehicles. Presentations and discussions are proposed to include green house gas issues, life cycle analysis, serviceability improvements and material recycling. Industry, academic and other experts and individuals will elaborate on their efforts and evaluations of these subjects.

Organizers - *Richard Paul, LKQ Best Automotive Corp.*

Chairpersons - *Richard Paul, LKQ Best Automotive Corp.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0317***	***Impact of Recycling Automotive Lightweighting Materials on Sustainability***
		Bassam J. Jody, Joseph A. Pomykala Jr., Jeffrey S. Spangenberger, Edward J. Daniels, Argonne National Laboratory
2:00 p.m.	***2009-01-1301***	***Presence and Photo-chemical Breakdown of BFRs in Vehicle***
		Jeff Gearhart, Ecology Center of Ann Arbor
2:30 p.m.	***2009-01-0313***	***New Reversible Air-conditioning Magnetocaloric System, Environmentally Friendly and Highly Energy Efficient***
		Christian Muller, Cooltech Applications
3:00 p.m.	***2009-01-0318***	***Technology for Environmental Harmonization and Future of the Diesel Engine***
		Kazutoshi Mori, Shinji Nakayama, Shigeru Matuo, Shiino Shiino, Toru Kawatani, Kazuhiro Nakashima, Yoshinaka Takeda PhD, Mitsubishi FUSO Truck & Bus Corp.
	2009-01-0320	***Study on End-of-Life Vehicle Recycling Management in the Countries Going through the Motorization Process - Taking China as an Example (Written Only -- No Oral Presentation)***
		Shu Han Hu
	2009-01-0321	***Life Cycle Assessment of Traffic Emission Reduce (Written Only -- No Oral Presentation)***
		Jie Tang

The papers in this session are available in a single publication, SP-2258, and also individually.

Planned by Sustainable Development Program Committee / Engineering Meetings Board

Monday, April 20

Sustainable GHG Emissions

Session Code: ***SDP2***

Room O2-37 ***Session Time:*** ***3:30 p.m.***

The World Business Council for Sustainable Development identified maintaining greenhouse gases at sustainable levels as one of their seven key challenges for the Mobility industry. The purpose of this session is to identify from a life cycle perspective what a sustainable level of greenhouse gas emissions could be and what engineering solutions can be brought to bear of this challenge.

Organizers - *Sujit Das, Oak Ridge National Laboratory*

Chairpersons - *Sujit Das, Oak Ridge National Laboratory*

Time	Paper No.	Title
3:30 p.m.	***2009-01-0319***	***What Alternative Drive-train Technologies and Policies are Needed to Meet a 50% CO2 Reduction Target? The Case of the EU-Fleet***
		Silvia Ulli-Beer, Paul Scherrer Institut

4:00 p.m.	***2009-01-0314***	***Fuel Economy: From Niche to Status-Quo Manufacturing***
		Abigail R. Mechtenberg, Univ. of Michigan

Planned by Sustainable Development Program Committee / Engineering Meetings Board

Monday, April 20

Fatigue Research and Applications (Part 1 of 2)

Session Code: ***M8***

Room O2-44 ***Session Time:*** ***9:30 a.m.***

This session covers recent fatigue research, analysis, analytical tools development, and novel applications of fatigue technology in the ground vehicle industry, including thermo-mechanical fatigue of powertrain components.

Organizers - *John J. Bonnen, Chin-Chan Chu, Ford Motor Co.; Carlos Engler, Ford Research; Jackie D. Rehkopf, Exponent Inc.*

Chairpersons - *Carlos Engler-Pinto, Ford Motor Company*

Time	***Paper No.***	***Title***
9:30 a.m.	***ORAL ONLY***	***Overview on Thermo-Mechanical Fatigue of Metals***
		H. Sehitoglu, Univ. of Illinois at Urbana-Champaign
10:00 a.m.	***2009-01-0078***	***Application of a Unified Plasticity Model for an Exhaust Manifold Material***
		Tony Quan, Suqiang Xu, Wescast Industries Inc; Clayton A. Sloss, Wescast Industries Inc.
10:30 a.m.	***2009-01-0079***	***Durability Investigation of Cast Iron Cap Inserts in an Aluminum Bedplate of a Turbocharged 2.2L In-Line-4 Gasoline Engine***
		Wan Rizaluddin Abdullah, Asmadi Mansor, PETRONAS Research
11:00 a.m.	***2009-01-0080***	***Fatigue life estimation of suspension components using statistical method***
		Yeonsang Yoo, Hyundai & Kia Corp.
11:30 a.m.	***2009-01-0082***	***Computation of fatigue safety factors for high-pressure die cast aluminium components taking into account the pore size distribution***
		Christian Oberwinkler, University of Leoben; Heinz Leitner; Wilfried Eichlseder

Planned by Ferrous Committee / Materials Engineering Activity

Monday, April 20

Fatigue Research and Applications (Part 2 of 2)

Session Code: ***M8***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

This session covers recent fatigue research, analysis, analytical tools development, and novel applications of fatigue technology in the ground vehicle industry, including thermo-mechanical fatigue of powertrain components.

Organizers - *John J. Bonnen, Chin-Chan Chu, Ford Motor Co.; Carlo Engler, Ford Research; Jackie D. Rehkopf, Exponent Inc.*

Chairpersons - *Chin-Chan Chu*

Time	***Paper No.***	***Title***

1:30 p.m.	***ORAL ONLY***	***Henry Fuch's Award Presentation: Variable Amplitude Fatigue Analysis Based On Crack Opening Stress Changes***
		Maria El Zeghayar, Univ. of Waterloo
2:00 p.m.	***2009-01-0258***	***Analysis of the Results of Strain Controlled Fatigue Testing of Glass Fiber Reinforced Polypropylene***
		Al Conle, Ford Motor Co.; Jackie Rehkopf, Exponent Inc
2:30 p.m.	***ORAL ONLY***	***Fatigue Life Prediction of Short Fiber Reinforced Plastic Components***
		Christian Gaier, Magna Powertrain
3:00 p.m.	***2009-01-0256***	***Fatigue Performance of Advanced High-Strength Steels (AHSS) GMAW Joints***
		Zhili Feng, Oak Ridge National Laboratory; Yan Sang, Chonghua Jiang, AET Integration Inc; John Chiang, Ford Motor Co; Min Kuo, Mittal Steel USA Inc
3:30 p.m.	***2009-01-0257***	***Durability of Advanced High Strength Steel Gas Metal Arc Welds***
		John J.F. Bonnen, Ford Motor Co; Raghuram Mandapati, Hong Tae Kang, Univ of Michigan-Dearborn; Kenneth Citrin, Mark Amaya, Chrysler LLC; A.K. Khosrovaneh, GM; Raj Mohan Iyengar, Severstal North America Inc.; Hua-Chu Shih, US Steel
4:00 p.m.	***2009-01-0259***	***Resource-conserving, Heat-resistant Ni-based Alloy for Exhaust Valves***
		Takashi Tsuyumu, Honda
4:30 p.m.	***2009-01-0260***	***Analysis of Degradation Mechanism of Lead-Free Materials***
		Takashi Nomura, Yasufumi Shibata, Mitsuru Sakano, Shigeru Konda, Toyota Motor Corporation
	2009-01-0261	***A Study on the Diesel Engine Crankshaft Fatigue Performance Optimization (Written Only -- No Oral Presentation)***
		Gul Cevik, Zafer Tuncali, Ertugrul Duran, FORD OTOSAN A.S.
	2009-01-1549	***Influence of Weld Process Parameters on the Geometric Variability of the Gas-Metal Arc Welds (Written Only -- No Oral Presentation)***
		Raj Mohan Iyengar, Severstal North America Inc.; J.J.F. Bonnen, Ford Motor Co.; E. Young, D. Maatz, M. Soter, RoMan Engineering Services; K. Citrin, M. Amaya, Chrysler LLC; A.K. Khosrovaneh, General Motors Corp.; T.M. Link, U.S. Steel; N. Schillaci, Arcelor-Mittal; H.-C. Shih, U.S. Steel

Planned by Ferrous Committee / Materials Engineering Activity

Monday, April 20

Body Engineering and Design (Part 1 of 2)

Session Code: ***B1***

Room O3-45 ***Session Time:*** ***9:30 a.m.***

This session features topics related to Body-in-White (BIW) and Components/Design. They are: conceptual design and manufacturing aspects of Superbus, door systems, wind-shield fluid system, interior components, NVH and durability, finite element analysis, materials, and ride quality. Along with dynamics, optimization, safety and crash worthiness of components and subsystems all by authors who are researchers and practicing engineers from both universities and industry.

Organizers - *Vesna Savic, GM Technical Center; Mallikarjuna Bennur, General Motors Corp.; Raghu Echempati, Kettering Univ.; Ramakrishna P. Koganti, Ford Motor Co.*

Time	***Paper No.***	***Title***

9:30 a.m.	***2008-01-2680***	***Buckendale Lecture: System Safety Applied to Vehicle Design (1 hour)***
	*****	*Peter L. Goddard, P.L. Goddard Associates, Inc.*
10:30 a.m.	***2009-01-0089***	***Realizing an "FCV Sedan Form" for a New Honda Fuel Cell Vehicle***
		Masaru Hasegawa, Yozo Takagi, Honda R&D Co., Ltd.
11:00 a.m.	***2009-01-0090***	***H-due: Electric-Hydrogen Powered Personal Mobility Concept Vehicle***
		Roberto Angiono, Autostudi Srl; Paolo Macri', Mauro Velardocchia, Paolo Maggiore, Politecnico di Torino

** Previously published and/or presented at the Commercial Vehicle Engineering Congress & Exhibition*

Planned by Body Engineering Committee / Automobile Body Activity

Monday, April 20

Body Engineering and Design (Part 2 of 2)

Session Code: ***B1***

Room O3-45 ***Session Time:*** ***1:30 p.m.***

This session features topics related to Body-in-White (BIW) and Components/Design. They are: conceptual design and manufacturing aspects of Superbus, door systems, wind-shield fluid system, interior components, NVH and durability, finite element analysis, materials, and ride quality. Along with dynamics, optimization, safety and crash worthiness of components and subsystems all by authors who are researchers and practicing engineers from both universities and industry.

Organizers - *Vesna Savic, GM Technical Center; Mallikarjuna Bennur, General Motors Corp.; Raghu Echempati, Kettering Univ.; Ramakrishna P. Koganti, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0085***	***Bending Performance of Advanced High Strength Steel Tubes***
		Ramakrishna P. Koganti, Stephen Kernosky, Sergio Angotti, Ford Motor Co.; Isadora van Riemsdijk, ArcelorMittal Dofasco Hamilton Inc.; Robert Nelson, ArcelorMittal Woodstock Inc.; Jill Smith, ArcelorMittal Dofasco Hamilton Inc.
2:00 p.m.	***2009-01-0083***	***Experimental Finite Elements***
		Moisey B. Shkolnikov
2:30 p.m.	***2009-01-0084***	***Prediction of Automotive Side Swing Door Closing Effort***
		Jing Li, Oakland Univ; Zissimos Mourelatos, Oakland Univ.; Frederick Schwarze, Joseph Rozenbaum, Chrysler LLC
3:00 p.m.	***2009-01-0088***	***Development of a 1000MPa HSS Center Pillar Structure for an SUV***
		Robert ZumMallen, Janine Odell, Brian O'Hara, Honda R&D Americas Inc.
3:30 p.m.	***2009-01-0087***	***A Study on Hood Durability Test (Opening and Closing Test)***
		Ho-Seong Moon, Won Wook Jung, Woo-Nyoung Choi, Hyundai Motor Co.
4:00 p.m.	***2009-01-0086***	***Design, Comfort and Safety of the Interiors of the Superbus***
		Antonia Terzi, TU Delft

Planned by Body Engineering Committee / Automobile Body Activity

Monday, April 20

Modeling of SI and Diesel Engines (Part 1 of 7) Engine Breathing, Boosting and NVH

Session Code: ***PFL210***

Room O3-46 ***Session Time:*** ***9:30 a.m.***

0-, 1- and Quasi-Dimensional Models for Engine Breathing and Turbocharging Simulation

Organizers - *Federico Millo, Politecnico di Torino; Thomas Morel, Gamma Technologies Inc.; Christof Schernus, FEV Motorentechnik GmbH*

Chairpersons - *Christof Schernus, FEV Motorentechnik GmbH*

Assistant Chairpersons - *Michael L. Briggs; Thomas J. Wanat, Gamma Technologies Inc.*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0306***	***Development , Implementation, and Validation of a Fuel Impingement Model for Direct Injected Fuels with High Enthalpy of Vaporization*** *Craig D. Marriott, Matthew Wiles, GM Powertrain; Brandon Toby Rouse, Michigan Technological Univ.*
10:00 a.m.	***2009-01-0304***	***On the Numerical Optimization of Acoustic and Brake Engine Performance*** *Enrico Mattarelli, Federico Tosetti, University of Modena & Reggio Emilia*
10:30 a.m.	***2009-01-0305***	***A Coupled 1D-multiD Nonlinear Simulation of I.C. Engine Silencers with Perforates and Sound-Absorbing Material*** *Gianluca Montenegro, Angelo Onorati, Politecnico di Milano*
11:00 a.m.	***2009-01-0302***	***The Effects of Intake Geometry on SI Engine Performance*** *Leonard Joseph Hamilton, Jacob Rozich, Jim Cowart, US Naval Academy*
11:30 a.m.	***2009-01-0309***	***Optimization of a Supercharged Single Cylinder Engine for a Formula SAE Racing Car*** *Enrico Mattarelli, Federico Perini, Carlo Alberto Rinaldini, University of Modena and Reggio Emilia*
12:00 p.m.	***2009-01-0311***	***Investigation of Radial Turbocharger Turbine Characteristics under Real Conditions*** *Jiri Vavra, Czech Technical Univ.; Jan Macek, Oldrich Vitek, Michal Takats, Czech Technical Univ*

The papers in this session are available in a single publication, SP-2244, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Modeling of SI and Diesel Engines (Part 2 of 7) Engine Breathing, Boosting and Boost Control

Session Code: ***PFL210***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

0-, 1- and Quasi-Dimensional Models for Engine Breathing and Turbocharging Simulation

Organizers - *Federico Millo, Politecnico di Torino; Thomas Morel, Gamma Technologies Inc.; Christof Schernus, FEV Motorentechnik GmbH*

Chairpersons - *Christof Schernus, FEV Motorentechnik GmbH*

Assistant Chairpersons - *Michael L. Briggs; Thomas J. Wanat, Gamma Technologies Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0303***	***Comparison of Lumped and Unsteady 1-D Models for Simulation of a Radial Turbine Performance*** *Jan Macek, Oldrich Vitek, Vit Dolecek, Czech Technical Univ.*

2:00 p.m.	***2009-01-0308***	***Unsteady 1D Simulation of a Turbocharger Compressor***
		Fabio Bozza, Alfredo Gimelli, Universita' di Napoli
2:30 p.m.	***2009-01-0307***	***Cliff Garrett Award Lecture - Turbomachinery Performance Modeling (1 hour)***
		David Japikse, Concepts NREC
3:30 p.m.	***2009-01-0310***	***Implementing Turbomachinery Physics into Data Map-Based Turbocharger Models***
		Guillaume Martin, Renault; Pascal Higelin, Christian Caillol, Institut PRISME; Vincent Talon, Renault
4:00 p.m.	***2009-01-0675***	***Modelling Turbocharged Spark-ignition Engines Towards Predictive Real Time Simulators***
		Louis-Marie Malbec, Fabrice Le Berr, Stephane Richard, Gregory Font, Antoine Albrecht, IFP
4:30 p.m.	***2009-01-0684***	***Control Oriented Modeling of Turbocharged (TC) Spark Ignition (SI) Engines***
		Rahul Sharma, Dragan Nesic, Chris Manzie, Univ. of Melbourne
5:00 p.m.	***2009-01-0680***	***Parameterization and Simulation for a Turbocharged Spark Ignition Direct Injection Engine with Variable Valve Timing***
		Li Jiang, Julien Vanier, Hakan Yilmaz, Robert Bosch LLC; Anna Stefanopoulou, Univ of Michigan

The papers in this session are available in a single publication, SP-2244, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Statistical Testing for Validation and Verification

Session Code: ***IDM30-1***

Room TBD ***Session Time:***

Monday, April 20

Stochastic Modeling (Random Variable vs. Random Process, Correlation vs. Independence, Gaussian vs. Non-Gaussian Models)

Session Code: ***IDM30-2***

Room TBD ***Session Time:***

Monday, April 20

Building Response Surface Models

Session Code: ***IDM30-3***

Room TBD ***Session Time:***

Monday, April 20

Updating Stochastic Models Based on Evidence

Session Code: ***IDM30-4***

Room TBD ***Session Time:***

Monday, April 20

Effect on Limited Data on Stochastic Models

Session Code: ***IDM30-5***

Room TBD ***Session Time:***

Monday, April 20

Cost Function Selection; Appropriate Metrics

Session Code: ***IDM30-6***

Room TBD ***Session Time:***

Monday, April 20

Scale of the Problem; Component vs. Subsystem vs. System

Session Code: ***IDM30-7***

Room TBD ***Session Time:***

Monday, April 20

Setting Boundaries Between Interacting Stochastic Subsystems

Session Code: ***IDM30-8***

Room TBD ***Session Time:***

Monday, April 20

Framework for Engineering Decisions; Details vs. Global Perspective; Accuracy vs. Big Picture

Session Code: ***IDM30-9***

Room TBD ***Session Time:***

Monday, April 20

Diesel Exhaust Emission Control - New Development (Part 1 of 2)

Session Code: ***PFL404*** ***9:30 a.m.***

Room W1-54 ***Session Time:***

The New Developments session presents the latest in new technology developments and issues related to emissions controls. In addition, the session starts each year with an extensive review of technology publications in the area of diesel emissions control presented by Dr. Tim Johnson of Corning Inc.

Organizers - *Owen H. Bailey, Umicore; Kevin F. Brown, Engine Control Systems; Dean Tomazic, FEV Inc.*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0121***	***Diesel Emission Control in Review*** *Timothy V. Johnson, Corning Inc.*
10:30 a.m.	***2009-01-0281***	***Biodiesel Effects on U.S. Light-Duty Tier 2 Engineering and Emission Control Systems - Part 2*** *Marek Tatur, Harsha Nanjundaswamy, Dean Tomazic, FEV Inc; Matthew Thornton, Robert McCormick, National Renewable Energy Laboratory*
11:00 a.m.	***2009-01-0278***	***Pollutants emission during mild catalytic DPF regeneration in light-duty vehicles*** *Debora Fino; Nunzio Russo; Giorgio Villata*
11:30 a.m.	***2009-01-0284***	***Testing of Combined DPF+SCR Systems for HD-retrofitting - VERTdePN*** *Jan Czerwinski, Yan Zimmerli, Univ. of Applied Sciences - Biel, CH; Andreas Mayer, TTM, CH; Norbert Heeb, EMPA, CH; Jacques Lemaire, AEEDA, B; Giovanni D'Urbano, FOEN, CH; Rainer Bunge, UMTEC, CH*

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Diesel Exhaust Emission Control - New Development (Part 2 of 2)

Session Code: ***PFL404***

Room W1-54 ***Session Time:*** ***1:30 p.m.***

The New Developments session presents the latest in new technology developments and issues related to emissions controls. In addition, the session starts each year with an extensive review of technology publications in the area of diesel emissions control presented by Dr. Tim Johnson of Corning Inc.

Organizers - *Owen H. Bailey, Umicore; Kevin F. Brown, Engine Control Systems; Dean Tomazic, FEV Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0274***	***Opportunities and Challenges for Blended 2-Way SCR/DPF Aftertreatment Technologies*** *Yongsheng He, GM R&D Center; David Brown, Shuguang Lu, Michael Paratore, Jianwen Li, General Motors Corp*
2:00 p.m.	***2009-01-0282***	***Advanced Catalyst Solutions for Hydrocarbon Emissions Control During Rich Operation of Lean NOx Trap Systems*** *Tamas Szailer, Neal Currier, Aleksey Yezerets, Cummins Inc; Bradlee Stroia, Cummins Engine Res & Dev; Hai-Ying Chen, Johnson Matthey Inc; Paul Millington, Johnson Matthey PLC; Howard Hess, Johnson Matthey Inc*
2:30 p.m.	***2009-01-0283***	***NOx Adsorber Catalysts with Improved Desulfation Properties and Enhanced Low-Temperature Activity*** *Hai-Ying Chen, Shadab Mulla, Mahesh Konduru, Julian Cox, Paul Andersen, Johnson Matthey Inc*

3:00 p.m.	***2009-01-0280***	***Highly Robust Diesel Oxidation Catalyst for Dual Mode Combustion System***
		Satoshi Sumiya, Hanako Oyamada, Johnson Matthey Japan Incorporated; Tetsuya Fujita, Isuzu Advanced Engineering Center Ltd; Keisuke Nakamura, Isuzu Advanced Engineering Center Ltd.; Kazuo Osumi, Yoshihisa Tashiro, Isuzu Advanced Engineering Center, Ltd.
3:30 p.m.	***2009-01-0286***	***Impact of Diesel Fuel Composition on Soot Oxidation Characteristics***
		Renate Uitz, Shell Global Solutions (Deutschland); Roger Cracknell, Shell Global Solutions UK; Harrie Jansma, Michiel Makkee, Delft Univ. of Technology
4:00 p.m.	***2009-01-0287***	***Multi-Functional Reactor for Emission Reduction of Future Diesel Engine Exhaust***
		Athanasios G. Konstandopoulos, CERTH/CPERI

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Diesel Exhaust Emission Control - HC-DeNOx

Session Code: ***PFL403***

Room W1-55 ***Session Time:*** ***10:30 a.m.***

This session focuses on NOx control technologies based around the conversion of NOx using hydrocarbon (HC) species. Presentations will cover systems based on NOx adsorber (NAC) and HC lean NOx catalysts, as well as combined HC SCR/NH3 SCR and NAC/NH3 SCR strategies. Methodologies to generate the most appropriate HC species and other species (eg H2) to maximize NOx reduction performance will also be presented.

Organizers - *Marcello Canova, Center For Automotive Research; Matthew J. Thornton, National Renewable Energy Laboratory; Andrew P. Walker, Johnson Matthey Inc.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2009-01-0275***	***Evaluation of Spatially Resolved Performance of NOx Adsorber Catalysts***
		Junhui Li, Cummins Inc.; Aleksey Yezerets, Neal Currier, Cummins Inc; Hai-Ying Chen, Howard Hess, Johnson Matthey Inc
11:00 a.m.	***2009-01-0285***	***Impact of a Cu-zeolite SCR Catalyst on the Performance of a Diesel LNT+SCR System***
		Lifeng Xu, Robert McCabe, William Ruona, Giovanni Cavataio, Ford Motor Co.
11:30 a.m.	***2009-01-0276***	***Hydrogen Rich Gas Production in a Diesel Partial Oxidation Reactor with HC Speciation***
		Simbarashe Sitshebo, Athanasios Tsolakis, Usama Elghawi, Kampanart Theinnoi, Miroslaw Wyszynski, Univ. of Birmingham; Roger Cracknell, Richard Clark, Shell Global Solutions UK
12:00 p.m.	***2009-01-0277***	***Dual SCR Aftertreatment for Lean NOx Reduction***
		Craig L. Dimaggio, Galen B. Fisher, Ken M. Rahmoeller, Mark Sellnau, Delphi Corp.

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Diesel Exhaust Emission Control Substrates

Session Code: ***PFL407***

Room W1-55 ***Session Time:*** ***1:30 p.m.***

Several papers discuss DPF substrate modifications to minimize pressure drop and maximize particle collection efficiency. One paper evaluates a non-destructive inspection technique to visualize ash distribution and thermal damage within the DPF substrate.

Organizers - *Kirby J. Baumgard, John Deere Power Systems; Thorsten Boger, Corning GmbH*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0289***	***Nondestructive X-ray Inspection of Thermal Damage, Soot and Ash Distributions in Diesel Particulate Filters*** *Charles Finney, Oak Ridge National Laboratory; Jan Zandhuis, 3D X-RAY (currently with Aptis Ltd.); Todd Toops, William Partridge, Charles Daw, Oak Ridge National Laboratory; Thomas Fox, X-Metrix Inc*
2:00 p.m.	***2009-01-0288***	***Improved DPF Substrate for Washcoat Accommodation*** *Damien Mey, Patricia Andy, Caroline Tardivat, Christophe Augier, Anthony Briot, Saint-Gobain CREE*
2:30 p.m.	***2009-01-0290***	***Analysis of Sophisticated DPNR Catalyst, Focused on PM Particle Number Emissions*** *Masamichi Kuwajima, Seiji Okawara, Masato Tsuzuki, Masaaki Yamaguchi, Shigehiro Matsuno, Toyota Motor Corporation*
3:00 p.m.	***2009-01-0292***	***Study on Next Generation Diesel Particulate Filter*** *Yasuyuki Furuta, Takashi Mizutani, Yukio Miyairi, Kazuya Yuuki, Hiroshi Kurachi, NGK Insulators Ltd*
3:30 p.m.	***2009-01-0291***	***Optimization Methodologies for DPF Substrate-Catalyst Combinations*** *Grigorios C. Koltsakis, Christos Dardiotis, Zissis Samaras, Aristotle University Thessaloniki; Toni Kinnunen, Teuvo Maunula, Ecocat Oy; Peter Lundorf, Notox A/S*

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Automobile Electronics and Systems Reliability

Session Code: ***AE22***

Room W2-61 ***Session Time:*** ***9:30 a.m.***

Meeting reliability, quality and safety requirements for electrical/electronic systems becomes more challenging every year as E/E content, complexity, time-to-market and globalization pressures increase. This session focuses on intelligent practices for achieving high reliability. New approaches and techniques for integrating robust design and robustness validation into the mainstream global automotive electronics product development and manufacturing processes are discussed.

Organizers - *Jack Stein, TCV Systems Corp.*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0293***	***Proposal of a DC Inputs-Direct Electric Power Converter D-EPC*** *Kantaro Yoshimoto, Shou Satou, Kengo Maikawa, Nissan Motor Co., Ltd.*
10:00 a.m.	***2009-01-0294***	***Avoiding Electrical Overstress for Automotive Semiconductors by New Connecting Concepts*** *Christoph Thienel, Robert Bosch GmbH*

10:30 a.m.	***2009-01-0295***	***Methodology of Accelerated Evaluation of Vehicle Body Control Module (BCM) Systems (Written Only -- No Oral Presentation)***
		Dayanand M.i Chougule, Sandeep Salunkhe, Tata Motors Ltd.
11:00 a.m.	***2009-01-0296***	***Failure Modes Investigation and Analysis of Electric Power Steering System with PMSM Drives***
		Chinchul Choi, Wootaik Lee, Changwon National Univ.; Seongjoo Kim, Ji-Yeol Kim, Mando Corp.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

In-Vehicle Networks

Session Code: ***AE1***

Room W2-61 ***Session Time:*** ***1:30 p.m.***

Technical papers and/or presentations offered in this session will portray the latest developments and proposals for In-Vehicle Networks. Typical subjects covered are: new protocols, gateways, vehicle control, message handling, X-by-wire, diagnostics, off-board connectivity and vehicle to vehicle or vehicle to infrastructure communications.

Organizers - *Richard D. Means, Mark P. Zachos, Dearborn Group Inc.*

Chairpersons - *Wolfhard Lawrenz, C & S Group GmbH*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***Interoperability - A Challenge to Complex Networked AUTOSAR Systems***
		Wolfhard Lawrenz, Nils Obermöller, Susanne Schwarzkopf, C & S Group GmbH
2:00 p.m.	***2009-01-0125***	***Single-Edge Nibble Transmission: Challenges and Evolutions***
		Laurent Beaurenaut, Hagen Platzdasch, Fritz Rasbornig, Michael Strasser, Ferdinand Gastinger, Christoph Eggimann, Infineon Technologies
2:30 p.m.	***2009-01-0126***	***Design and Performance Analysis of 10 Mbit/s CAN***
		Ryo Kurachi, Hiroaki Takada, Shigeharu Teshima, Nagoya Univ.; Yukihiro Miyashita, Autonetworks Technologies
3:00 p.m.	***ORAL ONLY***	***Vehicle Networks at the Crossroads - How to Cope with Worldwide Requirements?***
		Kyle W. Williams, Robert Bosch LLC
3:30 p.m.	***ORAL ONLY***	***Automotive Industry Use of Heavy-Duty Vehicle Networks and APIs***
		Kenneth DeGrant, Dearborn Group Inc.
4:00 p.m.	***2009-01-0122***	***Modelling of Network Communications Stack Software ROM, RAM and CPU Requirements***
		Christopher P. Quigley, Ross McMurran, Richard Peter Jones, Univ. of Warwick; Paul Faithfull, Rapicore, Ltd.
4:30 p.m.	***2009-01-0124***	***Control Performance Analysis of a CAN - Based Networked Control System: Active Suspension Study Case***
		R. A. Ramirez-Mendoza, A. Aguilar, R. Vargas, R. Morales-Menendez, J. Tager, Tecnologico de Monterrey
5:00 p.m.	***2009-01-0123***	***An Automotive Network Management Interoperable Solution***
		Ghada Bahig, Hesham Shokry, Mohamed Nassar, Sherif Aly Hammad, M. Watheq El-Kharashi, Mentor Graphics

The papers in this session are available in a single publication, SP-2231, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Monday, April 20

Advanced Hybrid Vehicle Powertrains - Hybrid Engine & Emissions, Thermo-Electric Conversion (Part 1 of 6)

Session Code: ***PFL100***

Room W2-63 ***Session Time:*** ***9:30 a.m.***

Hybrid Engine and Emissions, Thermo-Electric Conversion: Internal combustion engines are still the original source of all electric energy used by production hybrid electric vehicles as well as of all regulated emissions. This session looks at engine start/stop operation and emissions controls. Additionally, it includes research into attempts to capture and reuse engine waste heat as electricity.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Toyota Motor Engineering & Manufacturing; Mark A. Theobald, GM Powertrain*

Time	Paper No.	Title
9:30 a.m.	***2009-01-1340***	***Optimization and Comparison of Quick and Hybrid Start***
		Thomas Fesefeldt, Daimler AG; Soeren Mueller, TU Darmstadt
10:00 a.m.	***2009-01-1336***	***Stop-Start Micro Hybrid: An Estimation of Automatic Engine Stop Duration in Real World Usage***
		Aditya Dhand, Baekhyun Cho, Alastair Muncey, Alan Walker, AVL Powertrain UK Ltd.; Daniel Kok, Thomas Hochkirchen, Eckhard Karden, Ford Motor Company
10:30 a.m.	***2009-01-1327***	***Thermoelectric Exhaust Heat Recovery for Hybrid Vehicles***
		Quazi Hussain, Clay Maranville, David Brigham, Ford Motor Co.
11:00 a.m.	***2009-01-1333***	***The Potential for Thermo-electric Regeneration of Energy in Vehicles***
		Richard K. Stobart, Loughborough Univ.
11:30 a.m.	***2009-01-1305***	***Strategies for Reducing NOX- And Particulate Matter Emissions in Diesel Hybrid Electric Vehicles***
		Nils Lindenkamp, Claude-Pascal Stoeber-Schmidt, Peter Eilts, Technische Universitat Braunschweig
12:00 p.m.	***2009-01-1325***	***Characteristics of Three-way Catalyst during Quickly Start-up Process in a PFI Engine for HEV Application***
		Liguang Li, Shui Yu, Guangyu Dong, Tongji Univ.

The papers in this session are available in a single publication, SP-2235, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Advanced Hybrid Vehicle Powertrains- Pneumatic and Flywheel Hybrid Vehicles, Battery Electric Vehicles (Part 2 of 6)

Session Code: ***PFL100***

Room W2-63 ***Session Time:*** ***1:30 p.m.***

Pneumatic and Flywheel Hybrid Vehicles, Battery Electric Vehicles: As opposed to "conventional" hybrid vehicles that incorporate an electric drivetrain, this session highlights hybrids that use pneumatic or hydraulic systems for energy storage or boost devices. Also presented in this session are unique applications of vehicles that only utilize electric drivetrains.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Toyota Motor Engineering & Manufacturing; Mark A. Theobald, GM Powertrain*

Time	Paper No.	Title
1:30 p.m.	2009-01-1306	**A Photovoltaic-Battery Powered All-Electric Rickshaw for the Indian Market** *Alireza Khaligh, IIT*
2:00 p.m.	2009-01-1323	**Simulation of a Pneumatic Hybrid Powertrain with VVT in GT-Power and Comparison with Experimental Data** *Sasa Trajkovic, Per Tunestal, Bengt Johansson, Lund University*
2:30 p.m.	2009-01-1326	**Realizing a Concept for High Efficiency and Excellent Driveability: The Downsized and Supercharged Hybrid Pneumatic Engine** *Christian Doenitz, Iulian Vasile, Christopher H. Onder, Lino Guzzella, ETH Zurich*
3:00 p.m.	2009-01-1319	**A New Air Hybrid Engine using Throttle Control** *Amir Fazeli, Amir Khajepour, Cecile Devaud, Nasser Lashgarian, Univ of Waterloo*
3:30 p.m.	2009-01-1312	**Mechanical Hybrid System Comprising a Flywheel and CVT for Motorsport & Mainstream Automotive Applications** *Christopher Brockbank, Torotrak (Development), Ltd.; Douglas Cross, Flybrid Systems LLP*
4:00 p.m.	2009-01-1303	**Simulation, Design and Realisation of an Entire Electrical Off-Road Motorbike** *Dragan Simic, Thomas Baeuml, Franz Pirker, Arsenal Research*
	2009-01-1304	**Validation of Dynamic Model of Hybrid Pneumatic Power System (Written Only -- No Oral Presentation)** *Kuohsiu David Huang, Hoai Nam Nguyen, National Taipei Univ. of Technology; Khong Vu Quang, Da-Yeh University*

The papers in this session are available in a single publication, SP-2235, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Integrated Vehicle-Based Safety Systems Field Operational Test (IVBSS FOT)

Session Code: ***CONG104***

Room W2-64 ***Session Time:*** ***9:30 a.m.***

This session will provide an status update and systems overview of the on-going Integrated Vehicle-Based Safety Systems Field Operational Test (IVBSS FOT). The IVBSS FOT is a cooperative agreement with the U.S. Department of Transportation, the UMTRI and partners Visteon Corp., Eaton Corp., Honda R&D Americas Inc., International Truck and Engine, TK Holdings, Battelle, Con-way Freight, and the Michigan Department of Transportation. The objective of the program is to develop and field-test a new, integrated crash warning system in a fleet of 16 passenger cars and 10 commercial trucks. The research team developed these systems in the first phase of the program, and is now evaluating system performance and driver acceptance when the systems are used under naturalistic conditions. The integrated system warns drivers when they are about to leave the roadway, are in danger of colliding with another vehicle while attempting a lane change, or are at risk of colliding with the vehicle in front of them. The integrated system helps to address crash types that account for 67% of all motor vehicle crashes in the U.S. IVBSS is using information gathered by inertial, video, and radar sensors, plus a global positioning system module to prevent or lessen the severity of crashes.

Organizers - *James R. Sayer, UMTRI*

Panelists - *Tim Tiernan, Visteon Corp.; David LeBlanc, Univ. of Michigan; Zhijun Tang, Eaton Corp.; Scott E. Bogard, Univ. of Michigan; Wassim G. Najm, Volpe Natl Transportation Systems Center;*

Monday, April 20

Combusion and Flow Diagnostics (Part 1 of 3)

Session Code: ***PFL202*** ***1:30 p.m.***

Room W2-64 ***Session Time:***

The Combustion and Flow diagnostics session features papers which focus on extending and improving various sensors and diagnostic methods that can be employed to examine the flow and combustion processes in both production engines and research environments. Examples of diagnostics of interest include, but are not limited to: pressure sensors, ion probes, exhaust gas composition analyzers, and various optical techniques. The session also features papers clarifying the in-cylinder flow processes.

Organizers - *Oivind Andersson, Lund Univ.; Anand H. Gandhi, Ford Motor Co.; Matthew J. Hall, Univ. of Texas-Austin; Paul C. Miles, Sandia National Laboratories*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0652***	***In-cylinder Flow Field Measurement with Doppler Global Velocimety in Combination with Droplet Distribution Visualization by Mie Scattering***
		Oliver Dingel, Thomas Seidel, Henry Steuker, IAV GmbH
2:00 p.m.	***2009-01-0651***	***Kinetic Energy and Dissipation Rate Spectra of High- and Low- Swirl Internal Combustion Engine Flows***
		Claudia Fajardo, Western Michigan Univ; Volker Sick, Univ. of Michigan-Ann Arbor
2:30 p.m.	***2009-01-0660***	***The Influence of Single and Multiple Injection Strategies on In-Cylinder Flow and Combustion within a DISI Engine***
		John E.T. Rimmer, Colin P. Garner, Graham K. Hargrave, Loughborough Univ.; Dave Richardson, Stan Wallace, Jaguar Cars Ltd.; Edward J. Long, Loughborough Univ.
3:00 p.m.	***2009-01-0647***	***Application of an Electronic Particulate Matter Sensor to a Modern Light Duty Diesel Engine***
		Matthew J. Hall, Ronald Matthews, Jude Osara, Timothy Diller, Univ. of Texas-Austin
3:30 p.m.	***2009-01-0644***	***Geometrical and Topological Considerations to Maximize Remotely Mounted Cylinder Pressure Transducer Data Quality***
		Gary Patterson, AVL North America Inc; Richard S. Davis, General Motors Powertrain
4:00 p.m.	***2009-01-0657***	***Ethanol Detection in Flex-Fuel Direct Injection Engines Using In-Cylinder Pressure Measurements***
		Nestor Oliverio, Univ. of Michigan; Li Jiang, Hakan Yilmaz, Robert Bosch LLC; Anna Stefanopoulou, Univ. of Michigan

The papers in this session are available in a single publication, SP-2238, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

HCCI (Part 1 of 7)

Session Code: ***PFL207***

Room W2-65 ***Session Time:*** ***9:30 a.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Salvador M. Aceves, Lawrence Livermore National Lab.; Aristotelis Babajimopoulos, Univ. of Michigan; Christopher Gehrke, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Robert M. Wagner, Oak Ridge National Laboratory; Hongming Xu, Birmingham Univ.*

Chairpersons - *Salvador M. Aceves, Lawrence Livermore National Lab.*

Time	Paper No.	Title

9:30 a.m.	***2009-01-0127***	***Experiments and Modeling of Adaptive Injection Strategies (AIS) in Low Emissions Diesel Engines***
		Sage Kokjohn, Thaddeus Swor, Michael Andrie, Rolf Reitz, Univ. of Wisconsin
10:00 a.m.	***2009-01-0128***	***A New Datadriven Approach to Modeling the Combustion of a Diesel Engine in HCCI Mode***
		Alexandra Fuchsbauer, Christian Fuchs, Robert Bosch GmbH
10:30 a.m.	***2009-01-0129***	***A New Model to Describe the Heat Transfer in HCCI Gasoline Engines***
		Sebastian Hensel, Fatih Sarikoc, Florian Schumann, Heiko Kubach, Amin Velji, Ulrich Spicher, Universitat Karlsruhe (TH)
11:00 a.m.	***2009-01-0130***	***A Detailed Chemistry Multi-cycle Simulation of a Gasoline Fueled HCCI Engine Operated with NVO***
		Jonathan Etheridge, Sebastian Mosbach, Markus Kraft, Hao Wu, Nick Collings, Univ of Cambridge
11:30 a.m.	***2009-01-0131***	***Modeling and Investigation of Exothermic Centers in HCCI Combustion***
		Martin Tuner, LOGE AB; Fabian Mauss, BTU Cottbus
12:00 p.m.	***2009-01-0132***	***Numerical Simulation and Experimental Research on Spark Induced Compression Ignition (SICI)***
		Zhi Wang, Tsinghua Univ.

The papers in this session are available in a single publication, SP-2242, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

HCCI (Part 2 of 7)

Session Code: ***PFL207***

Room W2-65 ***Session Time:*** ***1:30 p.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Salvador M. Aceves, Lawrence Livermore National Lab.; Aristotelis Babajimopoulos, Univ. of Michigan; Christopher Gehrke, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Robert M. Wagner, Oak Ridge National Laboratory; Hongming Xu, Birmingham Univ.*

Chairpersons - *Robert M. Wagner, Oak Ridge National Laboratory*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0297***	***Study of the HCCI Running Zone using Ethyl Acetate***
		Francesco Contino, Hervé Jeanmart, Université catholique de Louvain (UCL)
2:00 p.m.	***2009-01-0301***	***Octane Sensitivity in Gasoline Fuels Containing Nitro-alkanes: A Possible Means of Controlling Combustion Phasing for HCCI.***
		Roger Cracknell, Robert Head, Linda McAllister, Shell Global Solutions UK; Johan Andrae, Royal Institute of Technology (KTH), Sweden.
2:30 p.m.	***2009-01-0298***	***Realizetion of Dual Phase High Temperature Heat Release Combustion of Base Gasoline Blends from Oil Refineries and a Study of HCCI Combustion Processes***
		Gen Shibata, Nippon Oil Corp.; Tomonori Urushihara, Nissan Motor Co Ltd

3:00 p.m.	***2009-01-0300***	***Operation strategies for Controlled Auto Ignition CAI Engines***
		Philipp Adomeit, Andreas Sehr, FEV Motorentechnik GmbH; Henning Kleeberg, FEV Inc; Georg stapf, RWTH Aachen University
3:30 p.m.	***2009-01-0299***	***Influence of the Valve Lift Strategy in a CAI engine using Exhaust Gas Re-Breathing - Part 1: Experimental results and 0D analysis***
		Florence Duffour, Franck Vangraefschepe, Vincent Knop, Loïc de Francqueville, IFP
4:00 p.m.	***2009-01-0133***	***Premixed Low Temperature Combustion of Biodiesel and Blends in a High Speed Compression Ignition Engine***
		William F. Northrop, Univ. of Michigan; Stanislav V. Bohac, Dennis N. Assanis, Univ of Michigan

The papers in this session are available in a single publication, SP-2242, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

CI Engine Performance for Use with Alternative Fuels (Part 1 of 3)

Session Code: ***PFL201***

Room W2-66 ***Session Time:*** ***9:30 a.m.***

This session focuses on the effects of alternative fuels in compression ignition engines. A wide range of alternative fuels exist and may include hydrogen, ethanol, methane, biodiesel and synthetic diesel fuel. Data pertaining to emissions reduction, performance, combustion analysis, efficiency, spray characteristics and durability for both experimental as well as numerical investigations is presented.

Organizers - *Scott A. Miers, Michigan Technological Univ.; Gregory J. Thompson, West Virginia Univ.; Paul J. Richards, Innospec Inc.; Sundar Rajan Krishnan, Mississippi State Univ.; Avinash Kumar Agarwal, Indian Institute of Technology - Kanpur; Amiyo K. Basu, Caterpillar Inc.*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0480***	***Analysis of the Potential of Biodiesel as an Alternative Fuel for Current and Future HSDI Engines***
		Jean Arregle, Bernardo Tormos, J. Javier Lopez, Antonio Garcia, CMT Motores Termicos Universidad
10:00 a.m.	***2009-01-0488***	***Fuel Property Effects on Emissions and Performance of a Light-Duty Diesel Engine***
		Harsha Nanjundaswamy, Marek Tatur, Dean Tomazic, FEV Inc.; Thomas Koerfer, Matthias Lamping, Andreas Kolbeck, FEV Motorentechnik GmbH
10:30 a.m.	***2009-01-0481***	***Performance Parameter Analysis of a Biodiesel-Fuelled Medium Duty Diesel Engine***
		Brandon Tompkins, Jason Esquivel, Timothy J. Jacobs, Texas A&M University
11:00 a.m.	***2009-01-0489***	***The Effects of Different Biodiesel Percent Blends on Autoignition, Combustion, Performance and Engine Out Emissions from a Single Cylinder HSDI Diesel Engine.***
		Kaushik Acharya, Mufaddel Dahodwala, Walter Bryzik, Naeim Henein, Wayne State Univ.; Nathan Sova, Navistar
11:30 a.m.	***2009-01-0484***	***Analysis of Impact of Diesel Fuel/Biodiesel blends on Adavanced Combustion System Performance by means of Injection Test Rig, Optical SC Engine and Real Engine Experiments***
		Carlo Beatrice, Nicola Del Giacomo, Bianca Vaglieco, Chiara Guido, Pietro Capaldi, Ezio Mancaruso, Istituto Motori CNR

The papers in this session are available in a single publication, SP-2237, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

CI Engine Performance for Use with Alternative Fuels (Part 2 of 3)

Session Code: ***PFL201***

Room W2-66 ***Session Time:*** ***1:30 p.m.***

This session focuses on the effects of alternative fuels in compression ignition engines. A wide range of alternative fuels exist and may include hydrogen, ethanol, methane, biodiesel and synthetic diesel fuel. Data pertaining to emissions reduction, performance, combustion analysis, efficiency, spray characteristics and durability for both experimental as well as numerical investigations is presented.

Organizers - *Avinash Kumar Agarwal, Indian Institute of Technology - Kanpur; Amiyo K. Basu, Ford Motor Co.; Sundar Rajan Krishnan, Scott A. Miers, Argonne National Laboratory; Paul J. Richards, Innospec Inc.; Gregory J. Thompson, West Virginia Univ.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0492***	***Improving Biodiesel Emissions and Fuel Efficiency with Changes to the Engine Calibration***
		John Ireland, Robert L. McCormick, National Renewable Energy Laboratory; Janet Yanowitz, Ecoengineering, Inc.; Sean Wright, Univ of Colorado-Denver; Aaron Williams, National Renewable Energy Laboratory
2:00 p.m.	***2009-01-0479***	***Utilization of Mahua Oil Methyl Ester in a DI Diesel Engine***
		Dilip Kumar Bora
2:30 p.m.	***2009-01-0485***	***Effects of Biodiesel Blends on Emissions in Low Temperature Diesel Combustion***
		Matthias Klaus Veltman, Prashanth Karra, Song-Charng Kong, Iowa State Univ.
3:00 p.m.	***2009-01-0482***	***Influence of Base Diesel Fuel upon Biodiesel Sludge Formation Tendency***
		Mitsuru Osawa, Yuta Ebinuma, Honda R&D Co., Ltd.; Jeff J. Jetter, Honda R&D Americas Inc.; Ulf Reinschmidt, Honda R&D Europe GmbH; Sasaki Syouji, Yusaku Takaki, Tsuyumi Takashiba, Honda R&D Co., Ltd.
3:30 p.m.	***2009-01-0483***	***Detailed Analysis of Particulate Matter Emitted from Bio-fueled Diesel Combustion with High EGR***
		Takeshi Mende, N E Chemcat Corp.; Jin Kusaka, Waseda Univ; Makoto Nagata, Ryuji Ando, N E Chemcat Corp.; Hideaki Kato, Waseda Univ
4:00 p.m.	***2009-01-0491***	***Influence of Biodiesel on Powercell Components***
		Andre Ferrarese, Ferrarese; Samantha Uehara, Mahle Metal Leve SA

The papers in this session are available in a single publication, SP-2237, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Automotive Engineering Testing and Test Methods: Chassis and Body Performance and Durability Testing (Part 1 of 2)

Session Code: ***M19***

Room W2-67 ***Session Time:*** ***9:30 a.m.***

The Automotive Testing and Test Methods is a forum for new results, research developments, and applications related to test activities and methods employed in automotive.

The Chassis and Body Performance and Durability Testing session is focused upon tests and test methods employed in the evaluation of the performance and durability of chassis (frame, suspensions, brakes, etc.) and body components, subsystems, and full vehicles

Organizers - *Sung-tae Hong, Ulsan Univ.; Darryl S. Taylor, Boeing; Mike Temkin, Chrysler Corp.*

Chairpersons - *Sung-tae Hong, Ulsan Univ.; Darryl S. Taylor, Boeing IDS; Mike Temkin, Chrysler Corp.*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0075***	***The Importance of LVDT Calibration in Servo Hydraulic Actuators*** *Klaus P. Meyer, Horiba Instruments, Inc.*
10:00 a.m.	***2009-01-0073***	***Evaluating Self-Unlocking Doors in Rollover Accidents using a Shock Testing Machine*** *Andrew N. Gilberg, Jeremy Buckingham, Teknacon Corp.; Richard Clarke, Clarke Automotive Consultants, Inc.*
10:30 a.m.	***2009-01-0074***	***Chassis Dynamometer Torque Control: A Robust Control Methodology*** *Andrew Thomas Shenton, Paul Dickinson, Univ. of Liverpool; Christian Matthews, add2 Ltd.*
11:00 a.m.	***2009-01-0077***	***The Influence of Engine Roll in Laboratory Durability Testing of Full Exhaust Systems*** *Klaus P. Meyer, Horiba Instruments, Inc.*
11:30 a.m.	***2009-01-0414***	***Test Measurement Technique for Vehicle Cool Down Noises (Tick/Ping, Crinkle/Crackle)*** *William V. Alcini, Tenneco Inc.*

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 20

Automotive Engineering Testing and Test Methods: Powertrain and Driveline Performance and Durability Testing (Part 2 of 2)

Session Code: ***M19***

Room W2-67 ***Session Time:*** ***1:30 p.m.***

The Automotive Testing and Test Methods is a forum for new results, research developments, and applications related to test activities and methods employed in automotive.

The Powertrain and Driveline Performance and Durability Testing session is focused upon tests and test methods employed in the evaluation of the performance and durability of powertrain (engines, transmissions) and driveline (4WD systems, driveshafts, axles) components, subsystems, and full vehicles.

Organizers - *Sung-tae Hong, Ulsan Univ.; Darryl S. Taylor, Boeing; Mike Temkin, Chrysler Corp.*

Chairpersons - *Darryl S. Taylor, Boeing IDS; Mike Temkin, Chrysler Corp.; Sung-tae Hong, Ulsan Univ.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0413***	***Reliability and life study of a Hydraulic solenoid valve - Part 2, Experimental Study*** *Santosh Angadi; Song Choe, Robert L. Jackson, Auburn Univ*
2:00 p.m.	***2009-01-0411***	***Optimizing the Fastening Strategy and Joint Integrity to Reduce Stresses in Ring Gear Bolts on Rear Differential Assemblies.*** *Anthony George Konstantino, Zulfikar Ali, Chrysler LLC; Joseph Rozman, BAE Systems*

2:30 p.m.	***ORAL ONLY***	***Powertrain Mount High Frequency Characterization***
		Tony Ge, Ford Motor Co.
3:00 p.m.	***2009-01-0415***	***Measurement of Oil Film Pressure on a Crank Shaft Journal in a Horizontally-Opposed Cylinder Engine***
		Kenji Matsumoto, Naoki Ito, Honda R&D Co Ltd
3:30 p.m.	***2009-01-0416***	***Methodology for Measurement of Inherent Driveline Frictional Force for a Vehicle in Coasting Mode***
		Saurabh Kumar Singh, Tata Motors Ltd.; Narayan Jadhav, K Gopalakrishna, Prashant Vishe, Tata Motors Ltd
4:00 p.m.	***2009-01-0412***	***Development of Customer Correlated and Accelerated Driveline Durability Test Cycle***
		Santosh Shankarrao Gosavi, Tata Technologies, Ltd.; Girish Ashok Chavan, Tata Motors Ltd
4:30 p.m.	***ORAL ONLY***	***Development of wet friction material and additives for automatic transmission fluid***
		Kenichiro Seki, F.C.C.CO.LTD.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 20

Tire and Wheel Technology

Session Code: ***AC3***

Room W2-68 ***Session Time:*** ***9:30 a.m.***

Experimental methods and computational applications related to tire and wheel systems will be presented by engineers and researchers from the automotive and tire industries and universities in this session

Organizers - *John D. Andrus; Neel K. Mani, Bridgestone Americas Holding Inc.; Timothy A. Marantis, Bridgestone/Firestone NA Tire LLC; Saied Taheri, Virginia Polytechnic Inst. & State Univ.; Rick S. Wallace, General Motors Corp.*

Chairpersons - *Neel K. Mani, Bridgestone Americas Holding Inc.*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0071***	***Computational Method to Examine Spoke Dynamics in a High Speed Rolling Wheel***
		John C. Ziegert, Clemson Univ.; Kranti Kiran Manga; Timothy B. Rhyne, Steven M. Cron, Michelin Americas Research and Development Corp; Lonny Thompson, Clemson Univ
10:00 a.m.	***2009-01-0068***	***Development of a Experimentally Derived Tire and Road Surface Model for Vehicle Interior Noise Prediction***
		Charles J. Gagliano, Matt Tondra, Bruce Fouts, Honda R&D Americas Inc.; Theo Geluk, LMS International
10:30 a.m.	***2009-01-0069***	***Bead to Bead Tire Measurements***
		Oliver Scholz, Andreas Jobst, Franz Uhrmann, Guenther Kostka, Fraunhofer IIS; Ulf Hassler, Fraunhofer EZRT
11:00 a.m.	***2009-01-0065***	***Wear Resistance of Lunar Wheel Treads Made of Polymeric Non-Woven Fabrics***
		Gary Kaufman, Dominic Triana, Vincent Blouin, Clemson Univ.; Christine Cole, Clemson Apparel Research; Paul Joseph, Joshua David Summers, Clemson Univ.

	2009-01-0066	***Discretized Standing Waves Tire Model (Written Only -- No Oral Presentation)***
		Hisayoshi Matsuoka, Nissan Motor Co., Ltd.
	2009-01-0067	***Investigation of Road Surface Roughness Effect on Tread Rubber Friction with FEA (Written Only -- No Oral Presentation)***
		Hiroshi Yokohama, Robert Randall, Univ of New South Wales
	2009-01-0072	***Coast Down Method in Time-Distance Variables for Tire Rolling Resistance Determination (Written Only -- No Oral Presentation)***
		Vladimir Alekseevich Petrushov, NAMI

The papers in this session are available in a single publication, SP-2221, and also individually.

Planned by Tire and Wheel Committee / Automobile Chassis Activity

Monday, April 20

SI Combustion (Part 1 of 3): Alternative Fuels (Ethanol - E85/Hydrogen/LPG

Session Code: ***PFL213***

Room W2-68 ***Session Time:*** ***1:30 p.m.***

This session presents research papers on general topics in the field of Spark-Ignited Combustion and Gasoline Engines. The scope is technologies that improve the efficiency and emissions of both 4-stroke and 2-stroke spark-ignition engines by improving fuel preparation, gas exchange, the ignition process, and the combustion process itself.

Part 2 focuses on Alternative Fuels including Ethanol - E85, Hydrogen, LPG, and Gaseous Fuels)

Organizers - *Terrence Alger, Southwest Research Institute; Richard S. Davis, General Motors Powertrain; Mark C. Sellnau, Delphi Corp.*

Chairpersons - *Mark C. Sellnau, Delphi Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0323***	***Mixture Preparation Effects on Gaseous Fuel Combustion in SI Engines***
		Mohammad Ali Khan, Harry C. Watson, Paul Baker, The University of Melbourne
2:00 p.m.	***2009-01-0324***	***Impact of Fuel Properties on the Performances and Knock Behaviour of a Downsized Turbocharged DI SI Engine - Focus on Octane Numbers and Latent Heat of Vaporization***
		Jean Milpied, IFP; Gabriel Plassat, ADEME; Alexandre Marchal, Renault - Powertrain Division; Pierre Schmelzle, Total France; Nathalie dioc, PSA Peugeot Citroen; Sabine guichaoua, Nicolas Jeuland, IFP
2:30 p.m.	***2009-01-0325***	***Numerical Simulation of a Direct-Injection Spark-Ignition Engine with Different Fuels***
		Shalabh Srivastava, Michigan State Univ.; David L.S. Hung, Visteon Corp.; Harold Schock, Farhad Jaberi, Michigan State Univ.
3:30 p.m.	***2009-01-0138***	***A Study of Gasoline-Alcohol Blended Fuels in an Advanced Turbocharged DISI Engine***
		Alasdair Cairns, Neil Fraser, Hugh Blaxill, Mahle Powertrain Ltd.; Martin Gold, John Rogerson, Craig Goodfellow, BP Global Fuels Technology
4:00 p.m.	***2009-01-0140***	***Ethanol Flex-fuel Engine Improvements with Exhaust Gas Recirculation and Hydrogen Enrichment***
		Jess W. Gingrich, Southwest Research Institute

	2009-01-0137	***An Investigation of Potential and Challenges with Higher Ethanol-gasoline Blend on a Single Cylinder Spark Ignition Research Engine (Written Only -- No Oral Presentation)***
		M K Gajendra Babu, Indian Institute of Technology Madras; Daryao Singh Khatri, Harit Energy Solutions Pvt, Ltd; Alok Kumar, Indian Institute of Technology Delhi

The papers in this session are available in a single publication, SP-2241, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Multi-Dimensional Engine Modeling (Part 1 of 3)

Session Code: ***PFL211***

Room W2-69 ***Session Time:*** ***9:30 a.m.***

Multi-dimensional engine modeling has established itself in the engineering community as a means to gain a deeper understanding of processes related to turbulent, transient, chemically reacting, two-phase flows. The spectrum of papers contained in the session reflect the truly multidisciplinary nature of the field covering areas such as chemical kinetics, combustion and spray modeling, turbulence, mesh generation, and approaches targeting improved computational efficiency.

Organizers - *Hardo Barths, General Motors Corp.; A. David Gosman, Imperial College London; Carl-Anders Hergart, Caterpillar Inc.*

Time	***Paper No.***	***Title***
9:30 a.m.	***2009-01-0720***	***Applying an Extended Flamelet Model for a Multiple Injection Operating Strategy in a Common-Rail DI Diesel Engine***
		Michael Gauding, Christian Felsch, Bruno Kerschgens, Anyelo Vanegas, Hyun Woo Won, Norbert Peters, RWTH Aachen University; Christian Hasse, BMW Group München
10:00 a.m.	***2009-01-0711***	***Effects of Spray-Bowl Interactions on PCCI Combustion in a Medium-Duty Diesel Engine***
		Ramachandra Diwakar, Satbir Singh, GM Research and Development Center
10:30 a.m.	***2009-01-0708***	***Implementation and Validation of an n-Heptane kinetic combustion model for 3D CFD Codes by means of Numerical Calculation and Single Cylinder Engine Experiments***
		Valentina Fraioli, Carlo Beatrice, Chiara Guido, Istituto Motori CNR
11:00 a.m.	***2009-01-0703***	***Experimental and Numerical Investigation of Conjugate Heat Transfer in a HSDI Diesel Engine Water Cooling Jacket***
		Stefano Fontanesi, Universita degli Studi di Modena; Edward McAssey, Villanova Univ.
11:30 a.m.	***2009-01-0717***	***Multi-dimensional Conditional Moment Closure Based Modelling Applied to a Heavy-duty Common-rail Diesel Engine***
		Yuri M. Wright, Swiss Federal Institute of Technology; Giorgio De Paola, Univ. of Cambridge; Konstantinos Boulouchos, Swiss Federal Institute of Technology; Epaminondas Mastorakos, Univ. of Cambridge
12:00 p.m.	***2009-01-0715***	***Optimization of a HSDI Diesel Engine for Passenger Cars Using a Multi-Objective Genetic Algorithm and Multi-Dimensional Modeling***
		Hai-Wen Ge, Yu Shi, Rolf Reitz, Univ of Wisconsin; David Wickman, Wisconsin Engine Research Consultants; Werner Willems, Ford Forschungszentrum Aachen GmbH

The papers in this session are available in a single publication, SP-2245, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Multi-Dimensional Engine Modeling (Part 2 of 3)

Session Code: ***PFL211***

Room W2-69 ***Session Time:*** ***1:30 p.m.***

Multi-dimensional engine modeling has established itself in the engineering community as a means to gain a deeper understanding of processes related to turbulent, transient, chemically reacting, two-phase flows. The spectrum of papers contained in the session reflect the truly multidisciplinary nature of the field covering areas such as chemical kinetics, combustion and spray modeling, turbulence, mesh generation, and approaches targeting improved computational efficiency.

Organizers - *Hardo Barths, General Motors Corp.; A. David Gosman, Imperial College London; Carl-Anders Hergart, Caterpillar Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0701***	***Efficient Multidimensional Simulation of HCCI and DI Engine Combustion with Detailed Chemistry***
		Yu Shi, Sage Kokjohn, Hai-Wen Ge, Rolf Reitz, Univ. of Wisconsin Madison
2:00 p.m.	***2009-01-0722***	***Integration of a Continuous Multi-Component Fuel Evaporation Model with an Improved G-Equation Combustion and Detailed Chemical Kinetics Model with Application to GDI Engines***
		Shiyou Yang, Rolf Reitz, Univ. of Wisconsin Madison
2:30 p.m.	***2009-01-0710***	***Computational Considerations of Fuel Spray Mixing in an HCCI Operated Optical Diesel Engine***
		Ossi Kaario, Eero Antila, Kalle Lehto, Ville Vuorinen, Martti Larmi, Helsinki Univ. of Technology
3:00 p.m.	***2009-01-0709***	***Implementation and Validation of the G-equation Model Coupled with Flamelet Libraries for Simulating Premixed Combustion in I.C. Engines***
		Stefano Toninel, Hendrik Forkel, Thomas Frank, ANSYS Germany GmbH; Bodo Durst, Christian Hasse, Dirk Linse, BMW Group
3:30 p.m.	***2009-01-0707***	***CFD Multi-Dimensional Cycle Analysis on a Novel 2-Stroke HSDI Diesel Engine***
		Enrico Mattarelli, Univ. of Modena & Reggio Emilia; Stefano Fontanesi, Universita degli Studi di Modena; Simone Malaguti, Univ. of Modena & Reggio Emilia
4:00 p.m.	***2009-01-0704***	***CFD Investigation of Wall Wetting in a GDI Engine Under Low Temperature Cranking Operations***
		Simone Malaguti, Stefano Fontanesi, Giuseppe Cantore, Universita di Modena e Reggio Emilia; Angelo Rosetti, Raffaele Lupi, Fiat Powertrain Technologies
4:30 p.m.	***2009-01-0706***	***Application of 3D-CFD simulations in the development of spark plugs***
		Igor Orlandini, Kai Gartung, Joerg Schlerfer, Robert Bosch GmbH
5:00 p.m.	***2009-01-0719***	***Operation of an HSDI Engine using Multiple Injection Schemes with Soybean Biodiesel, Diesel and their Blends***
		Valerie Stringer, Chia-Fon F. Lee, Way Lee Cheng, Alan Hansen, Univ. of Illinois at Urbana-Champaign

The papers in this session are available in a single publication, SP-2245, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Transmission and Driveline: Launch Devices

Session Code: ***PFL605***

Room W2-70 ***Session Time:*** ***9:30 a.m.***

This session contains papers about new torque converter development. Also, converter clutch and damper characteristics are discussed.

Organizers - *Michael E. Fingerman, Kerry Knight, Chrysler LLC*

Time	Paper No.	Title
9:30 a.m.	***2009-01-0141***	***Development of Super Ultra Flat Torque Converter with Multi Plates Lock-up Clutch*** *Hiroya Abe, Tsuruoka Masatoshi, Muto Akio, Honda R&D Co., Ltd.; Kato Masashi, Yutaka Giken Co., Ltd.; Fujiwara Hiromi, F.C.C.Co., Ltd*
10:00 a.m.	***2009-01-0142***	***Design and Experimental Characterization of a Magnetorheological Fluid Clutch*** *Josko Deur, Domagoj Libl, Univ. of Zagreb; Zvonko Herold, Univ of Zagreb; Matthew Hancock, Francis Assadian, Jaguar Cars Ltd*

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Transmission and Driveline: NVH

Session Code: ***PFL606***

Room W2-70 ***Session Time:*** ***11:00 a.m.***

This session contains papers about powertrain torsional vibration analyses and its vehicle impact.

Organizers - *Michael E. Fingerman, Kerry Knight, Chrysler LLC*

Time	Paper No.	Title
11:00 a.m.	***2009-01-0328***	***Numerical and Experimental Analysis of Manual Transmissions - Gear Rattle*** *Miguel Angel De la Cruz, Homer Rahnejat, Stephanos Theodossiades, Loughborough Univ; Patrick Kelly, Ford Werke GmbH*
11:30 a.m.	***2009-01-0329***	***Shudder Durability of a Wet Launch Clutch Part I - Thermal Study and Development of Durability Test Profile*** *Firoz Ali S. Jafri, Martin Fuss, George Bailey, LuK USA LLC; Chi-Kuan Kao, General Motors; Syed T. Razzacki, Chrysler LLC; Eli Avny, Ford Motor Co.*
12:00 p.m.	***2009-01-0330***	***Shudder Durability of a Wet Launch Clutch Part II - Durability Study*** *Firoz Ali S. Jafri, Martin Fuss, George Bailey, LuK USA LLC; Chi-Kuan Kao, General Motors; Eli Avny, Ford Motor Co.; Syed Razzacki, Chrysler LLC*

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Monday, April 20

Transmission and Driveline: Components/Subsystems

Session Code: ***PFL607***

Room W2-70 ***Session Time:*** ***1:30 p.m.***

This session covers components and subsystems. Included are papers covering torque converter friction material testing and torque capacity prediction of clutch plates. A description of gear tooth bending and contact stresses as influenced by part tolerances and the usage of aluminum fasteners in magnesium powertrain components.

Organizers - *John C. Collins, John A. Frait, Chrysler LLC*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1255***	***Torque Capacity Prediction Technology in Automatic Transmissions Focusing on Friction Characteristics of Wet Multiple Plate Clutches*** *Toshihiro Saito, Masanori Katou, Takaki Yamaoka, Takashi Minaminakamichi, Takashi Hoshi, Honda R&D Co., Ltd.; Koji Miyamoto, ITO Corp.*
2:00 p.m.	***2009-01-1257***	***Friction Material Bench Test for Torque Converter Clutch Design*** *Michael J. Balsamo, General Motors*
2:30 p.m.	***2009-01-1256***	***Cost and Weight Optimization of Magnesium Powertrain Components by using Aluminium Thread - Forming Fastener Technology*** *Thomas Jakob, Arnold Umformtechnik GmbH & Co. KG; Gerhard Gerstmayr, University of Leoben; Philipp Oberhuber, Magna Powertrain AG & Co. KG; Heinz Leitner, Univ. of Leoben; Christian Hinteregger, Magna Powertrain AG & Co. KG*
3:00 p.m.	***2009-01-1258***	***A Comparison of Spur Gear Response Under Non-ideal Loading Conditions*** *Kyle C. Stoker, Univ. of Florida*

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Making Green Cool While Staying in the Black

Session Code: ***ANN201***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***9:30 a.m.***

The new generation of performance and clean diesels, advanced hybrid powertrains, extended range and pure electric vehicles represent blank canvases for the performance and specialty-equipment industry. The green performance revolution is well underway. Making green cool while staying in the black is no longer an option ¿ nearly 85% of Americans consider themselves environmentalists and vehicle personalization continues to grow as market fragment to smaller segments. Green performance vehicles create a new direction for technology, automakers and the specialty-equipment industry. This panel of experts will provide an overview of the challenges and opportunities of green performance by building on lean customization principles, as well as explore the potential solutions for specialty-equipment and low-volume suppliers to collaborate with OEMs to fuse their brand equity and lifestyle cache with these emerging technologies and growing market segments.

Moderators - *John M. Waraniak, SEMA*

Panelists - *George W. Dettloff, CEO, SKF North America; Myles Kovacs, President & Founder, DUB.; Sherif Marakby, Ford Motor Co.; Charlie Schultz, VP Marketing & Sales, KICKER;*

Tuesday, April 21

Standards Information Session

Session Code: ***ANN210***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***11:45 a.m.***

Want to Learn More About Standards?? The SAE Technical Standards Committees have teamed up to present the hottest projects that their technical standards committees are working on. They will share the technological details and industry implications for you and your company.

Time	Paper No.	Title

Panel ***Software Assessment Repository***

With the continued growth of software in automobiles, it is important to get accurate a thorough capability information on development teams in the industry, wherever they located. The SAE Software Assessment Repository is a single location to get secur information through the industry¿s most trusted source, SAE International.

Panelists - *Peter Abowd, Altia;*

Panel ***Hybrid Standards Committee***

Plug-in hybrid electric vehicle (PHEV), efficiently utilize supply-limited renewable and conventional electricity through a rechargeable energy storage unit. The SAE Hybrid Committee and its task forces are resolving the issues to such fundamental question battery electrochemistry, optimal PHEV battery-size, weight, life-cycle, optimal state and performance characteristics so these systems can be manufactured for safe pub

Panelists - *Gery Kissel, General Motors Corp.;*

Panel ***Vehicle Sound for Pedestrian Standards Committee***

This committee is addressing pedestrians safety issues related to the quiet operation vehicles. They plan to issue a Technical Report or Recommended Practice based o analysis of pedestrians safety issues related to the quiet operations of hybrid vehicle identification and evaluation of potential countermeasures to address these issues.

Panelists - *Jay Joseph, American Honda Motor Co. Inc.;*

Tuesday, April 21

New Battery Technology: The Path to the Best Combination Range, Durability and Cost

Session Code: ***ANN205***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***1:30 p.m.***

Few, if anyone, will dispute the bright future ahead for the electrification of the automobile. However, much work is yet to be done to reach the goal. Many technology combinations are being sought via industry partnerships between OEMs and battery manufacturers. The experts serving on the panel will discuss which technologies seem to have the most promise for the near term and the far term while at the same time be cost effective for the mass market. The time frame for these systems will also be part of the discussion.

Moderators - *Nancy L. Gioia, Director - SMTHV, Ford Motor Co.*

Panelists - *Steven L. Clark, Sr. Manager - E/E Energy Mgmt, Chrysler; Michael Crane, Managing Director, HEV N.A., Continental Corp.; Prabhakar Patil, CEO, Compact Power Inc.; Minoru Shinohara, Senior Vice President, Nissan Motor Co., Ltd.;*

Tuesday, April 21

Does Green Matter in a Try-to-Survive Market?

Session Code: ***ANN301***

Room SAE Executive Business Theater ***Session Time:*** ***9:00 a.m.***

Rising fuel efficiency standards, gasoline prices and global temperatures drove you to offer "greener" products. But is the global market truly along for the ride? Does "green" mean the same thing in markets where consumers may have less disposable income and availability to financing? Have more challenging marketing issues generated by the global financial crisis relegated green marketing to niche status? Does "green" matter in a market where business "survival" may be the foremost objective? <br/br><br/br>This session will explore the tough issues confronting automotive marketers in the wake of the global financial crisis coupled with increased consumer awareness about advancements in fuel efficiency and stricter emissions controls. What will be the impact of a turbulent market on consumer purchasing decisions in several key market segments and in key geographic markets? What features or services will be critical in product portfolios? What marketing messages will resonate among consumers facing such financial uncertainty? Come find out what researchers and market experts are finding in deeper dives into the various markets that are critical to the future of the automotive industry.

Moderators - *Steven A. Millstein, President & CEO, ATX Group*

Panelists - *Alexander Edwards, President, Automotive, StrategicVision; Scott Miller, CEO, Synovate Motoresearch; Paul Taylor, Chief Economist, NADA;*

Tuesday, April 21

Selling in a Downturn: How to Optimize Economic Returns in a Fickle Market

Session Code: ANN302

Room SAE Executive Business Theater Session Time: 1:00 p.m.

How can we predict whether the economy and fluctuating fuel prices will continue the popularity of hybrids and small electrically powered vehicles in the future? Will today's headlines continue and more importantly affect inventory and manufacturing trends? <br/br><br/br>Time for a reality check. Hybrids and small electric cars are a very good answer to the urbanization trend. They are ideal for people living in cities and for small households with few transportation needs. In short, they are a big leap into future mobility. Today, however, they may not (yet) be the right choice for everyone. <br/br><br/br>If you regularly travel longer distances outside the city or if you have increased transportation needs, a vehicle from the inventory-filled sales lots may still be a good choice. The challenge is selling performance a vehicle today also includes how to sell how the vehicle is consumed. <br/br><br/br>How do we close the gap between what has already been manufactured based on past demand and preserve whatever is left of a diminishing profit margin? What sustainability actions should OEM leaders take now to gain a competitive edge? Is it a given that we cannot predict how fluctuating fuel prices will drive the consumer? This panel will address how a strategic management focus can help to optimize economic returns.

Moderators - *Larry L. Fobes, Dir, Inst for Org & Ind Competitiveness, Wayne State Univ.*

Panelists - *Gerald W. Bricker, former VP & General Sales Mgr, Omron Automotive Electronics; Marcos V. Forgioni, Director, Export Sales & Mktg, VW Truck & Bus Brazil; Harald Gruebel, President & CEO, Consulting4Drive; Daniel M. Hancock, VP, Global Engineering, GM Powertrain;*

Tuesday, April 21

Near Term Powertrain Solutions -Technology Improvements Possible Soon

Session Code: ANN101

Room AVL Technology Leadership Theater Session Time: 10:30 a.m.

The CAFÉ regulations released in mid-2008 to be effective by 2015 provides challenges to the industry. The panel of global authorities will discuss which technologies will be implemented in sufficient volumes to attain the 2015 goal. Each new technology has a cost to the consumer associated with it. The experts will outline what the consumer can expect to face with these technologies and the relative trade off between fuel economy and the increased cost.

Moderators - *Mary Ann Wright, CEO, Johnson Controls-Saft*

Panelists - *Helmut Endres, CTO & VP Pwtrn Engrg, Navistar; Uwe Grebe, Executive Director, Advanced Engineering, GM Powertrain; Dan Kapp, Director Powertrain Research & Adv Engrg, Ford Motor Co.; Minoru Shinohara, Senior Vice President, Nissan Motor Co., Ltd.; Roger J. Wood, VP, BorgWarner Inc & Pres & Gen Mgr, BW Turbo & Emiss Sys;*

Tuesday, April 21

Future Powertrain Technology Solutions - 2015 and Beyond

Session Code: ANN105

Room AVL Technology Leadership Theater Session Time: 2:30 p.m.

The afternoon panel will follow their near-term colleagues from the morning and discuss which technologies will be in the mix to meet future GHG regulations while at the same time provide for the needs of the customer. The panel will outline the powertrain technologies and the infrastructure changes required with the technologies that will be needed to reach the U.S. and global goals for GHG reduction.

Moderators - *Andrew Smart, Pwtrn Engrg Bus Dev Dir, AVL Powertrain Engineering, Inc.*

Panelists - *Tomohiko Kawanabe, Senior Managing Director, Honda R&D Co., Ltd.; Paul M. Najt, Group Mgr, Powertrain Systems Res Lab, General Motors R&D; James E (Ted) Robertson, CTO & EVP-New Product Creation, Magna International Inc.; Gerhard Schmidt, Chief Technical Officer, VP Research & Adv Engrg, Ford;*

Tuesday, April 21

Safety-Critical Systems (Part 3 of 4)

Session Code: ***AE5***

Room D2-08 ***Session Time:*** ***8:30 a.m.***

The focus of the session is software and system hazard analysis, implementation of safety-relevant systems and software, fail-safe strategies, distributed fault tolerant systems. Application areas include: active safety, active chassis and alternative energy systems. The draft international standard for functional safety, ISO 26262 is topic of high current interest.

Organizers - *Sabrina Moertl, TTTech Automotive GmbH; Brian T. Murray, Delphi Corp.; Markus Plankensteiner, TTTech Automotive GmbH*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0737***	***Next Generation of Fail-Safe Architectures and Components***
		Chris Quigley, Warwick Control; Edgard Laes, AMI Semiconductors; Thierry Corbiere, ATMEL; Carmelo Cappiello, CS; Frederic Joubert, Geensys; James Finney, Univ. of Warwick; Philippe Gonnet, Valeo
9:00 a.m.	***2009-01-0761***	***A Comparison of Dual-Core Approaches for Safety-Critical Automotive Applications***
		Eva Beckschulze, Falk Salewski, Stefan Kowalewski, RWTH Aachen Univ.
10:00 a.m.	***2009-01-0740***	***Approaching a SIL3-Compatible Failsafe Computer Control System in Safety-Critical Chassis Applications***
		Zheng-Yu Jiang, Jens Fiedler, Herbert Preis, Continental AG
10:30 a.m.	***2009-01-0748***	***Practical Use of AUTOSAR in Safety Critical Automotive Systems***
		Simon P. Brewerton, Infineon Technologies; Frank Grosshauser, Rolf Schneider, Audi AG
11:00 a.m.	***2009-01-0751***	***Driver Override for Safety-Critical Vehicles and Networks***
		Ella M. Atkins, Univ. of Michigan
	2009-01-0739	***Independence and Non-interference: Two Cardinal Concepts to Develop EE Architectures Hosting Safety-Critical Systems (Written Only -- No Oral Presentation)***
		Michel Leeman, VALEO; Pascal Chaussis, Renault SA; Paul Degoul, VALEO

The papers in this session are available in a single publication, SP-2222, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Tuesday, April 21

Safety-Critical Systems (Part 4 of 4)

Session Code: ***AE5***

Room D2-08 ***Session Time:*** ***1:30 p.m.***

The focus of the session is software and system hazard analysis, implementation of safety-relevant systems and software, fail-safe strategies, distributed fault tolerant systems. Application areas include: active safety, active chassis and alternative energy systems. The draft international standard for functional safety, ISO 26262 is topic of high current interest.

Organizers - *Markus Plankensteiner, TTTech Automotive GmbH; Brian T. Murray, Delphi Corp.; Sabrina Moertl, TTTech Automotive GmbH*

Time	Paper No.	Title

1:30 p.m.	***2009-01-0746***	***The Validation Suite Approach to Safety Qualification of Tools***
		Tomislav Lovric, TUEV NORD Mobilitaet; Stefan-Alexander Schneider, BMW Group; Pierre Mai, PMSF IT Consulting
2:00 p.m.	***2009-01-0741***	***Fault Injection for Simulation of Electronic Control Units***
		Elof Frank, Rami Mukhtar, Martin Schnieringer, VaST Systems Technology
2:30 p.m.	***2009-01-0757***	***Timing Protection in Multifunctional and Safety-Related Automotive Control Systems***
		Denis Eberhard, Frank Grosshauser, Rolf Schneider, Audi AG; Simon Brewerton, Infineon Technologies
3:00 p.m.	***2009-01-0756***	***Safety Analysis of Software-Intensive Motion Control Systems***
		Rami Ismail Debouk, Barbara Czerny, Joseph D'Ambrosio, General Motors Corp.; Jeffrey J. Joyce, Critical Systems Labs Inc.
3:30 p.m.	***2009-01-0754***	***Contract Based ISO CD 26262 Safety Analysis***
		Werner Damm, Thomas Peikenkamp, Bernhard Josko, OFFIS
4:00 p.m.	***2009-01-0752***	***OEMs and Suppliers Must Cooperate on Timing Analysis when Integrating FlexRay-Based Chassis Systems***
		Kai Richter, Marek Jersak, Symtavision GmbH
4:30 p.m.	***2009-01-0750***	***Advantages and Challenges of Introducing AUTOSAR for Safety-Related Systems***
		Marc Graniou, PSA Peugeot Citroen; Hakan Sivencrona, Mecel Engine Systems AB; Rickard Svenningsson, SP Technical Research Inst. of Sweden

The papers in this session are available in a single publication, SP-2222, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Tuesday, April 21

Systems Engineering (Part 1 of 2)

Session Code: ***AE19***

Room D2-09/10 ***Session Time:*** ***8:30 a.m.***

This session addresses automotive requirements, high level system design, cost analysis, simulation, modeling, testing, and validation. System includes components, sub assemblies, computer based controllers, hardware and software. The session focuses on intelligent and efficient approaches to analysis, design (not detailed design), modeling, measurement, document management and optimizing performance. Topics on effect of cost, and human machine interface are also covered.

Organizers - *Subramaniam Ganesan, Oakland Univ.; Ken N. Rao, IBES Inc.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0528***	***Analyzing Field Failures of Engine Valve Springs in Presence of Non-Metalic Inclusions by Applying Statistical and Fracture Mechanics Models***
		Hassan Choucair, Badih Ali Jawad, Lawrence Technological Univ.
9:00 a.m.	***2009-01-0527***	***Verification and Validation of Physical Plant Models***
		Michael M. Tiller, Emmeskay Inc.
9:30 a.m.	***2009-01-0526***	***An Analysis of Physical Modeling Requirements and Techniques***
		Michael Tiller, Emmeskay Inc

10:00 a.m.	***2009-01-0525***	***Design of a Flywheel Based Energy Storage and Conditioning System for Rural Villages in China***
		Jonathan Kweder, Steven Hard, Andrew Nawrocki, Chad Panther, Patrick Wildfire, James Smith, West Virginia Univ.
10:30 a.m.	***2009-01-0524***	***Conceptual Modeling of Complex Systems via Object Process Methodology***
		Ammar Ahmed, Dov Dori, Massachusetts Institute of Technology
11:00 a.m.	***2009-01-0523***	***Research on Reduction of Harmonic Distortion of Inverter for Small Gas Engine Cogeneration System with Backup Function***
		Takayuki Enomoto, Shunichiro Sueyoshi, Takeshi Yamaji, Koichi Tsuno, Honda R&D Co., Ltd.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity; Systems Engineering Cor Automobile Electronics Activity

Tuesday, April 21

Systems Engineering (Part 2 of 2)

Session Code: ***AE19***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

This session addresses automotive requirements, high level system design, cost analysis, simulation, modeling, testing, and validation. System includes components, sub assemblies, computer based controllers, hardware and software. The session focuses on intelligent and efficient approaches to analysis, design (not detailed design), modeling, measurement, document management and optimizing performance. Topics on effect of cost, and human machine interface are also covered.

Organizers - *Subramaniam Ganesan, Oakland Univ.; Ken N. Rao, IBES Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0529***	***Lessons Learned in How to Generate a Complete, Correct and Usable Set of Requirements the First Time and Every Time***
		Thomas Edmund Austin, Delphi Thermal Systems; James P. Waters, Delphi Powertrain Systems; Lori Runk, Delphi Thermal Systems
2:00 p.m.	***2009-01-0531***	***Controlled Impulse Voltage Source for Vehicles Power Electronic***
		Sergey P. Gladyshev, Univ. of Michigan-Dearborn; Irina Okrainskaya, South Ural State Univ.
2:30 p.m.	***2009-01-0533***	***Automotive Driving Simulators: Research, Education, and Entertainment***
		Dionne Norfleet, John R. Wagner, Kim Alexander, Philip Pidgeon, Clemson Univ.
3:00 p.m.	***2009-01-1548***	***Requirement Analysis and Development using MATLAB Models***
		Jinming Yang, Jason Bauman, Al Beydoun, Lear Corp.
3:30 p.m.	***2009-01-0532***	***Virtual Engine System Prototyping with High-Resolution FFT for Digital Knock Detection Using CPU Model-Based Hardware/Software Co-simulation***
		Yasuo Sugure, Shigeru Oho, Hitachi, Ltd.; Sujit S. Phatak, George Saikalis, Hitachi America, Ltd.
4:00 p.m.	***2009-01-0530***	***Design Modification and Optimization of Fuel Indication System in Automobiles***
		Anand Vijayakumar, TATA Motors Ltd.

	2009-01-0522	***Future Vehicle Power Nets Enabling Further Electrification (Written Only -- No Oral Presentation)***
		Christian Knobel, Fathi El-Dwaik, Hartmut Pröbstle, Ottmar Sirch, Joachim Fröschl, Frank Przywecki, BMW Group

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Tuesday, April 21

Climate Control (Part 1 of 2)

Session Code: ***HX2***

Room D2-11/12 ***Session Time:*** ***8:30 a.m.***

Climate Control continues to make global headlines, and the papers included in this session offer innovation into the science behind some of those headlines while providing insight into future industry applications of Climate Control products. Global Warming, Air Quality, and Enhanced Occupant Comfort are some of the topics included in this session.

Organizers - *Bashar AbdulNour, General Dynamics; Jeffrey A. Bozeman, General Motors Corp.; William Hill, GM Technical Center, General Motors Corp.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0543***	***Air Conditioning System Utilizing Vehicle Waste Energy***
		Thomas Dudley Harrison, FreeAir Company
9:00 a.m.	***2009-01-0539***	***Energy-Efficient Air Conditioning Systems Utilizing Pneumatic Variable Compressors***
		Mingyu Wang, Mark Zima, Prasad Kadle, Delphi Corp.
9:30 a.m.	***2009-01-0534***	***Transient Refrigerant and Oil Migration of a R134a Automotive A/C System***
		Steffen Peuker, Pega Hrnjak, Univ. of Illinois
10:00 a.m.	***2009-01-0542***	***Measurement of Carbon Dioxide in Vehicle Cabin to Monitor IAQ during Winter Season with HVAC Unit Operating on OSA Mode***
		Gursaran D. Mathur, CalsonicKansei North America Inc.
10:30 a.m.	***2009-01-0536***	***Experimental Study on the Air Quality of Vehicle's Cabin by Evaluating CO2 Concentration and Fine Dust on the Real Road***
		Se Kil Park, Hyundai Motor Co.

Planned by Thermal Management Activity / EMB Land and Sea Group

Tuesday, April 21

Climate Control (Part 2 of 2)

Session Code: ***HX2***

Room D2-11/12 ***Session Time:*** ***1:30 p.m.***

Climate Control continues to make global headlines, and the papers included in this session offer innovation into the science behind some of those headlines while providing insight into future industry applications of Climate Control products. Global Warming, Air Quality, and Enhanced Occupant Comfort are some of the topics included in this session.

Organizers - *William Hill, General Motors Corp.; Jeffrey A. Bozeman, General Motors; Bashar AbdulNour, General Dynamics*

Time	***Paper No.***	***Title***

1:30 p.m.	***2009-01-0540***	***SAE Cross Country A/C Comfort Evaluation***
		William Hill, GM Technical Center; Ward J. Atkinson, Sun Test Engineering
2:00 p.m.	***2009-01-0541***	***Safety Issues in the Application of a Flammable Refrigerant Gas in MAC Systems: The OEM Perspective***
		Roberto Monforte, Luca Caretto, FIAT Group Automobiles SpA
3:30 p.m.	***2009-01-0538***	***Validation of STAR-CD with TCM Plugin Tool for Thermal Comfort Simulations***
		Steve Evans, CD-adapco; Murat Sabanca, TWT GmbH; Oliver Moos, Daimler AG; Esteban Ruiz, MB-technology GmbH; Andre Strobel, Daimler AG
	2009-01-0535	***CFD Analysis and Validation of an Automotive HVAC System (Written Only -- No Oral Presentation)***
		Ashok Patidar, Shankar Natarajan, Manoj Pande, Mahindra & Mahindra Limited - Automotive Sector
	2009-01-0537	***Designing Automotive Rear Air Handling System for Low Flow Induced Noise using Broadband Noise Source and Ffowcs-Williams & Hawkings Models (Written Only -- No Oral Presentation)***
		Ashok Patidar, Mahindra & Mahindra Limited - Automotive Sector

Planned by Thermal Management Activity / EMB Land and Sea Group

Tuesday, April 21

Vehicle Aerodynamics (Part 3 of 5): CFD Tool Development for Aero

Session Code: ***B50***

Room D2-13/14 ***Session Time:*** ***8:30 a.m.***

Validation studies, understanding of new tools and methods for advanced CFD applications, prediction of aerodynamic forces, cooling air flows, and underbody aerodynamics.

Organizers - *Taeyoung Han, GM; Sandeep Dinkar Sovani, ANSYS Inc.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0331***	***Proper Orthogonal Decomposition of Flow Structures around a Surface-Mounted Cube Computed with Detached-Eddy Simulation***
		Tomas Muld, Royal Institute of Technology
9:00 a.m.	***2009-01-0332***	***A CFD Approach Via Large Eddy Simulation to the Flow Field with Complex Geometrical Configurations - A Study Case of Vehicle Underbody Flows***
		Kozo Kitoh, Kozo Kitoh Technology; Nobuyuki Oshima, Hokkaido Univ; Makoto Yamamoto, Tokyo Univ of Science; Simone Sebben, Volvo Car Corp.
9:30 a.m.	***2009-01-0333***	***Application of Detached Eddy Simulation for Automotive Aerodynamics Development***
		Eugene de Villiers, Andrew Jackson, Jorge Gines, ICON; Moni Islam, Friedhelm Decker, AUDI AG; Thorsten Grahs, Andreas Gitt-Gehrke, Volkswagen AG; Josep Comas i Font, SEAT S.A.
10:00 a.m.	***2009-01-0334***	***Implementation of Immersed Boundary Method for Rapid and Reliable External Flow Simulations in Automotive***
		Reza Ghias, Ashok Khondge, ANSYS Inc.

10:30 a.m.	***2009-01-0335***	***Rapid Meshing for Vehicle Aerodynamics Simulation***
		Sandeep Dinkar Sovani, ANSYS Inc.; Hamid Ghazialam, Fluent Inc.; Ashok Khondge, ANSYS Inc.; Keyur Kanade, Ansys; Padmesh Mandloi; Laz Foley, ANSYS Inc.; Robert Lietz, Ford Motor Co.; Ibrahim Yavuz, ANSYS Inc
11:00 a.m.	***ORAL ONLY***	***Computational Fluid Dynamics Calculations to Effect Product Design in Complex Organizations***
		James P. Johnson, General Motors Corp.

The papers in this session are available in a single publication, SP-2226, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Tuesday, April 21

Vehicle Aerodynamics (Part 4 of 5): Aerodynamic Development

Session Code: ***B50***

Room D2-13/14 ***Session Time:*** ***1:30 p.m.***

This session covers the aerodynamic analysis of a range of vehicle types undertaken in industry and in academia around the world. In many cases wind tunnel measurements and Computational Fluid Dynamic (CFD) analyses are used together as complimentary techniques.

Organizers - *Larry A. Butz, General Motors Corp.; Thomas N. Ramsay, Honda R&D Americas Inc.; Ronald E. Schoon, Navistar Inc.; David Sims-Williams, Durham Univ.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1167***	***Aerodynamics of a Pickup Truck: Combined CFD and Experimental Study***
		Scott Holloway, James Leylek, Clemson Univ.; William York, GE Energy; Bahram Khalighi, GM R&D Center
2:00 p.m.	***2009-01-1161***	***Further Analysis of Pickup Trucks Aerodynamics***
		Wael Mokhtar, Lake Superior State Univ.; Colin Britcher, Old Dominion Univ; Robert Camp, Lake Superior State Univ.
2:30 p.m.	***2009-01-1156***	***Response of a Prototype Truck Hood to Transient Aerodynamic Loading***
		Anurag Gupta, Joaquin Gargoloff, Bradley Duncan, Exa Corp.
3:00 p.m.	***2009-01-1155***	***CFD Analysis of Airflow Around the Rider of a Motorcycle for Rider Comfort Improvement***
		Yasushi Takahashi, Yukinori Kurakawa, Haruomi Sugita, Honda R&D Co., Ltd.; Tsuneaki Ishima, Gunma Univ.; Tomio Obokata, Tokyo Denki Univ.
3:30 p.m.	***2009-01-1157***	***CFD Study Concerning the Influence of the Underhood Components on Total Drag for a SUV***
		Angel Huminic, Gabriela Huminic, Transilvania Univ.
4:00 p.m.	***2009-01-1169***	***Heavy Vehicle Wheel Housing Flows - a Parametric Study***
		David Söderblom, Chalmers Univ. of Technology; Per Elofsson, Scania CV AB; Linus Hjelm, Volvo 3P; Lennart Löfdahl, Chalmers Univ. of Technology
4:30 p.m.	***2009-01-1162***	***The Appropriate Use of CFD in the Automotive Design Process***
		Adrian Philip Gaylard, Jaguar Land Rover
5:00 p.m.	***2009-01-1166***	***Application of Modeling Function Design Method to Road Vehicle Aerodynamic Optimization in Initial Design Stage***
		Joo-Hyun Rho, Seoul National Univ.; Jung-Do Kee, Hyundai Kia Motors; Yo-Cheon Ku, Seoul National Univ.; Kwang-Yeon Kim, Hyundai Kia Motors; Dong-Ho Lee, Seoul National Univ.

The papers in this session are available in a single publication, SP-2226, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Tuesday, April 21

Automotive Lighting Technology (Part 3 of 3)

Session Code: ***B20***

Room D2-15 ***Session Time:*** ***8:30 a.m.***

The competitiveness for the automotive lighting products is pushing engineering community to establish more efficient and effective approaches in design, analysis and evaluation for product development. The work accomplished by the experts often provides the industry with building-blocks toward practicality and excellence for productivity.

Organizers - *Jianzhong Jiao, Osram Opto Semiconductors Inc.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0336***	***Influence of Foreground Illumination from Headlamps on Visibility and Preference***
		John D. Bullough, Nicholas P. Skinner, Rensselaer Polytechnic Institute
9:00 a.m.	***2009-01-0337***	***Design and Optimization of a Projector Headlamp***
		Michael Zollers, Stuart David, Optical Research Associates
9:30 a.m.	***2009-01-0338***	***The Bihalogen Projector - Chances and Challenges***
		Markus Kiesel, Automotive Lighting
10:00 a.m.	***2009-01-0340***	***Avoiding Visible Condensation Inside Automotive Tail Lamps***
		Bernd Schuster, Adam Opel GmbH; Andreas Alers, Alers Technology LLC; Paloma Sevillano, Torsten Schmidt, GXC Coatings GmbH
10:30 a.m.	***2009-01-0546***	***Visual Recovery and Discomfort Following Exposure to Oncoming Headlamps***
		Nicholas P. Skinner, John D. Bullough, Rensselaer Polytechnic Institute

The papers in this session are available in a single publication, SP-2223, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Tuesday, April 21

Human Factors in Driver Vision and Lighting

Session Code: ***B21***

Room D2-15 ***Session Time:*** ***1:30 p.m.***

The visual world of the driver is important for both safety and driver comfort. The papers in this session provide a comprehensive treatment of issues that are important for driver vision, ranging from how basic mechanisms of perception are affected by lighting to the complexities of visual attention.

Organizers - *Michael J. Flannagan, Univ. of Michigan*

Chairpersons - *Richard H. Karbowski*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0547***	***Evaluation of Forward Collision Warning System Visual Alert Candidates and SAE J2400***
		Miguel A. Perez, Virginia Tech Transportation Institute; Raymond Kiefer, General Motors Structure and Safety Integration Center; Alice Haskins, Jonathan Hankey PhD, Virginia Tech Transportation Institute

2:00 p.m.	***2009-01-0548***	***A Study on a Device for Controlling Visual Information to Improve Driver Performance***
		Eri Kishida, Nissan Motor Co., Ltd.; Naoyuki Matsuzaki, Toyohashi Univ of Technology; Kenya Uenuma, Nissan Motor Co., Ltd.; Hiroaki Shigemasu, Michiteru Kitazaki, Toyohashi Univ of Technology; Keijiro Iwao, Nissan Motor Co., Ltd.
2:30 p.m.	***2009-01-0551***	***Attaining 100% Turn Signal Usage Using Low Cost Automated Driver-in-the-Loop System***
		Richard L. Ponziani, RLP Engineering
3:00 p.m.	***2009-01-0544***	***Effect of Dynamic Lighting Conditions on Visual Detection***
		John D. Bullough, Nicholas P. Skinner, Rensselaer Polytechnic Institute
3:30 p.m.	***2009-01-0549***	***Implications of Adaptive High Beam Headlighting Systems for Discomfort and Disability Glare***
		Jan Holger Sprute, Christoph Schiller, Nils Haferkemper, Tran Quoc Khanh, Technische Universitaet Darmstadt
4:00 p.m.	***2009-01-0550***	***HID vs. Tungsten-Halogen Headlamps: Driver Preferences and Visibility Distance***
		Christoph Schiller, Jan Sprute, Andreas Groh, Marvin Boell, Tran Quoc Khanh, Nils Haferkemper, Technische Universitaet Darmstadt
	2009-01-0545	***Measurement of Frontal Cortex Brain Activity Attributable to the Driving Workload and Increased Attention (Written Only -- No Oral Presentation)***
		Toshiyuki Shimizu, Satoru Hirose, Hideo Obara, Nissan Motor Co., Ltd.; Kazuki Yanagisawa, Hitoshi Tsunashima, Yoshitaka Marumo, Tomoki Haji, Masato Taira, Nihon Univ.

Planned by Human Factors Committee / Automobile Body Activity

Tuesday, April 21

Model-Based Design of Embedded Systems

Session Code: ***AE14***

Room D3-19 ***Session Time:*** ***8:30 a.m.***

To reduce development time and improve quality while delivering technical innovations, leading companies are using math-based models and a process known as Model-Based Design for developing embedded controllers. Engineers use an executable specification to iterate quickly through design concepts using simulation and without relying on physical prototypes. The executable specification then serves as the basis for early verification, hardware in-the-loop test, and production code generation.

Organizers - *Jon Friedman, Wensi Jin, The MathWorks Inc.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0149***	***Techniques for Generating and Measuring Production Code Constructs from Controller Models***
		Bill Chou, Saurabh Mahapatra, The MathWorks Inc.
9:00 a.m.	***2009-01-0154***	***Key Factors for Successful Integration of Automatic Code Generation in Series Production Development***
		Michael Beine, Ulrich Eisemann, Dirk Fleischer, dSPACE GmbH; Stamat Stamatov, dSPACE Inc.
9:30 a.m.	***2009-01-0150***	***Model-Based Design of Fixed-Point Digital Filters for Embedded Systems***
		Mark Corless, Arvind Ananthan, The MathWorks Inc.

10:00 a.m.	***2009-01-0153***	***Model-Based ECU Development - An Integrated MiL-SiL-HiL Approach***
		Vivek Jaikamal, ETAS
10:30 a.m.	***2009-01-0155***	***Methods for Interfacing Common Utility Services in Simulink Models used for Production Code Generation***
		Jeffrey M. Thate, Robert Kagy, Caterpillar Inc.; Robyn Jackey, Roger Theyyunni, Jagadish Gattu, The MathWorks Inc.
11:00 a.m.	***2009-01-0152***	***Integrating Functional and Non-Functional Design Verification for Embedded Software Systems***
		Chris Ackermann, Arnab Ray, Fraunhofer Ctr. for Experimental Software Engrg.; Rance Cleaveland, Univ. of Maryland; Charles Shelton, Chris Martin, Bosch Research & Technology Center
	2009-01-0151	***Model-Based Testing Design for Embedded Automotive Software (Written Only -- No Oral Presentation)***
		Anila Mjeda, Pat McElligott, Kevin Ryan, Steffen Thiel, Lero, Univ. of Limerick

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Tuesday, April 21

Advances In Light Weight Materials - Aluminum

Session Code: ***M1***

Room D3-19 ***Session Time:*** ***1:30 p.m.***

This session presents the latest developments in automotive applications of aluminum castings and wrought products. The papers cover a wdie range of the technical aspects including alloy development, lightweight design, process development and simulation as well as performance optimization.

Organizers - *Sooho Kim, GM R&D Center; Alan A. Luo, General Motors Corp.*

Chairpersons - *Sooho Kim, Alan A. Luo, GM R&D Center*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0553***	***Weight Reduction from High Strength Aluminium Diecastings***
		Roger Neil Lumley, Csiro Light Metals Flagship
2:00 p.m.	***2009-01-0552***	***Innovative Alloys for High Pressure Die Casting***
		Vincenzo Ilotte, Fonderie 2A
2:30 p.m.	***2009-01-0554***	***Development of Aluminum Control Arm applied for Curved Profile Extrusion Process***
		Gyewon Jang, Woosik Lee, Daeup Kim, Wooil Lee, Hyundai Mobis
3:00 p.m.	***2009-01-0556***	***Reducing Porosity in Aluminum Lost Foam Castings Through Computer Simulation***
		Preston Scarber, Jr., Alan Druschitz, Harry Littleton, Univ. of Alabama Birmingham
3:30 p.m.	***2009-01-0555***	***Aluminum Rail Buckling: A Confidence Assessment of Different Modeling Techniques. Influence of Various CAE Procedures, Production Variability and Material Characteristics***
		Alberto Naviglio, srsed

Planned by Non-Ferrous Committee / Materials Engineering Activity

Tuesday, April 21

Reliability and Robust Design in Automotive Engineering: Multidisciplinary Design Optimization

Session Code: ***IDM31***

Room D3-20/21 ***Session Time:*** ***8:30 a.m.***

Multidisciplinary design optimization (MDO) focuses on optimizing the performance and reducing the costs of complex systems that involve multiple interacting disciplines in all industries. SAE's MDO session papers address issues such as design synthesis, sensitivity analysis, approximation concepts, decomposition, optimization algorithms, methods and strategies, artificial intelligence, and rule-based design, etc.

Organizers - *Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.; Zissimos Mourelatos, Oakland Univ.*

Chairpersons - *Nickolas Vlahopoulos, Univ of Michigan*

Assistant Chairpersons - *Ching-Hung Chuang, Ford Motor Co*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0341***	***Multi Disciplinary Robust Optimization for Performances of Noise & Vibration and Impact Hardness & Memory Shake***
		Mallikarjuna Bennur, Derek Hogland, Edward Abboud, Thomas Wang, Matthew Rudnick, General Motors Corp.
9:00 a.m.	***2009-01-0344***	***Utilization of Response Surface Methodologies in the Multi-discipline Design Optimization of an Aircraft Wing***
		Nickolas Vlahopoulos, Univ. of Michigan; Jim He, Michigan Engineering Services
9:30 a.m.	***2009-01-0343***	***Upfront Body Structural Optimization using Parametric Concept Modeling***
		Ching-Hung Chuang, Suwei Zhou, Wilson ang, Ren-Jye Yang, Michael Lee, Ford Motor Co.
10:00 a.m.	***2009-01-0342***	***A Morphological, Combinatory Tool for Design of Low-Gap Automotive Body Panels***
		Sudhakar Teegavarapu, Prabhu Shankar, Beshoy Morkos, Ajit Kanda, Ashwin Michaelraj, Joshua David Summers, Clemson Univ.; Andreas Obieglo, BMW Group
	2009-01-0345	***Effect of Material Properties and Wall thickness of Polymer Based Intake Manifold on the Engine Radiated Noise Levels (Written Only -- No Oral Presentation)***
		Bilal Aydemir, Ali Ebrinc, Ford Otosan AS

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Tuesday, April 21

Reliability and Robust Design in Automotive Engineering: Reliability Testing and Design of Experiments

Session Code: ***IDM24***

Room D3-20/21 ***Session Time:*** ***1:30 p.m.***

This session presents the papers, practices and techniques used on reliability development testing , reliability demonstration testing, and design of experiments. The purpose of a reliability demonstration test is to determine if a product meets or exceeds the established minimum reliability requirement. The objective of design of experiments is to quntify the importance and ranking of the input variables on the outputs.

Organizers - *Yung-Li Lee, Chrysler LLC; Paul Lubinski, Thermo King Corp.; Shawn Capser, AVL Powertrain Engineering Inc.*

Chairpersons - *Patricia Bammel, Chrysler LLC; Shawn Capser, AVL Powertrain Engineering Inc; Paul Lubinski, Thermo King Corp*

Time	Paper No.	Title
1:30 p.m.	2009-01-0558	**Factors Influencing Contact Life and Failure Mode in Compact PCB Power Relays** *Takatoshi Takikawa, AutoNetworks Technologies, Ltd.*
2:00 p.m.	2009-01-0560	**Bayesian Technique for Reducing Uncertainty in Fatigue Failure Model** *Nam-Ho Kim, Sriram Pattabhiraman, Univ. of Florida*
2:30 p.m.	2009-01-0559	**Lessons Learned for Effective Design Verification** *Mohammad Hijawi, Mark A Levine, Chrysler LLC*
3:00 p.m.	2009-01-0561	**Reliability Verification: Plan, Execution, and Analysis** *Jianhua Zhou, Dingjun Li, Ford Motor Co.*
3:30 p.m.	2009-01-0562	**Design of a Scaled Off-Vehicle Wheel Testing Device for Textile Tread Wear** *Samantha Thoe, Clemson Univ.; David Stowe , Clemson University; Anne O'Dell, Kathryn Northup, Kristen Wallis, Jessica Merino, Matthew Torok, Marisa Orr, Joshua David Summers, Vincent Blouin, Paul Joseph, Clemson Univ.*
4:00 p.m.	2009-01-1543	**Improved Method to Measure Accurate Engine Mount Movement for Durability Specification Setting** *John L. Kern, ken Iinuma, Honda R&D Americas Inc.*
	2009-01-0557	**Design Optimization & Accelerated Testing of Power Steering Pump to Reduce Warranty Costs (Written Only -- No Oral Presentation)** *Hari Srinivas Babu Aggarapu, Tata Motors, Ltd.*
	2009-01-0563	**Oil Pump Drive Design on a Diesel Engine (Written Only -- No Oral Presentation)** *Ozay Polat, Ford Engine Design; Ali Ebrinc, Ford Otosan AS*

The papers in this session are available in a single publication, SP-2232, and also individually.

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Tuesday, April 21

Welding and Joining and Fastening (Part 3 of 3)

Session Code: ***M16***

Room D3-22/23 ***Session Time:*** ***8:30 a.m.***

This session provides a unique opportunity to learn about the latest developments in welding and fastening for automotive manufacturing. Topics will include new strategies for welding/joining, dissimilar material joining, application of traditional welding processes to new materials, and the mechanical behavior of joints and welded components.

Organizers - *Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Michael L. Santella, Oak Ridge National Laboratory; Tau Tyan, Ford Motor Co.; Shicheng Zhang, Daimler AG*

Chairpersons - *Jwo Pan, Univ of Michigan-Ann Arbor; Tau Tyan, Ford Motor Co*

Time	Paper No.	Title
8:30 a.m.	2009-01-0035	**Dissimilar Metal Joining of Aluminum Alloys and Steel in the Spot Welding by using Advanced Hot-dip Aluminized Steel Sheet** *Shin Ueno, Yasunori Hattori, Tadaaki Miono, Takeshi Shimizu, Nisshin Steel Co.,Ltd.; Seiji Sasabe, Tetsu Iwase, Kobe Steel,Ltd.*

9:00 a.m.	***2009-01-0030***	***Influence of Gap on RSW Weldability of AHSS***
		Wenkao Hou, Stephen Kelley, Arcelormittal Global R&D
9:30 a.m.	***ORAL ONLY***	***Effect of Weld Length on the Strength of Gas Metal Arc Welds***
		Catherine Marie Amodeo, Johnson Controls Inc.; Jwo Pan, Univ of Michigan-Ann Arbor
10:00 a.m.	***2009-01-0027***	***Effects of Thickness Combinations on Joint Properties and Process Windows in Ultrasonic Metal Welding***
		Nick Wright, Joseph Robson PhD, Philip Prangnell, Univ. of Manchester
10:30 a.m.	***2009-01-0037***	***Effect of Surface Pretreatments on Adhesive Bonding of Several Magnesium Alloys***
		Kimberly Lazarz, Ford Motor Co.; Wenchao Wang, Univ of Michigan-Dearborn; Robert McCune, Robert C. McCune & Associates LLC; Pankaj Mallick, Univ of Michigan-Dearborn
	2009-01-0034	***Dissimilar Joining of Aluminum Alloy and Steel by Resistance Spot Welding (Written Only -- No Oral Presentation)***
		Kenji Miyamoto, Shigeyuki Nakagawa, Chika Sugi, Hiroshi Sakurai, Nissan Motor Co., Ltd.; Akio Hirose, Osaka University
	2009-01-0041	***Finite-Element-based methods for the fatigue design of bolts and bolted joints (Written Only -- No Oral Presentation)***
		Kai Buhr, Robert Bosch GmbH; Ulrich Wuttke, Christina Berger, TU Darmstadt; Wolfgang Haydn, Manfred Bacher-Hoechst, Robert Bosch GmbH

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

Reliability and Robust Design in Automotive Engineering: Decision Under Uncertainty/Uncertainty Modeling

Session Code: ***IDM25***

Room D3-22/23 ***Session Time:*** ***1:30 p.m.***

Methods for modeling uncertainty and decision making under uncertainty are presented in this session. Both teoretical developments and practical applications from the automotive industry are covered.

Organizers - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo*

Chairpersons - *Zissimos Mourelatos, Oakland Univ*

Assistant Chairpersons - *Efstratios Nikolaidis, Univ of Toledo*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0564***	***Designing the Thermal Protection System of an Apollo Type Vehicle under Uncertainty***
		Nickolas Vlahopoulos, Univ. of Michigan; Jim He, Michigan Engineering Services
2:00 p.m.	***2009-01-0565***	***Model-based Optimization of a Hydraulic Backhoe using Multi-Attribute Utility Theory***
		Roxanne Moore, Georgia Institute of Technology
2:30 p.m.	***2009-01-0566***	***MCMC-Based Simulation Method for Efficient Reliability-Based Maintenance Optimization***
		Y-T. J. Wu, Applied Research Associates Inc.

3:00 p.m.	***2009-01-0567***	***Fuzzy Boundary Element Method for Geometric Uncertainty in Elasticity Problem***
		Bart Zalewski, Case Western Reserve Univ
3:30 p.m.	***2009-01-0568***	***Using DCOV Methodology for Virtual Hydrogen Concentration Sensor Development (For Use in the Fuel Cell Electric Vehicle)***
		Milos Milacic, Ford Motor Co.
4:00 p.m.	***2009-01-0569***	***From Model Validation to Reliability Assessment: Comments on Non-Deterministic Approaches (NDA)***
		Roger Logan, Independent Consultant

The papers in this session are available in a single publication, SP-2232, and also individually.

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Tuesday, April 21

Virtual Design and Engineering (Part 1 of 2)

Session Code: ***IDM3***

Room D3-24/25 ***Session Time:*** ***8:30 a.m.***

This session presents research work in the development of new methodologies or case studies to simulate real world environments for product development, manufacturing optimization simulation, crash virtual analysis, material strength analysis, and non-destructive testing. The session also includes technologies like computer simulation utiliized in conjunction with the results of physical tests.

Organizers - *George Michael Smith, E-Z-Go Textron*

Chairpersons - *Paul Zalucha, Visteon Corp.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2009-01-0475***	***The Potential of 3D-CAD Based Process ¿ Optimization in the Automotive Concept Phase***
		Patrick Rossbacher, Mario Hirz, Alexander Harrich, Graz University of Technology; Wilhelm Dietrich, Norbert Theiss, Magna Steyr Fahrzeugtechnik
9:30 a.m.	***2009-01-0476***	***The Future of Automotive Design and Development: 3D For All***
		Kevin Lee Baughey, Dassault Systemes
10:00 a.m.	***2009-01-0477***	***Internal Combustion Engine Design: A Pratical Computational Methodology***
		Cristiana Delprete, Fabio Pregno, Carlo Rosso, Politecnico di Torino
10:30 a.m.	***2009-01-0593***	***Conceptual Development of Automotive Forward Lighting System Using White Light Emitting Diodes***
		Beshoy Morkos, Prabhu Shankar, Sudhakar Teegavarapu, Ajit Singh Kanda, Ashwin Michaelraj, Joshua David Summers, Clemson Univ,; Andreas Obieglo, BMW Group
	2009-01-0468	***Development of a Full Vehicle Electrocoat Paint Simulation Tool (Written Only -- No Oral Presentation)***
		Kevin Ellwood, Ford Motor Co.; Patrick Gaffney, Bergen Software Services International; Janice L. Tardiff, Ford Motor Co.; Leonard Gray, Knut Moldekiev, Arne Halvorsen, Jacob Braslaw, Bergen Software Services International
	2009-01-0478	***Evaluation of Aerodynamic Noise Generated in a Miniature Car Using Numerical Simulation (Written Only -- No Oral Presentation)***
		Gu Zhengqi; Wang Yiping; Yang Xue; Li Weiping

Planned by E-Design and Manufacturing Committee / Integrated Design and Manufacturing Activity

Tuesday, April 21

Advances in Coating

Session Code: ***M12***

Room D3-24/25 ***Session Time:*** ***1:30 p.m.***

The topics are diverse this year. We will be updated on plasma treatment technologies, aluminum nickel coatings for engines, and rust preventative coatings for fasteners. Since all of the OE's are working on reducing vehicle weight, the paper on light weight body sealers is of great interest. Because California is proposing legislation to reduce vehicle cabin temperatures, the heat reflective coating for glass presentation is also timely.

Organizers - *William J. Welland, Hyundai-Kia America Technical Center Inc.; James Keller, Hyundai-Kia America Technical Center Inc*

Chairpersons - *James Keller, Hyundai-Kia America Technical Center Inc*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0570***	***Preparation and Physical Properties of Two-Packaged Polyurethane Coatings for Silver Mirror Layer Protection***
		YaWon Kim, Junghwan Lee, Daeup Kim, Ok Kim, Hyeondon Kim, Hyundai Mobis
2:00 p.m.	***2009-01-0573***	***Polycarbonate Glazing: Maximum and effective temperatures for Outdoor Weathering Exposure in the desert of Arizona.***
		Stephen Shuler, GE Advanced Materials
2:30 p.m.	***2009-01-0571***	***Development of Next-generation Lightweight Body Sealer***
		Masanobu Yaguchi, Kiyoshi Hasegawa, Honda R&D Co., Ltd.
3:00 p.m.	***2009-01-0572***	***Plasma Treatment: Reduction of VOC Emissions With Environmentally Friendly Surface Treatment Prior to Bonding, Coating and Printing Applications***
		Shaun Glogauer, Plasmatreat

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Tuesday, April 21

Automotive Composites

Session Code: ***M24***

Room D3-24/25 ***Session Time:*** ***3:30 p.m.***

This session contains papers which describe the use of modern automotive composites in structural applications. Design, process, and analytical presentations are included, as well as papers presenting results of bonding strategies and techniques. Engineers involved in the design and use of advanced composites will find this session of particular value.

Organizers - *Nishkamraj Umakant Deshpande, Dura Automotive Systems Inc.; Y Charles Lu, Univ. of Kentucky; Richard D. Tonda, Ford Motor Company*

Chairpersons - *Y Charles Lu, Univ. of Kentucky*

Assistant Chairpersons - *Nishkamraj Umakant Deshpande, Dura Automotive Systems Inc.; Richard D. Tonda, Engineering Forensics PC*

Time	Paper No.	Title

3:30 p.m.	***2009-01-0603***	***Finite Element Analysis of Compression Behavior of Composite Egg-box Panel with Non-Orthogonal Constitutive Model***
		Youngwon Hahn; Seung Hwan chang, Chungang University; Seong Sik cheon, Kongju National University
4:00 p.m.	***2009-01-0601***	***Flexible Honeycomb Composite Vehicle Armor***
		Abraham Pannikottu, American Engineering Group
	2009-01-0602	***Design of 5.4L 3V Thermoplastic Composite Engine Cover for NVH Improvement: Part 1 Finite Element Analysis (Written Only -- No Oral Presentation)***
		Haran Periyathamby, Mike E Anderson, Dana Sealing Products; Y Charles Lu, Univ. of Kentucky; David A Nash, Dana Sealing Products
	2009-01-0605	***Bonding Strength Models of Polyurethane (PU) to Vulcanized Rubber (Written Only -- No Oral Presentation)***
		Soujanya kumar Teppa, Laine Michael Mears, Clemson Univ.
	2009-01-0606	***Mechanical Properties of Mwcnt/Elastomer Composites and the Cellulation Model (Written Only -- No Oral Presentation)***
		Toru Noguchi, Nissin Kogyo, Japan

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Tuesday, April 21

Load Simulation and Analysis in Automotive Engineering: Multibody Dynamics Systems Modeling and Applications (Part 5 of 6)

Session Code: ***M20***

Room D3-26/27 ***Session Time:*** ***8:30 a.m.***

This session focuses on the comparison of the simulation results between rigid and flexible modeling approaches, flexible body modes selection, and mount loads predictions for vehicle body. Other issues include durability loads simulation, optimal development process considering vehicle dynamics and durability loads, data processing and optimal design techniques for loads minimization, prediction of manufacturing tolerance effects on loads, robust design methods, etc.

Organizers - *Ken Kang, Honda R&D Americas Inc; Dongpu Cao, Univ. of Waterloo; Joshua Guo, FOTON Motor Company; Xiaobo Yang, Oshkosh Corp.; Peijun Xu, Commercial Vehicle Group*

Chairpersons - *Xiaodi (Ken) Kang, Honda R&D Americas Inc.*

Assistant Chairpersons - *Dongpu Cao, Univ of Waterloo; Joshua Guo, FOTON Motor Company*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1193***	***3D Numerical Analysis Investigating Distribution of Contact Pressures for a Number of Cylindrical Bearing Axial Profiles When Placed Under Radial Load Conditions***
		James Jason Brown, Univ. of Warwick
9:00 a.m.	***2009-01-1195***	***Optimization of a Heavy Duty Diesel Engine cam Profiles to Eliminate the Contact Loss using Multi-body Dynamic Model (Written Only -- No Oral Presentation)***
		Mehdi Mehrgou, Iran Heavy Diesel Engine Mfg.Co (DESA); Norman Hadley, Technomot .Ltd .UK; Vincent d'olier, Technomot.Ltd .UK
9:30 a.m.	***2009-01-1196***	***Utilization of MotionView for Automotive Strength and Durability Analysis - Application and Correlation***
		Hernan Mercado-Corujo, Honda R&D Americas Inc.

10:00 a.m.	***2009-01-1198***	***Experimental Study of Coupled Longitudinal and Transverse Vibration of Automotive Belts***
		Petru Razvan Scurtu, Michael Clark, Litens Automotive Group; Jean W. Zu, Univ. of Toronto

The papers in this session are available in a single publication, SP-2233, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

Load Simulation and Analysis in Automotive Engineering: Influence of Load on Vehicle Handling Dynamics and its Control (Part 2 of 6)

Session Code: ***M20***

Room D3-26/27 ***Session Time:*** ***10:30 a.m.***

This session focuses on analysis and enhancement of vehicle handling dynamics performance and active safety under the influence of different loading and tire forces characteristics. Other topics include modeling, simulation, testing, evaluation and optimization of vehicle handling dynamics and stability characteristics affected by operating conditions, correlation studies of simulation results, objective measurements and subjective judgments of load effects on vehicle handling.

Organizers - *Ken Kang, Honda R&D Americas Inc; Dongpu Cao, Univ of Waterloo; Xiaobo Yang, Oshkosh Corporation; Peijun Xu, Commercial Vehicle Group*

Chairpersons - *Dongpu Cao, Univ of Waterloo*

Assistant Chairpersons - *Xiaodi (Ken) Kang, Honda R&D Americas Inc.*

Time	***Paper No.***	***Title***
10:30 a.m.	***2009-01-0578***	***Robust Yaw Moment Control for Vehicle Handling and Stability***
		Haiping Du, Nong Zhang, Wade Smith, Univ. of Technology Sydney
11:00 a.m.	***2009-01-0579***	***Experimental and Theoretical Investigation into the Dynamics of a Half-Car with an Interconnected Passive Suspension***
		Wade Smith, Nong Zhang, Univ. of Technology Sydney
	2009-01-0581	***Simulation Based Design for Heavy Truck Brake (Written Only -- No Oral Presentation)***
		Xiaobin Ning; Bin Meng

The papers in this session are available in a single publication, SP-2233, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

Load Simulation and Analysis in Automotive Engineering: Road Test Simulator Techniques (Part 6 of 6)

Session Code: ***M20***

Room D3-26/27 ***Session Time:*** ***1:30 p.m.***

This session focuses on road test simulator techniques, automotive parts, components, subsystems such as chassis, body and full vehicle test, evaluation and performance improvement with road test simulators and multi-axial simulation table. other issues to be address include techniques of instrumentation and transducers, full vehicle and half-vehicle simulation test, data acquisition, data analysis, and durability related techniques and etc.

Organizers - *Mike Ma, Geele Automotive Holdings Limited; Peijun Xu, Commercial Vehicle Group; Xiaobo Yang, Oshkosh Corp.*

Chairpersons - *Peijun Xu, Commercial Vehicle Group*

Assistant Chairpersons - *Xiaobo Yang, Oshkosh Corp.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1406***	***Accelerated Vibration Durability Testing of a Pickup Truck Rear Bed***
		Ali Karbassian, Darren Bonathan, Nissan Technical Center NA Inc.; Tetsufumi Katakami, Nissan Motor Co., Ltd.
2:00 p.m.	***2009-01-0814***	***Virtual Road Profile Modeling using Damage Equivalent Method for VPG Simulation***
		Daeoh Kang, Seung-Jin Heo, HoiYoung Kim, Kookmin Univ.
2:30 p.m.	***2009-01-1408*** ***ORAL ONLY***	***Study of an AWD Sedan Rear Subframe load Prediction using Virtual Proving Ground Simulation***
		David Chen; Yuzhao Song, Ford Motor Company; Yin-ping Chang, Oakland Univ; Timothy Palmer, ETA Inc
	2009-01-1411	***Practical Approach of Durability Evaluation for Suspension Knuckle at Different Design Phases (Written Only -- No Oral Presentation)***
		Yuan Qu, Linbo Zhang, Youzhong Xu, Shen R. Wu, Chery Automobile Co., Ltd.

The papers in this session are available in a single publication, SP-2233, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

Load Simulation and Analysis in Automotive Engineering: Tire and Terrain Modeling Techniques and Applications (Part 3 of 6)

Session Code: ***M20***

Room D3-26/27 ***Session Time:*** ***3:30 p.m.***

Focusing on tire and terrain mechanics modeling for load simulations, tire model parameters identification and sensitivity analyses, tire testing equipment development, road profile characterization, effective road profile development, and interactions between tire, suspension/steering/brake systems, and different terrains, spindle loads/travel variation characteristics from proving ground test on deterministic road and rough road events, etc.

Organizers - *Yong Zhang, Oakland Univ; Peijun Xu, Commercial Vehicle Group; Xiaobo Yang, Oshkosh Corp.*

Chairpersons - *Xiaobo Yang, Oshkosh Corp.*

Assistant Chairpersons - *Peijun Xu, Commercial Vehicle Group; Yong Zhang, Oakland Univ.*

Time	Paper No.	Title
3:30 p.m.	***2009-01-1197***	***Identifying Vehicle Model Parameters Using Measured Terrain Excitations***
		Tobias Mueller, John Ferris, Zachary R. Detweiler, Hurtford Smith, Virginia Polytechnic Inst. & State Univ.
4:00 p.m.	***ORAL ONLY***	***Application of a Tire Force Estimator method in sensor systems***
		Sven T H Jansen, TNO Science & Industry
4:30 p.m.	***2009-01-0577***	***Simulating Very Large Tire Deformations with CDTire***
		Axel Gallrein, Manfred Helmut Baecker, Fraunhofer Lbf; Hitoshi Haga, Honda R&D Co Ltd
	2009-01-0582	***Tire Model RMOD-K 7 and Misuse Load Cases (Written Only -- No Oral Presentation)***
		Andreas Fandre

The papers in this session are available in a single publication, SP-2233, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

A Proposal for a NSF Advanced Technological Education Center for Advanced Automotive Propulsion Technology

Session Code: ***CONG101***

Room D3-28 ***Session Time:*** ***8:30 a.m.***

This session will present the findings of a survey of industry, education and business/workforce development leaders, and other research in technical education needs and trends. The presentation will be followed by a discussion session where the survey and research results will be discussed, and implications for an Advanced Automotive Education Center will be fielded.

Organizers - *William Stark, Macomb Community College*

Time	Paper No.	Title
8:30 a.m.	***Panel***	***Discussion and Implementation Implications***
		Panelists - *James O. Sawyer, Vice Provost, Career Programs, Macomb Community College; William Stark, Dir, Ctr for Alternative Fuels, Macomb Community College;*
9:00 a.m.	***Panel***	***Presentation of Findings from Survey***
		Panelists - *James O. Sawyer, Macomb Community College; William Stark, Macomb Community College;*

Tuesday, April 21

Career Development Session

Session Code: ***CONG102***

Room D3-28 ***Session Time:*** ***1:30 p.m.***

Gain valuable insight on hiring trends and career development from a panel of experts involved in recruiting, training or managing engineers.

Organizers - *Martha Schanno, SAE International*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***Emerging Successful -- How to Find Your Next Opportunity in a New Economy***
		Jennifer Llewellyn, Michigan Works! Troy
2:00 p.m.	***ORAL ONLY***	***What Does it Take to be a Successful Consultant?***
		Ralph V. Wilhelm, Wilhelm Associates LLC
2:30 p.m.	***ORAL ONLY***	***Successful Unemployment: 10 things you Need to do Now, to Increase Your Professional Value***
		Masha Petrova, MVP Modeling Solutions

Tuesday, April 21

Engineering Education

Session Code: ***B60***

Room M2-29 ***Session Time: 8:30 a.m.***

This session offers the opportunity for industrial professionals and academics to exchange ideas related to mobility engineering education.

Organizers - *Craig J. Hoff, Kettering Univ.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0361***	***Automotive Development Processes: an Intensive Course for Automotive Engineering Graduate Students***
		John C. Ziegert, Clemson Univ.; Julian Weber, BMW Group
9:00 a.m.	***2009-01-0362***	***Learning While Earning: The Key Role of Supported Distance Learning in Delivering Innovative, Industry Focused Courses to Up-Skill and Develop Employees in the Motor Sports Sector***
		James Keith Martin, Open Univ.; Mike Meechan, Oxford Brookes Univ
9:30 a.m.	***2009-01-0363***	***Automotive Global Collaborative Engineering Course***
		Pedro Orta, Tecnologico de Monterrey; Jan Helge Bohn, Virginia Tech
10:00 a.m.	***2009-01-0364***	***Autotronics Education - An Active Learning Approach***
		Ricardo A. Ramirez-Mendoza, Artemio Aguilar, Ruben Morales-Menendez, Manuel Giacoman-Zarzar, Tecnologico de Monterrey

Planned by Faculty Advisors Committee / Engineering Education Board

Tuesday, April 21

Fuel Cell Vehicle Applications (Part 1 of 3)

Session Code: PFL101

Room M2-29 ***Session Time: 1:30 p.m.***

The overall session addresses the latest developments in fuel cell vehicles, their systems and components for vehicle applications.

This session focuses on hydrogen storage and fuel economy measurements and fuel cell components

Organizers - *Jesse Schneider; James F. Miller, Argonne National Laboratory*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1011***	***Influence of Environmental Temperature on the Fatigue Strength of Type 3 Compressed-Hydrogen Tanks***
		Jun-ichi Tomioka, Yohsuke Tamura, Hiroyuki Mitsuichi, Shogo Watanabe, Japan Automobile Research Institute
2:00 p.m.	***2009-01-1009***	***Fuel Cell Size and Weight Reduction Due to Innovative Metallic Bipolar Plates: Technical Process Details and Improvements***
		Oliviero Vigna Suria, Massimo Bruno, Paolo Bois, Paolo Maggiore, Politecnico di Torino; Cristiano Cazzolato, Spesso Gaskets Srl
2:30 p.m.	***2009-01-1007***	***Development of a Hydrogen Flow Meter with High Accuracy at Low Flow Rates to Measure Fuel Consumption for Fuel Cell Vehicles***
		Asao Uenodai, David Cun, Steven Mathison, Ryan Harty, Honda R&D Americas Inc
3:00 p.m.	***2009-01-1006***	***Investigation of Fuel Cell Performance and Water Accumulation in a Transparent PEM Fuel Cell***
		Zakaria Ahmad, Zhongying Shi, Xia Wang, Oakland Univ.

3:30 p.m.	***2009-01-1005***	***An Evaluation of Electrical and Thermal Conductivity and Mechanical Behaviors of a Silicone Rubber based Composite Material for PEM Fuel Cell***
		Elaine Petrach, Xia Wang, Ismat Abu-Isa, Oakland Univ.
4:00 p.m.	***ORAL ONLY***	***The Effect of Sulfur on Mo2C and Mo2N-supported catalysts for H2 Production Reactions***
		Joshua Adam Schaidle, Adam Lausche, Univ. of Michigan-Ann Arbor
	2009-01-1015	***Hydrogen Fuel Cell Vehicles Technology and the Development Foreground (Written Only -- No Oral Presentation)***
		Lin Xu, Wuhan University of Technology

The papers in this session are available in a single publication, SP-2236, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Electronic Engine Controls (Part 1 of 5)

Session Code: ***PFL304***

Room M2-30 ***Session Time:*** ***8:30 a.m.***

The Electronic Engine Controls session covers engine control system design developments related to achieving stringent market fuel economy, emissions, performance, and quality demands. Control system, state estimator, signal processing, and on-board diagnostic algorithm designs and their related design practices are among the software-related topics presented. Sensor, actuator, and electronic control unit system designs are among the hardware-related topics presented.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; Junmin Wang, Ohio State Univ.; Ming Zheng, Univ. of Windsor*

Chairpersons - *Ming Zheng, Univ of Windsor*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0731***	***Malfunctions in selected emissions-related components of Euro 4 passenger cars: emissions increase and OBD system response***
		Dimitrios N. Tsinoglou, Zissis C. Samaras, Aristotle University Thessaloniki
9:00 a.m.	***2009-01-1427***	***OBD of Diesel EGR using Artificial Neural Networks***
		Michael Fischer, Honda R&D Europe GmbH; Chris Kirkham, Axeon Ltd
9:30 a.m.	***2009-01-0366***	***In-cylinder Burned Gas Rate Estimation and Control on VVA Diesel Engines***
		Thomas Leroy, Jonathan Chauvin, IFP; Nicolas Petit, Mines ParisTech; Mathieu Bitauld, IFP
10:00 a.m.	***2009-01-0367***	***Combustion Control of Diesel Engines using Injection Timing***
		Mathieu Hillion, Herman Buhlbuck, Jonathan Chauvin, IFP, France; Nicolas Petit, CAS, MINES ParisTech, France
10:30 a.m.	***2009-01-0368***	***Parameterized Diesel Engine Heat Release Modeling for Combustion Phasing Analysis***
		Mikael Thor, Ingemar Andersson, Tomas McKelvey, Chalmers University of Technology
11:00 a.m.	***2009-01-0370***	***Optimization of PID Control for Engine Electronic Throttle System Using Iterative Feedback Tuning***
		Shugang Jiang, Michael Smith, James Kitchen, A&D Technology Inc.

11:30 a.m.	***2009-01-1024***	***Combustion Monitoring based on Engine Acoustic Emission Signal Processing***
		Nicolo Cavina, Univ. Of Bologna; Stefano Sgatti, Filippo Cavanna, Giancarlo Bisanti, Magneti Marelli Powertrain

The papers in this session are available in a single publication, SP-2248, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Electronic Engine Controls (Part 2 of 5)

Session Code: ***PFL304***

Room M2-30 ***Session Time:*** ***1:30 p.m.***

The Electronic Engine Controls session covers engine control system design developments related to achieving stringent market fuel economy, emissions, performance, and quality demands. Control system, state estimator, signal processing, and on-board diagnostic algorithm designs and their related design practices are among the software-related topics presented. Sensor, actuator, and electronic control unit system designs are among the hardware-related topics presented.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; Junmin Wang, Ohio State Univ.; Ming Zheng, Univ. of Windsor*

Chairpersons - *Peter Maloney, The MathWorks Inc*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0584***	***Correlation Analysis of Ionization Signal and Air Fuel Ratio for a Spark Ignited Engine***
		Abhijit Abhijit, Jeffrey Naber, Geomy George, Michigan Technological Univ.
2:00 p.m.	***2009-01-0585***	***Development of a New Model Based Air-Fuel Ratio Control System***
		Shuntaro Okazaki, Naoto Kato, Junichi Kako, Akira Ohata, Toyota Motor Corp.
2:30 p.m.	***2009-01-0586***	***Model Predictive Control Approach for AFR Control During Lean NOx Trap Regenerations***
		Ming Feng Hsieh; Marcello Canova, Center For Automotive Research; Junmin Wang, Ohio State Univ.
3:00 p.m.	***2009-01-0587***	***Volumetric Efficiency and Pumping Torque Estimation and Compressor Recirculation Control of Turbocharged Engines***
		Martin Mueller, Delphi Corp.
3:30 p.m.	***2009-01-0588***	***An Air-Fuel Ratio and Ignition Timing Retard Control Using a Crank Angle Sensor for Reducing Cold Start HC (Written Only -- No Oral Presentation)***
		Shinji Nakagawa, Kazuhiko Kanetoshi, Takanobu Ichihara, Kozo Katogi, Minoru Oosuga, Hitachi, Ltd.
4:00 p.m.	***2009-01-0590***	***Low-Cost Air Estimation***
		Raymond Turin, SimuQuest Inc; Oguz H. Dagci, Man-Feng Chang, General Motors Corp
4:30 p.m.	***2009-01-0591***	***A Study of the Characteristics of Fuel-Film Dynamics for Four-Stroke Small-Scale Spark-Ignition Engines***
		Yuh-Yih Wu, Bo-Chiuan Chen, National Taipei Univ. of Technology; Feng-Chi Hsieh, Hua-Chuang Auto Info Tech Ctr (HAITEC); Cheng-Ting Ke, National Taipei Univ. of Technology

The papers in this session are available in a single publication, SP-2248, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Occupant Protection: Structural Crashworthiness and Occupant Safety

Session Code: ***B40***

Room M3-31 ***Session Time:*** ***8:30 a.m.***

This session presents an excellent overview of research and investigative work related to structural crashworthiness and occupant safety. Some examples of the diverse topics include: crash sensor performance, roof strength, structural foam reinforcement, assessment of the relative effect of vehicle size and mass in front-to-front crashes, rear occupant performance in frontal crashes, door latch test methodology, and a discussion related to recent studies involving the next-generation USA NCAP.

Organizers - *Saeed D. Barbat, Jamel E. Belwafa, Ford Motor Co.; Donald Parker, Exponent Inc.*

Chairpersons - *Saeed Barbat, Ford Motor Co; Jamel E. Belwafa, Ford Motor Co.; Donald Parker, Exponent Inc*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0372***	***A Statistical Approach to Analysis of the Crash Sensor Performance***
		Mahmoud Yousef Ghannam, Yeruva Reddy, Ellen Barnes, Todd Clark, Ford Motor Co.
9:30 a.m.	***2009-01-0375***	***Updated Evaluation of Size and Mass Effects in Front-to-Front Crashes Involving Light Vehicles***
		Vitaly Eyges, Jeya Padmanaban, JP Research Inc
10:00 a.m.	***2009-01-0377***	***Trend of Rear Occupant Protection in Frontal Crashes over Model Years of Vehicles***
		Elham Sahraei Esfahani, Kennerly Digges, George Washington Univ.
10:30 a.m.	***ORAL ONLY***	***Theoretical Field Modeling of Frontal Impacts: Recent Studies involving the Next-generation USA NCAP***
		Tony R. Laituri, Ford Motor Co.
	2009-01-0371	***Automotive Roof Crush - Structural Foam Enhancement Solution (Written Only -- No Oral Presentation)***
		Rahul V. Pathare, Dow Chemical International Pvt, Ltd.
	2009-01-0379	***Evaluation of Door Latch Response to Vertical Loading Conditions (Written Only -- No Oral Presentation)***
		Karla J. Petroskey, Michael E. Klima, Edward M. Paddock, Design Research Engineering

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 21

Nanotechnology for Automotive Applications: Engery and Catalysis (Part 3 of 3)

Session Code: ***M26***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

Synthesis and application of mesoporous organosilicates, and metalorganic framework for gas storage will be discussed. Facile electron transfer form porous framework to acceptors such as organic dyes and catalysts will be discussed. Application of porous framework materials for lighting, and photocatalytic systems will be presented. Synthesis and application of organoclay polymer composites along with Synthesis and application of nano transition metal carbides and nitrides will be reviewed.

Organizers - *Ray Jahn, United Technologies Research Center; Gholdm-Abbas Nazri, General Motors Corp.; Minjuan Zhang, Toyota Technical Center USA Inc.*

Chairpersons - *Minjuan Zhang, Toyota Technical Center USA Inc.*

Assistant Chairpersons - *Ray Jahn, United Technologies Research Center; Gholdm-Abbas Nazri, General Motors Corp.*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***Protein and carbohydrate based reinforcement in polymer composites by agri-bio nanofibers*** *Sean X. Liu, USDA ARS*
2:00 p.m.	***ORAL ONLY***	***Functional Periodic Mesoporous Organosilicas for Lighting and Photocatalysis*** *Takao Tani, Toyota Central R&D Labs. Inc.*
2:30 p.m.	***ORAL ONLY***	***Adding •eMultifunctionality•f to Thermoset Polymers and Composites: Mechanical, Thermal, Electrical and Barrier Property Enhancements with Graphite Nanoplatelets*** *Lawrence T. Drzal, Michigan State Univ.*
3:00 p.m.	***ORAL ONLY***	***Edge Functionalization of Organoclays for Polypropylene Nanocomposites*** *Krishnamurthy Jayaraman, Michigan State Univ.*
3:30 p.m.	***ORAL ONLY***	***Analytical Study on Cathode-Electrolyte Interface for Rechargeable Lithium battery*** *Masaki Matsui, TEMA*

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

Occupant Protection: Biomechanics (Part 1 of 3)

Session Code: ***B33***

Room M3-32 ***Session Time:*** ***8:30 a.m.***

Organizers - *David Raymond, Vector Scientific Inc.; Michael Prange, Exponent Failure Analysis; Warren N. Hardy, Virginia Tech.*

Chairpersons - *Warren Hardy, Virginia Tech; Michael Prange, Exponent Failure Analysis; David Raymond, Vector Scientific Inc*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0383***	***Everyday Head Accelerations of a Pediatric Population*** *William Bussone, Michael Prange, Irving Scher, Darrin Richards, Robert Bove, Tara Moore, Exponent Inc*
9:00 a.m.	***2009-01-0388***	***Jaw Loading Response of Current ATDs*** *Matthew Craig, David Viano, Cynthia Bir, Wayne State Univ.*
9:30 a.m.	***2009-01-0395***	***Inertially-Induced Cervical Spine Injuries in the Pediatric Population*** *Tara Moore, Catherine Corrigan, Exponent Inc; Michael Prange, Exponent Failure Analysis*

10:00 a.m.	***2009-01-0387***	***Investigation of Upper Body and Cervical Spine Kinematics of Post Mortem Human Subjects (PMHS) during Low-Speed, Rear-End Impacts***
		Nicholas A. White, Paul C. Begeman, Warren N. Hardy, King H. Yang, Wayne State Univ.; Koshiro Ono, Fusako Sato, Japan Automobile Research Institute; Koichi Kamiji, Tsuyoshi Yasuki, Japan Automobile Manufacturers Association; Michael J. Bey, Henry Ford Hospital, Bone and Joint Center
10:30 a.m.	***2009-01-0394***	***Occupant Injury in Motor Vehicle Collisions: Using Data from Medical Databases***
		Tara Moore, Exponent, Inc.; Jacob Fisher, Michelle Heller, Edmund Lau, Heather Watson, Kevin Ong, Exponent Inc.
11:00 a.m.	***ORAL ONLY***	***Keynote Lecture: CIREN as a Laboratory for Safety System Comparison in Frontal and Side Impact***
		Joel Stitzel, Wake Forest Univ. School of Medicine

The papers in this session are available in a single publication, SP-2225, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 21

Occupant Protection: Biomechanics (Part 2 of 3)

Session Code: ***B33***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

Organizers - *Warren N. Hardy, Virginia Tech.; Michael Prange, Exponent Failure Analysis; David Raymond, Vector Scientific Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0381***	***Development of Adult and Elderly FE Thorax Skeletal Models***
		Osamu Ito, Honda R&D Co., Ltd.; Kazuki Ohhashi, PSG; Yasuhiro Dokko, Honda R&D Co Ltd
2:00 p.m.	***2009-01-0384***	***Thoracic Response to Shoulder Belt Loading: Investigation of Chest Stiffness and Longitudinal Strain Pattern of Ribs***
		Jaeho Shin, Costin Untaroiu, David Lessley, Jeff Crandall, Univ. of Virginia
2:30 p.m.	***2009-01-0393***	***Internal vs. External Deflection Response to Shoulder Belt Loading: Part 1***
		David J. Lessley, University of Virginia; Richard Kent, Jeff Crandall, Robert Salzar, Greg Shaw, Univ of Virginia
3:00 p.m.	***2009-01-0380***	***Analysis of Overall Kinematics and Abdominal Response of Pregnant Drivers during Frontal Vehicle Collisions***
		Yasuki Motozawa, Honda R&D Co., Ltd./Dokkyo Medical Univ.; Takeshi Abe, Honda R&D Co., Ltd.; Masahito Hitosugi, Shogo Tokudome PhD, Dokkyo Medical Univ. School of Medicine
3:30 p.m.	***2009-01-0382***	***Development of Human Lumbar Spine FE Models for Adult and the Elderly***
		Yasuhiro Dokko, Osamu Ito, Yu Kanayama, Honda R&D Co., Ltd.; Kazuki Ohashi, PSG Co., Ltd.

The papers in this session are available in a single publication, SP-2225, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 21

Diesel Fuel Injection and Sprays (Part 2 of 3)

Session Code: ***PFL204***

Room O2-33 ***Session Time:*** ***8:30 a.m.***

This session is devoted to experimental and computational work in the area of diesel fuel injection systems and sprays. Topics include: Spray characterization, cavitation, multiphase jet modeling, CFD models for spray processes, wall films and impingement, hydraulic circuit analysis, and dissolved gas effects.

Organizers - *Tarek M. Abdel-Salam, East Carolina University; Essam M. El-Hannouny, Argonne National Laboratory; Zhengbai Liu, Navistar Inc.; Gerald Micklow, East Carolina University*

Time	Paper No.	Title
8:30 a.m.	2009-01-0851	***Influence on Diesel Injection Characteristics and Behavior using Biodiesel Fuels*** *Raul Payri, Jose Maria Desantes, Francisco Javier Salvador, Julien manin, Universidad Politecnica de Valencia*
9:00 a.m.	2009-01-0842	***An Experimental Investigation of Spray-Wall Interaction of Diesel Sprays*** *Alf Hugo Magnusson, Sven Andersson, Chalmers Univ. of Technology*
9:30 a.m.	2009-01-0843	***Determination of Heat Transfer Augmentation Due to Fuel Spray Impingement in a High-Speed Diesel Engine*** *Christopher Jay Weingartz, Michigan Technological University*
10:00 a.m.	2009-01-0840	***Time Resolved, Three Dimensional Mass Distribution of Diesel Sprays Measured with X-Ray Radiography*** *Alan Kastengren, Christopher Powell, Zunping Liu, Jin Wang, Argonne National Lab.*
10:30 a.m.	2009-01-0845	***Perfection of the Processes of the Fuel Spraying and the Fuel-Air Mixture creating in a High-Speed Diesel Engine, Working on the Bio-Fuel Mixture*** *Vladimir A. Markov, Moscow State Technical Univ.; Sergey P. Gladyshev, Univ. of Michigan-Dearborn; Sergey N. Devianin, Univ. for Agriculture and Engineering; L Mihalsky, Moscow State Technical Univ.*
11:00 a.m.	2009-01-0841	***Performance of a Heavy Duty DME Engine -The Influence of Nozzle Parameters on Combustion and Spray Development*** *Henrik Salsing, Volvo Powertrain Sweden; Raul Ochoterena, Ingemar Denbratt, Chalmers Univ of Technology*

The papers in this session are available in a single publication, SP-2240, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Diesel Fuel Injection and Sprays (Part 3 of 3)

Session Code: ***PFL204***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

This session is devoted to experimental and computational work in the area of diesel fuel injection systems and sprays. Topics include: Spray characterization, cavitation, multiphase jet modeling, CFD models for spray processes, wall films and impingement, hydraulic circuit analysis, and dissolved gas effects.

Organizers - *Tarek M. Abdel-Salam, East Carolina University; Essam M. El-Hannouny, Argonne National Laboratory; Zhengbai Liu, Navistar Inc.; Gerald Micklow, East Carolina University*

Time	Paper No.	Title

1:30 p.m.	***2009-01-0836***	***Understanding Diesel Injection Characteristics in Winter Condition***
		Raul Payri, Francisco Javier Salvador, Jaime Gimeno, Gabriela Bracho, Universidad Politecnica de Valencia
2:00 p.m.	***~~2009-01-0847~~***	***LES Modeling of Spray Induced Turbulence Effects***
	ORAL ONLY	*Nidheesh Bharadwaj, Christopher Rutland, Univ. of Wisconsin Madison; Shengming Chang, GM Research & Development*
2:30 p.m.	***2009-01-0846***	***Characterizing Spray Behavior Differences between Common Rail and Unit Injection Systems Using X-Ray Radiography***
		Anita I. Ramirez, Sibendu Som, Suresh Aggarwal, University of Illinois at Chicago; Alan Kastengren, Essam El-Hannouny, Douglas Longman, Christopher Powell, Argonne National Laboratory
3:00 p.m.	***2009-01-0839***	***Transient Liquid Penetration of Early-Injection Diesel Sprays***
		Lyle M. Pickett, Timothy Williams, Sanghoon Kook, Sandia National Laboratories
3:30 p.m.	***2009-01-0849***	***Entrainment, Evaporation and Mixing Characteristics of Diesel Sprays around End-of-Injection***
		Seoksu Moon, Keiya Nishida, Yuhei Matsumoto, Univ. of Hiroshima
4:00 p.m.	***2009-01-0850***	***Injection Rate Shaping Investigations on a Small - Bore DI Diesel Engine***
		Michael Rottmann, Christoph Menne, Stefan pischinger, Vivak Luckhchoura, Norbert Peters, RWTH Aachen University
4:30 p.m.	***2009-01-0848***	***Diesel Lubricity Requirements of Future Fuel Injection Equipment***
		Markus Matzke, Robert Bosch GmbH, Stuttgart,; Rinaldo Caprotti, Infineum UK Ltd; Ulrike litzow, Robert Bosch GmbH, Stuttgart; Graham Balfour, Infineum UK, Ltd.; Andreas Jess, Univ. Of Bayreuth

The papers in this session are available in a single publication, SP-2240, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

CAD/CAM/CAE Technology

Session Code: ***B2***

Room O2-35/36 ***Session Time:*** ***8:30 a.m.***

CAD/CAM/CAE Technology session solicits papers and presentations advancing the knowledge in product design, manufacturing processes, and engineering analysis using the state-of-the-art computer technology. The scope includes research findings in such areas as computational fluid dynamics, manufacturing and assembly simulation, crush-worthiness, computational mechanics, mold flow, ride simulation, ergonomic design and analysis, NVH, reverse engineering, etc.

Organizers - *Randy Gu, Oakland Univ.; Yu J. Teng, Chrysler LLC; William J. Altenhof, Univ. of Windsor; Yun Lu, Chrysler LLC; Pilaka V. Murty, West Texas A&M Univ.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0400***	***A Study on Effect of Part-loading Errors on the Accuracy of Compound Hole Axis***
		Matthew Jackson, Pilaka Murty, Emily Hunt, West Texas A&M Univ.
9:00 a.m.	***2009-01-0403***	***Modeling a Slider-Crank Mechanism With Joint Wear***
		Saad Mukras, Nathan Mauntler, Nam-Ho Kim, Tony Schmitz, Gregory Sawyer, Univ. of Florida
9:30 a.m.	***2009-01-0404***	***CAE Virtual Design Validation Tests of Automotive Engine Mount Systems***
		Hong Su, Young Hua, Summitech Engineering Inc.

10:00 a.m.	***2009-01-0402***	***CAE Process Improvement Based on Knowledge Management and Task Automation***
		Cesar Rivas, Pedro Orta, Tecnologico de Monterrey
10:30 a.m.	***2009-01-0405***	***Evaluation of a 4-stroke 4-cylinder Diesel Engine Valve-train for Replacement of a Solid Camshaft with a Hollow Camshaft***
		Abhijit Vishnu Londhe, Vivek Yadav, Mahindra & Mahindra, Ltd.
	2009-01-0407	***Fault Diagnosis of Vehicle Driveline System Using Modal Response Optimization (Written Only -- No Oral Presentation)***
		Rao V. Dukkipati, Fairfield Univ.
	2009-01-0408	***Robust Design of a Pneumatic Brake System in Commercial Vehicles (Written Only -- No Oral Presentation)***
		Jinglai Wu, Hongchang Zhang, Yunqing Zhang, Liping Chen, Huazhong Univ. of Science and Tech.
	2009-01-0409	***Simulation on Thermal-Stress-Fatigue of an Engine Exhaust Manifold (Written Only -- No Oral Presentation)***
		Dong Fei, Jiangsu Univ.; Qinyin Fan, F&J Tec; Cai Yixi, Guo Chenhai, Jiang Shuli, Jiangsu Univ.; Washio Saiji, Miyori Akio, Cybernet Systems Co., LTD
	2009-01-0410	***Three-dimensional Transient Numerical Simulation and Optimization of Two-stroke Gasoline Engine Scavenging Process (Written Only -- No Oral Presentation)***
		Xie Pukang, Chenhai Guo, Qinyin Fan, Jiangsu Univ.; Mitsushi OKADA, Tomohiro Irie, Software CRADLE CO., LTD.
	2009-01-1412	***Effect of Machining Parameters and Cutting Edge Geometry on Surface Integrity when Drilling and Hole Making in Inconel 718 (Written Only -- No Oral Presentation)***
		Ali Akhavan Farid, Safian Sharif, R. Rival, Hamidreza Namazi, FKM,Universiti Teknologi Malaysia

The papers in this session are available in a single publication, SP-2228, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Tuesday, April 21

Design Tools, Digital Modeling and Rapid Prototyping

Session Code: ***B5***

Room O2-35/36 ***Session Time:*** ***11:00 a.m.***

The session focuses on the design of tools involved in manufacturing processes. Researchers and engineers involved in development in simulation and digital modeling of manufacturing process, innovative materials used and technology expediting the process in rapid prototyping are encouraged to participates. Studies in wear patterns, failure modes, extending life in modern tools, optimal layout of tools are also welcome.

Organizers - *Randy Gu, Oakland Univ.; Yu J. Teng, Chrysler LLC; William J. Altenhof, Univ. of Windsor; Yun Lu, Chrysler LLC; Pilaka V. Murty, West Texas A&M Univ.*

Time	***Paper No.***	***Title***
11:00 a.m.	***2009-01-1415***	***Development of Vehicle HMI Module using Model-Based Design and RCP***
		Heechon Kwak, Hyundai-Kia R&D Center; Kyungha Kim, Continental Automotive Electronics Ltd.
	2009-01-1413	***Rapid Control Prototyping System for Multiple Injection Application (Written Only -- No Oral Presentation)***
		Angelo Palladino, Giovanni Fiengo, Università degli Studi del Sannio

2009-01-1416	***Dynamic Response of CAM-Follower Mechanism (Written Only -- No Oral Presentation)***	
	Rao V. Dukkipati, Fairfield Univ.	
2009-01-1417	***Vibrations and Instability in Automotive Front End Accessory Drive Belt System (Written Only -- No Oral Presentation)***	
	Rao V. Dukkipati, Fairfield Univ.	

Planned by Body Engineering Committee / Automobile Body Activity

Tuesday, April 21

Virtual Design and Engineering (Part 2 of 2)

Session Code: ***IDM3***

Room O2-35/36 ***Session Time:*** ***1:30 p.m.***

This session presents research work in the development of new methodologies or case studies to simulate real world environments for product development, manufacturing optimization simulation, crash virtual analysis, material strength analysis, and non-destructive testing. The session also includes technologies like computer simulation utiliized in conjunction with the results of physical tests.

Organizers - *George Michael Smith, E-Z-Go Textron; Paul Zalucha, Visteon Corp.*

Chairpersons - *Paul Zalucha, Visteon Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0607***	***New Method to Improve an Already-operating Assembly-line or to Find Out the Best Possible Configuration for a New Assembly-line***
		Laura Ciuffi, CARCERANO
2:00 p.m.	***2009-01-0608***	***FE Modeling Scheme using Experimentally Measured Acoustic Impedance for Sound Proof Package***
		Hiroko Tada, Honda R&D Co., Ltd.; Kunikazu Hirosawa PhD, Hiroshi Nakagawa, Makoto Kon, Aki Yamamoto, Nittobo Acoustic Engineering Co., Ltd.; Kazuhito Misaji, Youichi Kamiyama, Fumihiko Ide, Honda R&D Co., Ltd.
2:30 p.m.	***2009-01-0609***	***Integrated, Virtual Plant Commissioning Methodology using Digital Manufacturing and Lean Principles***
		Maneesh Gangal, INNOENGG LLC; Arunima Thakur, Arman Auto Group; Debapam Roy; Prafullakumar Khachane; Stuart Marks; Brent Kelso
	2009-01-0610	***An Investigation of Contact Angles in Angular Contact Ball Bearings Accounting for High SPeed Effects and Preload (Written Only -- No Oral Presentation)***
		Mohammad R. Movahhedy, Sharif Univ. of Technology

Planned by E-Design and Manufacturing Committee / Integrated Design and Manufacturing Activity

Tuesday, April 21

OEM Global Supply Chain

Session Code: ***IDM4***

Room O2-35/36 ***Session Time:*** ***3:30 p.m.***

This session addresses issues related to the interdependence between OEM, their tier suppliers and the supply chain servicing these organizations. Presentations focus on the current state of the global economy on the automotive industry supply chain and achieving world class product throughout the entire supply chain.

Organizers - *Ratna Babu Chinnam, Alper Murat, Wayne State Univ.*

Chairpersons - *Ratna Babu Chinnam, Alper Murat, Wayne State Univ.*

Time	Paper No.	Title
4:00 p.m.	***ORAL ONLY***	***Modeling Bullwhip Effects in Supply Chain Networks with Consideration for Product Lifecycle Demand***
		Bimal Nepal, Texas A & M Univ.; Ratna Babu Chinnam, Wayne State Univ.
4:30 p.m.	***2009-01-0263***	***Lean Principles in Supply Chain Management for the Automotive Aftermarket***
		Joseph J. LaRussa, Anthony Cheslick, Visteon Corp.
5:00 p.m.	***ORAL ONLY***	***Impact of Flexibility on Supply Chain Resilience***
		Nezir Aydin, Alper Murat, Wayne State Univ.; Giuseppe Rossi, Ford Motor Co

Planned by Global Supply Chain Committee / Integrated Design and Manufacturing Activity

Tuesday, April 21

E2T Environmental Award - Nomination Presentations

Session Code: ***SDP8***

Room O2-37 ***Session Time:*** ***8:30 a.m.***

This session showcases the project presentations from the finalists of the Environmental Excellence in Transportation Award (E2T). These projects are outstanding examples where the nominees have successfully shown innovation and performance in reducing the environmental impacts of their activities. These are presented by the engineers and technicians who performed the actual projects. The E2T Award will be announced and presented at the SAE Awards Ceremony.

Organizers - *Walter W. Olson, Univ. of Toledo; Nakia L. Simon, Chrysler Corporation LLC*

Chairpersons - *Nakia L. Simon, Chrysler Corporation LLC*

Time	Paper No.	Title
8:30 a.m.	***ORAL ONLY***	***Environmental Excellence in Transportation (E2T) Award***
		Walter W. Olson, Univ. of Toledo
8:45 a.m.	***ORAL ONLY***	***Project Summation and Discussion for E2T Award Consideration***
		Donna M. Mosher, Eaton Corp.
9:00 a.m.	***ORAL ONLY***	***Project Summation and Discussion for E2T Award Consideration***
		Mark Garnett, Chrysler LLC
9:15 a.m.	***ORAL ONLY***	***Project Summation and Discussion for E2T Award Consideration***
		William Hill, GM Technical Center; Stella Papasavva, General Motors
9:30 a.m.	***ORAL ONLY***	***Project Summation and Discussion for E2T Award Consideration***
		Erin K. Yaeger, Pratt & Whitney
9:45 a.m.	***ORAL ONLY***	***Project Summation and Discussion for E2T Award Consideration***
		Paul E. Jacobs, California Air Resources Board

Planned by Sustainable Development Program Committee / Engineering Meetings Board

Tuesday, April 21

Traffic Congestion Reduction

Session Code: ***SDP5*** ***1:30 p.m.***

Room O2-37 ***Session Time:***

The reduction of traffic congestion will be a critical contributor to the achievement of sustainable mobility all around the world. The waste of driving time, the unproductive use of fuel, and the unnecessary exhaust emissions open great opportunities for improvement. The papers in this session identify new technologies to mitigate the negative impacts of traffic congestion.

Organizers - *Ronald Williams, Retired, General Motors Corporation*

Chairpersons - *Sujit Das, Oak Ridge National Laboratory*

Assistant Chairpersons - *William Allemon, Ford Motor Co*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0595***	***The Optimization of the Light-Duty Automotive Fleet for Cost Effective Fuel Efficiency*** *Sandra P. Stojkovski, Ricardo Inc.*
2:00 p.m.	***2009-01-0599***	***Networked Clean Vehicles, How the Environment Information will Improve Fuel Efficiency and CO2 Emissions*** *Inaki Iglesias, Lucia Isasi, Maider Larburu, Adrian Martin, Tecnalia; Alberto Pena, Robotiker*

Planned by Sustainable Development Program Committee / EMB Land and Sea Group

Tuesday, April 21

Enhanced Global Mobility

Session Code: ***SDP7***

Room O2-37 ***Session Time:*** ***2:30 p.m.***

Enhanced global mobility strategies should "draw upon emerging vehicle and information technologies to provide a wider range of personal transport options … adapting transport systems to fit the needs (and desires) of the public rather than requiring the public to tailor their living arrangements to fit the technological and economic characteristics of current public transport systems". (WBCSD Mobility 2030 report)

Organizers - *Stephen Landes, Ford Motor Co*

Chairpersons - *Sujit Das, Oak Ridge National Laboratory*

Assistant Chairpersons - *William Allemon, Ford Motor Co*

Time	Paper No.	Title
2:30 p.m.	***2009-01-0592***	***Synthesizing a System for Improving Road Safety in China*** *Hongtao Yu, Jiahe Zhang, Yuankui Meng, Shili Ni, CATARC; Wei-Jian Han, Ford Asia Pacific*
3:00 p.m.	***2009-01-0597***	***Superbus: A Novel Concept for Safe, Fast and Sustainable Mobility*** *Antonia Terzi, TU Delft*
3:30 p.m.	***2009-01-0598***	***Is Mobility As We Know It Sustainable?*** *Philip G. Gott, IHS Global Insight*

Planned by Sustainable Development Program Committee / Engineering Meetings Board

Tuesday, April 21

Sustainable and Energy Efficient Manufacturing

Session Code: ***SDP9***

Room O2-37 ***Session Time: 4:00 p.m.***

This session covers developments in energy efficient manufacturing relevant to the automotive industry. The session focuses on examining emerging energy efficient manufacturing technologies, as well as, best practices for established manufacturing methods. Additionally, the session examines innovative design and modeling techniques relevant to energy systems employed in automotive manufacturing.

Organizers - *William Allemon, Ford Motor Co.; James P. Penrod, Siemens PLM Software*

Chairpersons - *William Allemon, Ford Motor Co.; Bhaskaran Gopalakrishnan, West Virginia Univ.; James P. Penrod, Siemens PLM Software*

Time	Paper No.	Title
4:00 p.m.	***2009-01-0135***	***Compressed Air Energy Saving Assessments (ESA) for the Automotive Supply Chain*** *Bhaskaran Gopalakrishnan, West Virginia Univ.; Deepak Gupta, Southeast Missouri State Univ.*
4:30 p.m.	***2009-01-0134***	***Tangentially Mounted inserts : A Good Avenue for Recycle.*** *Surendra Datar, Tata Motors, Ltd.*

Planned by Sustainable Development Program Committee / Engineering Meetings Board

Tuesday, April 21

Residual Stress Applications and Measurements (Part 1 of 2)

Session Code: M30

Room O2-44 ***Session Time: 8:30 a.m.***

THis session is regarding the residual stress measurement technologies and applications in industries. The effects of the stress state retained in a component on the mechanical properties of materials, especially fatigue behavior. Thus, the measurements and technologies of the residual stress have been studying through X-ray diffraction, neutron, laser and other technologies.

Organizers - *Keyu Li, Oakland Univ.; Xichen Sun, Lin Zhang, Chrysler LLC*

Chairpersons - *Keyu Li, Oakland Univ.*

Assistant Chairpersons - *Xichen Sun, Lin Zhang, Chrysler LLC*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0417***	***Virtual Simulation of Residual Stresses in Aluminum Wheel Designs*** *Marco Antonio Colosio, Jose Carlos Santos, Rodrigo Ferrante, General Motors do Brasil Ltda*
9:00 a.m.	***2009-01-0425***	***Residual Stresses and Dimensional Changes in Ferritic Nitrocarburized Navy C-rings and Prototype Stamped Parts Made from SAE 1010 Steel*** *Chunyan Nan, Derek O. Northwood, Randy J. Bowers, Univ of Windsor; Xichen Sun, Peter Bauerle, Chrysler LLC*
9:30 a.m.	***2009-01-0418***	***Residual Stress Study on Parking Gears Part II: The Structure Optimizing Design and Residual Stress Analysis of Gear by Finite Element Method(FEM)*** *Honglin Mi, Keyu Li, Oakland Univ.; Michael Wiezbowski, Chrysler LLC*
10:00 a.m.	***2009-01-0423***	***Nondestructive Characterization of Residual Stresses on Cylinder Liners and Engine Blocks via X-ray Diffraction Techniques*** *Jarrod Ladouceur, James Pineault, Proto Manufacturing*
10:30 a.m.	***2009-01-0420***	***PRISM Residual Stress Analysis On Camshafts*** *Theo Rickert, Robert Fix, American Stress Technologies Inc*

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

Residual Stress Applications and Measurements (Part 2 of 2)

Session Code: ***M30***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

THis session is regarding the residual stress measurement technologies and applications in industries. The effects of the stress state retained in a component on the mechanical properties of materials, especially fatigue behavior. Thus, the measurements and technologies of the residual stress have been studying through X-ray diffraction, neutron, laser and other technologies.

Organizers - *Keyu Li, Oakland Univ.; Xichen Sun, Lin Zhang, Chrysler LLC*

Chairpersons - *Keyu Li, Oakland Univ.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0422***	***Comparison of Axial and Bending Fatigue of a Medium Carbon Steel including Specimen Geometry and Residual Stress Effects*** *Ali Fatemi, Sean Mckelvey, Univ. of Toledo; Steve McCutcheon, Eaton Corp*
2:00 p.m.	***2009-01-0419***	***Residual Stress Study on Parking Gears*** *Kiran Rangaswamaiah, Robert Petrach, Gopinath Tennambattu Gurumurthy, Keyu Li, Oakland University; Michael Wiezbowski, MKW & Associates LLC*
2:30 p.m.	***2009-01-0421***	***Advanced Techniques for the measure of Microstructure and Residual Stress in Components subject to Rolling Contact Fatigue*** *James Thomas, American Stress Technologies Inc; Jonathan Mohan, Steve Kendrish, Robert Fix, American Stress Technologies Inc.*
3:00 p.m.	***~~2009-01-0424~~*** ***ORAL ONLY***	***Technique and Portable Instrumentation for Ultrasonic Measurement of Residual Stresses*** *Yuri Kudruavtsev, Itl Inc.*

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

Vehicle Dynamics and Simulation (Part 1 of 4): Development and field testing, and vehicle dynamics modeling and simulation validation

Session Code: ***AC4***

Room O3-45 ***Session Time:*** ***8:30 a.m.***

Organizers - *W. Riley Garrott, National Hwy Traffic Safety Admin.; Janice K. Cooper, Transportation Research Center Inc.; Paul A. Grygier, National Hwy Traffic Safety Admin.; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA Ltd.; David R. Mikesell, Ohio Northern Univ.; Mohamed Kamel Salaani, Transportation Research Center Inc.*

Chairpersons - *Mark Heitz, Transportation Research Center Inc.; Nicholas J. Durisek, Dynamic Analysis Group LLC*

Time	Paper No.	Title
9:00 a.m.	***2009-01-0429***	***Design and Operation of a Brake and Throttle Robot*** *David Coovert, Gary J. Heydinger, Ronald Bixel, Dale Andreatta, SEA Ltd.; Dennis Guenther, Anmol Sidhu, Ohio State Univ; David Mikesell, Ohio Northern Univ*

9:30 a.m.	***2009-01-0455***	***Computer Modeling of Factors Significant to Electronic Stability Control Effectiveness***
		Robert R. Scheibe, Leland E. Shields, JP Research
10:00 a.m.	***2009-01-0437***	***Skid Steering Based Maneuvering of Robotic Vehicle with Articulated Suspension***
		Juyong Kang, Kyongsu Yi, Wongun Kim, Seoul National Univ
10:30 a.m.	***2009-01-0433***	***Application of System Identification for Efficient Suspension Tuning in High-Performance Vehicles: Full-Car Model Study***
		Chris Boggs; Steve Southward, Mehdi Ahmadian, Virginia Tech
11:00 a.m.	***2009-01-0449***	***Use of ABS in Emergency Brake-and Steer Maneuvers***
		L. Daniel Metz, Metz Engineering and Racing LLC; Robert R. Scheibe, GT Engineering
	2009-01-0428	***Experimental Test of Vehicle Longitudinal Velocity and Road Friction Estimation for ABS System (Written Only -- No Oral Presentation)***
		Andrea Morgando, Damiano Capra, Alessandro Vigliani, Nicolo' D'Alfio, Politecnico di Torino
	2009-01-0466	***Road Humps Design Improvement Using Genetic Algorithms (Written Only -- No Oral Presentation)***
		Hany S. Hassanin, Younes K. Younes, Samir M. El-Demerdash, El-Adl M. Rabieh, Helwan Univ.

The papers in this session are available in a single publication, SP-2221, and also individually.

Planned by Vehicle Dynamics Committee / Automobile Chassis Activity

Tuesday, April 21

Vehicle Dynamics and Simulation (Part 2 of 4): Advancements in vehicle dynamics stability and control

Session Code: ***AC4***

Room O3-45 ***Session Time:*** ***1:30 p.m.***

Organizers - *W. Riley Garrott, National Hwy Traffic Safety Admin.; Janice K. Cooper, Transportation Research Center Inc.; Paul A. Grygier, National Hwy Traffic Safety Admin.; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA Ltd.; David R. Mikesell, Ohio Northern Univ.; Mohamed Kamel Salaani, Transportation Research Center Inc.*

Chairpersons - *Paul A. Grygier, National Hwy Traffic Safety Admin.; Mark Heitz, Transportation Research Center Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0430***	***Central Sideslip Angle Estimation on a Software Integration Platform***
		Andreas Reim, Alexander Steinbach, Oliver Oettgen, Dietmar Stapel, Robert Bosch GmbH
2:00 p.m.	***2009-01-0456***	***Independent Torque Distribution Strategies for Vehicle Stability Control***
		Indrasen Karogal, Clemson Univ.; Beshah Ayalew, Clemson Univ.-ICAR
2:30 p.m.	***2009-01-0439***	***Adaptive Cruise Control with Collision Avoidance in Multi-Vehicle Traffic Situations***
		Seungwuk Moon, Kyongsu Yi, Seoul National Univ; Pal-Joo Yoon, Hyung-Jin Kang, Mando Corp

3:00 p.m.	***2009-01-0436***	***Effectiveness of Electronic Stability Control on Maintaining Yaw Stability When an SUV has a Rear Tire Tread Separation***
		Stephen M. Arndt, SEFA Inc.; Mark Arndt, Michael Rosenfield, Transportation Safety Tech Inc
3:30 p.m.	***2009-01-0435***	***Integrated Stability Control System for Electric Vehicles with In-wheel Motors using Soft Computing Techniques***
		Kiumars Jalali, Thomas Uchida, John McPhee, Steve Lambert, Univ. of Waterloo
4:00 p.m.	***2009-01-0446***	***Integrated Control of Active Steering and Electronic Differentials in Four Wheel Drive Vehicles***
		Riccardo Marino, Stefano Scalzi, Univ. Of Rome Tor Vergata
4:30 p.m.	***2009-01-0444***	***Enhanced Method for Fault Detection and Diagnosis of Vehicle Sensors using Parity Equations***
		Lukas Haffner, Martin Kozek, Vienna Univ. of Technology; Jingxin Shi, TTTech Germany
5:00 p.m.	***2009-01-0826***	***Vehicle Stability Control Scheme for Rollover Prevention and Maneuverability/Lateral Stability Improvement***
		Jangyeol Yoon, Kyongsu Yi, Wanki Cho, Seoul National Univ.; Bongyeong Koo, Mando Corp.
	2009-01-0463	***Model Based Yaw Rate Estimation of Electric Vehicle with 4 in-Wheel Motors (Written Only -- No Oral Presentation)***
		Xiaojie Gao, SAIC Motor Technical Center; Zhuoping Yu, Tongi Univ.; Xiaoyi Cheng, Shanghai General Motors Co.,Ltd

The papers in this session are available in a single publication, SP-2221, and also individually.

Planned by Vehicle Dynamics Committee / Automobile Chassis Activity

Tuesday, April 21

Occupant Protection: Accident Reconstruction (Part 1 of 4): Event Data Recorders (Part 1 of 2)

Session Code: ***B31***

Room O3-46 ***Session Time:*** ***8:30 a.m.***

Organizers - *Matthew Brach, Brach Engineering; Raymond M. Brach, Univ. of Notre Dame; Timothy Cheek, Delta V Forensic Engrg; Geoff Germane, Germane Engineering; Stein E. Husher, John Steiner, Michael S. Varat, KEVA Engineering*

Chairpersons - *Timothy Cheek, Delta V Forensic Engrg; John Steiner, KEVA Engineering*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0883***	***Study on Characteristics of Event Data Recorders in Japan***
		Nobuaki Takubo, National Research Inst. of Police Science
9:00 a.m.	***ORAL ONLY***	***The Accuracy of 2000 to 2007 General Motors Event Data Recorders in Crash Tests with Airbag Deployments***
		Craig Wilkinson, Jonathan Lawrence, David King, MEA Forensic Engineers & Scientists
9:30 a.m.	***2009-01-0877***	***Accuracy of Selected 2008 Chrysler Airbag Control Module Event Data Recorders***
		Richard Ruth, Ruth Consulting LLC; Timothy Reust, Accident Science, Inc.

10:00 a.m.	***2009-01-0884***	***Accuracy of Selected 2008 Ford Restraint Control Module Event Data Recorders***
		Richard Ruth, Ruth Consulting LLC.; Hussein Nasrallah, Orrin West, Ford Motor Company
10:30 a.m.	***2009-01-0882***	***Test Results: Ford PCM Downloads Compared to Instrumented Vehicle Response in High Slip Angle Turning and other Dynamic Maneuvers***
		Mark W. Arndt, Transportation Safety Tech. Inc.; Michael Rosenfield, Transportation Safety Tech Inc.; Stephen Arndt, Don Stevens, SEFA Inc.
11:00 a.m.	***2009-01-0879***	***Comparison of Heavy Truck Engine Control Unit Hard Stop Data with Higher-Resolution On-Vehicle Data***
		Fawzi Bayan, Anthony Cornetto, Ashley L. Dunn, C. Brian Tanner, Eric Sauer, Brian M. Boggess, Douglas R. Morr, Rickey Stansifer, Scott Noll, SEA, Ltd.; Dennis A. Guenther, Grant Heydinger, Ohio State Univ.

The papers in this session are available in a single publication, SP-2224, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 21

Occupant Protection: Accident Reconstruction (Part 2 of 4): Event Data Recorders (Part 2 of 2) and Vehicle Performance

Session Code: ***B31***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

Occupant Protection: Accident Reconstruction (Part 2 of 4): Event Data Recorders, Heavy Truck Braking and Vehicle Yaw Analysis (Part 2 of 2)

Organizers - *Matthew Brach, Brach Engineering; Raymond M. Brach, Univ. of Notre Dame; Timothy Cheek, Delta V Forensic Engrg; Geoff Germane, Germane Engineering; Stein E. Husher, John Steiner, Michael S. Varat, KEVA Engineering*

Chairpersons - *John Steiner, KEVA Engineering; Geoff Germane, Germane Engineering*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0876***	***Validating Speed Data From Cummins Engine Sudden Deceleration Data Reports***
		Roger Bortolin, James Hrycay, Hrycay Consulting Engineers Inc
2:00 p.m.	***2009-01-0881***	***Data Sources and Analysis of a Heavy Vehicle Event Data Recorder V-MAC III***
		John Steiner, KEVA Engineering, LLC; Timothy Cheek, DELTA [v] Forensic Engineering, Inc.; Scott Hinkson, Mack Trucks, Inc.
2:30 p.m.	***2009-01-0880***	***A Statistical Analysis of Data from Heavy Vehicle Event Data Recorders***
		William Messerschmidt, Messerschmidt Safety Consulting; Jeffrey Muttart, Accident Dynamics Research Center
3:00 p.m.	***2009-01-0099***	***The Influence of Complete Disablement of Various Brakes on the Dry Stopping Performance of a Tractor-Semitrailer***
		Ashley L. Dunn, C. Brian Tanner, Eric Sauer, Brian M. Boggess, Fawzi P. Bayan, Anthony Cornetto, Alan Pearlman, Douglas R. Morr, Scott Noll, SEA, Ltd.; John F. Wiechel, Dennis Guenther, Ohio State Univ.
3:30 p.m.	***2009-01-0091***	***An Investigation of Container Chassis Brake Lining Maximum Wear Rates***
		William Blythe, William Blythe Inc.

4:00 p.m.	***2009-01-0102***	***Tire Models and Vehicle Dynamic Simulation for Accident Reconstruction***
		Raymond M. Brach, Univ. of Notre Dame; Matthew Brach, Brach Engineering
4:30 p.m.	***2009-01-0092***	***Determining Vehicle Steering and Braking from Yaw Mark Striations***
		Gray Beauchamp, David Hessel, Nathan A. Rose, Stephen J. Fenton, Kineticorp LLC; Tilo Voitel, Denver Police Dept.
5:00 p.m.	***2009-01-0103***	***Variability Analysis of Yaw Calculations from Field Testing***
		Gilles Amirault, Samac Engineering Ltd; Stephen A. Macinnis, Samac Engineering, Ltd.

The papers in this session are available in a single publication, SP-2224, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 21

New SI Engine and Component Design (Part 1 of 4)

Session Code: ***PFL503***

Room W1-51 ***Session Time:*** ***8:30 a.m.***

This session contains a series of papers on component design to advance new engine concepts and improve performance.

Organizers - *Scott A. Miers, Jeffrey D. Naber, Michigan Technological Univ.; Steven Plee, Eaton Corporation; James E. Smith, West Virginia Univ.*

Time	***Paper No.***	***Title***
8:30 a.m.	***ORAL ONLY***	***Starterless, High Efficiency Automobile Engine & Powertrain***
		Mike Langham, Langham Engineering
9:00 a.m.	***2009-01-1048***	***Newly Developed Inline 4 AR Series SI Engine***
		Tomihisa Tsuchiya, Hiroshi Hosoi, Koichi Hoshi, Takeshi Hagiwara, Yoshiaki Ito, Hitoshi Shimamura, Fumihito Arai, Toyota Motor Corp.
9:30 a.m.	***2009-01-1060***	***The All New AJV8***
		Malcolm Sandford, Jaguar Land Rover
10:00 a.m.	***2009-01-1061***	***Development of New 1.8-Liter Engine for Hybrid Vehicles***
		Nobuki Kawamoto, Kiyoshi Naiki, Toshihiro Kawai, Takasuke Shikida, Mamoru Tomatsuri, Toyota Motor Corporation
	2009-01-1067	***The New High-performance V6 Gasoline Turbocharged Engine from NISSAN (Written Only -- No Oral Presentation)***
		Hiroyuki Ichikawa, Naoki Nakada, Junichi Yajima, Nissan Motor Co., Ltd.

The papers in this session are available in a single publication, SP-2252, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

New SI Engine and Component Design (Part 2 of 4)

Session Code: ***PFL503***

Room W1-51 ***Session Time:*** ***1:30 p.m.***

This session contains a series of papers on component design to advance new engine concepts and improve performance.

Organizers - *Scott A. Miers, Jeffrey D. Naber, Michigan Technological Univ.; Steven Plee, Eaton Corporation; James E. Smith, West Virginia Univ.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1046***	***Advanced Design of Variable Compression Ratio Engine with Dual Piston Mechanism*** *Seiichiro Ishikawa, Mitsuo Kadota, Kazuo Yoshida, Kazutaka Takahashi, Shogo Kawajiri, Honda R&D Co., Ltd*
2:00 p.m.	***2009-01-1063***	***Advanced Control System of Variable Compression Ratio (VCR) Engine with Dual Piston Mechanism*** *Mitsuo Kadota, Seiichiro Ishikawa, Kensaku Yamamoto, Masashi Kato, Shogo Kawajiri, Honda R&D Co., Ltd*
2:30 p.m.	***2009-01-1053***	***Challenges for Increased Efficiency Through Gasoline Engine Downsizing*** *Neil Fraser, Hugh Blaxill, Grant Lumsden, Michael Bassett, Mahle Powertrain Ltd*
3:00 p.m.	***2009-01-1052***	***Development of a Friction Optimised Engine*** *Hugh Blaxill, Simon Reader, Stewart Mackay III, Joerg Rueckauf, Boris Lerch, Mahle Powertrain Ltd.*
3:30 p.m.	***2009-01-1044***	***Development of Variable Cylinder Management System for Large Motorcycles*** *Hayato Maehara, Shinji Saito, Takeru Abe, Takaaki Tsukui, Honda R&D Co., Ltd.*
4:00 p.m.	***2009-01-1047***	***Research of Electronically Controlled Throttle System for Large Motorcycles*** *Takeru Abe, Yukihiro Asada, Makoto Tsuyuguchi, Ryutaro Yamazaki, Honda R&D Co., Ltd.*

The papers in this session are available in a single publication, SP-2252, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

SI and CI Engine Cold Start and Transient Emissions and Control (Part 1 of 2)

Session Code: ***PFL212***

Room W1-52 ***Session Time:*** ***8:30 a.m.***

This session focuses on the complex SI and CI engine fuel-air mixture preparation and combustion physics, engine control, exhaust emissions and performance challenges during transients and cold starts which are so important in real world powertrain optimization. Example topics include fuel injection systems design, controls strategy and calibration for cold start and transient operation and similar topics for variable valve timing, spark controls, turbocharger controls.

Organizers - *John Batteh, Emmeskay Inc.; Eric W. Curtis, Peter C. Moilanen, Ford Motor Co.; Hamid B. Servati, Servotech Engineering Inc.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0613***	***Investigations on the Transient Wall Heat Transfer at Start-up for SI Engines with Gasoline Direct Injection*** *David Lejsek, Andre Kulzer, Andreas Kufferath, Robert Bosch GmbH*

9:00 a.m.	***2009-01-0612***	***The Influence of Multiple Pilot Injections on the Quality of Idling After Cold Start Up of a Light Duty Diesel Engine***
		Paul J. Shayler, David MacMillan, Antonino La Rocca, Univ. of Nottingham; Tim Morris, Mike Murphy, Ian Pegg, Ford Motor Co.
9:30 a.m.	***2009-01-0614***	***Single Cylinder Diesel Engine Startup Experiments with Cycle Resolved Emissions Sampling***
		Jim Cowart, Pat Caton, Leonard Hamilton, US Naval Academy
10:00 a.m.	***2009-01-0622***	***Fast Oxygen Based Transient Diesel Engine Operation***
		Daniel Alberer, Luigi Del Re, Johannes Kepler University Linz
10:30 a.m.	***2009-01-0621***	***Adaped D-Optimal Experimental Design for Transient Emission Models of Diesel Engines***
		Markus Hirsch, Luigi Del Re, Univ. of Linz
11:00 a.m.	***2009-01-0619***	***The Influence of Accelerator Pedal Position Control during Transient Laboratory Testing on Heavy Duty Diesel Engines***
		John Nuszkowski, Gregory Thompson, Michael Ursic, West Virginia Univ.

The papers in this session are available in a single publication, SP-2246, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

SI and CI Engine Cold Start and Transient Emissions and Control (Part 2 of 2)

Session Code: ***PFL212***

Room W1-52 ***Session Time:*** ***1:30 p.m.***

This session focuses on the complex SI and CI engine fuel-air mixture preparation and combustion physics, engine control, exhaust emissions and performance challenges during transients and cold starts which are so important in real world powertrain optimization. Example topics include fuel injection systems design, controls strategy and calibration for cold start and transient operation and similar topics for variable valve timing, spark controls, turbocharger controls.

Organizers - *John Batteh, Emmeskay Inc.; Eric W. Curtis, Peter C. Moilanen, Ford Motor Co.; Hamid B. Servati, Servotech Engineering Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0617***	***SI Engine Hardware and Software Design for High Power, Low Emission Applications***
		Adrian Brdarski, Justin Kern, David Woldring, Hakan Yilmaz, Robert Bosch LLC; Mark Christie, Ricardo Inc; Klaus Mueller-Haas, Emitec Emission Controls Private, Ltd.
2:00 p.m.	***2009-01-0620***	***Study of Ethanol-Blended Fuel (E85) Effects Under Cold-Start Conditions***
		Koichiro Aikawa, Takayuki Sakurai, Aruto Hayashi, Honda R&D Co., Ltd.
2:30 p.m.	***2009-01-0618***	***Analysis of the Physical Boundary Conditions for the Layout of an optimized Ethanol Low-Temperature Mixture Preparation Device.***
		Michael Pontoppidan, Numidis Sarl; Fernando Damasceno, Magneti Marelli Holding SpA
3:00 p.m.	***2009-01-0615***	***Heated Injectors for Ethanol Cold Starts***
		Daniel Francis Kabasin, Tobias Hurter, Rudolf Lamers, Kevin Hoyer, Joseph Kazour, Delphi Corporation
3:30 p.m.	***2009-01-0616***	***Key Parameters for Start Ability Improvement Applied to Ethanol Engines***
		Christophe Colpin, Renault

4:00 p.m.	***2009-01-0611***	***An Experimental Investigation on 1.4L MPFI Gasoline Engine to Study its Performance, Emission and Compatibility with E10 fuel*** *Muthu Shanmugam R, Viswanatha Hosur, N Saravanan, L Srinivasan, Sridhar s, Tata Motors Ltd*

The papers in this session are available in a single publication, SP-2246, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Diesel Exhaust Emission Control - SCR (Analysis) (Part 1 of 3)

Session Code: ***PFL405***

Room W1-54 ***Session Time:*** ***8:30 a.m.***

This session covers the Selective Catalytic Reduction (SCR) process, in which, Diesel Exhaust Fluid (DEF) is injected to react with NOx to convert it into Nitrogen. SCR is one of the most promising NOx reduction technologies to meet the tough emission standards around the world. The papers in this session cover various aspects of SCR technology such as the different catalyst systems, aging and poisoning impact on catalyst performance, importance of urea injection and mixing, and SCR modeling.

Organizers - *Brad J. Adelman, International Truck & Engine Corp.; Danan Dou, John Deere Product Engineering Center; Magdi K. Khair, Southwest Research Institute; Vinay S. Medhekar, BASF; Rahul Mital, General Motors Corp.; Mehboob H. Sumar, Bodycote Testing Group Americas*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0896***	***Characterisation and Model Based Optimization of a Complete Diesel Engine/SCR System*** *Claes Ericson, Bjorn Westerberg, Scania; Rolf Egnell, Ingemar Odenbrand, Lund University*
9:00 a.m.	***2009-01-0911***	***Model Based Control of SCR Dosing and OBD Strategies with Feedback from NH3 Sensors*** *Andrew Herman, Delphi; Ming-Cheng Wu, David Cabush, Mark Shost, Delphi Corp*
9:30 a.m.	***2009-01-0907***	***A Review of Solid Materials as Alternative Ammonia Sources for Lean NOx Reduction with SCR*** *Gary Fulks, Galen B. Fisher, Ken Rahmoeller, Ming-Cheng Wu, Eric D'Herde, Delphi Corp; Julian Tan, General Motors*
10:00 a.m.	***2009-01-0905***	***Control Challenges for Optimal NOx Conversion Efficiency from SCR Aftertreatment Systems*** *John Nji Chi, Cummins Inc.*
10:30 a.m.	***2009-01-0902***	***A New Energy-based Model for the Prediction of Primary Atomization of Urea-Water Sprays*** *Arturo de Risi, Univ. of Salento; Michele Calò, Bosch; Teresa Donateo, Univ. of Salento; Maria Rosaria Gaballo PhD, Bosch; Aldebara Ssciolti, Univ. of Salento*
11:00 a.m.	***2009-01-0908***	***Analytical Study of Effectiveness of a Degreened and Aged DOC as an Oxidation Device for NO Under Variable Operating and Inlet Conditions*** *Seth Wenzel, Syed Wahiduzzaman, Gamma Technologies Inc.*

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Diesel Exhaust Emission Control - SCR (Light Duty) (Part 2 of 3)

Session Code: ***PFL405***

Room W1-54 ***Session Time:*** ***1:30 p.m.***

This session covers the Selective Catalytic Reduction (SCR) process, in which, Diesel Exhaust Fluid (DEF) is injected to react with NOx to convert it into Nitrogen. SCR is one of the most promising NOx reduction technologies to meet the tough emission standards around the world. The papers in this session cover various aspects of SCR technology such as the different catalyst systems, aging and poisoning impact on catalyst performance, importance of urea injection and mixing, and SCR modeling.

Organizers - *Brad J. Adelman, International Truck & Engine Corp.; Danan Dou, John Deere Product Engineering Center; Magdi K. Khair, Southwest Research Institute; Vinay S. Medhekar, BASF; Rahul Mital, General Motors Corp.; Mehboob H. Sumar, Bodycote Testing Group Americas*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0897***	***Cu/Zeolite SCR on High Porosity Particulate Filters: Laboratory and Engine Performance Evaluations***
		Giovanni Cavataio, James W. Girard, Christine K. Lambert, Ford Motor Co.
2:00 p.m.	***2009-01-0898***	***The Effects of SO2 and SO3 Poisoning on Cu/Zeolite SCR Catalysts***
		Yisun Cheng, Clifford Montreuil, Giovanni Cavataio, Christine Lambert, Ford Motor Co.
2:30 p.m.	***2009-01-0899***	***Development of Thermally Durable Cu/SCR Catalysts***
		Joseph Fedeyko, Hai-Ying Chen, Todd Ballinger, Erich Weigert, Hsiaolan Chang, Julian Cox, Paul Andersen, Johnson Matthey Inc
3:00 p.m.	***2009-01-0904***	***NOx Aftertreatment for Passenger Cars and Heavy Duty Truck Applications for EU 6 and EUVI/US2010 Legislation***
		Rolf Brueck, Emitec Gesellschaft; Peter Hirth, Emitec GmbH; Michael E. Rice, Emitec Inc.
3:30 p.m.	***2009-01-0906***	***The NH3-SCR Reaction Performance with Fe/Zeolite Based Catalytic Honeycomb Substrate***
		Takahiko Ido, Masafumi Kunieda, Yuki Miwa, Ken Yoshimura, Yasuki Tamura, Kazushige Ohno, Ibiden Co., Ltd.
4:00 p.m.	***2009-01-0914***	***Dual Line Exhaust Design Optimisation to Maximize SCR Catalyst Efficiency thru Improved Ammonia Distribution***
		Bernd Amon, Emmanuel Jean, Eric Ottaviani, Herbert Albert, Faurecia; Marko Buder, Armin Burkardt, Audi AG

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Diesel Exhaust Emission Control - System Integration and Durability (Part 1 of 2)

Session Code: ***PFL401***

Room W1-55 ***Session Time:*** ***8:30 a.m.***

This session will cover various aspects of system durability and system integration. It includes publications contributing to the understanding of various aspects of durability of exhaust catalysts and particulate filters, mechanisms of their performance degradation and possible mitigation strategies, as well as the data from the field tests, analysis of the aged catalysts, laboratory and accelerated on-engine aging studies, along with relevant experimental tools and methodology.

Organizers - *Eric R. Corrigan, Corning Inc.; Aleksey Yezerets, Cummins Inc.*

Time	Paper No.	Title

8:30 a.m.	***2009-01-0625***	***Cold Start Performance and Enhanced Thermal Durability of Vanadium SCR Catalysts***
		Justin A. Ura, James Girard, Giovanni Cavataio, Clifford Montreuil, Christine Lambert, Ford Motor Co.
9:00 a.m.	***2009-01-0626***	***NOx Reduction Potential of V-SCR Catalyst in SCR/DOC/DPF Configuration Targeting Euro VI Limits from High Engine NOx Levels***
		Ioannis P. Gekas, Haldor Topsoe A/S
9:30 a.m.	***2009-01-0632***	***Concept Study for NOx Aftertreatment Systems for Europe***
		Ina Grisstede, Friedemann Rohr, Stephan Bremm, Umicore AG & Co KG
10:00 a.m.	***2009-01-0633***	***SCR Performance Optimization Through Advancements in Aftertreatment Packaging***
		Paul Way, Karthik Viswanathan, Phebe Preethi , Andrew Gilb , Nathan Zambon , Jared Blaisdell, Donaldson Company Inc.
10:30 a.m.	***2009-01-0627***	***Impact and Prevention of Ultra-Low Contamination of Platinum Group Metals on SCR Catalysts Due to DOC Design***
		Giovanni Cavataio, James W. Girard, Hung-Wen Jen, Douglas Dobson, James R. Warner, Christine K. Lambert, Ford Motor Co.
11:00 a.m.	***2009-01-0631***	***The Effects of Thermal Degradation on the Performance of a NOx Storage/Reduction Catalyst***
		Meshari AL-Harbi, William S. Epling, Univ. of Waterloo; Aleksey Yezerets, Neal Currier, Cummins Inc; Howard Hess, Hai-Ying Chen, Johnson Matthey Inc

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Diesel Exhaust Emission Control - System Integration and Durability (Part 2 of 2)

Session Code: ***PFL401***

Room W1-55 ***Session Time:*** ***1:30 p.m.***

This session will cover various aspects of system durability and system integration. It includes publications contributing to the understanding of various aspects of durability of exhaust catalysts and particulate filters, mechanisms of their performance degradation and possible mitigation strategies, as well as the data from the field tests, analysis of the aged catalysts, laboratory and accelerated on-engine aging studies, along with relevant experimental tools and methodology.

Organizers - *Eric R. Corrigan, Corning Inc.; Aleksey Yezerets, Cummins Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0634***	***Effects of Rapid High Temperature Cyclic Aging on a Fully-Formulated Lean Nox Trap Catalyst***
		Nathan Ottinger; Bruce G. Bunting, Todd Toops, Oak Ridge National Laboratory; Ke Nguyen, Univ of Tennessee
2:00 p.m.	***2009-01-0628***	***The Roles of Phosphorus and Soot on the Deactivation of Diesel Oxidation Catalysts***
		Scott Eaton, Oak Ridge National Laboratory; Ke Nguyen, Univ of Tennessee; Todd Toops, Bruce G. Bunting, Oak Ridge National Laboratory
2:30 p.m.	***2009-01-0629***	***Experimental Study Comparing Particle Size and Mass Concentration Data for a Cracked and Un-Cracked Diesel Particulate Filter***
		Rayomand H. Dabhoiwala, John Johnson, Jeffrey Naber, Michigan Technological Univ

3:00 p.m.	***2009-01-0630***	***A Methodology for the Fast Evaluation of the Effect of Ash Aging on Diesel Particulate Filter Performance***
		Athanasios G. Konstandopoulos, CERTH/CPERI
3:30 p.m.	***2009-01-0623***	***Thermal Aging of Catalysts in Combined Aftertreatment Systems***
		Anke Guethenke, Peter Lanzerath, Alexander Massner, Uwe Gaertner, Daimler AG
4:00 p.m.	***2009-01-0624***	***Heavy Duty Diesel After-Treatment System Analysis Based Design: Fluid, Thermal and Structural Considerations***
		Lakshmikanth G. Meda, Yan Shu, Martin Romzek, Eberspaecher North America Inc.

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Vehicle Sensors and Actuators (Part 1 of 2)

Session Code: ***AE2***

Room W2-61 ***Session Time:*** ***8:30 a.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. The purpose of this session is to present the latest research and development on novel sensors, actuators, and circuits that are critical to deliver the function of today's complex automotive systems.

Organizers - *Serdar H. Yonak, Toyota Motor Engineering & Mfg. NA Inc.*

Chairpersons - *Serdar H. Yonak, Toyota Motor Engineering & Mfg NA Inc*

Time	***Paper No.***	***Title***
8:30 a.m.	***ORAL ONLY***	***Advanced Digital Sensor Technology and SiC Controls Development***
		Derek S. Weber, Inprox Technology
9:00 a.m.	***ORAL ONLY***	***Energy Dissipation Mechanisms in MEMS Sensors and Actuators***
		Dumitru M. Beloiu, AVL Powertrain Engineering Inc.
9:30 a.m.	***2009-01-0643***	***Condition Based Maintenance of a Formula 1 Racing Car based on Direct Torque Measurement***
		Christer Wallin, ABB AB; Greg Rapson, Honda Racing F1 Team
10:00 a.m.	***2009-01-0641***	***High Accuracy Exhaust Gas Temperature (EGT) Sensor with Anti-resonance Structure***
		Tsunenobu Hori, DENSO Corp.
10:30 a.m.	***2009-01-0640***	***Comb Shaped Multi-axial MEMS Structure for the Automotive Electronic Stability Control System General***
		Seung-Cheol Lee, Jung-Taek Lim, Seong Soo Kim, Mando Corp.
	2009-01-0635	***Using Thin Film Sensors to Measure Dynamic Forces Transmitted at Bolted Joints of Vehicles (Written Only -- No Oral Presentation)***
		Yasuhiro Kanda, Takehiko Masaki, Masahiro Yamada, Nissan Motor Co., Ltd.
	2009-01-0636	***Super-slim 2 Axes Automotive Accelerometer using MEMS Technology (Written Only -- No Oral Presentation)***
		Kenichi Yokoyama, Takamoto Furuichi, Hisanori Yokura, DENSO Corp.

The papers in this session are available in a single publication, SP-2229, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Tuesday, April 21

Vehicle Sensors and Actuators (Part 2 of 2)

Session Code: ***AE2***

Room W2-61 ***Session Time:*** ***1:30 p.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. The purpose of this session is to present the latest research and development on novel sensors, actuators, and circuits that are critical to deliver the function of today's complex automotive systems.

Organizers - *Serdar H. Yonak, Toyota Motor Engineering & Mfg. NA Inc.*

Chairpersons - *Serdar H. Yonak, Toyota Motor Engineering & Mfg NA Inc*

Time	Paper No.	Title
1:30 p.m.	2009-01-0638	**Development of a New Breath Alcohol Detector without Mouthpiece to Prevent Drunk Driving** *Toshiyuki Taguchi, Toyota Central R&D Labs Inc.; Bunji Atsumi, Shohei Yabu, Toyota Motor Co. Ltd.; Kiyomi Sakakibara, Toshihiro Wakita, Atsushi Nakashima, Toyota Central R&D Labs Inc.*
2:00 p.m.	ORAL ONLY	**New Combination Sensor for Ethanol Concentration and Liquid Fuel Pressure for Flex-Fuel Vehicles** *Torsten Eggers, Heiko Dobrinski, Hella Fahrzeugkomponenten GmbH; Marco Doebrich, Hella Electronics Corp.; Hagen Mueller, Hella KGaA Hueck & Co.; Joerg Stuermann, Hella Fahrzeugkomponenten GmbH*
2:30 p.m.	2009-01-0637	**Direct Sensor Solutions for Anti Pinch and Collision Avoidance for Motorized Closures** *Brigitte Nitsche, Rolf Herrmann, Hella KGaA Hueck & Co.*
3:00 p.m.	2009-01-0639	**New Concept of a Compact LIDAR Scanner for ACC and Safety Applications** *Christian Boehlau, Bernd Lichte, Thomas Ottenhues, Hella KGaA Hueck & Co.*
3:30 p.m.	2009-01-0642	**Development of Commutation Technology for In-vehicle DC Motor Directly Driven by 42V Vehicle Battery** *Shunji Kumagai, Yoshichika Kawashima, Masakazu Saito, Naoki Shioda, Takeshi Sekiguchi, Yuichi Nagase, Mitsuba Corp.*

The papers in this session are available in a single publication, SP-2229, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Tuesday, April 21

Achieving Light Weight Vehicles

Session Code: ***M4***

Room W2-62 ***Session Time:*** ***8:30 a.m.***

This session will feature the development and application of various light-weight materials, light weight architectures, or applied engineering methods used to achieve light weight vehicles. The focus will be on cascading new best practices.

Organizers - *Thomas B. Glennan, General Motors Corp.; James B. Goff, Ford Motor Co.*

Chairpersons - *James B. Goff, Ford Motor Co.*

Time	Paper No.	Title
9:00 a.m.	2009-01-0347	**Solutions for Energy Saving Applied on Engine Oil Filtration Modules** *Nicolas DEKYVERE*

9:30 a.m.	***2009-01-0348***	***Multi-Objective Design Optimization Using a Damage Material Model Applied to Light Weighting a Formula SAE Car Suspension Component***
		Kenneth Brister, Eaton Aerospace; Mark Horstemeyer, Kiran Solanki, Mississippi State Univ
10:00 a.m.	***2009-01-0349***	***Lightweight Radio Chassis Design***
		Steven Feit, Honda R&D Americas Inc.
10:30 a.m.	***2009-01-0350***	***Manufacturing of the Composite Chassis of the Superbus and Assembly Strategy***
		Antonia Terzi, TU Delft
	2009-01-0346	***New Generation Oil Pan Modules (Written Only -- No Oral Presentation)***
		Anant Kolekar, Mike Anderson, Dana Corporation

Planned by Non-Ferrous Committee / Materials Engineering Activity

Tuesday, April 21

Fuels and Lubes Open Forum - The Role of Industry Lubricant Standards: Part II Passenger Vehicle

Session Code: ***PFL700***

Room W2-62 ***Session Time:*** ***2:00 p.m.***

The diversity of how OEMs deal with the evolving needs for fuel econ, emissions control, and durability have led to increased use of supplementary mfr requirements, beyond those required by industry standards, for lubrication of passenger vehicles. This adds complexity and product proliferation for users, the lubricant marketers, and formulators. This session will address the tradeoffs between the conflicting needs of specialized lubricant requirements versus simplicity for users and producers.

Organizers - *Christopher A. Engel, Lubrizol Corp.*

Panelists - *Dennis L. Bachelder, American Petroleum Institute; Todd Coady, Hicks Oils and Hicksgas Inc. (ILMA); Bradley Cosgrove, Chrysler; Jeff J. Jetter, Honda R&D Americas Inc.; Eric Johnson, General Motors; Scotti Lee, Oil Change Express; Ron Romano, Ford Motor Company; Thomas R. Smith, Valvoline Company;*

Tuesday, April 21

Advanced Hybrid Vehicle Powertrains - Plug-In Hybrids and Impact on Overall CO2 Emissions (Part 3 of 6)

Session Code: ***PFL100***

Room W2-63 ***Session Time:*** ***8:30 a.m.***

Plug-In Hybrids and Impact on Overall CO2 Emissions: Plug-in hybrid electric vehicles are seen as the quickest way to get vehicles with an order-of-magnitude less fossil fuel consumption into the market. This session talks about these cutting-edge vehicles as well as how they fit into larger plans to reduce energy consumption and carbon emissions.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Toyota Motor Engineering & Manufacturing; Mark A. Theobald, GM Powertrain*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1335***	***Drive Cycle Fuel Consumption Variability of Plug-In Hybrid Electric Vehicles due to Aggressive Driving***
		Richard W. Carlson, Michael Duoba, Neeraj Shidore, Henning Lohse-Busch, Argonne National Laboratory

9:00 a.m.	***2009-01-1334***	***Fair Comparison of Powertrain Configurations for Plug-In Hybrid Operation using Global Optimization***
		Dominik Karbowski, Argonne National Lab.; Karl-Felix Freiherr von Pechmann, Mines ParisTech; Aymeric P. Rousseau, Argonne National Lab.
9:30 a.m.	***2009-01-1308***	***Methodology and Analysis of Determining Plug-In Hybrid Vehicle Fuel Efficiency as a Function of Engine Thermal State***
		Forrest Jehlik, Argonne National Lab.
10:00 a.m.	***2009-01-1328***	***Calculating Results and Performance Parameters from Plug-In Hybrid Electric Vehicles***
		Michael Duoba, Argonne National Lab.
10:30 a.m.	***2009-01-1311***	***The CO2 Benefits of Electrification: E-REVs, PHEVs and Charging Scenarios***
		Edward Tate, Peter J. Savagian, General Motors Corp.
11:00 a.m.	***2009-01-1309***	***Well-To-Wheels Energy Use and Greenhouse Gas Emissions of Plug-in Hybrid Electric Vehicles***
		Amgad Elgowainy, Andrew Burnham, Michael Q. Wang, John C. Molburg, Aymeric P. Rousseau, Argonne National Lab.
11:30 a.m.	***2009-01-1324***	***CO2 Emission and Energy Reduction Evaluations of Plug-in Hybrid Vehicles***
		Elias Zgheib, Denis Clodic, Mines ParisTech

The papers in this session are available in a single publication, SP-2235, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Advanced Hybrid Vehicle Powertrains - Electric Motors, Generators, and Power Electronics (Part 4 of 6)

Session Code: ***PFL100***

Room W2-63 ***Session Time:*** ***1:30 p.m.***

Electric Motors, Generators, and Power Electronics: This session looks at the continued advancement of the technology that has matured the most due to the acceptance and volume production of hybrid electric vehicles: the components of the electric drivetrain.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Toyota Motor Engineering & Manufacturing; Mark A. Theobald, GM Powertrain*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1341***	***Two Speed Robust Sliding Mode Control for Electric Vehicle Drive***
	ORAL ONLY	*Abdelfatah Nasri*
2:00 p.m.	***2009-01-1337***	***Study on the High Torque Density Motor for the Electric Traction Vehicle***
		Daiki Tanaka, Yuichi Shibukawa, Nissan Motor Co., Ltd.; Tomonori Kojima, Fujitsu General Co., Ltd.
2:30 p.m.	***2009-01-1317***	***Design Optimization of Motor/Generator Full-load Characteristics in Two-mode Hybrid Vehicles***
		Kukhyun Ahn, Panos Papalambros, Univ of Michigan
3:00 p.m.	***2009-01-1310***	***Development of Power Control Unit for Compact-Class Vehicle***
		Natsuki Nozawa, Takeshi Maekawa, Shigeyuki Nozawa, Ken Asakura, Toyota Motor Corporation

3:30 p.m.	***2009-01-1313***	***Simulation & Analysis of a Resolver for HEV Electric Drive Application***
		Liang Shao, Kohji Maki, Hitachi America, Ltd.; Zhangjun Tang, Ansoft Corp; George Saikalis, Hitachi America, Ltd.; Jeremy Moore, Hitachi Automotive Products
4:00 p.m.	***2009-01-1316***	***Torque Characteristic Optimization of a Brushless DC Motor based Integrated Starter-generator***
		Primoz Bajec, Peter Ursic, Hidria AET, Slovenia; Jure Golob, Hidria AET; Damijan Miljavec, Bostjan Pevec, Univ. of Ljubljana

The papers in this session are available in a single publication, SP-2235, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Combusion and Flow Diagnostics (Part 2 of 3)

Session Code: ***PFL202***

Room W2-64 ***Session Time:*** ***8:30 a.m.***

The Combustion and Flow diagnostics session features papers which focus on extending and improving various sensors and diagnostic methods that can be employed to examine the flow and combustion processes in both production engines and research environments. Examples of diagnostics of interest include, but are not limited to: pressure sensors, ion probes, exhaust gas composition analyzers, and various optical techniques. The session also features papers clarifying the in-cylinder flow processes.

Organizers - *Oivind Andersson, Lund Univ.; Anand H. Gandhi, Ford Motor Co.; Matthew J. Hall, Univ. of Texas-Austin; Paul C. Miles, Sandia National Laboratories*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0656***	***Simultaneous Quantitative Measurements of Temperature and Residual Gas Fields Inside a Fired SI-Engine Using Acetone Laser-Induced Fluorescence***
		Micha Guntram Loeffler, Katrin Kroeckel, Peter Koch, Frank Beyrau, Alfred Leipertz, LTT, Friedrich-Alexander Universitat; Sebastian Grasreiner, Andreas Heinisch, BMW Group
9:00 a.m.	***2009-01-0662***	***High-Resolution Measurements of Passive Scalar Dissipation in an IC Engine***
		Benjamin R. Petersen, Jaal Ghandhi, Univ of Wisconsin Madison
9:30 a.m.	***2009-01-0650***	***Characterizing the Development of Thermal Stratification in an HCCI Engine Using Planar-Imaging Thermometry***
		John Dec, Sandia National Laboratories; Wontae Hwang, GE Global Research Center
10:00 a.m.	***2009-01-0661***	***Dual-Wavelength PLIF Measurements of Temperature and Composition in an Optical HCCI Engine with Negative Valve Overlap***
		Jordan Snyder, Ronald Hanson, Stanford Univ.; Russell Fitzgerald, Richard Steeper, Sandia National Lab.
10:30 a.m.	***2009-01-0646***	***Block Vibration Measurements for Combustion Diagnosis in Multi-Cylinder Common Rail Diesel Engine***
		Ornella Chiavola, Univ. Roma TRE; Luigi Arnone, Lombardini S R L; Erasmo Recco, Silvia Conforto, Univ. Roma TRE; Medardo Boni, Stefano Manelli, Lombardini S R L

The papers in this session are available in a single publication, SP-2238, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Combusion and Flow Diagnostics (Part 3 of 3)

Session Code: ***PFL202***

Room W2-64 ***Session Time:*** ***1:30 p.m.***

The Combustion and Flow diagnostics session features papers which focus on extending and improving various sensors and diagnostic methods that can be employed to examine the flow and combustion processes in both production engines and research environments. Examples of diagnostics of interest include, but are not limited to: pressure sensors, ion probes, exhaust gas composition analyzers, and various optical techniques. The session also features papers clarifying the in-cylinder flow processes.

Organizers - *Oivind Andersson, Lund Univ.; Anand H. Gandhi, Ford Motor Co.; Matthew J. Hall, Univ. of Texas-Austin; Paul C. Miles, Sandia National Laboratories*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0653***	***Gas Exchange Optimization and the Impact on Emission Reduction for HSDI Diesel Engines***
		Dirk Adolph, Lehrstuhl Fur Verbrennungskraftmaschinen; Marek Tatur, FEV, Inc.; Philipp Adomeit, FEV Motorentechnik GmbH; Dean Tomazic, FEV Inc
2:00 p.m.	***2009-01-0655***	***Hybrid Endoscopes for Laser-based Imaging Diagnostics in IC Engines***
		Christopher Gessenhardt, IVG, University Duisburg-Essen, Germany
2:30 p.m.	***2009-01-0649***	***Design and Operation of a High Pressure, High Temperature Bomb for HD Diesel Spray Diagnostics: Guidelines and Results.***
		Rik Baert, Eindhoven Univ.of Technology & TNO Automotive; Bart Somers, Peter Frijters, Carlo Luijten, Wout de Boer, Eindhoven Univ.of Technology
3:00 p.m.	***2009-01-0645***	***Direct Observation of Clean Diesel Combustion using Bore Scope in a Single Cylinder HDDE***
		Yuzo Aoyagi, New Ace Inst. Co., Ltd.
3:30 p.m.	***2009-01-0648***	***Optical and Numerical Investigation of Pre-Injection Reactions and Their Effect on the Starting of a Diesel Engine***
		Marcis Jansons, Wayne State Univ.
4:00 p.m.	***2009-01-0658***	***Visualization of Diesel Spray Penetration, Cool-flame, Ignition, High-temperature Combustion, and Soot Formation using High-speed Imaging***
		Lyle M. Pickett, Sanghoon Kook, Timothy Williams, Sandia National Laboratories
	2009-01-0663	***Implementation and Evaluation of a Coriolis Flow Meter (Written Only -- No Oral Presentation)***
		Vera I. Simms, Anand H. Gandhi, Ford Motor Co.
	2009-01-0664	***A Summary of Flow Metering Options for Injector Characterization (Written Only -- No Oral Presentation)***
		Anand H. Gandhi, Mark Meinhart, Ford Motor Co.

The papers in this session are available in a single publication, SP-2238, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

HCCI (Part 3 of 7)

Session Code: ***PFL207***

Room W2-65 ***Session Time:*** ***8:30 a.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Salvador M. Aceves, Lawrence Livermore National Lab.; Aristotelis Babajimopoulos, Univ. of*

Michigan; Christopher Gehrke, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Robert M. Wagner, Oak Ridge National Laboratory; Hongming Xu, Birmingham Univ.

Chairpersons - *Salvador M. Aceves, Lawrence Livermore National Lab.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0494***	***HCCI Operating Range in a Turbocharged Multi Cylinder Engine with VVT and Spray-guided DI*** *Thomas Johansson, Bengt Johansson, Per Tunestal, Lund University, Sweden; Hans Aulin, GM Powertrain AB, Sweden*
9:00 a.m.	***2009-01-0495***	***Influence of the Valve Lift Strategy in a CAI engine using Exhaust Gas Re-Breathing - Part 2: Optical Diagnostics and 3D CFD results*** *Vincent Knop, Loïc de Francqueville, Florence Duffour, Franck Vangraefschepe, IFP*
9:30 a.m.	***2009-01-0496***	***An Experimental Study of a Gasoline HCCI Engine Using the Blow-Down Super Charging System*** *Tatsuya Kuboyama, Yasuo Moriyoshi, Chiba Univ.; Koichi Hatamura, Hatamura Engine Research Office Ltd.; Toshio Yamada, CD-Adapco Japan; Junichi Takanashi, Honda R&D Co., Ltd.*
10:00 a.m.	***2009-01-0498***	***Demonstrating the Potential of Mixture Distribution Control for Controlled Combustion and Emissions Reduction in Premixed Charge Compression Ignition Engines*** *Yoshimitsu Wada, Kanazawa Institute of Technology; Jiro Senda, Doshisha Univ*
10:30 a.m.	***2009-01-0499***	***Development of Robust Gasoline HCCI Idle Operation Using Multiple Injection and Multiple Ignition (MIMI) Strategy*** *Hanho Yun, Paul Najt, Nicole Wermuth, GM R&D*

The papers in this session are available in a single publication, SP-2242, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

HCCI (Part 4 of 7)

Session Code: ***PFL207***

Room W2-65 ***Session Time:*** ***1:30 p.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Salvador M. Aceves, Lawrence Livermore National Lab.; Aristotelis Babajimopoulos, Univ. of Michigan; Christopher Gehrke, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Robert M. Wagner, Oak Ridge National Laboratory; Hongming Xu, Birmingham Univ.*

Chairpersons - *Charles Mueller, Sandia National Laboratories*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0665***	***Uncooled EGR as a Means of Limiting Wall-Wetting under Early Direct Injection Conditions*** *Michael Boot, Technische Universiteit Eindhoven*

2:00 p.m.	***2009-01-0666***	***Influence of EGR Quality and Unmixedness on the High-Load Limits of HCCI Engines***
		Magnus Sjoberg, John Dec, Sandia National Laboratories
2:30 p.m.	***2009-01-0667***	***Studying HCCI Combustion and its Cyclic Variations versus Heat Transfer, Mixing and Discretization using a PDF based approach.***
		Martin Tuner, LOGE AB; Fabian Mauss, BTU Cottbus; Mattias Karlsson, LOGE AB
3:00 p.m.	***2009-01-0668***	***Thermal Characterization of Combustion Chamber Deposits on the HCCI Engine Piston and Cylinder Head Using Instantaneous Temperature Measurements***
		Zoran Filipi, Univ. of Michigan; Paul Najt, General Motors R&D Center; Mark Hoffman, Univ of Michigan; Tang-Wei Kuo, General Motors R&D Center; Dennis Assanis, Orgun Guralp, Univ of Michigan
3:30 p.m.	***2009-01-0669***	***Combustion and Emissions Modeling of a Gasoline HCCI Engine Using Model Fuels***
		Karthik V. Puduppakkam, Long Liang, Chitralkumar V. Naik, Ellen Meeks, Reaction Design; Bruce Bunting, Oak Ridge National Laboratory
4:00 p.m.	***2009-01-0670***	***Analysis of Cyclic Variation and the Effect of Fuel Stratification on Combustion Stability in a Port Fuel Injection (PFI) CAI Engine***
		Seungmok Choi, Joonwon Lim, Minyoung Ki, Seoul National Univ.; Kyoungdoug Min, Seoul National Univ; Hoimyoung Choi, Advanced Institutes of Convergence Technology
4:30 p.m.	***2009-01-1107***	***Influence of Engine Speed on HCCI Combustion Characteristics using Dual-Stage Auto-Ignition Fuel***
		Vahid Hosseini, W. Stuart Neill, Wallace Chippior, National Research Council Canada

The papers in this session are available in a single publication, SP-2242, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Modeling of SI and Diesel Engines (Part 3 of 7) Models for Controls

Session Code: ***PFL210***

Room W2-66 ***Session Time:*** ***8:30 a.m.***

0-, 1- and Quasi-Dimensional Models for Engine Control and Diagnosis Applications

Organizers - *Federico Millo, Politecnico di Torino; Thomas Morel, Gamma Technologies Inc.; Christof Schernus, FEV Motorentechnik GmbH*

Chairpersons - *Christof Schernus, FEV Motorentechnik GmbH*

Assistant Chairpersons - *Tino Schulze, dSPACE GmbH*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0672***	***Experimental and Computational Analysis of Different EGR Systems for a Common Rail Passenger Car Diesel Engine***
		Federico Millo, Carlo Ferraro, Marco Gianoglio Bernardi, Politecnico di Torino; Paolo Pasero, Simone Barbero, GM Powertrain Europe
9:00 a.m.	***2009-01-0674***	***Automated Parameter Determination for IC Engine Siimulation Models***
		Gerhard Pirker, Franz Chmela, Andreas Wimmer, Large Engines Competence Center

9:30 a.m.	***2009-01-0679***	***Data Based Cylinder Pressure Modeling for Direct-injection Diesel Engines*** *Erik Weissenborn, Thomas Bossmeyer, Michael Krueger, Robert Bosch GmbH; Torsten Bertram, Dortmund University of Technology*
10:00 a.m.	***2009-01-0671***	***A Cycle-Based Multi-Zone Simulation Approach Including Cycle-to-Cycle Dynamics for the Development of a Controller for PCCI Combustion*** *Kai Hoffmann, Peter Drews, Dirk Abel, Christian Felsch, Anyelo Vanegas, Norbert Peters, RWTH Aachen University*
10:30 a.m.	***2009-01-0681***	***Possibility to Determine Diesel Engine Condition and Tuning from the Application of a Diagnostic Technique at a Single Operating Point*** *Vasilios Lamaris, National Technical Univ. of Athens; Dimitrios Hountalas, National Technical Univ of Athens*

The papers in this session are available in a single publication, SP-2244, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Modeling of SI and Diesel Engines (Part 4 of 7) Diesel Combustion Models

Session Code: ***PFL210***

Room W2-66 ***Session Time:*** ***1:30 p.m.***

0-, 1- and Quasi-Dimensional Models for Diesel or Compression Ignition Engine Combustion

Organizers - *Kevin L. Hoag, Univ. of Wisconsin; Federico Millo, Politecnico di Torino; Thomas Morel, Gamma Technologies Inc.; Christof Schernus, FEV Motorentechnik GmbH; Mark N. Subramaniam, FEV Inc.*

Chairpersons - *Kevin L. Hoag, Univ. of Wisconsin; Mark N. Subramaniam, FEV Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0678***	***A 0D Phenomenological Approach to Model Diesel HCCI Combustion with Multi-injection Strategies using Probability Density Functions and Detailed Tabulated Chemistry*** *Alessio Dulbecco, Francois-Alexandre Lafossas, IFP; Thierry Poinsot, IMFT*
2:00 p.m.	***2009-01-0676***	***Diesel Engine Cycle Simulation with a Reduced Set of Modeling Parameters Based on Detailed Kinetics*** *Michal Pasternak, Fabian Mauss, BTU Cottbus; Henry Bensler, Volkswagen AG*
2:30 p.m.	***2009-01-0673***	***Multi-Zone Kinetic Model of Controlled Auto Ignition Combustion*** *Zhen Liu, Rui Chen, Loughborough Univ*
3:00 p.m.	***2009-01-0683***	***Experimental Validation of Extended NO and Soot Model for Advanced HD Diesel Engine Combustion*** *Xander Seykens, Rik Baert, Bart Somers, Eindhoven University Of Technology; Frank Willems, TNO Science & Industry*

The papers in this session are available in a single publication, SP-2244, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Modeling of SI and Diesel Engines (Part 7 of 7) Modeling of Thermal Systems and Emissions

Session Code: ***PFL210*** ***3:30 p.m.***

Room W2-66 ***Session Time:***

0-, 1- and Quasi-Dimensional Models for Diesel or Compression Ignition Engine Combustion

Organizers - *Federico Millo, Politecnico di Torino; Thomas Morel, Gamma Technologies Inc.; Christof Schernus, FEV Motorentechnik GmbH; Brad R. Tillock, EngSim Corporation*

Chairpersons - *Robert James Iverson, John Deere Power Systems; Brad R. Tillock, EngSim Corporation*

Time	Paper No.	Title
3:30 p.m.	***2009-01-1509***	***A Physical Two-Zone NOx Model Intended for Embedded Implementation*** *Carl Wilhelmsson, Anders Widd, Per Tunestal, Rolf Johansson, Bengt Johansson, Lund University*
4:00 p.m.	***2009-01-1511***	***CO Emission Model for an Integrated Diesel Engine, Emissions, and Exhaust Aftertreatment System Level Model*** *Nilesh L. Bagal, Univ. of Wisconsin-Madison; Kushal Narayanaswamy, Yongsheng He, GM R&D Center; David Foster, Christopher Rutland, Univ. of Wisconsin-Madison*
5:00 p.m.	***2009-01-1506***	***Numerical Modeling and Experimental Investigations of EGR Cooler Fouling in a Diesel Engine*** *Mehdi Abarham, John Hoard, Dennis Assanis, Univ of Michigan-Ann Arbor; Daniel Styles, Eric Curtis, Nitia Ramesh, Ford Motor Co.; C. Scott Sluder, John M. E. Storey, Oak Ridge National Laboratory*
	2009-01-1508	***Empirical Modeling of Transient Emissions and Transient Response for Transient Optimization (Written Only -- No Oral Presentation)*** *Indranil Brahma, Cummins Engine Res. & Dev; Michael Sharp, Timothy Frazier, Cummins Inc*

The papers in this session are available in a single publication, SP-2244, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Emission Measurement and Testing - Particulate Emissions from Combustion Sources

Session Code: ***PFL409***

Room W2-67 ***Session Time:*** ***8:30 a.m.***

The purpose of this session is to examine combustion derived particulate matter emissions. Papers will address address a range of current issues including PM sampling methods, particle measurement approaches, and the emissions characteristics of various engines, aftertreatment technologies, and fuel sturctures.

Organizers - *Imad A. Khalek, Southwest Research Institute; M. Matti Maricq, Ford Motor Co.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0686***	***Characterisation of Particulates with Different Blends of Ethanol-Gasoline in Two Wheelers*** *Murugesu Muralidharan, Subramanian Muthan, Prakash Chander Kanal, Ravinder Malhotra, Indian Oil Corp., Ltd*
9:00 a.m.	***2009-01-0687***	***An Optical Backscatter Sensor for Particulate Matter Measurement*** *James E. Parks, William Partridge, Vitaly Prikhodko, Oak Ridge National Laboratory*

9:30 a.m.	***2009-01-0689***	***Combinations of Technical Measures for Reduction of Particle Emissions & Toxicity of 2-S Scooters***
		Jan Czerwinski, Univ. of Applied Sciences - Biel, CH; Covadonga Astorga, EC Joint Research Center, Ispra, Italy; Pierre Comte, University Of Applied Sciences - Biel, CH; Thomas Adam, EC Joint Research Center, Ispra, Italy; Andreas Mayer, TTM, CH; Felix Reutimann, Daniel Zuercher, BAFU Federal Office of Environment, CH
10:00 a.m.	***2009-01-0691***	***Investigation of Sulfate Nanoparticulate Formation from a Catalyzed Diesel Particulate Filter on an Engine Fueled with ULSD and a Biodiesel Blend***
		Susan Kapetanovic, James S. Wallace, Greg Evans, Univ. of Toronto
10:30 a.m.	***2009-01-0692***	***Effects of Biodiesel Blends on the Performance and Emissions of a Common-Rail Light Duty Engine and Vehicle***
		Georgios Fontaras, Marina Kousoulidou, Zissis C. Samaras, Aristotle University Thessaloniki

The papers in this session are available in a single publication, SP-2256, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Emission Measurement and Testing - In-Use Engine Emissions Measurements

Session Code: ***PFL410***

Room W2-67 ***Session Time:*** ***1:30 p.m.***

This technical session will focus on engine emissions measurement from an in-use perspective. Papers and presentations will cover topics that discuss varying methods of emissions data collection during real-world operation of vehicles and engines. Topics will also include various advanced analysis techniques being used, or proposed, to report and determine emissions levels under in-use operations as well.

Organizers - *Nathan Moynahan, Caterpillar Inc.; Benjamin C. Shade, West Virginia Univ.; Reynaldo J. Agama, Caterpillar Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0940***	***Determination of PEMS Measurement Allowances for Gaseous Emissions Regulated Under the Heavy-Duty Diesel Engine In-Use Testing Program Part 1 - Project Overview and PEMS Evaluation Procedures***
		Michael D. Feist, Southwest Research Institute
2:00 p.m.	***2009-01-0939***	***Determination of PEMS Measurement Allowances for Gaseous Emissions Regulated Under the Heavy-Duty Diesel Engine In-Use Testing Program Part 2 - Statistical Modeling and Simulation Approach***
		Janet Buckingham, Robert Mason, Southwest Research Institute; Matthew Spears, US Environmental Protection Agency
2:30 p.m.	***2009-01-0938***	***Determination of PEMS Measurement Allowances for Gaseous Emissions Regulated Under the Heavy-Duty Diesel Engine In-Use Testing Program Part 3 - Results and Validation***
		Christopher Sharp, Southwest Research Institute
3:00 p.m.	***2009-01-0941***	***Comparison of Real World Emissions in Urban Driving for Euro 1-4 vehicles using a PEMS that measures legislated gaseous emissions.***
		Basil Daham, Gordon E. Andrews, Hu Li, Karl Ropkins, James Tate, Univ. of Leeds; Margaret Bell, Univ. of Newcastle

3:30 p.m.	***2009-01-0937***	***Gasoline and LPG Vehicle Emission Factors in Road Test***
		Jacek Pielecha, Jerzy Merkisz, Poznan Univ. of Technology; Wojciech Gis, Motor Transport Institute
4:00 p.m.	***2009-01-0943***	***The Effects of Low Rolling Resistance Tires on the NOX Emissions and Fuel Economy of Drayage Trucks***
		Timothy T. Diller, Ronald Matthews, Matthew Hall, Univ of Texas-Austin; Timothy DeFries, Eastern Research Group Inc; Brent Shoffner, Southwest Research Institute

The papers in this session are available in a single publication, SP-2256, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

SI Combustion (Part 2 of 3): Basic Combustion/Efficiency/Ignition

Session Code: ***PFL213***

Room W2-68 ***Session Time:*** ***8:30 a.m.***

This session presents research papers on general topics in the field of Spark-Ignited Combustion and Gasoline Engines. The scope is technologies that improve the efficiency and emissions of both 4-stroke and 2-stroke spark-ignition engines by improving fuel preparation, gas exchange, the ignition process, and the combustion process itself.

Part 3 focuses on Basic Combustion, Efficiency, and the Ignition process

Organizers - *Terrence Alger, Southwest Research Institute; Richard S. Davis, General Motors Powertrain; Mark C. Sellnau, Delphi Corp.*

Chairpersons - *Terrence Alger, Southwest Research Institute*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0501***	***Pressure Trace Analysis Methods to Analyze Combustion Features and Cyclic Variability of Different Gasoline Combustion Concepts***
		Andre Kulzer, David Lejsek, Axel Kiefer, Alexander Hettinger, Robert Bosch GmbH
9:00 a.m.	***2009-01-0502***	***Adsorption-based Structural Characterisation of Combustion Chamber Deposits***
		José Pinto da Costa, Univ. of Edinburgh; Roger Cracknell, Shell Global Solutions UK; Lev Sarkisov, Nigel Seaton, Univ. of Edinburgh
9:30 a.m.	***2009-01-0503***	***CARE: CAtalytic Reformated Exhaust Gases in Turbocharged DISI-Engines***
		Henrik Hoffmeyer, Emanuela Montefrancesco, Linda Beck, Juergen Willand, Florian Ziebart, Volkswagen AG; Fabian Mauss, BTU Cottbus
10:00 a.m.	***2009-01-0504***	***Effect of the Engine Head Geometry on the Combustion Process in a PFI Boosted Spark-ignition Engine***
		Simona Silvia Merola, Cinzia Tornatore, Paolo Sementa, Bianca Vaglieco, Istituto Motori CNR
10:30 a.m.	***2009-01-0505***	***Development of a Novel Ignition System Using Repetitive Pulse Discharges: Application to a SI Engine***
		Kimitoshi Tanoue, Oita Univ.; Tatsuya Kuboyama, Yasuo Moriyoshi, Chiba Univ.; Eiki Hotta, Tokyo Institute of Technology; Yuichiro Imanishi, Naohiro Shimizu, NGK Insulators, Ltd.; Katsuji Iida, Shindengen Electric Mfg.Co., Ltd.
11:00 a.m.	***2009-01-0506***	***Gas Assisted Jet Ignition of Ultra-Lean LPG in a Spark Ignition Engine***
		Elisa Toulson, Harry Watson, William Attard, Univ of Melbourne

The papers in this session are available in a single publication, SP-2241, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

SI Combustion (Part 3 of 3): Knock/Efficiency/Data Analysis Techniques

Session Code: ***PFL213***

Room W2-68 ***Session Time:*** ***1:30 p.m.***

This session presents research papers on general topics in the field of Spark-Ignited Combustion and Gasoline Engines. The scope is technologies that improve the efficiency and emissions of both 4-stroke and 2-stroke spark-ignition engines by improving fuel preparation, gas exchange, the ignition process, and the combustion process itself.

Part 4 focuses on Knock, Engine Efficiency, and Data Analysis Techniques

Organizers - *Terrence Alger, Southwest Research Institute; Richard S. Davis, General Motors Powertrain; Mark C. Sellnau, Delphi Corp.*

Chairpersons - *Richard S. Davis, General Motors Powertrain*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0694***	***Dedicated EGR: A New Concept in High Efficiency Engines***
		Terrence Alger, Barrett Mangold, Southwest Research Institute
2:00 p.m.	***2009-01-0695***	***Development of a Practical Tool for Residual Gas Estimation in IC Engines***
		Mark C. Sellnau, James Sinnamon, Larry Oberdier, Delphi Corp.; Carroll Dase, Matthew Viele, Kristopher Quillen, Drivven Inc; John Silvestri, Iakovos Papadimitriou, Gamma Technologies Inc
2:30 p.m.	***2009-01-0697***	***Optical Investigations of the Abnormal Combustion in a Boosted Spark-ignition PFI Engine***
		Simona Silvia Merola, Paolo Sementa, Cinzia Tornatore, Bianca Vaglieco, Istituto Motori CNR
3:00 p.m.	***2009-01-0698***	***A New Method to Detect Knocking Zones***
		Alexander Hettinger, Andre Kulzer, Robert Bosch GmbH
3:30 p.m.	***2009-01-0700***	***Quasi-Constant Volume (QCV) Spark Ignition Combustion***
		Rui Chen, Loughborough Univ.
4:00 p.m.	***2009-01-0699***	***A Study of the Knocking Mechanism in Terms of Flame Propagation Behavior Based on 3D Numerical Simulations (Written Only -- No Oral Presentation)***
		Atsushi Teraji, Akihiko Kakuho, Tsuyoshi Tsuda, Yutaka Hashizume, Nissan Motor Co., Ltd.

The papers in this session are available in a single publication, SP-2241, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Multi-Dimensional Engine Modeling (Part 3 of 3)

Session Code: ***PFL211***

Room W2-69 ***Session Time:*** ***8:30 a.m.***

Multi-dimensional engine modeling has established itself in the engineering community as a means to gain a deeper understanding of processes related to turbulent, transient, chemically reacting, two-phase flows. The spectrum of papers contained in the session reflect the truly multidisciplinary nature of the field covering areas such as chemical kinetics, combustion and spray modeling, turbulence, mesh generation, and approaches targeting improved computational efficiency.

Organizers - *Hardo Barths, General Motors Corp.; A. David Gosman, Imperial College London; Carl-Anders Hergart, Caterpillar Inc.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0723***	***Parallel Computing of KIVA-4 Using Adaptive Mesh Refinement*** *Yuanhong Li, Song-Charng Kong, Iowa State Univ.; David Torres, Los Alamos National Laboratory; Zheng Xu, Jianwen Yi, Ford Motor Co.; Qingluan Xue, Iowa State Univ.*
9:00 a.m.	***2009-01-0721***	***Modeling Alternative Prechamber Fuels in Jet Assisted Ignition of Gasoline and LPG*** *Elisa Toulson, Harry Watson, William Attard, Univ of Melbourne*
9:30 a.m.	***2009-01-0702***	***Development of an In-Cylinder Heat Transfer Model with Compressibility Effects on Turbulent Prandtl Number, Eddy Viscosity Ratio and Kinematic Viscosity Variations*** *Heejun Park, Dennis Assanis, Univ. of Michigan-Ann Arbor; Dohoy Jung, Univ. of Michigan-Dearborn*
10:00 a.m.	***2009-01-0716***	***Heavy-Duty Diesel Combustion Optimization Using Multi-Objective Genetic Algorithm and Multi-Dimensional Modeling*** *Hai-Wen Ge, Yu Shi, Rolf Reitz, Univ. of Wisconsin; David Wickman, Wisconsin Engine Research Consultants; Guangsheng Zhu, Houshun Zhang, Yury Kalish, Detroit Diesel Corp.*
10:30 a.m.	***2009-01-0714***	***Validation of Advanced Combustion Models Applied to Two-stage Combustion in a Heavy Duty Diesel Engine*** *Benjamin A. Cantrell; Hai-Wen Ge, Christopher J. Rutland, Rolf D. Reitz, Univ of Wisconsin Madison*
11:00 a.m.	***2009-01-0718***	***Comparison of the Operation of a Small-Bore High-Speed Direction-Injection Engine using a Micro-Variable Circular-Orifice (MVCO) Injector and Conventional Fuel Injectors*** *Way Lee Cheng, Chia-Fon F. Lee, Univ. of Illinois at Urbana-Champaign; Deyang Hou, QuantLogic Corporation*

The papers in this session are available in a single publication, SP-2245, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Modeling, Testing and Design of Materials for Dummies and Structures for Crash Safety Applications

Session Code: ***M17***

Room W2-69 ***Session Time:*** ***1:30 p.m.***

This session will discuss recent developments in material models and tests, seat and occupant system models, dummies and finite element modeling techniques for impact analysis.

Organizers - *William J. Altenhof, Univ. of Windsor; Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Tau Tyan, Ford Motor Co.*

Chairpersons - *Tau Tyan, Ford Motor Co; William Altenhof, Univ of Windsor*

Time	Paper No.	Title

1:30 p.m.	***2009-01-0469***	***Applicability of a Micromechanics Model Based on Actual Microstructure for Failure Prediction of DP steels***
		Kyoo Sil Choi, Ayoub Soulami, Wenning Liu, Xin Sun, Moe Khaleel, Pacific Northwest National Laboratory
2:00 p.m.	***2009-01-0470***	***A novel approach for generating a full-range tensile stress-strain curve***
		Gang Huang, Hong Zhu, Benda Yan, ArcelorMittal USA
2:30 p.m.	***2009-01-0471***	***A Practical Approach to Consider Forming Effects for Full Vehicle Crash Application***
		Zhenyan Gao, Ford Body Engrg
3:00 p.m.	***2009-01-0472***	***Implementation of Child Biomechanical Neck Behaviour into a Child FE Model***
		William J. Altenhof, Univ. of Windsor
3:30 p.m.	***2009-01-0473***	***Development and Validation of Hybrid III Crash Test Dummy***
		Pradeep Mohan, Dhafer Marzougui, Cing-Dao Kan, The George Washington University
	2009-01-0474	***Crash Simulation Tool including failure prediction for Structural Adhesives in Full-Car Models (Written Only -- No Oral Presentation)***
		Horst Lanzerath, Ford Motor Co.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 21

CI Engine Performance for Use with Alternative Fuels (Part 3 of 3)

Session Code: ***PFL201***

Room W2-70 ***Session Time:*** ***8:30 a.m.***

This session focuses on the effects of alternative fuels in compression ignition engines. A wide range of alternative fuels exist and may include hydrogen, ethanol, methane, biodiesel and synthetic diesel fuel. Data pertaining to emissions reduction, performance, combustion analysis, efficiency, spray characteristics and durability for both experimental as well as numerical investigations is presented.

Organizers - *Avinash Kumar Agarwal, Indian Institute of Technology - Kanpur; Amiyo K. Basu, Ford Motor Co.; Sundar Rajan Krishnan, Scott A. Miers, Argonne National Laboratory; Paul J. Richards, Innospec Inc.; Gregory J. Thompson, West Virginia Univ.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0493***	***Using Vegetable Oils and Animal Fats in Diesel Engines: Chemical Analyses and Engine Tests***
		Ilaria Mormino, Sebastian Verhelst, Roger Sierens, Christian Stevens, Bruno De Meulenaer, Ghent University
9:00 a.m.	***2009-01-0487***	***Survey of Straight Vegetable Oil Composition Impact on Engine Performance***
		Syndi L. Nettles-Anderson, Daniel Olsen, Colorado State Univ.
9:30 a.m.	***2009-01-0486***	***The Influence of Fuel Pre-heating on Combustion and Emissions with 100% Rapeseed Oil for a DI Diesel Engine.***
		Amanda Lea-Langton, Hu Li, Gordon E. Andrews, University of Leeds
10:00 a.m.	***2009-01-0490***	***Combustion Characteristics of Dual-fuel Diesel Engine Using Emulsified Bio-fuel for Pilot Ignition***
		Ashand Mitra Namasivayam, Queen Mary College; Kelvin Datonye Bob-Manuel, Rivers State Univ. of Science and Tech.; Roy J. Crookes, Theodosios Korakianitis, Queen Mary College

The papers in this session are available in a single publication, SP-2237, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 21

Software/Hardware Systems

Session Code: ***AE17***

Room W2-70 ***Session Time:*** ***1:30 p.m.***

Software/Hardware Systems is where you share your latest state of the art technology in the development of software as well as hardware to keep up with the rapid change in our daily life.

Organizers - *Hassan El-hor, Chrysler LLC*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0518***	***Honda Next Generation Speech User Interface***
		Roberto Sicconi, IBM Corp.; Kenneth David White, IBM; Harvey Ruback, IBM Corp.; Mahesh Viswanathan, IBM Microelectronics; John Eckhart, Daniel Badt, IBM Corp.; Masashi Morita, IBM; Masashi Satomura, Hisayuki Nagashima, Keisuke Kondo, Honda R&D Co., Ltd.
2:00 p.m.	***2009-01-0516***	***Energy Management as Configurable System Software Function***
		Uwe Beher, Kay Werthschulte, ESG Elektroniksystem- und Logistik-GmbH
2:30 p.m.	***2009-01-0520***	***Using a Co-simulation Framework to Enable Software-in-the-loop Powertrain System Development***
		Kurt Mitts, General Motors Corp.; Thierry Roudier, ChiasTek; Keith Lang, General Motors Corp.; Daniel Kiskis, ChiasTek
3:00 p.m.	***2009-01-0517***	***Flexible CPU Architecture to Handle Single and Multi-Core Applications for Embedded Automotive Systems***
		Jens Eltze, NEC Electronics
3:30 p.m.	***ORAL ONLY***	***Integrating Simulation and Test Data Using 3D Visualization Tools***
		Caroline Bright, National Instruments
4:00 p.m.	***ORAL ONLY***	***Organization of Test and Simulation Data for Fast Search and Retrieval***
		Caroline Bright, National Instruments
	2009-01-0519	***Using Model-Based Design to Accelerate FPGA Development for Automotive Applications (Written Only -- No Oral Presentation)***
		Sudhir Sharma, The MathWorks Inc.; Wang Chen, The MathWorks Inc
	2009-01-0521	***Smart Touch® Sensing Places the Power of the Microprocessor at your Fingertips (Written Only -- No Oral Presentation)***
		Erin Kirby, Nartron Corp.; Rachel Guerrero, Sanyo Automotive USA Inc.

Planned by Computer Applications Committee / Automobile Electronics Activity

Wednesday, April 22

How Will Fuel Price Trends Influence the Technology Mix?

Session Code: ***ANN202***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***9:30 a.m.***

Besides the current financial crisis, the rapid rise in fuel prices in the first 9 months of 2008 has had the biggest impact on the auto industry in recent memory. The panel will discuss which technologies will increase in importance if the price continues to rise in the long term. They will also indicate which ones will be an "interim step" only. The panelists will also discuss what happens when the price of fuel drops as it did in the last quarter of 2008 and the effect that would have on product planning. The audience will hear from the experts who must plan powertrain options when facing very unpredictable pricing trends in energy products.

Moderators - *Gerhard Schmidt, Chief Technical Officer, VP Res & Adv Engrg, Ford Motor Co.*

Panelists - *Roger A. Clark, Senior Mgr Energy Center, GM R&D Center; Kenneth Howden, Director for the 21st Century Truck Partnership, US DOE; Paul F. Skalny, Director, US Army TARDEC; Dean Tomazic, VP, Engine Performance & Emissions Div, FEV, Inc.;*

Wednesday, April 22

Which Hybrid Concepts Will Rise the Top? The Race to the Marketplace

Session Code: ***ANN206***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***1:30 p.m.***

Hybrids will play a very important role in future powertrain planning due to fuel costs and impending CO2 reduction regulation. However, there are many variations of hybrids which offer different benefits for the consumer. The panel will discuss their thoughts as to which of the variations will be short term and which will be long term solutions and the reasons for their choices.

Moderators - *Larry T. Nitz, Executive Director, GM Powertrain*

Panelists - *Neil Armstrong, Dir, Hybrid Sys & Components, MBC Pass Car, Daimler; Sherif Marakby, Chief Engr, Global Hybrid Core Engrg, Ford Motor Co.; Kenji Nakano, Senior Chief Engineer, Honda R&D Co., Ltd.; Joseph M. Slenzak, Robert Bosch LLC; Justin Ward, Adv Pwtrn Prog Mgr, Toyota Motor Engineering & Manufacturing;*

Wednesday, April 22

A Production Strategy for the Future: How to Change from Producing Cars to a Flexible Solutions Configuration

Session Code: ***ANN303***

Room SAE Executive Business Theater ***Session Time:*** ***9:00 a.m.***

Flexible production facilities can create many products for your portfolio in a random sequence but are typically expensive and offer a negative return.

The pros and cons of flexible production are well understood from the numerous debates of the past, as is the complexity of making a flexible production paradigm work. However, there is no reason to doubt your past decision making. Demand was stable and predictable and you setup your production, accordingly.

Production flexibility is a paradigm which starts with your technical strategy and does not end in the engineering process. Will it pay to go those extra miles?

Today, and probably for quite some time to come customer demand is in a flux which is instilled by the economy and the race to green mobility. This situation favors flexible production capabilities, but how do you make it work? Should trucks and cars be in the same plant? How much flexibility can you afford? Will customers be willing to pay for it? What does it take to stay ahead in the race? This panel will be challenged to discuss how they how addressed these questions within their companies.

Moderators - *Timothy J. Kellerman, Principal, Consulting4Drive GmbH*

Panelists - *Dilip Chenoy, Director General, Society of Indian Automobile Manufacturers; Larry Jutte, Senior Vice President, Honda of America Mfg, Inc.; Edward E. Mabley, CEO, FACTON; George R. Perry, President & CEO, Yazaki North America Inc.;*

Wednesday, April 22

Partnering for Profitability & Growth: Which Partnerships Do You Need to Secure for Tomorrow's Success?

Session Code: ***ANN304***

Room SAE Executive Business Theater ***Session Time:*** ***1:00 p.m.***

Strong OEM Brand + Innovative Tier Supplier = Market Success? This equation may have been the source of your success in the past but it will not be enough to carry you into a successful future.

In short, companies must evolve beyond traditional collaboration schemes in order to return to market success. This includes cooperating with current competitors, non-automotive companies and other market players.

The difficulty is that most organizations are set up to guard and control their assets, as well as their core competencies. Since batteries, alternatives fuels and infrastructure changes are still prohibitively expensive, an approach where each OEM tries to secure, for example, one battery manufacturer, may not yield sufficient economies of scale in the time given to make the turnaround.

If those economies of scale are needed to create a positive business case and to create a product that your customer can afford, you may have to consider new ways of joining forces - both inside and outside the industry.

Find out what top executives believe to be the critical factors in partnering for profitability and growth.

Moderators - *Larry L. Fobes, Dir, Inst for Org & Ind Competitiveness, Wayne State Univ.*

Panelists - *Roberts Abele, VP, Engineering, Powertrain Engine Sys, Continental; Utz-Jens Beister, President, IAV Inc.; Andreas Schell, VP for Electrical & Electronics Engrg Core, Chrysler LLC; Tom Watson, former VP, Engrg & Tech Planning, ArvinMeritor;*

Wednesday, April 22

Electronics in the Green Space

Session Code: ***ANN102***

Room AVL Technology Leadership Theater ***Session Time:*** ***10:30 a.m.***

Electronics has played a large part in the attainment of higher vehicle operational efficiency and lower emissions. This trend will continue as the race to green mobility accelerates. The panel will give their opinions as to what will be the next big steps in electronics that will enable the required increases in powertrain and overall efficiency while at the same time maintaining the mandated emission limits. The effects these developments would have on electrical architecture will also be discussed. Some of the topics to be discussed include the various available intelligent vehicle driving systems, energy recovery, idle stop, PHEV and other technologies that will help in the race to green mobility.

Moderators - *Jeffrey C. Klei, Pres, NAFTA Region & VP of Sales, GM Worldwide, Continental*

Panelists - *Shigekazu Hori, Director New Business Development / Alliance, Alpine; Jerry Klarr, Hybrid & Electric Veh Dir, AVL Powertrain Engineering Inc.; John Schneider, Chief Engr, HMI, Driver Info, and Infotainment, Ford Motor; Robert W. Schumacher, Gen Dir, Adv Prod & Business Dev, ,Delphi Electronics & Saf; Shawn Slusser, VP, Automotive Business, Infineon Technologies N.A. Corp.;*

Wednesday, April 22

IMechE Lecture - Engineering the Future in a Changing Climate

Session Code: ***ANN110***

Room AVL Technology Leadership Theater ***Session Time:*** ***12:45 p.m.***

Keynote Speakers - *Richard Folkson, Chairman, Automobile Division, IMechE*

Wednesday, April 22

Total Vehicular Energy Use Management

Session Code: ***ANN106***

Room AVL Technology Leadership Theater ***Session Time:*** ***2:30 p.m.***

While the majority of the publicity to attain the new CAFÉ numbers has centered on powertrain efficiency improvements, everyone agrees increasing powertrain efficiency alone will not reach the mandated level. Weight reduction, energy management, improved aerodynamics, etc. will all be needed to reach the goal. In addition, driver behavior changes and increased use of public transportation will be needed to attain the GHG reduction levels most people feel will be mandated. The panel will discuss all these issues during the session.

Moderators - *Paul Mascarenas, VP Engineering, Global Product Development, Ford Motor Co.*

Panelists - *Raymond G. Boeman, Director Transp. Technology Prog, ORNL; Walter Grote, Senior VP Automotive Systems Integration, Robert Bosch GmbH; Jeffrey F. Makarewicz, VP, Matls Engrg Div, Toyota Technical*

Center; Randall Scheps, Marketing Director, Alcoa Ground Transportation; Peter F. Sweatman, Director, Univ. of Michigan Transportation Research Inst.;

Wednesday, April 22

Multi-Media Systems (Part 1 of 2)

Session Code: ***AE3***

Room D2-08 ***Session Time:*** ***8:30 a.m.***

This session covers topics relating to vehicular entertainment and information systems. Specific subjects include FM diversity and satellite radio reception, antennas, navigation, displays, audio amplifiers, and loudspeakers.

Organizers - *Robert E. Klacza, Chrysler LLC; Richard S. Stroud, Stroud Audio Inc.*

Time	Paper No.	Title
8:30 a.m.	***ORAL ONLY***	***Specifying High-Quality Hands-free Speech Communications for Motor Vehicles***
		Scott Pennock, QNX Software Systems
9:00 a.m.	***ORAL ONLY***	***Wideband Speech Communications: The Good, the Bad, and the Ugly***
		Scott Pennock, QNX Software Systems
9:30 a.m.	***ORAL ONLY***	***Improving the User Experience with Spatial Auditory Displays***
		Scott Pennock, QNX Software Systems
10:00 a.m.	***ORAL ONLY***	***Design Challenges for Digital Instrument Clusters***
		Andrew J. Gryc, QNX Software Systems, Ltd.
11:00 a.m.	***ORAL ONLY***	***Untangling the Challenges of the Connected Car***
		Andrew J. Gryc, QNX Software Systems, Ltd.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Wednesday, April 22

Multi-Media Systems (Part 2 of 2)

Session Code: ***AE3***

Room D2-08 ***Session Time:*** ***1:30 p.m.***

This session covers topics relating to vehicular entertainment and information systems. Specific subjects include FM diversity and satellite radio reception, antennas, navigation, displays, audio amplifiers, and loudspeakers.

Organizers - *Richard Stroud, Stroud Audio Inc*

Chairpersons - *Robert Klacza, Chrysler LLC*

Assistant Chairpersons - *Thomas Hermann, Ford Motor Co*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0961***	***Get your Vehicle Connected***
		Carlos Garcia-Sierra, NEC Electronics
2:00 p.m.	***2009-01-0959***	***Nomadic Device Connectivity Using the AMI-C HMI Architecture***
		Francis E. Szczublewski, Laci Jalics, Mark Krage, Delphi Corp.
2:30 p.m.	***2009-01-0958***	***Loudness Compensation in Automobiles***
		Richard S. Stroud, Stroud Audio Inc.

3:00 p.m.	***2009-01-0957***	***GPS Antenna Mountable on the Glass with Optimized Peak Gain Angle using a Design Simulator***
		Hitoshi Horita, Naoki Iso, Hitachi Cable, Ltd.; Makoto Torigoe, Hitachi, Ltd. PERL; Hiroki Funato, Hitachi America, Ltd. R&D
3:30 p.m.	***2009-01-0960***	***Low Cost Switched Diversity System***
		Raed S. Shatara, Steven S. Langston, Daniel Morris, Nazar Bally, Mathew Boytim, Delphi Corp.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Wednesday, April 22

CAE Simulation/Test Correlation and Optimization in Automotive Engineering:Vehicle NVH Simulation/Test Correlation and Optimization (Part 2 of 5)

Session Code: ***M21***

Room D2-09/10 ***Session Time:*** ***8:30 a.m.***

This seesion addresses NVH issues of full vehicle and sub-assembly. Numerical and experimental techniques for noise and vibration analysis will be address along with new approaches to NVH problem and application of NVH materials. Also adressed will be Finite Element Analysis(FEA), Statistical Energy Analysis(SEA), Energy Finite Element Analysis(EFEA), Computational Fluid Dynamics(CFD), Modal Tests and Transfer Path Analysis(TPA), etc.

Organizers - *Weiguo Zhang, Comet Tech Corp; Jianmin Gu, Ford Motor Co; Aimin Wang, Univ of Michigan; Guangtian Gavin Song, AM General LLC; Guofei Chen, US Steel*

Chairpersons - *Weiguo Zhang, Comet Tech. Corp.; Jianmin Gu, Ford Motor Co.; Aimin Wang, Univ. of Michigan*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0769***	***An Approach to Reduce Cargo Damage***
		Kozue Kobayashi, Hino Motors, Ltd.
9:00 a.m.	***2009-01-0768***	***Improvements in CFD simulation of Internal Acoustics in a Throttle Body***
		Padmesh Mandloi; Sandeep Sovani, Laz Foley, ANSYS Inc; Ashok Khondge, Automotive CFD; Venkatesh Kannan, Robert Bosch LLC
9:30 a.m.	***2009-01-0771***	***High Frequency Vibro-Acoustic Analysis Using Energy Finite Element Method***
		Weiguo Zhang, Satha Raveendra, Comet Tech Corp.
10:00 a.m.	***2009-01-0766***	***Vehicle NVH Analysis Using EFEA & EBEA Methods***
		Aimin Wang, Nickolas Vlahopoulos, Univ. of Michigan
10:30 a.m.	***2009-01-1547***	***Steel Solution for Firewall using test and CAE Hybrid approach***
		Juliette Florentin, LMS International; Yukihisa Kuriyama, Toyoki Yamamoto, Nippon Steel Corp.; Francois Durieux, LMS International

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 22

Simulation and Modeling Mechatronics

Session Code: ***AE15***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

Historically, simulation and modeling efforts have typically been domain specific, independently modeling the behavior of electronic, electrical, or mechanical subsystems. As the complexity of these subsystems and their inter-domain interactions increase, it is imperative that the inter-domain behaviors and effects are taken into account when modeling and simulating the resulting Mechatronic system.

Organizers - *Shuvra Das, Univ. of Detroit Mercy*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1038***	***Electrical System Modeling Based on Lead Acid Battery Aging*** *Sungtae Kim, Seung Myun Chung, Wanjae Shin, Hyundai-Kia R&D Center; Chee burm Shin, Uiseong Kim, Dae Hun Lee, Ajou Univ.*
2:00 p.m.	***2009-01-1039***	***Development of an Engine-in-the-loop Vehicle Simulation System in Engine Dynamometer Test Cell*** *Shugang Jiang, Michael Smith, James Kitchen, A&D Technology Inc.; Atsushi Ogawa, A&D Co. Ltd.*
2:30 p.m.	***2009-01-1040***	***Control Strategy to Improve the Ride of a North American Pick Up Truck*** *Ricardo Prado, Metalsa S de RL; Ricardo Ramirez-Mendoza, Ruben Morales-Menendez, Technológico de Monterrey, Campus Monterrey*
3:00 p.m.	***2009-01-1041***	***Robust Design of Control Systems with Physical System Variances*** *Thomas Egel, The MathWorks Inc.*
3:30 p.m.	***2009-01-1042***	***Interaction of Vehicle Ride Vibration Control with Lateral Stability Using Active Rear Wheel Steering*** *Walid Abdel Hady Oraby, Samir El-demerdash, Al-Emam Selim, M Aly, Helwan Univ.*
4:00 p.m.	***2009-01-1043***	***Using Simulation to Verify Diagnosis Algorithms of Electronic Systems*** *Heinrich Balzer, Univ. of Paderborn; Oliver Niggemann, Dirk Fleischer, dSPACE GmbH; Valentin Adam, Matthias Kohlweyer, Daimler AG*

Planned by Computer Applications Committee / Automobile Electronics Activity

Wednesday, April 22

Thermal Systems Components (Part 1 of 2)

Session Code: ***HX3***

Room D2-11/12 ***Session Time:*** ***8:30 a.m.***

This session consists of papers relating to thermal management components. The papers address design, application and systems related topics.

Organizers - *Alaa El-Sharkawy, Chrysler LLC; Ronald Semel*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0966***	***Development of a Passive Exhaust Gas Cooler for Diesel Vehicles using CFD*** *Raj P. Ranganathan, GM Powertrain; Brent T. Deep, Bala K. Murthy, Muriel L. Finken, Susan dombrowski , GM Vehicle Engrg. Center*
9:00 a.m.	***2009-01-0971***	***Thermal Analysis of Urea Tank Solution Warm Up for Selective Catalytic Reduction (SCR)*** *Alaa El-Sharkawy, Chrysler LLC*
9:30 a.m.	***2009-01-0970***	***Experimental Investigation with Cross Fluted Double-Pipe Suction Line Heat Exchanger to Enhance AC System Performance*** *Gursaran D. Mathur, CalsonicKansei North America Inc.*

10:00 a.m.	***2009-01-0968***	***Simulating Heat Strain for Radiator Thermal Shock***
		Kengo Kameda, Weimin Wang, Osamu Fujisawa, Toshiyuki Maruno, CalsonicKansei Corp.

Planned by Thermal Management Activity / EMB Land and Sea Group

Wednesday, April 22

Thermal Systems Components (Part 2 of 2)

Session Code: ***HX3***

Room D2-11/12 ***Session Time:*** ***1:30 p.m.***

This session consists of papers relating to thermal management components. The papers address design, application and systems related topics.

Organizers - *Alaa El-Sharkawy, Chrysler LLC; Gursaran D. Mathur, CalsonicKansei North America Inc.; Ronald Semel*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0965***	***Active Heat Sink for Automotive Electronics***
		John Vetrovec, Aqwest LLC
2:00 p.m.	***2009-01-0969***	***Enhancement of Heat Transfer in a Flat Tube Radiator with Decaying Eddy Flow***
		S K Jaya Krishna, Bharathidasan Institute of Technology; Gopal Poornanandan, Anna Univ. Tiruchirappalli
2:30 p.m.	***2009-01-0973***	***Next-generation Ejector Cycle for Truck-transport Refrigerator***
		Etsuhisa Yamada, Haruyuki Nishijima, Hideya Matsui, Toshio Ueno, Masami Taniguchi, Akira Fujita, DENSO Corp.
	2009-01-0967	***B-COOL Project - Ford Ka and Fiat Panda R-744 Mobile Air Conditioning Systems (Written Only -- No Oral Presentation)***
		Carloandrea Malvicino, Riccardo Seccardini, Centro Richere Fiat S.C.p.A.; Markus Markowitz, Klaus Schuermanns, Ford Werke GmbH; Andrea Bergami, Maflow S.p.A.; Chrystel Arnaud, Delphi Thermal Systems; Regine Haller, Christophe Petitjean, Valeo Thermal System S.A; Christian Strupp, Nicholas C. Lemke, Braunschweig Tech. Univ.; Denis Clodic, Ecole des Mines - CEP; Carsten Post, Hydro Aluminium Precision Tubing Toender; Armin Hafner, SINTEF

Planned by Thermal Management Activity / EMB Land and Sea Group

Wednesday, April 22

Vehicle Aerodynamics (Part 5 of 5): Ground Simulation Wheels and Tires

Session Code: ***B50***

Room D2-13/14 ***Session Time:*** ***8:30 a.m.***

This session within Vehicle Aerodynamics has a specific focus on the various aspects related to treatment of the ground and wheels in automotive testing and simulation. This includes fixed and moving ground methods, as well as fixed and rotating wheel analysis.

Organizers - *Jewel B. Barlow, Univ. of Maryland; Adrian Philip Gaylard, Jaguar Land Rover; Kurt A. Zielinski, Honda R&D Americas Inc.*

Time	***Paper No.***	***Title***

8:30 a.m.	***2009-01-0776***	***The Effect of Center Belt Roughness on Vehicle Aerodynamics***
		Timo Kuthada, David Schroeck, Jürgen Potthoff, Jochen Wiedemann, IVK / FKFS Universität Stuttgart
9:00 a.m.	***2009-01-0775***	***Computational and Experimental Investigation of the Flow Structure and Vortex Dynamics in the Wake of a Formula 1 Tire***
		John Axerio, Gianluca Iaccarino, Emin Issakhanian, Kin Lo, Chris Elkins, John Eaton, Stanford Univ.
9:30 a.m.	***2009-01-0777***	***The Effects of Detailed Tire Geometry on Automobile Aerodynamics - a CFD Correlation Study in Static Conditions***
		Todd H. Lounsberry, Mark E. Gleason, Chrysler LLC; Satheesh Kandasamy, Khaled Sbeih, Bradley D. Duncan, Exa Corp.
10:00 a.m.	***2009-01-0778***	***Detailed Flow Studies in Close Proximity of Rotating Wheels on a Passenger Car***
		Christoffer Landström, Chalmers Univ. of Technology; Tim Walker, Volvo Car Corp.; Lennart Löfdahl, Chalmers

The papers in this session are available in a single publication, SP-2226, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Wednesday, April 22

Filtration and Separation for Vehicle Emissions Compliance (Part 1 of 2)

Session Code: ***PFL200***

Room D2-13/14 ***Session Time:*** ***1:30 p.m.***

Mandated reductions in hydrocarbon, nitrogen oxide, and particulate emissions have dramatically influenced vehicle fuel injection equipment, fuels, and fuel/lubricant additives. These changes, in turn, have cascaded into substantial shifts in filtration requirements. As filtration constitutes the final, and in many instances, only point of protection for engine components as well as the environment, filtration technology and test methods have experienced rapid development.

Organizers - *Neville J. Bugli, Visteon Corp.; Christine Stanfel, Ahlstrom*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0868***	***Effects of Diesel Fuel Additives on Automotive Filtration Performance***
		Gary B. Bessee, Southwest Research Institute
2:00 p.m.	***2009-01-0871***	***New Media for Water Separation from Biodiesel-Ultra Low Sulfur Diesel Blends***
		Christine Stanfel, Farina Pangestu, Ahlstrom Filtration, LLC
2:30 p.m.	***2009-01-0875***	***Diesel Fuel/Water Separation Test Methods - Where We Are and Where We Are Going***
		Gary B. Bessee, Southwest Research Institute
3:00 p.m.	***2009-01-0872***	***Challenges of 'Green Fuel' in Filtration System***
		Christine Sun, Freudenberg Filtration Technologies, L.P.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Human Factors in Driving and Automotive Telematics

Session Code: ***B22***

Room D2-15 ***Session Time:*** ***8:30 a.m.***

This session includes technical papers dealing with driver's interaction, perception, and behavior towards advanced telematics devices and intelligent safety systems with an overall objective of developing safer, more intuitive and comfortable vehicle systems.

Organizers - *Rana Balci*

Chairpersons - *David Rodrick, Univ. of Michigan-Dearborn*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0779***	***International Product User Research: Concurrent Studies Comparing Touch Screen Feedback in Europe and North America***
		Colleen Serafin, Michael Tschirhart, Visteon Corp.; Rainer Heers, Stephan Preussler, Visteon Deutschland GmbH
9:00 a.m.	***2009-01-0780***	***Successive Categorization of Perceived Urgency in Dynamic Driving Situations***
		Gerald J. Schmidt, Ali Khanafer, Dirk Balzer PhD, Adam Opel GmbH
9:30 a.m.	***2009-01-0781***	***Extension of the Honda-DRI "Safety Impact Methodology" (SIM) for the NHTSA Advanced Crash Avoidance Technology (ACAT) Program and Application to a Prototype Advanced Collision Mitigation Braking System***
		John W. Zellner, Michael Van Auken, Dean Chiang, Peter Broen, Joseph Kelly, Dynamic Research, Inc.; Yoichi Sugimoto, Honda R&D Co., Ltd.
10:00 a.m.	***2009-01-0782***	***Can We Design Cars that Prevent Alcohol-Related Collisions?***
		Reginald G. Smart, Centre for Addiction and Mental Health; Denis Gingras, Univ. de Sherbrooke; Anne W. Snowdon, Univ. of Windsor; Robert E. Mann, Gina Stoduto, Centre for Addiction and Mental Health; Peter Frise, Univ. of Windsor
10:30 a.m.	***2009-01-0784***	***Driver's Attitudes Toward the Safety of In-Vehicle Navigation Systems***
		Andrew Varden, Jonathan Haber, Univ. of Guelph
11:00 a.m.	***2009-01-0785***	***Modeling of Expert Driver's Braking Behavior and Its Application to an Automatic Braking System***
		Takahiro Wada, Shun'ichi Doi, Kagawa Univ.; Naohiko Tsuru, Kazuyoshi Isaji, DENSO Corp.; Hiroshi Kaneko, PARIS MIKI Inc.
11:30 a.m.	***2009-01-0786***	***Driver Workload Effects of Cell Phone, Music Player, and Text Messaging Tasks with the Sync-Voice Interface versus the Devices' Handheld Visual-Manual Interfaces***
		John Shutko, Kenneth Mayer, Eero Laansoo, Louis Tijerina, Ford Motor Co.
12:00 p.m.	***ORAL ONLY***	***Implementing Technology to Improve Driver Behavior***
		Eric Weiss, GreenRoad

Planned by Human Factors Committee / Automobile Body Activity

Wednesday, April 22

Magnesium Technologies

Session Code: ***M3***

Room D3-19 ***Session Time:*** ***8:30 a.m.***

Research and development of magnesium alloys for automotive applications continues to receive strong interest because of magnesium's mass reduction potential. In recent years this interest has expanded beyond cast alloys to include wrought alloys as well. The technical papers to be presented at the 2009 Magnesium Technologies sessions reflect this broadening perspective.

Organizers - *Kevin P. Boyle, CANMET Materials Technology Laboratory; Zi-Kui Liu, Pennsylvania State Univ.*

Chairpersons - *Kevin P. Boyle, CANMET Materials Technology Laboratory*

Time	Paper No.	Title

8:30 a.m.	***2009-01-0788***	***Development of High Strength Mg Alloys***
		Kenshi Inoue, Yuichi Ienaga, Honda R&D Co., Ltd.
9:00 a.m.	***2009-01-0789***	***Effect of the Cooling Rates on the Microstructure Evolution and Eutectic Formation of as-cast Mg-Al-Ca Alloys***
		Xueyuan Nie, Univ. of Windsor
9:30 a.m.	***2009-01-0790***	***Wear and Galvanic Corrosion Protection of Mg Alloy via Plasma Electrolytic Oxidation Process for Mg Engine Application***
		Xueyuan Nie, Univ. of Windsor

Planned by Non-Ferrous Committee / Materials Engineering Activity

Wednesday, April 22

Copper Alloys

Session Code: ***M27***

Room D3-19 ***Session Time:*** ***10:00 a.m.***

The automotive design engineer and materials specifier faces many new challenges as well as governmental regulations and mandates concerning hazardous substances, sustainability and end-of-vehicle life. This session considers the new developments in copper and copper alloys and provides information on selecting and specifying copper alloys in light of these challenges.

Organizers - *Robert D. Weed, Copper Development Association Inc.*

Chairpersons - *Robert Weed, Copper Development Association Inc*

Time	***Paper No.***	***Title***
10:00 a.m.	***ORAL ONLY***	***Antimicrobial Copper and Copper Alloy surfaces for Human Health and Automotive Benefit***
		James H. Michel, Harold Michels, Wilton Moran, Copper Development Association Inc.
10:30 a.m.	***ORAL ONLY***	***Understanding and Specifying Copper Alloys***
		Konrad J.A. Kundig, Copper Development Association Inc.
11:00 a.m.	***2009-01-0956***	***The Case for Induction Motors with Die-cast Copper Rotors for High Efficiency Traction Motors***
		Dale T. Peters, Copper Development Association Inc.
11:30 a.m.	***ORAL ONLY***	***C69300 & C87850 Lead-Free Silicon Brass: Properties and Performance***
		Larry Muller, Chase Brass & Copper

Planned by Non-Ferrous Committee / Materials Engineering Activity

Wednesday, April 22

Sheet/ Hydro/ Gas Forming Technology and Modeling (Part 1 of 3)

Session Code: ***M9***

Room D3-19 ***Session Time:*** ***1:30 p.m.***

The Sheet/ Hydro/ Gas Forming Technology and Modeling session is designed to provide industrial and academic participants a forum to address current technical issues in sheet metal forming using analytical, numerical and experimental tools. It is hoped that the Session will help to advance the state of the art in sheet metal forming and lead to rapid dissemination of new technologies for industrial applications.

Organizers - *Z. Cedric Xia, Ford Motor Co.; Thomas J. Oetjens, Thomas Stoughton, General Motors Corp.; Michael J. Worswick, Univ. of Waterloo; Ching-Kuo Hsiung, General Motors Corp.*

Chairpersons - *Thomas J. Oetjens, General Motors Corp.; Z. Cedric Xia, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	2009-01-0979	**The Impact of Globalization & New Materials on the Transition to a Fully Digital Tool & Die** *Laurent Chappuis, Ford Motor Co*
2:00 p.m.	2009-01-0980	**Robust Optimization of Drawbead Forces for the B-pillar Stamping** *Dayong Li, Shanghai Jiao Tong University; Tony Chang, Yu-Wei Wang, Severstal North America Inc; Z Xia, Ford Motor Co*
2:30 p.m.	2009-01-0981	**Springback Prediction Improvement Using New Simulation Technologies** *Xiaoming Chen, U.S. Steel; Chuan-Tao Wang, General Motors Corp.; Changqing Du, Chrysler LLC; Siguang Xu, General Motors Corp.; Xinhai Zhu, Livermore Software Technology Inc; Cedric Z. Xia, Ford Motor Co.; Ming Shi, U.S. Steel*
3:00 p.m.	2009-01-0982	**Volume Morphing to Compensate Stamping Springback** *Ramon F. Sarraga, Thomas J. Oetjens, Chuantao Wang, Siguang Xu, General Motors Corp; Paul A. LeBlanc, EDS, an HP Company*
3:30 p.m.	2009-01-0983	**Advanced Simulation Technology Using LS-DYNA® For Automotive Body Manufacturing Process: From Stamping To Assembly** *Li Zhang, Xinhai Zhu, Livermore Software Technology Corporation; Siguang Xu, Chuan-Tao Wang, General Motors Corp*
4:00 p.m.	2009-01-0984	**Prediction on Springback and Static Loading Performance of Progressive Formed Auto Stamping** *Zi Qiang Sheng, Compass Technologies; Li Zhang, Livermore Software Technology Corporation*

Planned by Ferrous Committee / Materials Engineering Activity

Wednesday, April 22

Reliability and Robust Design in Automotive Engineering: Axiomatic Design

Session Code: ***IDM21***

Room D3-20/21 ***Session Time:*** ***8:30 a.m.***

This session focuses on the development of methods and implementations of Axiomatic Design. Topics of Axiomatic Design session include design and development process, concept design and evaluation, diagnostics and design Improvement, system engineering, integration with other design methods/tools, application and case studies.

Organizers - *Yih-Chyun Sheu, General Motors Corp.; Hilario L. Oh, Massachusetts Institute of Technology; Christopher A. Brown, Worcester Polytechnic Institute; Taesik Lee, Massachusetts Institute of Technology*

Chairpersons - *Christopher A. Brown, Worcester Polytechnic Institute*

Assistant Chairpersons - *Brian Timmermann, General Motors Corp.; Meily Lin, General Motors Corp*

Time	Paper No.	Title
8:30 a.m.	ORAL ONLY	**On Design of Urban Passenger Vehicles** *Nam Pyo Suh, Massachusetts Institute of Technology*

9:00 a.m.	***2009-01-0792***	***Application of Axiomatic Design Principles for Process Planning in Milling***
		A. M. M. Sharif Ullah, Khalifa Harib, United Arab Emirates Univ; Muaatasem Awda, Emirates Precision Metal Industries; Salah Zenieh, Caracal International LLC
9:30 a.m.	***ORAL ONLY***	***Integration of Car Door to Body: An Application of Axiomatic Design to Large Systems***
		Raymond Lipowski, General Motors; Hilario Oh, Massachusett Institute of Technology
10:00 a.m.	***2009-01-0791***	***Design Complexity and its Relationship with SN Ratio - Larger-the-better Characteristics with Finite Target***
		Naresh Kumar Sharma, Missouri University of Science & Technology; Elizabeth Cudney, Missouri S&T; Sonali Sharma, Devi Ahilya Vishwavidyalaya, Indore, India
10:30 a.m.	***ORAL ONLY***	***Good Design Decompositions and How to Develop Them***
		Christopher A. Brown, Worcester Polytechnic Institute
11:00 a.m.	***2009-01-0793***	***Axiomatic Design for a Total Robust Development Process***
		Shih-Chung Tsai, GM North America Operations; Vesna Savic, GM Technical Center; Daniel Belton, General Motor - Holden; Raviraj Nayak, Horatiu German, General Motors Corp.

The papers in this session are available in a single publication, SP-2232, and also individually.

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Wednesday, April 22

Reliability and Robust Design in Automotive Engineering: Design for Six Sigma

Session Code: ***IDM28***

Room D3-20/21 ***Session Time:*** ***1:30 p.m.***

Design for Six Sigma (DFSS) is a powerful engineering process for designing robust, high quality products that consistently meet or exceed customers' expectations. This session will address new technical advances in DFSS and provide valuable insight into its application through the presentation of significant real-world case studies.

Organizers - *Yih-Chyun Sheu, General Motors Corp.; Richard T. Amori, Ford Motor Co.; Robert V. Lust, General Motors; Catherine Ling, General Motors Corp.*

Chairpersons - *Robert V. Lust, General Motors*

Assistant Chairpersons - *Richard Amori, Ford Motor Co; Donnell Washington, Ford Motor Company; Shawn Hui, General Motors Corp*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0990***	***Implementing Failure Mode Avoidance***
		Ed Henshall, Ioan Campean, Univ. of Bradford
2:00 p.m.	***2009-01-0988***	***The Study on New Product Designing Method by Using TRIZ***
		Young-Ju Kang, Hyundai Motor Company
2:30 p.m.	***2009-01-0989***	***Robust Analysis of Clamp Load Loss in Aluminum Threads Due to Thermal Cycling***
		Brian Bartnick, David Shea, Dean Weed, General Motors Corp.
3:00 p.m.	***2009-01-0987***	***DFSS for Robust Tooling Design with Concurrent Virtual Dimensional Analysis (CVDA) Methods***
		Bo Zhang, Chrysler LLC

3:30 p.m.	***2009-01-0986***	***Predicting Gas Mileage Using the T-Method***
		Parthiv Akshay Shah, Elizabeth Cudney, Vivek Jikar, Missouri S&T; Naresh Sharma
4:00 p.m.	***2009-01-0985***	***Development of Air Intake System for Sporty Coupe Using the Robust Design Method***
		Hyunsoo Jung, Kyoung-Jin Chang, Hyundai Motor Company

The papers in this session are available in a single publication, SP-2232, and also individually.

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Wednesday, April 22

Applications of Advanced high-Strength Steels for Automotive Structures (Part 1 of 2)

Session Code: ***M29***

Room D3-22/23 ***Session Time:*** ***8:30 a.m.***

This symposium provides a forum for researchers and application engineers to disseminate the knowledge and information gained in the area of advanced high-strength steel development and applications in automotive structures, enabling light-weight and durable vehicles with improved safety.

Organizers - *Jason J. Coryell, General Motors; Hong Tae Kang, Univ. of Michigan-Dearborn; Raj Mohan Iyengar, Severstal North America Inc.; Raj Sohmshetty, Ford Motor Co.*

Chairpersons - *Raj Mohan Iyengar, Severstal North America Inc*

Assistant Chairpersons - *Brandon Hance*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0794***	***Material Property and Formability Characterization of Various Types of High Strength Dual Phase Steel***
		James Dykeman, Honda R&D Americas Inc.; David Hoydick, Todd M. Link, Haruo Mitsuji, US Steel
9:00 a.m.	***2009-01-0802***	***Forming High-Strength Steels***
		Stefan Woestmann, ThyssenKrupp Steel AG
9:30 a.m.	***2009-01-0799***	***DP590 HDGI Mechanical Property Variability and Structural Response Studies***
		Raj Sohmshetty, Z Xia, Ford Motor Co.
10:00 a.m.	***2009-01-0795***	***Achieving Light-Weight Design of Automotive Bodies with Advanced High Strength Steels via Structural Optimization***
		Srinivasan Laxman, Severstal North America Inc.; Shawn Morgans, Ford Motor Co.; Raj Mohan Iyengar, Severstal North America Inc.
10:30 a.m.	***2009-01-0797***	***Three-Point Bending Crash Performance of Advanced High Strength Steels***
		Todd M. Link, U. S. Steel; Corey M. Jensen, Univ. of Texas at El Paso
11:00 a.m.	***2009-01-0801***	***Application of Advanced High Strength Steel to NVH Components***
		Thomas Howard, Kavesary Raghavan, John Buttles, Bailey Tool & Manufacturing Co.

Planned by Ferrous Committee / Materials Engineering Activity

Wednesday, April 22

Applications of Advanced high-Strength Steels for Automotive Structures (Part 2 of 2)

Session Code: ***M29*** ***1:30 p.m.***

Room D3-22/23 ***Session Time:***

This symposium provides a forum for researchers and application engineers to disseminate the knowledge and information gained in the area of advanced high-strength steel development and applications in automotive structures, enabling light-weight and durable vehicles with improved safety.

Organizers - *Jason J. Coryell, General Motors; Hong Tae Kang, Univ. of Michigan-Dearborn; Raj Mohan Iyengar, Severstal North America Inc.*

Chairpersons - *Jason Coryell, General Motors*

Assistant Chairpersons - *Raj Sohmshetty, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0803***	***Springback Elimination in Structural Components by Means of Electromagnetic Forming*** *Leire Vadillo, Tecnalia; Uwe Paar, Martin Glatzer Dr., Volkswagen AG; Glenn S. Daehn, Ohio State Univ.; Rafael Iturbe, ANTEC, S.A.; M. Angeles Gutierrez, Inaki Perez, Inaki Eguia, Beatriz Gonzalez, Tecnalia*
2:00 p.m.	***~~2009-01-0798~~*** ***ORAL ONLY***	***Experimental Investigation of the Evolution of Phases and Microstructure During Heat Treatment of Aluminized Low Carbon Steel*** *Frank Jenner, Ohio State Univ.; Raj Mohan Iyengar, Ronald Hughes, Severstal North America Inc; Mark Walter, Ohio State Univ.*
2:30 p.m.	***2009-01-0800***	***Characterization of the Fracture Toughness of TRIP 800 Sheet Steels Using Microstructure-Based Finite Element Analysis*** *Ayoub Soulami, Kyoo Sil Choi, Wenning Liu, Xin Sun, Moe Khaleel, Pacific Northwest National Laboratory*
3:00 p.m.	***2009-01-0796***	***Bake Hardening Effect of Dual Phase Steels*** *Susan Hill, Univ. of Dayton Research Institute; Kangping Wang, GM Engineering Center; Jamel Belwafa, Ford Motor Co.; Sarah Kuhlman, Univ. of Dayton Research Institute; Xiaoming Chen, U.S. Steel*
3:30 p.m.	***2009-01-0805***	***Resistance Spot Welding Evaluation of Dual Phase 980 Steel for Automotive Body Structural Applications*** *Ramakrishna P. Koganti, Ford Motor Co.; Charles Orsette, Fusion Welding Solutions; Arnon Wexler, Sergio Angotti, Armando Joaquin, Ted Coon, Ford Motor Co.*
4:00 p.m.	***2009-01-0604***	***Surface Modification of EN 8 Steel by Aluminizing and Nitriding for Automotive Applications*** *R. Rajendran, P. Hariharan, B S A Crescent Engineering College, Chennai, INDIA; N. Gowrishankar, U. Jaikrishna, IP Rings Ltd, Maraimalai Nagar, INDIA; A. Rajadurai, MIT Anna University, Chennai, INDIA*

Planned by Ferrous Committee / Materials Engineering Activity

Wednesday, April 22

Reliability and Robust Design in Automotive Engineering: Military Applications

Session Code: ***IDM23***

Room D3-24/25 ***Session Time:*** ***8:30 a.m.***

Applications of reliability-based design of military vehicles and other systems are presented in this session. Health monitoring for condition-based maintainance is also covered. Focus is on ground vehicles used by the military or in similar occupations with harsh operating environments and conditions, and high performance requirements.

Organizers - *David A. Lamb, US Army RDECOM; Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo*

Chairpersons - *David Lamb, US Army*

Assistant Chairpersons - *Matthew Castanier, TARDEC*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0807***	***Agile Modeling of Component Connections for Simulation and Design of Complex Vehicle Structures*** *Matthew P. Castanier, David A. Lamb, David J. Gorsich, US Army RDECOM-TARDEC; Keychun Park, Univ of Michigan-Ann Arbor*
9:00 a.m.	***2009-01-0806***	***Health Monitoring for Condition-Based Maintenance of a HMMWV using an Instrumented Diagnostic Cleat*** *Tiffany DiPetta, Purdue Univ-West Lafayette; Joseph Gothamy, Paul Decker, David Lamb, David Gorsich, US Army RDECOM-TARDEC; David Koester, Purdue Univ-West Lafayette*
9:30 a.m.	***ORAL ONLY***	***An Integrated HPC Stochastic Physics-Based Framework for Vehicle Reliability-Based Design and Maintenance*** *Dan M. Ghiocel, GP Technologies Inc.; David Lamb, US Army RDECOM; David Gorsich, US Army Tank Auto & Armaments Command*

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Wednesday, April 22

CAE Simulation/Test Correlation and Optimization in Automotive Engineering:Vehicle Crashworthiness/Occupant Safety CAE Simulation/Test Correlation and Optimization (Part 1 of 5)

Session Code: ***M21***

Room D3-24/25 ***Session Time:*** ***1:30 p.m.***

This session addresses full vehicle, sub-assembly and component crashworthiness and occupant safety simulations/testing correlation. A variety of topics on material modeling, optimization, and method development are discussed. Examples include: offset deformable Barrier (ODB) crash in ECE R94, metallic energy absorber optimization to meet FMVSS 201, frontal pendulum impact in ECE R29, and laser scoring line behaviour for seamless passenger airbag door opening.

Organizers - *Guangtian Gavin Song, Hui Wang, AM General LLC; Guofei Chen, US Steel; Zheng Qin, Chrysler LLC*

Chairpersons - *Guangtian Gavin Song, Hui Wang, AM General LLC*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0352***	***Application of Spot Weld and Sheet Metal Failure Prediction to Non-Linear Transient Finite Element Analysis of Automotive Structures*** *Skye M. Malcolm, Brian O'Hara, Honda R&D Americas Inc.*
2:00 p.m.	***2009-01-0353***	***Design Optimization of Progressively Crushing Rails*** *Nate Chase, Ronald C. Averill, Michigan State Univ.; Ranny Sidhu, Red Cedar Technology Inc*
2:30 p.m.	***2009-01-0354***	***Beam-type versus Solid-type Spot Weld in LS-DYNA*** *Joseph Z. Wu, General Motors Corp.*
	2009-01-0351	***Improving Vehicle Performance in Offset Deformable barrier crash as per ECE R94 via Computer Aided Engineering (Written Only -- No Oral Presentation)*** *Susheel Khanna, Mahindra & Mahindra, Ltd.*

2009-01-0355	***Design and Development of Metallic Energy Absorber for A-Pillar (Written Only -- No Oral Presentation)***	
	Ritesh Kumar Jain, Gunwant Phalak, Mahindra & Mahindra, Automotive Sector	
2009-01-0356	***Numerical Modelling of Laser Scoring Line Behaviour For Seamless Passenger Airbag Door Opening (Written Only -- No Oral Presentation)***	
	Gregory Spingler, Visteon Interior Systems	

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 22

Load Simulation and Analysis in Automotive Engineering: Driver Modeling and Vehicle Ride Comfort Analysis (Part 1 of 6)

Session Code: ***M20***

Room D3-26/27 ***Session Time:*** ***8:30 a.m.***

Focusing on studies on driver behavior modeling, driving simulator technique, vehicle ride comfort evaluation, the effect of beaming, shaking, impact harshness, brake judder and any other phenomena on ride comfort of driver and passengers, goods damage, etc.

Organizers - *Jingzhou (James) Yang, Texas Tech Univ; Jennifer Johrendt, Univ of Windsor; Xiaobo Yang, Oshkosh Corp.; Peijun Xu, Commercial Vehicle Group*

Chairpersons - *Jennifer Johrendt, Univ. of Windsor*

Assistant Chairpersons - *James Yang, Texas Tech University*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0360***	***Ride Dynamic Analyses of Different Concept Car Suspension System Layouts***
		Dongpu Cao, Amir Khajepour, Jian Jun Zhu, Zhiyong YIN, Univ. of Waterloo
9:00 a.m.	***ORAL ONLY***	***A General Framework for Optimal Vehicle Occupant Packaging***
		Jingzhou Yang, Joo Kim, Univ. of Iowa
9:30 a.m.	***2009-01-0359***	***Human-Machine Interaction in Vehicle Steering***
		Sumio Sugita, UC Berkeley; Masayoshi Tomizuka, Univ of California; Ahmed El-Shaer
10:00 a.m.	***2009-01-0358***	***ALE based Finite Element Method for Characteristic Simulation of Hydraulically Damped Rubber Mount***
		Lirong Wang, Tokyo Institute of Technology; Zhen-Hua Lu, Tsinghua Univ.; Ichiro Hagiwara, Tokyo Institute of Technology
10:30 a.m.	***2009-01-0357***	***Active Suspension and Anti-lock Braking Systems for Passenger Cars***
		Aref M. A. Soliman, South Valley University; Mina M. S. Kaldas, K. R. M. Mahmoud, Minia University

The papers in this session are available in a single publication, SP-2233, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 22

Load Simulation and Analysis in Automotive Engineering: Test / Simulation Correlation and Durability CAE Application (Part 4 of 6)

Session Code: ***M20***

Room D3-26/27 ***Session Time: 1:30 p.m.***

This session focuses on correlation studies between road/laboratory test and analytical simulation, determination of correlation matrix and important factors affecting the correlations. This session also includes methods and protocols for test-simulation correlation, durability CAE application in automotive engineering, the process development of durability analysis, equivalent method for customer usage and proving ground durability test, duty cycle determination, and stress analysis method.

Organizers - *Jiaquan Chen, Ford Motor Co.; Cheng Cao, Chrysler LLC; Xiaobo Yang, Oshkosh Corp.; Peijun Xu, Commercial Vehicle Group*

Chairpersons - *Jiaquan Chen, Ford Motor Co*

Assistant Chairpersons - *Cheng Cao, Chrysler LLC*

Time	Paper No.	Title
1:30 p.m.	2009-01-0813	***Application of Verity Method to Predict Bushing Fatigue Life and Load Limit***
		Fulun Yang, Henry Cheng, Tenneco Inc.; Katherine Lee
2:00 p.m.	2009-01-0818	***Finite Element Analyses and Correlations on Oil Canning of a Door Outer Panel***
		Michael Guo, Chrysler Corp; Yang Hu, Chrysler Manufacturing Div.
2:30 p.m.	2009-01-0811	***A New Approach for Life Prediction of Serpentine Accessory Belt Drive System Using Actual Measured Data***
		Seevaratnam Karunendiran, Litens Automotive Group; Michael Clark, Litens Automotive Partnership; Jean W. Zu, Univ. of Toronto
3:00 p.m.	2009-01-0820	***Development of Fatigue Durability Analysis Techniques for Engine Piston Using CAE***
		Sangwoo Cha, Kyung-Woo Lee, Hoon Chang, Hyundai Motor Co.
3:30 p.m.	2009-01-0819	***A Multi-disciplinary Approach for Evaluating Strength of Engine Cylinder Head and Crankcase Assembly under Thermo-Structural Loads***
		Abhijit Vishnu Londhe, Vivek Yadav, Aditya Mulemane, Mahindra & Mahindra Ltd
4:00 p.m.	2009-01-0816	***Finite Element Analysis of Connecting Rod and Correlation with Test***
		Abhijit Vishnu Londhe, Vivek Yadav, Aparajita Sen, Mahindra & Mahindra Ltd
4:30 p.m.	2009-01-0812	***Fatigue Life Behavior of a Hypoid Gear Tooth Root taking the Influences of Orbital Forging into Account***
		Christoph Haberer, University of Leoben, Austria; Alexander Dietrich, MAGNA Powertrain, Austria; Heinz Leitner, Wilfried Eichlseder, University of Leoben, Austria
5:00 p.m.	2009-01-0817	***Application of Back to Back Methodology for Optimization of Drive train from Drivability and fuel efficiency point of view and Arriving at Good Co-Relation with CRUISE Analysis.***
		Bhalchandra Pradeep Gogate, Sarang Kavishwar, Tata Motors, Ltd.
5:30 p.m.	2009-01-0809	***Durability Analysis of an Electric Wiper Linkage Subjected to Operation Cycles***
		Linbo Zhang; Youzhong Xu, Shen R. Wu, Zexun Wu, Zhengzhong Wang, Chery Automobile Co.

The papers in this session are available in a single publication, SP-2233, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 22

New Revelations in Mobility History (Part 1 of 2)

Session Code: ***CONG103*** ***8:30 a.m.***

Room D3-28 ***Session Time:***

The following oral presentations will cover not only several facets of early mobility history including the centennial of the Hudson Motor Car Company but also several facets of early motorsports history including the Indianapolis 500 and the Chrysler Ramcharger racing program. Session sponsored by the SAE Mobility History Committee.

Organizers - *Donald C. Siegla*

Chairpersons - *Donald C. Siegla*

Time	***Paper No.***	***Title***
8:30 a.m.	***ORAL ONLY***	***The Quest for Mobility - Surface Transportation***
		Charles A. Amann, KAB Engineering
9:30 a.m.	***ORAL ONLY***	***Milwaukee Junction - Cradle of Detroit's Automobile Industry***
		Robert W. Cosgrove, SAE Mobility History Committee
10:30 a.m.	***ORAL ONLY***	***A Technical History of the Hudson Motor Car Company***
		Robert D. Elton, Griswold Engineering

Wednesday, April 22

New Revelations in Mobility History (Part 2 of 2)

Session Code: ***CONG103***

Room D3-28 ***Session Time:*** ***1:30 p.m.***

The following oral presentations will cover not only several facets of early mobility history including the centennial of the Hudson Motor Car Company but also several facets of early motorsports history including the Indianapolis 500 and the Chrysler Ramcharger racing program. Session sponsored by the SAE Mobility History Committee.

Organizers - *Donald C. Siegla*

Chairpersons - *Donald C. Siegla*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***Early History of the Indianapolis 500***
		Alfred D. Bosley, Consultant
2:30 p.m.	***ORAL ONLY***	***We Were the Ramchargers - Changing Chrysler's Image on the Race Track***
		Tom Hoover, Retired Chrysler Corp.
3:30 p.m.	***ORAL ONLY***	***Ramcharger Panel Discussion - How We Got There***
		Robert H. Lees, Chair & Other Ramcharger Program Participants

Wednesday, April 22

Fuel Cell Vehicle Applications (Part 2 of 3)

Session Code: ***PFL101***

Room M2-29 ***Session Time:*** ***8:30 a.m.***

The overall session addresses the latest developments in fuel cell vehicles, their systems and components for vehicle applications.

This session includes reports from the status of fuel cell vehicle research and development activities.

In addition, there will be a panel titled "Removing the Automobile from the Carbon Equation: Commercialization of Fuel Cell Vehicles" from Industry Representatives.

Organizers - *Jesse Schneider; James F. Miller, Argonne National Laboratory*

Time	Paper No.	Title
8:30 a.m.	2009-01-1014	**Development of Fuel Cell Stack Durability based on Actual Vehicle Test Data: Current Status and Future Work** *Ryoichi Shimoi, Takashi Aoyama, Akihiro Iiyama, Nissan Motor Co., Ltd.*
9:00 a.m.	2009-01-1012	**Advances in the Power train System of Honda FCX Clarity Fuel Cell Vehicle** *Minoru Matsunaga, Tatsuya Fukushima, Kuniaki Ojima, Honda*
9:30 a.m.	2009-01-1003	**Development of The New Toyota FCHV-adv Fuel Cell System** *Tetsuya Bono, Toyota Motor Engineering & Mfg NA Inc.; Mikio Kizaki, Hideaki Mizuno, Yasuhiro Nonobe, Tsuyoshi Takahashi, Tadaichi Matsumoto, Nobuo Kobayashi, Toyota Motor Corporation*
10:00 a.m.	2009-01-1002	**Development of Fuel Cell Hybrid Vehicle by Toyota -Durability** *Hironori Noto, Masaaki Kondo, Yasuki Otake, Manabu Kato, Toyota Motor Corporation*
10:30 a.m.	ORAL ONLY	**Fuel Cell Vehicle Learning Demonstration Status and Results** *Keith B. Wipke, Samuel Sprik, Todd Ramsden, Jennifer Kurtz, National Renewable Energy Laboratory; John Garbak, Department Of Energy*
11:00 a.m.	Panel	**Panel Discussion - Removing the Automobile from the Carbon Equation: Technical Challenges remaining in Fuel Cell Vehicle Commercialization** **Panelists -** *Akihiro Iiyama, Nissan Motor Co., Ltd.; James F. Miller, Argonne National Laboratory; Justin Ward, Toyota Motor Engineering & Manufacturing;*

The papers in this session are available in a single publication, SP-2236, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Fuel Cell Vehicle Applications (Part 3 of 3)

Session Code: ***PFL101***

Room M2-29 ***Session Time:*** ***1:30 p.m.***

The overall session addresses the latest developments in fuel cell vehicles, their systems and components for vehicle applications.

This session focuses on fuel cell vehicle systems subcomponents (Stack, E-Drive, Li-Ion Battery) and comparison between fuel cell vs. other technology types.

Organizers - *Jesse Schneider; James F. Miller, Argonne National Laboratory*

Time	Paper No.	Title
1:30 p.m.	2009-01-1001	**New Drive Motor for Fuel Cell Vehicle FCX Clarity** *Noritaka Yamaguchi, Akinobu Iwai, Tatsuya Fukushima, Hiroaki Shinoki, Honda R&D Co., Ltd.*
2:00 p.m.	2009-01-1004	**Multi-Fuel PEM Fuel Cell Power Plant for Vehicles** *Brian Bowers, Jian Lian Zhao, Druva Dattatraya, Pierre-Francois Quet, Yanlong Shi, Eric James, David Hottle, Eric Darby, Michael Ruffo, Christopher O'Brien, Amedeo Conti, Nuvera Fuel Cells, Inc.*

2:30 p.m.	***2009-01-1008***	***Evolution of Hydrogen Fueled Vehicles Compared to Conventional Vehicles from 2010 to 2045***
		Aymeric P. Rousseau, Argonne National Lab.
3:00 p.m.	***2009-01-1010***	***Development and Advances of a V-Flow FC Stack for FCX Clarity***
		Hiroshi Morikawa, Hideaki Kikuchi, Nobuhiro Saito, Honda R&D Co.,Ltd. Automobile R&D Center
3:30 p.m.	***2009-01-1013***	***"Implementation of Lithium Ion Battery System" for FCX Clarity***
		Akihiro Anekawa, Koichi Yamamoto, Honda R&D Co., Ltd.

The papers in this session are available in a single publication, SP-2236, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Electronic Engine Controls (Part 3 of 5)

Session Code: ***PFL304***

Room M2-30 ***Session Time:*** ***8:30 a.m.***

This session covers engine control system design developments related to achieving stringent market fuel economy, emissions, performance, and quality demands. Control system, state estimator, signal processing, and on-board diagnostic algorithm designs and their related design practices are among the software-related topics presented. Sensor, actuator, and electronic control unit system designs are among the hardware-related topics presented.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; Junmin Wang, Ohio State Univ.; Ming Zheng, Univ. of Windsor*

Chairpersons - *Junmin Wang, Ohio State Univ*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0727***	***Model-Based Control of Diesel Engines for Fuel Efficiency Optimization***
		Christopher M. Atkinson, Atkinson LLC; Marc Allain, Yury Kalish, Houshun Zhang, Detroit Diesel Corp
9:00 a.m.	***2009-01-0728***	***Model Predictive Functional Control for an Automotive Three-way Catalyst***
		Robert Schallock, Kenneth Muske, James C. Peyton Jones, Villanova University
9:30 a.m.	***2009-01-0729***	***Fault Detection in Idle Speed Control of IC Engines***
		Carlos Montes-Solano, Pierluigi Pisu, Clemson University
10:00 a.m.	***2009-01-0730***	***An Enabling Study of Diesel Low Temperature Combustion via Adaptive Control***
		Ming Zheng, Yuyu Tan, Xiaoye Han, Graham Reader, Meiping Wang, Univ. of Windsor
10:30 a.m.	***2009-01-0732***	***Exhaust Backpressure Estimation for an Internal Combustion Engine with a Variable Geometry Turbo Charger***
		Yue-Yun Wang, General Motors Corp.
11:00 a.m.	***2009-01-0733***	***Multivariable Air-Path Management System For A Clean Diesel Engine Using Model Predictive Control***
		Mitsuhiro Iwadare, Masaki Ueno, Honda R&D Co., Ltd.; Shuichi Adachi, Keio University

The papers in this session are available in a single publication, SP-2248, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Electronic Engine Controls (Part 4 of 5)

Session Code: ***PFL304***

Room M2-30 ***Session Time:*** ***1:30 p.m.***

This session covers engine control system design developments related to achieving stringent market fuel economy, emissions, performance, and quality demands. Control system, state estimator, signal processing, and on-board diagnostic algorithm designs and their related design practices are among the software-related topics presented. Sensor, actuator, and electronic control unit system designs are among the hardware-related topics presented.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; Junmin Wang, Ohio State Univ.; Ming Zheng, Univ. of Windsor*

Chairpersons - *Patrick Leteinturier, Infineon*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1016***	***Self Tuning Nonlinear Robust Controls for Automotive Valves with Repeated Actuations*** *Hanlong Yang, Eaton Corporation*
2:00 p.m.	***2009-01-1017***	***A Stochastic Knock Control Algorithm*** *James C. Peyton Jones, Kenneth Muske, Jesse Frey, Villanova University; David Scholl, Ford Motor Co*
2:30 p.m.	***2009-01-1018***	***Engine Controls Development, Functional Testing, Validation and Calibration on a Common HIL Platform Featuring High Fidelity Models*** *Alan Soltis, Opal-RT Technologies Inc.*
3:00 p.m.	***2009-01-1019***	***Use of Accelerometers for Spark Advance Control of Gasoline Engines*** *Ferdinando Taglialatela, STMicroelectronics APG-PT&S; Paolo Sementa, Simona Merola, Bianca Vaglieco, Istituto Motori CNR; Nicola Cesario, STMicroelectronics*
3:30 p.m.	***2009-01-1020***	***Curve Safe Traction Control for Racing Motorcycles*** *Martin Vetr, Markus Hirsch, LCM - Linz Center of Mechatronics; Luigi Del Re, Johannes Kepler Univ., Linz*
4:00 p.m.	***2009-01-1021***	***Real Time Simulation using Non-causal Physical Models*** *Thomas Egel, The MathWorks Inc*
4:30 p.m.	***2009-01-1022***	***Up-Grade of a Turbocharger Speed Measurement Algorithm Based on Acoustic Emission*** *Davide Moro, Enrico Corti, University of Bologna; Matteo De Cesare, Gabriele Serra, Magneti Marelli Powertrain - Bologna*

The papers in this session are available in a single publication, SP-2248, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Occupant Protection: Rollover (Part 1 of 2)

Session Code: ***B37***

Room M3-31 ***Session Time:*** ***8:30 a.m.***

Organizers - *William Newberry, Donald Parker, Exponent Inc.; Nathan A. Rose, Kineticorp LLC*

Time	Paper No.	Title

8:30 a.m.	***2009-01-0823***	***The Effect of Roll Velocity and Roof-to-Ground Impact Angle Effect on Injury Risk in Lateral Rollovers***
		Dagmar Buzeman Jewkes, Woolley Engineering Research
9:00 a.m.	***2009-01-0830***	***Vehicle and Occupant Responses in a Friction Trip Rollover Test***
		David C Viano, Chantal S Parenteau, ProBiomechanics LLC; Madan M Gopal, Delphi Corp; Michael B James, Collision Safety Engineering LC
9:30 a.m.	***2009-01-0829***	***Compressive Neck Injury and its Relationship to Head Contact and Torso Motion during Vehicle Rollovers***
		James Raddin, Joseph Cormier, Biodynamic Research Corp; Brian Smyth, Exponent; Jeffrey Croteau, Exponent Inc; Eddie Cooper, B33 Consulting Inc
10:00 a.m.	***2009-01-0831***	***Development of Roll Over Protective Structures for Mining Light Vehicles***
		Shane Richardson, George Rechnitzer, Tia Orton, Maxwell Shifman, Delta-V Experts International; Steve Crocker, Avinash Ramharuk, Chris Jones, Pradeep Indurjit, Duys Component Manufacturers
10:30 a.m.	***2009-01-1544***	***Rollover Testing on an Actual Highway***
		Alan F. Asay, Ronald L. Woolley, Woolley Engineering Research

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 22

Occupant Protection: Rollover (Part 2 of 2)

Session Code: ***B37***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

Organizers - *William Newberry, Donald Parker, Exponent Inc.; Nathan A. Rose, Kineticorp LLC*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0822***	***Analysis of a Dolly Rollover with PC-Crash***
		Nathan A. Rose, Gray Beauchamp, Kineticorp LLC
2:00 p.m.	***2009-01-0828***	***Development of CAE Methodology for Rollover Sensing Algorithm***
		Seok Ho Hong, Jang Mook Lim, Hyung Wook Park, Hyundai Motor Co.
2:30 p.m.	***2009-01-0825***	***Finite Element Investigation of Seatbelt Systems for Improving Occupant Protection during Rollover Crashes***
		Jingwen Hu, Univ. of Michigan Transportation Research Institute; Clifford Chou, King Yang, Wayne State Univ.
3:00 p.m.	***2009-01-0824***	***Preventing Single Unit Truck Rollovers when Impacting Concrete Median Barriers***
		Elham Sahraei Esfahani, Dhafer Marzougui, George Washington Univ.; Kenneth Opiela, USDOT

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 22

Occupant Protection: Biomechanics (Part 3 of 3)

Session Code: ***B33***

Room M3-32 ***Session Time:*** ***8:30 a.m.***

Organizers - *Warren N. Hardy, Virginia Tech.; Michael Prange, Exponent Failure Analysis; David Raymond, Vector Scientific Inc.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0392***	***Experimental Study of Variation between Quasi-Static and Dynamic Load Deformation Properties of Medial Collateral Knee Ligaments*** *Hemant Warhatkar, Anoop Chawla, Sudipto Mukherjee, Indian Institute of Technology; Rajesh Malhotra, All India Institute of Medical Sciences*
9:00 a.m.	***2009-01-0396***	***Development of Human Lower Limb and Pelvis FE Models for Adult and the Elderly*** *Yasuhiro Dokko, Osamu Ito, Honda R&D Co., Ltd.; Kazuki Ohashi, PSG Co., Ltd.*
9:30 a.m.	***2009-01-0390***	***Comparison of ATD and Driver Knee Positions*** *Patrick J. Atkinson, Kettering Univ.; Matthew McCann, TRW Automotive US LLC; Matthew Reed, Univ. of Michigan; Ajay Srivastava, Norman Walter, McLaren Regional Medical Center*
10:00 a.m.	***2009-01-0386***	***Initial Assessment of the Next-Generation USA Frontal NCAP: Fidelity of Various Risk Curves for Estimating Field Injury Rates of Belted Drivers*** *Tony R. Laituri, Scott Henry, Brian Kachnowski, Kaye Sullivan, Ford Motor Co.*

The papers in this session are available in a single publication, SP-2225, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 22

Reliability and Robust Design in Automotive Engineering: Reliability-Based Design Optimization and Robustness

Session Code: ***IDM20***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

Theoretical developments and automotive applications in RBDO and Robust Design are presented in this session. Topics include computational algorithms for efficient estimation of reliability, Monte Carlo simulation, Bayesian reliability, Dempster-Shafer Evidence Theory, and Multi-Disciplinary Optimization.

Organizers - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo; Yih-Chyun Sheu, General Motors Corp.*

Chairpersons - *Efstratios Nikolaidis, Univ of Toledo*

Assistant Chairpersons - *Zissimos Mourelatos, Oakland Univ*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0200***	***Reliability Estimation of Large-Scale Dynamic Systems by using Re-analysis and Tail Modeling*** *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo; Jiangtao Song, Oakland Univ.*
2:00 p.m.	***2009-01-0201***	***Design Optimization with Imprecise Random Variables*** *Jeffrey Herrmann, Univ. of Maryland*

2:30 p.m.	***2009-01-0204***	***An RBDO Method for Multiple Failure Region Problems using Probabilistic Reanalysis and Approximate Metamodels***
		Ramon Kuczera, GKN Driveline North America Inc; Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo; Michael Latcha, Oakland Univ.
3:00 p.m.	***2009-01-0205***	***Robustness Optimization of a Vehicle Suspension Durability Using Multibody Simulation***
		Roberto D'Ippolito, Naji El Masri, NOESIS Solutions; Michael Hack, LMS Deutschland GmbH; Nick Tzannetakis, LMS International; Richard Kading, LMS Cadsi
3:30 p.m.	***2009-01-0206***	***Design for Reliability of an Engine Timing Chain Drive***
		Ioan F. Campean, Univ. of Bradford; Kevin Maile, Ford Of Europe; Andrew Day, Bradford University
	2009-01-0207	***Critical Points About Engine Valves Design and Manufacturing (Written Only -- No Oral Presentation)***
		Yasin Karasoy, Ali Ebrinc, Ozay Polat, Ford Otosan AS

The papers in this session are available in a single publication, SP-2232, and also individually.

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Wednesday, April 22

Reliability and Robust Design in Automotive Engineering: Assessment of Reliability and Robustness and Reliability Applications

Session Code: ***IDM22***

Room M3-32 ***Session Time:*** ***4:00 p.m.***

This session presents methods and automotive applications on how to assess reliability and robustness in product development. Topics include among others, system reliability target allocation, interval analysis in robust design and imprecise reliability assessment.

Organizers - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo; Ramesh Rebba, General Motors Corp.*

Chairpersons - *Ramesh Rebba, General Motors Corp*

Assistant Chairpersons - *Efstratios Nikolaidis, Univ of Toledo*

Time	***Paper No.***	***Title***
4:00 p.m.	***2009-01-0199***	***Imprecise Reliability Assessment When the Type of the Probability Distribution of the Random Variables is Unknown***
		Efstratios Nikolaidis, Univ. of Toledo; Zissimos Mourelatos, Oakland Univ.
4:30 p.m.	***2009-01-0202***	***System Reliability Target Allocation based on FMEA Criticality***
		Rachel Itabashi-Campbell, TRW Automotive; Om Yadav, North Dakota State Univ.
5:00 p.m.	***2009-01-0203***	***Cylinder Head Reliability Assessment: From Numerical Method Development to Validation Based on High Mileage Field Data***
		Florent Daubercies, Christelle Geslin, Guillaume Morin, Renault SAS

The papers in this session are available in a single publication, SP-2232, and also individually.

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Wednesday, April 22

Management and Leadership in Engineering and Manufacturing Organizations

Session Code: ***IDM7***

Room O2-33 ***Session Time:*** ***8:30 a.m.***

Management and leadership represent wide areas of study that touch all sectors of the economy. This session aims to broaden the perspective of the engineering practitioner and equip managers and leaders through topics geared for the mobility industry. The session will include case studies, strategies, tools, and techniques for mobility professionals and managers alike.

Co-Organized by: SAE's Lean-Six Sigma Committee and
SME's Manufacturing Leadership Institute Tech Group

Organizers - *Joseph Larussa, Visteon Corp*

Chairpersons - *Joseph Larussa, Visteon Corp*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0886***	***Managing in a Lean Manufacturing Environment***
	ORAL ONLY	*David J. Csokasy, The DJC Group*
9:00 a.m.	***2009-01-0888***	***Followers in Transportation Industry***
		Gene Dixon, East Carolina University
9:30 a.m.	***2009-01-0887***	***Practical Customer Satisfaction and Competitiveness in the Market***
		Eugene Klyatis, Project Quality Management/Engineering
10:00 a.m.	***ORAL ONLY***	***Leading Lean to Green***
		Craig Boewe, Ford Motor Co
10:30 p.m.	***2009-01-0889***	***Lean Engineering Center***
		Patrick Garcia, Tenneco Heinrich Gillet GmbH

Planned by Lean - Six Sigma Committee / Integrated Design and Manufacturing Activity

Wednesday, April 22

In-Cylinder Diesel Particulate and Nox Control (Part 1 of 3)

Session Code: ***PFL209***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

This session deals with the formation and destruction of particulate and NOx within the cylinder of a compression ignition diesel engine. Examples include but are not limited to: early or late injection timing for lower temperature combustion, multiple injections, auxiliary air injection, combustion chamber design, etc.

Organizers - *Song-Charng Kong, Iowa State Univ.; Stefan Simescu, Southwest Research Institute; Dale R. Tree, Brigham Young Univ.; Robert M. McDavid, Caterpillar Inc.; Yong Yi, Caterpillar Inc. Tech. Svcs Div.*

Chairpersons - *Song-Charng Kong, Iowa State Univ*

Assistant Chairpersons - *Matthias Veltman, Iowa State Univ*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1437***	***Reducing Engine-out Emissions for Medium High Speed Diesel Engines: Influence of Injection Parameters***
		Pieter Roels, Yves Sledsens, Sebastian Verhelst, Roger Sierens, Ghent University; Lieven Vervaeke, Anglo Belgian Corporation
2:00 p.m.	***2009-01-1448***	***Optimization of Injection Characteristics in a Large Marine Diesel Engine Using Evolutionary Algorithms***
		Panagiotis Andreadis, Christos Chryssakis, Lambros Kaiktsis, National Technical Univ. of Athens

2:30 p.m.	***2009-01-1441***	***Injection Strategy Optimization for a Light Duty DI Diesel Engine in Medium Load Conditions with High EGR Rates***
		Arjan Helmantel, Valeri Golovitchev, Chalmers Univ. of Technology
3:00 p.m.	***2009-01-1445***	***Influence of the Nozzle Spray Angle on Pollutant Formation and Combustion Efficiency for a PCCI Diesel Engine***
		Anyelo Vanegas, Hyun Woo Won, RWTH University
3:30 p.m.	***2009-01-1447***	***Benefits and Drawbacks of Compression Ratio reduction in PCCI Combustion application in an Advanced LD Diesel Engine***
		Carlo Beatrice, Chiara Guido, Nicola Del Giacomo, Istituto Motori CNR
4:00 p.m.	***2009-01-1439***	***Experimental study of Inlet Manifold Water Injection on a Common Rail HSDI automobile Diesel Engine, Compared to EGR with Respect to PM and NOx Emissions and Specific Consumption***
		Samiur Rahman Shah, Alain Maiboom, Xavier Tauzia, Jean-Francois Hetet, IC Engine Team, Lab. of Fluid Mech., Cen
4:30 p.m.	***2009-01-1435***	***Effect of ZrO2-Al2O3 and SiC Coating on Diesel Engine to Study the Combustion and Emission Characteristics***
		C.G. Saravanan; P. Ramu

The papers in this session are available in a single publication, SP-2243, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Brake Technology (Part 1 of 2)

Session Code: ***AC1***

Room O2-35/36 ***Session Time:*** ***8:30 a.m.***

The 2008 AC1 Brake Technology Sessions will include topics of interest to any engineers who design, test, model, or analyze brake components, brake systems, or vehicle braking performance.

Organizers - *David Ebert; Deron C. Littlejohn, TRW Automotive; Thomas Fornari, Frederik Heineken, Delphi Corp.; Thomas J. Hall, Robert Bosch LLC; Derek F. Hodgson, Derek Hodgson & Associates LLC; Paul S. Gritt; Cedric W. Mousseau, General Motors Corp.; Loren Michael Trotter, Chrysler Corp. LLC; Daniel A. Bartold, Chrysler Engineering; J. Chris Oakwood, Ford Motor Co.; Mark T. Riefe, General Motors Corp.; George Waterman, G Waterman Consulting LLC*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0858***	***Early Noise Analysis For Robust Quiet Brake Design***
		Wen Chang, Tinghui Shi, General Motors Corp
9:00 a.m.	***ORAL ONLY***	***Environmental Effects of Copper in Brake Pad Wear Debris-- An Update on the Work of the Brake Pad Partnership - Invited presentation from SAE 2008 Brake Colloquium***
		Robert A. Peters, Akebono Corp.
9:30 a.m.	***2009-01-0861***	***Modeling the Cooling Characteristics of a Disk Brake on an Inertia Dynamometer, using Combined Fluid Flow and Thermal Simulation***
		Brian Nutwell, Thomas N. Ramsay, Honda R&D Americas Inc.
10:00 a.m.	***2009-01-0860***	***Prediction of Brake System Performance during Race Track/High Energy Driving Conditions with Integrated Vehicle Dynamics and Neural-Network Subsystem Models***
		David B. Antanaitis, General Motors Corp.; Mark Riefe, General Motors Corp; Robert Nisonger, General Motors Corp.

10:30 a.m.	***2009-01-0859***	***Convective Heat Transfer Optimization of Automotive Brake Discs***
		Zhongzhe Chi, Yuping He, Greg Naterer, Univ. of Ontario Institute of Technology
11:00 a.m.	***2009-01-0857***	***Development of the Virtual Test Technology for Evaluating Thermal Performance of Disc Brake***
		Bongkeun Choi, Jonghyun Park, Miro Kim, Hyundai Mobis

The papers in this session are available in a single publication, SP-2220, and also individually.

Planned by Brake Committee / Automobile Chassis Activity

Wednesday, April 22

Brake Technology (Part 2 of 2)

Session Code: ***AC1***

Room O2-35/36 ***Session Time:*** ***1:30 p.m.***

The 2009 AC1 Brake Technology Sessions will include topics of interest to any engineers who design, test, model, or analyze brake components, brake systems, or vehicle braking performance.

Organizers - *Frederik Heineken, Thomas Fornari, Delphi Corp.; Daniel A. Bartold, Chrysler Engineering; Thomas J. Hall, Robert Bosch LLC; Cedric W. Mousseau, General Motors Corp.; David Ebert; George Waterman, G Waterman Consulting LLC; Mark T. Riefe, General Motors Corp.; Loren Michael Trotter, Chrysler Corp. LLC; J. Chris Oakwood, Ford Motor Co.; Paul S. Gritt; Deron C. Littlejohn, TRW Automotive; Derek F. Hodgson, Derek Hodgson & Associates LLC*

Chairpersons - *Frederik Heineken, Delphi Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1029***	***The Effects of Flare Component Specifications on the Sealing of Double Inverted Flare Brake Tube Joints***
		Janet Callahan, Marty Kapanowski, Ford Motor Co.
2:00 p.m.	***2009-01-1030***	***Utilizing the Electronic Stability Control Hydraulic Pump to Counteract Brake Pad Knock Back***
		Bryan J. Campbell, Chrysler LLC; Erik Stringwell, Continental Automotive Systems N.A.
2:30 p.m.	***2009-01-1219***	***Fault Detection Algorithm Design for Electro-Mechanical Brake***
		Kwangjin Han, Hanyang Graduate Univ.; Inkeun Kim, Kunsoo Huh, Hanyang Univ.; Myoungjune Kim, Joogon Kim, Kwangil Kim, Mando Corp.
3:00 p.m.	***2009-01-1216***	***Virtual Current Control Loop for STMicroelectronics Coil Driver L9374-L9375 Kit in ABS-ESC Control Units***
		Nicola Cesario, STMicroelectronics
3:30 p.m.	***2009-01-1217***	***Regenerative Brake System for Hybrid and Electric Vehicles***
		Christian Albrichsfeld, Juergen Karner, Continental AG
4:00 p.m.	***2009-01-1215***	***Development of the Control Logic of Electronically Controlled Hydraulic Brake System for Hybrid Vehicle***
		Manbok Park, Mando Corp.
4:30 p.m.	***2009-01-0856***	***Developing of Electronic Wedge Brake with Cross Wedge Mechanism***
		Joo-Gon Kim, Mando Corp.; Ki Han Noh, Katech Inc; MyoungJune Kim, JongKii Kim, Mando Corp.

	2009-01-1032	***Wear of Friction Material during Vehicle Braking (Written Only -- No Oral Presentation)***
		Shaoyang Zhang, Weiping Chen, Yuanyuan Li, South China Univ. of Technology

The papers in this session are available in a single publication, SP-2220, and also individually.

Planned by Brake Committee / Automobile Chassis Activity

Wednesday, April 22

Optical Techniques in Automotive Engineering (Part 1 of 2)

Session Code: ***M28***

Room O2-37 ***Session Time:*** ***8:30 a.m.***

The new optical session will mainly focus on APPLICATIONS of optical techniques in automotive engineering, such as: Shape and dimension gauging of components and full vehicle bodies, Applications to NVH, Nondestructive testing and quality inspection, Design verification and optimization, Flow visualization, Microstructure measurement and surface inspection, Material and structure analysis correlation, Light and illumination, light sources, and distribution.

Organizers - *Lianxiang Yang, Oakland Univ.; Kah Wah Long, Chrysler LLC; Andreas Ettemeyer, NTB; Michael Y. Hung, City Univ. of Hong Kong*

Chairpersons - *Andreas Ettemeyer, NTB*

Assistant Chairpersons - *Lianxiang Yang, Oakland Univ.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0863***	***Interferometric Techniques for Crank-Angle Resolved Measurements of Gas Spectra in Engines***
		Keith Rein, Univ. of Wisconsin; Renata Bartula, Artium Technologies Inc; Scott Sanders, Univ. of Wisconsin
9:00 a.m.	***2009-01-0864***	***Local Mechanical Property Variations of AZ31 Magnesium Sheet due to High Temperature Forming***
		Vesna Savic, GM Technical Center; Louis Hector, General Motors Corp.; Sooho Kim, GM R&D Center; Ravi Verma, General Motors Corp.
9:30 a.m.	***2009-01-0865***	***Applications of Digital Holography to Microstructure***
		Andreas Ettemeyer, NTB
10:00 a.m.	***2009-01-0866***	***Static and Dynamic Thermal Imagery Systems for Automotive Painted Structures Evaluation: Protective and Aesthetics Attributes***
		M. A. Omar, Clemson Univ.; Yi Zhou; Keng Hoo Chuah, Univ of Kentucky
10:30 a.m.	***ORAL ONLY***	***Recent Developments of Full-Field Optical Measurement and Inspection Techniques For Automotive Engineering***
		Lianxiang Yang, Oakland Univ.; Jianhua Jiang; Kah Wah Long, Chrysler LLC
	2009-01-0867	***Development of Hardening Depth Evaluation Technique using Eddy Current (Written Only -- No Oral Presentation)***
		Takanari Yamamoto, Tetsuya Yamaguchi, Toyota Motor Corporation

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 22

Optical Techniques in Automotive Engineering (Part 2 of 2)

Session Code: ***M28***

Room O2-37 ***Session Time: 1:30 p.m.***

The new optical session will mainly focus on APPLICATIONS of optical techniques in automotive engineering, such as: Shape and dimension gauging of components and full vehicle bodies, Applications to NVH, Nondestructive testing and quality inspection, Design verification and optimization, Flow visualization, Microstructure measurement and surface inspection, Material and structure analysis correlation, Light and illumination, light sources, and distribution.

Organizers - *Lianxiang Yang, Oakland Univ.; Kah Wah Long, Chrysler LLC; Andreas Ettemeyer, NTB; Michael Y. Hung, City Univ. of Hong Kong*

Chairpersons - *Michael Hung, City Univ of Hong Kong*

Assistant Chairpersons - *Kah Wah Long, Chrysler LLC*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1033***	***Feature Based GD&T with Modes of Variation*** *Luis M. Garcia Guzman, Univ. of Michigan; Lay Knoerr, General Motors Corp*
2:00 p.m.	***2009-01-1034***	***Application of Optical Inspection Methods in Surface Distortion Measurement*** *Yonghong Wang, Oakland Univ.; Jianhua Jiang; Lianxiang Yang, Oakland Univ.; Changqing Du, Chrysler LLC*
2:30 p.m.	***ORAL ONLY***	***Advanced Optical Measurement Techniques for the next generation of Automotive Development*** *Matt J. Crompton, Jörg Collrep, Dantec Dynamics*
3:00 p.m.	***2009-01-1036***	***Decomposition of Intrinsic Mode Functions at DIC Key Measurement Points*** *Jianhua Jiang; Lianxiang Yang, Oakland Univ*
3:30 p.m.	***2009-01-1037***	***Experimental Research On Automotive Structural Bonding*** *Guobiao Yang; Yi Ding, Tongji Univ*

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 22

Compression Ignition Combustion Processes (Part 1 of 4)

Session Code: ***PFL203***

Room O2-44 ***Session Time: 8:30 a.m.***

This session includes modeling and experimental results regarding the physical and chemical processes that occur in compression ignition engines, along with the resulting emissions. Materials presented help to advance the art and science of compression ignition engine performance and emissions.

Organizers - *John F. Wright, Cummins Inc.; Ming Zheng, Univ. of Windsor; Mark P. B. Musculus, Sandia National Laboratories; Song-Charng Kong, Iowa State Univ.; Raul Payri, CMT; Budhadeb Mahakul, John Deere & Co.*

Chairpersons - *Song-Charng Kong, Iowa State Univ*

Assistant Chairpersons - *Matthias Veltman, Iowa State Univ*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0944***	***Partially Premixed Combustion at High Load using Gasoline and Ethanol, a Comparison with Diesel*** *Vittorio Manente; Per Tunestal, Bengt Johansson, Lund University*

9:00 a.m.	***2009-01-0946***	***Effect of Ignition Delay on In-Cylinder Soot Characteristics of a Heavy Duty Diesel Engine Operating at Low Temperature Conditions*** *Mohan Bobba, Caroline Genzale, Mark Musculus, Sandia National Laboratories*
9:30 a.m.	***2009-01-0947***	***Performance, Emission and Combustion Characteristics of Jatropha Oil Blends in a Direct Injection Engine*** *Avinash Kumar Agarwal, Atul Dhar, Indian Institute of Technology Kanpur*
10:00 a.m.	***2009-01-0948***	***Universal Rule of Hydrocarbon Oxidation*** *Hiromitsu Ando, University of Fukui; Kazunari Kuwahara, Osaka Institute of Technology; Yasuyuki Sakai, University of Fukui*
10:30 a.m.	***2009-01-0949***	***Effects of In-cylinder Bulk Flow and Methane Injection Strategies on Charge Stratification, Combustion and Emissions of a Dual-fuel DI Diesel Engine*** *Antonio Paolo Carlucci, Domenico LaForgia, Roberto Saracino, University of Salento*

The papers in this session are available in a single publication, SP-2239, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Compression Ignition Combustion Processes (Part 2 of 4)

Session Code: ***PFL203***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

This session includes modeling and experimental results regarding the physical and chemical processes that occur in compression ignition engines, along with the resulting emissions. Materials presented help to advance the art and science of compression ignition engine performance and emissions.

Organizers - *John F. Wright, Cummins Inc.; Ming Zheng, Univ. of Windsor; Mark P. B. Musculus, Sandia National Laboratories; Song-Charng Kong, Iowa State Univ.; Raul Payri, CMT; Budhadeb Mahakul, John Deere & Co.*

Chairpersons - *Raul Payri, Universidad Politecnica de Valencia*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1122***	***Experimental Investigation of Instantaneous Cyclic Heat Transfer in the Combustion Chamber and Exhaust Manifold of a DI Diesel Engine under Transient Operating Conditions*** *George C. Mavropoulos, Constantine Rakopoulos, Dimitrios Hountalas, National Technical Univ. of Athens*
2:00 p.m.	***2009-01-1123***	***Experimental Investigation of Intake Condition and Group-Hole Nozzle Effects on Fuel Economy and Combustion Noise for Stoichiometric Diesel Combustion in an HSDI Diesel Engine*** *Junghwan Kim, Sung Wook Park, Univ of Wisconsin, Madison; Kian Sung, Gangwon Provincial College; Michael Andrie, Rolf Reitz, Univ of Wisconsin, Madison*
2:30 p.m.	***2009-01-1124***	***An Experimental Investigation into Diesel Engine Size-Scaling Parameters*** *Luke Staples, Rolf Reitz, Univ of Wisconsin, Madison; Carl-Anders Hergart, Caterpillar Inc*
3:00 p.m.	***2009-01-1125***	***Application and Repeatability of Transient Heat Release Analysis for Heavy Duty Diesel Engines*** *John Nuszkowski, Gregory Thompson, West Virginia Univ.*

3:30 p.m.	***2009-01-1126***	***Efficacy of EGR and Boost in Single-Injection Enabled Low Temperature Combustion***
		Usman Asad, Ming Zheng, Univ. of Windsor
4:00 p.m.	***2009-01-1127***	***Evaluation of the Operating Range of Partially Premixed Combustion in a Multi Cylinder Heavy Duty Engine with Extensive EGR***
		Carl Magnus Lewander, Bengt Johansson, Per Tunestal, Lund Univ.; Nathan Keeler, Nebojsa Milovanovic, Simon Tullis, Delphi Diesel Systems; Par Bergstrand, Volvo Powertrain Corp.

The papers in this session are available in a single publication, SP-2239, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Vehicle Dynamics and Simulation (Part 3 of 4): Advancements in hardware-in-the-loop systems, driving simulators, and stability control systems

Session Code: ***AC4***

Room O3-45 ***Session Time:*** ***8:30 a.m.***

Organizers - *W. Riley Garrott, National Hwy Traffic Safety Admin.; Janice K. Cooper, Transportation Research Center Inc.; Paul A. Grygier, National Hwy Traffic Safety Admin.; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA Ltd.; David R. Mikesell, Ohio Northern Univ.; Mohamed Kamel Salaani, Transportation Research Center Inc.*

Chairpersons - *David R. Mikesell, Ohio Northern Univ.; Gary J. Heydinger, SEA Ltd.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0440***	***Vehicle to Vehicle Interaction Maneuvers Choreographed with an Automated Test Driver***
		Anmol Singh Sidhu, Ohio State Univ.; Gary J. Heydinger, SEA, Ltd.; Dennis A. Guenther, Ohio State Univ.; Ronald A. Bixel, SEA, Ltd.
9:00 a.m.	***2009-01-0434***	***Development of an Advanced Driver Model and Simulation Environment for Automotive Racing***
		Rob J. Rieveley, Bruce Minaker, Iva Shallvari, Univ of Windsor; Justin LaPorte, Chrysler
9:30 a.m.	***2009-01-0450***	***Development of High-Performance Driving Simulator***
		Takahiko Murano, Takashi Yonekawa, Masami Aga, Toyota Motor Corp.; Sueharu Nagiri, Toyota Central R&D Labs., Inc.
10:00 a.m.	***2009-01-0447***	***Repeatability and Bias Study on the Vehicle Inertia Measurement Facility (VIMF)***
		Nicholas J. Durisek, Kevan Granat, Dynamic Analysis Group LLC; Gary Heydinger, Dennis Guenther, Ohio State Univ.
10:30 a.m.	***2009-01-0445***	***Application of Hardware In The Loop Simulation to Chassis Control Software Verification***
		Bill Monsma, Honda R&D Americas, Inc.
11:00 a.m.	***2009-01-0442***	***The Impact of Hybrid-Electric Powertrains on Chassis Systems and Vehicle Dynamics***
		Sven Armin Beiker, Formerly: BMW Hybrid Technology, Corp; Renate Christine Vachenauer, BMW Group

11:30 a.m.	***2009-01-0451***	***Development of a Roll Stability Control Model for a Tractor Trailer Vehicle*** *Santhosh Chandrasekharan, Dennis Guenther, Gary Heydinger, Ohio State Univ; Mohamed Salaani, Scott B. Zagorski, Transportation Research Center Inc*
	2009-01-0465	***Vehicle Dynamics Benchmarking and Simulation (Written Only -- No Oral Presentation)*** *Michael F. Kinstle, Honda Performance Development Inc.; Dan Hassler, Bryan S. Johnson, Honda R&D Americas Inc.*

The papers in this session are available in a single publication, SP-2221, and also individually.

Planned by Vehicle Dynamics Committee / Automobile Chassis Activity

Wednesday, April 22

Vehicle Dynamics and Simulation (Part 4 of 4): Vehicle dynamics modeling using commercial software, and tire forces and moments modeling for vehicle dynamics simulations

Session Code: ***AC4***

Room O3-45 ***Session Time:*** ***1:30 p.m.***

Organizers - *W. Riley Garrott, National Hwy Traffic Safety Admin.; Janice K. Cooper, Transportation Research Center Inc.; Paul A. Grygier, National Hwy Traffic Safety Admin.; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA Ltd.; David R. Mikesell, Ohio Northern Univ.; Mohamed Kamel Salaani, Transportation Research Center Inc.*

Chairpersons - *W. Riley Garrott, National Hwy Traffic Safety Admin.; David R. Mikesell, Ohio Northern Univ.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-0427***	***Improvement of Vehicle Dynamics using Model-Based Predictive Control*** *Sehyun Chang, Hyundai-Kia Motors; Timothy Gordon, Univ. of Michigan*
2:00 p.m.	***2009-01-0457***	***A Modal-Based Derivation of Transient Vertical Pressure Distribution along the Tyre-Road Contact*** *Achillefs Tsotras, George Mavros, Loughborough Univ.*
2:30 p.m.	***2009-01-0441***	***Tire Thermal Model for Enhanced Vehicle Dynamics Simulation*** *Aldo Sorniotti, Univ. of Surrey*
3:00 p.m.	***2009-01-0438***	***Investigation on Unified Chassis Control Based on Longitudinal/Lateral Tire Force Behaviour Correlativity*** *Wanki Cho, Jangyeol Yoon, Kyongsu Yi, Seoul National Univ.; Taeyoung Chung, Hyundai Mobis Corp.*
3:30 p.m.	***2009-01-0443***	***Multi-body versus Block-Oriented approach in Suspension Dynamics of a Military Tracked Tank*** *Mauro Velardocchia, Stefano Tornincasa, Elvio Bonisoli, Enzo Rondinelli, Politecnico di Torino*
4:00 p.m.	***2009-01-0454***	***Multibody System Simulation and Optimisation of the Driving Dynamics of a Formula Student Race Car*** *Vivan Govender, David Barton, Univ. of Leeds*

4:30 p.m.	***2009-01-0453***	***Vehicle Dynamics Modeling and Validation for the 2003 Ford Expedition with ESC using ADAMS View***
		Sughosh J. Rao, Gary J. Heydinger, Ohio State Univ.; Mohamed Kamel Salaani, Transportation Research Center Inc.; Dennis Guenther, Ohio State Univ.
5:00 p.m.	***2009-01-0452***	***Vehicle Dynamics Modeling and Validation of the 2003 Ford Expedition with ESC using CarSim***
		Dennis A. Guenther, Tejas Kinjawadekar, Neha Dixit, Gary J. Heydinger, Ohio State Univ.; Mohamed Kamel Salaani, Transportation Research Center Inc.
	2009-01-0464	***Computer Simulation of Pavement Edge Traversal (Written Only -- No Oral Presentation)***
		Eric Deyerl, Dial Engineering; Louis Cheng, Applied BioMechanics

The papers in this session are available in a single publication, SP-2221, and also individually.

Planned by Vehicle Dynamics Committee / Automobile Chassis Activity

Wednesday, April 22

Occupant Protection: Accident Reconstruction (Part 3 of 4)

Session Code: ***B31***

Room O3-46 ***Session Time:*** ***8:30 a.m.***

Organizers - *Matthew Brach, Brach Engineering; Raymond M. Brach, Univ. of Notre Dame; Timothy Cheek, Delta V Forensic Engrg; Geoff Germane, Germane Engineering; Stein E. Husher, John Steiner, Michael S. Varat, KEVA Engineering*

Chairpersons - *Michael S. Varat, KEVA Engineering; Richard F. Lambourn, Transport Research Laboratory, Ltd.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2009-01-0101***	***Analysis of Front Suspension Ball Joint Separations in Motor Vehicle Crashes***
		Nicholas J. Durisek, Kevan Granat, Dynamic Analysis Group LLC; Edward Holmes, Engineering Systems Inc.
9:30 a.m.	***2009-01-0111***	***Mechanisms of Wheel Separations***
		Mark N. Bailey, MEA Forensic Engineers; James Bertoch, Mea Forensic Engineers & Scientists
10:00 a.m.	***2009-01-0093***	***Development of a Variable Deceleration Rate Approach to Rollover Crash Reconstruction***
		Nathan A. Rose, Gray Beauchamp, Kineticorp LLC
10:30 a.m.	***2009-01-0109***	***Measurement and Modeling of Rollover Airborne Trajectories***
		Kevin Henry, Geoff Germane, Germane Engineering; Peter Luepke, P Luepke Consulting; Jarrod Carter, Origin Engineering
11:00 a.m.	***2009-01-0107***	***Analysis of Left-Turning Vehicles at a 4-way Medium-Sized Signalized Intersection***
		Andrew J. Happer, Michael D. Peck, Mark C. Hughes, Sintra Engineering Inc.

2009-01-0100	***Tire Mark Analysis of a Modern Passenger Vehicle with Respect to Tire Variation, Tire Pressure and Chassis Control Systems (Written Only -- No Oral Presentation)***	
	Frank W. Baumann, Hans-Herbert Schreier, Daniel Simmermacher, Daimler AG	

The papers in this session are available in a single publication, SP-2224, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 22

Occupant Protection: Accident Reconstruction (Part 4 of 4)

Session Code: ***B31***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

Organizers - *Matthew Brach, Brach Engineering; Raymond M. Brach, Univ. of Notre Dame; Geoff Germane, Germane Engineering; Stein E. Husher, Michael S. Varat, KEVA Engineering*

Chairpersons - *Raymond M. Brach, Univ. of Notre Dame; Matthew Brach, Brach Engineering*

Time	***Paper No.***	***Title***
1:30 p.m.	~~***2009-01-0095***~~ ***CANCELLED***	***Evaluation of Speed Change in Aligned Offset Impacts Using Full Barrier Data***
		Ryan Fix, David J. King, Jonathan Lawrence, MEA Forensic Engineers & Scientists
2:00 p.m.	***2009-01-0105***	***Crush Energy Assessment in Frontal Underride/Override Crashes***
		Donald E. Struble, Kevin Welsh, John Struble, Struble-Welsh Engineering Inc.
2:30 p.m.	***2009-01-0104***	***Monte Carlo Techniques for Correlated Variables in Crash Reconstruction***
		Jeremy Daily, Univ. of Tulsa
3:00 p.m.	***2009-01-0094***	***Mechanisms of Automatic Transmission Console Shift Selection and Driver Egress***
		Genevieve Heckman, Gerald Jackson, Richard Keefer, Rose Ray, Erin Harley, Doug Young, Exponent Inc.
3:30 p.m.	***2009-01-0110***	***Simulating Headlamp Illumination Using Photometric Light Clusters***
		William T. Neale, David Hessel, Kineticorp LLC

The papers in this session are available in a single publication, SP-2224, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 22

New SI Engine and Component Design (Part 3 of 4)

Session Code: ***PFL503***

Room W1-51 ***Session Time:*** ***8:30 a.m.***

This session contains a series of papers on component design to advance new engine concepts and improve performance.

Organizers - *Scott A. Miers, Jeffrey D. Naber, Michigan Technological Univ.; Steven Plee, Eaton Corporation; James E. Smith, West Virginia Univ.*

Time	***Paper No.***	***Title***

8:30 a.m.	***2009-01-1054***	***A Study of Lead-free Al-Zn-Si Alloy Bearing with Overlay for Recent Automotive Engines***
		Tomoyuki Nirasawa, Daido Metal Co., Ltd.; Mikihito Yasui, Osamu Ishigo, Yukihiko Kagohara, Masahito Fujita, Daido Metal Co Ltd
9:00 a.m.	***2009-01-1062***	***A Lubrication Analysis of Multi Link VCR Engine Components using a Mixed Elasto-Hydrodynamic Lubrication Theory Model.***
		Makoto Kobayashi, Kenshi Ushijima, Shunichi Aoyama, Takashi Tanabe, Nissan Motor Co., Ltd.
9:30 a.m.	***2009-01-1066***	***Reserch on Extended Expansion General-Purpose Engine -A Numerical Approach to Reduce Vibration***
		Sei Watanabe, Gaku Naoe , Yoshikazu Sato, Honda R&D Co., Ltd.
10:00 a.m.	***2009-01-1045***	***Design and Optimization of a Variable Displacement Vane Pump for High Performance IC Engine Lubrication - Part 1 - Experimental analysis of the circumferential pressure distribution with dynamic pressure sensors***
		Alessandro Bianchini, Giovanni Ferrara, Lorenzo Ferrari, Department of Energy Engineering, University of Florence; Fabrizio Paltrinieri, Federico Tosetti, Massimo Milani, University of Modena and Reggio Emilia
10:30 a.m.	***2009-01-1064***	***Design and Optimization of a Variable Displacement Vane Pump for High Performance IC Engine Lubrication. Part 2 - Lumped parameters numerical analysis.***
		Fabrizio Paltrinieri, Massimo Milani, Federico Tosetti, University of Modena and Reggio Emilia; Alessandro Bianchini, Giovanni Ferrara, Lorenzo Ferrari, Department of Energy Engineering, University of Florence

The papers in this session are available in a single publication, SP-2252, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

New SI Engine and Component Design (Part 4 of 4)

Session Code: ***PFL503***

Room W1-51 ***Session Time:*** ***1:30 p.m.***

This session contains a series of papers on component design to advance new engine concepts and improve performance.

Organizers - *Scott A. Miers, Jeffrey D. Naber, Michigan Technological Univ.; Steven Plee, Eaton Corporation; James E. Smith, West Virginia Univ.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1051***	***A Solution to Fuel Vaporization Problem in a Power Nozzle***
		Ping Zhang, Tianjin University; Daguang Xi, Zhejiang Fai Electronics Co. Ltd.
2:00 p.m.	***2009-01-1055***	***Improving Flow tolerances of mass produced Carburetors through Pilot system design***
		Murugan M, VenuMadhav S, Srinivasan B, Govindarajan S, UCAL Fuel Systems Ltd.
2:30 p.m.	***2009-01-1065***	***High-performance Wet-type Non-woven Filter Material for an Air Cleaner Element***
		Seiichi Tanaka, Honda R&D Co., Ltd.

3:00 p.m.	***2009-01-1050***	***Research and Development of Microwave Plasma Combustion Engine (Part I: Concept of Plasma Combustion and Plasma Generation Technique)***
		Yuji Ikeda, Atsushi Nishiyama, Yoshihiro Wachi, Masashi Kaneko, Imagineering, Inc.
3:30 p.m.	***2009-01-1049***	***Research and Development of Microwave Plasma Combustion Engine (Part II: Engine Performance of Plasma Combustion Engine)***
		Yuji Ikeda, Atsushi Nishiyama, Hiroki Katano, Masashi Kaneko, Haeyoung Jeong, Imagineering, Inc.
4:00 p.m.	***2009-01-1057***	***Investigation of Cold Start Capability of a Briggs and Stratton Engine Using Jet A and Microwave Plasma Ignition***
		Patrick Wildfire, Franz A. Pertl, Andrew Nawrocki, James Smith, West Virginia Univ.

The papers in this session are available in a single publication, SP-2252, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Advanced Catalysts and Substrates (Part 1 of 2)

Session Code: ***PFL400***

Room W1-52 ***Session Time:*** ***8:30 a.m.***

This session focuses on the systems engineering experience required to achieve ultra-low emission levels on light-duty vehicles. Emission system component topics discussed in this session include the development of advanced three-way catalysts, the development of NOx adsorber catalysts for gasoline partial lean burn engines, the application of high cell density substrates to advanced emission systems, and the integration of these components into full vehicle emission systems.

Organizers - *Douglas Ball, Umicore Automotive Catalyst Agency; Rasto Brezny, Manufacturers of Emission Controls Assoc.; Ronald M. Heck, RMH Consulting; Joseph E. Kubsh, Manufacturers of Emission Controls Assoc.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1078***	***Study on New Characteristic CeO2-ZrO2 Based Material for Advanced TWC***
		Yoshiro Hirasawa, Katsuaki Katoh, Teiji Yamada, N E Chemcat Corp.; Akira Kohara, Daiichi Kigenso Kagaku Kogyo Co.,Ltd.
9:00 a.m.	***2009-01-1081***	***Development of Double-Layered Three-Way Catalysts***
		Yuki Aoki, Takeru Yoshida, Toyota Motor Corporation; Toshitaka Tanabe, Miho hatanaka, Yasutaka Nagai, Toyota Central R&D Labs Inc; Shingo Sakagami, Masanori Shimizu, Cataler Corporation
9:30 a.m.	***2009-01-1070***	***Low Rhodium Catalyst Technology for Gasoline and FFV Applications***
		Jeffrey Wuttke, Michael Zammit, Chrysler LLC; Douglas Ball, John Nunan, Umicore Autocat USA
10:00 a.m.	***2009-01-1068***	***The Effect of Spark Timing on Engine-Out Hydrocarbon Speciation and Hydrocarbon Trap Performance***
		Jason Lupescu, Adolfo Mauti, Tim Chanko, Joel Richert, Ford Motor Co.
	2009-01-1071	***Study of Large OSC Materials (Ln2O2SO4) on the Basis of Sulfur Redox Reaction (Written Only -- No Oral Presentation)***
		Masahide Miura, Toyota Motor Corp.; Masato Machida, Kumamoto Univ.; Hirohito Hirata, Kazunobu Ishibashi, Toyota Motor Corp.

	2009-01-1079	***Development of PGM Single Nano Catalyst Technology (Written Only -- No Oral Presentation)***
		Hideharu Iwakuni, Seiji Miyoshi, Akihide Takami, Mazda Motor Corp.

The papers in this session are available in a single publication, SP-2253, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Advanced Catalysts and Substrates (Part 2 of 2)

Session Code: ***PFL400***

Room W1-52 ***Session Time:*** ***1:30 p.m.***

This session focuses on the systems engineering experience required to achieve ultra-low emission levels on light-duty vehicles. Emission system component topics discussed in this session include the development of advanced three-way catalysts, the development of NOx adsorber catalysts for gasoline partial lean burn engines, the application of high cell density substrates to advanced emission systems, and the integration of these components into full vehicle emission systems.

Organizers - *Douglas Ball, Umicore Automotive Catalyst Agency; Rasto Brezny, Manufacturers of Emission Controls Assoc.; Ronald M. Heck, RMH Consulting; Joseph E. Kubsh, Manufacturers of Emission Controls Assoc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1080***	***Treatment of Vehicle Emissions from the Combustion of E85 and Gasoline with Catalyzed Hydrocarbon Traps***
		Jason Lupescu, Tim Chanko, Jason DeVries, Ford Motor Company
2:00 p.m.	***2009-01-1077***	***NOx Trap Catalyst Technologies to Attain 99.5% NOx Reduction Efficiency for Lean Burn Gasoline Engine Application***
		Kinichi Iwachido, Takayuki Onodera, Tetsuya Watanabe, Mitsubishi Motors Corporation; Mariko Koyama, Akihisa Okumura, Masao Hori, ICT Co., Ltd.
2:30 p.m.	***2009-01-1076***	***Development of Atmospheric Air-level Emission Vehicle Technology for Gasoline Engines***
		Shunichi Mitsuishi, Nissan Motor Co., Ltd.
3:00 p.m.	***2009-01-1072***	***The Effect of Three-Way Catalyst Selection on Component Pressure Drop and System Performance***
		Jonathan D. Pesansky, Charles M. Sorensen, Nathan A. Majiros, David L. Thomas, Corning
3:30 p.m.	***2009-01-1073***	***Advanced Catalyst Substrate Technology Development for Cost Efficient Exhaust Gas Aftertreatment Systems***
		Ulrich Pfahl, Emitec Inc.; Claus Bruestle, Jan Kramer, Emitec Inc; Michael E. Rice, Emitec Inc.
	2009-01-1069	***Ultrafine Precious Metal Catalyst for High Conversion Efficiency with Low Precious Metal Loading (Written Only -- No Oral Presentation)***
		Masanori Nakamura, Toru Sekiba, Katsuo Suga, Katsuhiro Shibata, Yoshiaki Hiramoto, Hironori Wakamatsu, Nissan Motor Co., Ltd.

The papers in this session are available in a single publication, SP-2253, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Diesel Exhaust Emission Control - SCR (Fe+Cu and Two-Way and HD) (Part 3 of 3)

Session Code: ***PFL405*** ***8:30 a.m.***

Room W1-54 ***Session Time:***

This session covers the Selective Catalytic Reduction (SCR) process, in which, Diesel Exhaust Fluid (DEF) is injected to react with NOx to convert it into Nitrogen. SCR is one of the most promising NOx reduction technologies to meet the tough emission standards around the world. The papers in this session cover various aspects of SCR technology such as the different catalyst systems, aging and poisoning impact on catalyst performance, importance of urea injection and mixing, and SCR modeling.

Organizers - *Brad J. Adelman, International Truck & Engine Corp.; Danan Dou, John Deere Product Engineering Center; Magdi K. Khair, Southwest Research Institute; Vinay S. Medhekar, BASF; Rahul Mital, General Motors Corp.; Mehboob H. Sumar, Bodycote Testing Group Americas*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0900***	***The Poisoning and DeSulfation Characteristics of Iron and Copper SCR Catalysts***
		Joseph R. Theis, Ford Motor Co.
9:00 a.m.	***2009-01-0901***	***SCR Catalyst Systems Optimized for Lightoff and Steady-State Performance***
		Joseph R. Theis, Ford Motor Co.
9:30 a.m.	***2009-01-0903***	***Laboratory Study of Soot, Propylene, and Diesel Fuel Impact on Zeolite-Based SCR Filter Catalysts***
		Giovanni Cavataio, James R. Warner, James W. Girard, Justin Ura, Douglas Dobson, Christine K. Lambert, Ford Motor Co.
10:00 a.m.	***2009-01-0909***	***Emissions of NOx, NH3 and Fuel Consumption Using High and Low Engine-Out NOx Calibrations to Meet 2010 Heavy Duty Diesel Engine Emission Standards***
		Michelangelo Ardanese, Raffaello Ardanese, Theodore Adams, Marc Besch, Venkata Sathi, Benjamin Shade, Mridul Gautam, West Virginia Univ; Matt Miyasato, Adewale Oshinuga, South Coast Air Quality Mgmt District
10:30 a.m.	***2009-01-0910***	***Evaluation of SCR Catalyst Technology on Diesel Particulate Filters***
		Todd Ballinger, Julian Cox, Mahesh Konduru, Debnath De, Wendy Manning, Paul Andersen, Johnson Matthey Inc.
11:00 a.m.	***2009-01-0912***	***Investigation of NOx- and PM-reduction by a Combination of SCR-catalyst and Diesel Particulate Filter for Heavy-duty Diesel Engine***
		Michael Schaefer, Lothar Hofmann, Johnson Matthey Catalysts (Germany) GmbH (formerly Argillon); Patrick Girot, Renaud Rohe, Saint Gobain DPF, Automotive Emissions Controls
11:30 a.m.	***2009-01-0915***	***Cost and Fuel Efficient SCR-only Solution for Post-2010 HD Emission Standards***
		Robert Cloudt, Peter van der Heijden, Frank Willems, TNO Automotive

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Diesel Exhaust Emission Control - DPF Systems (Part 1 of 2)

Session Code: ***PFL402***

Room W1-54 ***Session Time:*** ***1:30 p.m.***

This is the first of two sessions considering DPF Systems. This session considers the performance of DPF Systems in terms of emissions characteristics and regeneration performance and includes experimental investigations into soot oxidation.

Organizers - *Z Gerald Liu, Cummins Inc.; Paul J. Richards, Innospec, Ltd.*

Time	Paper No.	Title

1:30 p.m.	***2009-01-1083***	***Regulated and NO2 Emissions from a Euro 4 Passenger Car with Catalysed DPFs***
		Gurli Mogensen, Keld Johansen, Haldor Topsoe A/S; Hua Karlsson, AVL MTC AB
2:00 p.m.	***2009-01-1084***	***A Study on the Emissions of Chemical Species from Heavy-Duty Diesel Engines and the Effects of Modern Aftertreatment Technology***
		Z Gerald Liu, Cummins Inc.; Devin Berg, Cummins Emission Solutions; Thaddeus Swor, Cummins Automotive Ltd; James Schauer, Univ of Wisconsin Madison
2:30 p.m.	***2009-01-1087***	***Properties of Partial-Flow and Coarse Pore Deep Bed Filters Proposed to Reduce Particle Emission of Vehicle Engines***
		Andreas C. Mayer, TTM
3:00 p.m.	***2009-01-1086***	***Characteristics and Effects of Ash Accumulation on Diesel Particulate Filter Performance: Rapidly Aged and Field Aged Results***
		Alexander Sappok, Michael Santiago, Tomas Vianna, Victor Wong, Massachusetts Institute of Technology
3:30 p.m.	***2009-01-1474***	***An Experimental Study of Particulate Thermal Oxidation in a Catalyzed Filter During Active Regeneration***
		Krishna Pradeep Chilumukuru, Rohith Arasappa, John H. Johnson, Jeffrey D. Naber, Michigan Technological Univ.
4:00 p.m.	***2009-01-1475***	***Experimental Study on Soot Oxidation Characterization of Pt/CeO2 Catalyst with NO and O2 Using a Flow Reactor System***
		Changhoon Song, Jinwoo Jung, Soonho Song, Kwang Min Chun, Yonsei Univ
4:30 p.m.	***2009-01-1085***	***Generating Thermal Conditions to Regenerate a DPF: Impact of the Reductant on the Performances of Diesel Oxidation Catalysts***
		Arnaud Frobert, Yann Creff, Stephane Raux, Laurent Schmidt, Olivier Lepreux, IFP
5:00 p.m.	***2009-01-1082***	***Diesel Particulate Filter Thermal Management Using Model-Based Design***
		Karim Bencherif, Stephane sadai, Fehd Benaicha, Renault SAS; Michel Sorine, INRIA
	2009-01-1089	***Verification of Accelerated PM Loading for DPF Qualification Studies (Written Only -- No Oral Presentation)***
		James R. Warner, Douglas A. Dobson, Sandip D. Shah, Christine K. Lambert, Ford Motor Co.
	2009-01-1090	***Exhaust Toxicological Profiles from Direct Injection Engine With and Without Diesel Particulate Filter Regeneration During NEDC Cycling (Written Only -- No Oral Presentation)***
		Virginie Hasson, INSERM U644; David Preterre, Veronika Keravec, Denis Farin, CERTAM; Anne Bion-Robin, Martine Meyer, Renault SA; Jean-Paul Morin, INSERM U644; Frederic Dionnet, CERTAM

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Diesel Exhaust Emission Control Modeling (Part 1 of 3)

Session Code: ***PFL406***

Room W1-55 ***Session Time:*** ***8:30 a.m.***

This session includes papers describing modeling techniques of various Aftertreatment components and systems. The models span from micro scale to macro scale levels, 0-D to 3-D, steady state to transient and include technologies such PM reduction, NOx reduction and flow distribution.

Organizers - *Cornelius N. Opris, Caterpillar Inc.; Colin P. Garner, Loughborough Univ.; Vincenzo Mulone, Univ. di Roma Tor Vergata*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1268***	***H2 in Diesel Exhaust: Effect on Diesel Oxidation Catalyst Flow Reactor Experiments and Model Predictions***
		Santhoji Katare, Paul Laing, Ford Motor Co.
9:00 a.m.	***2009-01-1279***	***Soot Morphology Effects on DPF Performance***
		Giancarlo Chiatti, Univ of Roma Tre; Giacomo Falcucci, Univ. of Roma Tre; Ornella Chiavola, Universita Degli Studi Roma TRE
9:30 a.m.	***2009-01-1277***	***Development and Validation of a Phenomenological Mean Value Soot Model for Common-Rail Diesel Engines***
		Patrick Kirchen, Konstantinos Boulouchos, ETH Zurich
10:00 a.m.	***2009-01-1276***	***Feasibility Assessment for a Pre-turbo After-Treatment System with a 1D Modeling Approach***
		Mark N. Subramaniam, FEV Inc.; Tetsuo Toyoshima, NGK Europe GmbH; Philip Keller, Olaf Weber, BorgWarner Inc; Claus-Dieter Vogt, NGK Europe GmbH; Volker Joergl, BorgWarner Inc
10:30 a.m.	***ORAL ONLY***	***First Principle Study for Adsorption Energy of Reaction Intermediates on Precious Metal Catalysts***
		Yoshiya Fujiwara, Christopher Brooks, Honda Research Institute USA Inc.
11:00 a.m.	***2009-01-1270***	***Experimental-Numerical Analysis of Mass Transfer in LS-Shaped Catalysts***
		Vincenzo Mulone, Alessandro Mariani, Stefano Cordiner, Univ. di Roma Tor Vergata

The papers in this session are available in a single publication, SP-2255, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Diesel Exhaust Emission Control Modeling (Part 2 of 3)

Session Code: ***PFL406***

Room W1-55 ***Session Time:*** ***1:30 p.m.***

This session includes papers describing modeling techniques of various Aftertreatment components and systems. The models span from micro scale to macro scale levels, 0-D to 3-D, steady state to transient and include technologies such PM reduction, NOx reduction and flow distribution.

Organizers - *Cornelius N. Opris, Caterpillar Inc.; Colin P. Garner, Loughborough Univ.; Vincenzo Mulone, Univ. di Roma Tor Vergata*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1266***	***Modeling the Emissions Control Performance of a Catalyzed Diesel Particulate Filter (CDPF) System for Light Duty Diesel Applications***
		Andrew Peter Edward York, Timothy Charles Watling, Mehrdad Ahmadinejad, Johnson Matthey Technology Centre; David Bergeal, Johnson Matthey ECT; Paul Phillips, Johnson Matthey PLC; Daniel Swallow, Johnson Matthey ECT

2:00 p.m.	***2009-01-1280***	***Flow Maldistribution Effects on DPF Performance***
		Grigorios C. Koltsakis, Zissis C. Samaras, Aristotle University Thessaloniki; Daniel Chatterjee, Harald Echtle, Daimler AG; Pantelis Markou, Onoufrios Haralampous, Exothermia SA
2:30 p.m.	***2009-01-1274***	***The Filtration, Oxidation and Pressure Drop Characteristics of a Catalyzed Particulate Filter during Active Regeneration - A 1D Modeling Study***
		Rohith Arasappa, Kiran Premchand, Krishna Pradeep Chilumukuru, John Johnson, Jeffrey Naber, Song-Lin Yang, Michigan Technological Univ
3:00 p.m.	***2009-01-1283***	***Development of a 1-D CPF Model to Simulate Active Regeneration of a Diesel Particulate Filter***
		Kiran C. Premchand, John Johnson, Song-Lin Yang, Michigan Technological Univ.
3:30 p.m.	***2009-01-1272***	***Modeling Aspects of Asymmetric Channel Configuration DPFs***
		Weiyong Tang, Syed Wahiduzzaman, Seth Wenzel, Wen Wang, Gamma Technologies Inc.
4:00 p.m.	***2009-01-1267***	***3D Numerical Study of Pressure Loss Characteristics and Soot Leakage through a Damaged DPF***
		Xiaogang Zhang, Paul Tennison, Tim Schram, Ford Motor Co.
4:30 p.m.	***2009-01-1271***	***Fundamental Pressure Drop Model for Asymmetric Cell Technology (ACT) DPF***
		Sylvain J. Charbonnel, Cornelius Opris, Caterpillar Inc

The papers in this session are available in a single publication, SP-2255, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Distributed Embedded Systems Engineering

Session Code: ***AE9***

Room W2-61 ***Session Time:*** ***8:30 a.m.***

This session concentrates on the systems engineering aspects of vehicle electronic systems distributed using multiple vehicle networks and partitioned across a variety of different electronic modules. Other topics include current and future related technologies and targets technical, business, and legal issues. Future vehicle electronic systems architectures, car-to-car and car-to-roadside embedded systems, distributed embedded systems behavior, and multiple vehicle networking are discussed.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Chairpersons - *Eric Paton, Ford Motor Co*

Time	***Paper No.***	***Title***
8:30 a.m.	***ORAL ONLY***	***Applying Software Engineering Practices, Tools, and Techniques to Develop Safe, Reliable and Robust Automotive Applications***
		Elijah Kerry, National Instruments
9:00 a.m.	***2009-01-0919***	***The Role of the Data Dictionary in the Model-Based Development Process***
		Lev Vitkin, dSPACE Inc.; Abdolreza Fallahi, Delphi Corp.
9:30 a.m.	***2009-01-0918***	***Multi-Level System Integration of Automotive ECUs based on AUTOSAR***
		Ulrich Freund, ETAS GmbH; Vivek Jaikamal, Joachim Loechner, ETAS

10:00 a.m.	***2009-01-0917***	***Low Latency Communication in Service Oriented Networks for Safety Critical Systems***
		Kay Werthschulte, Elektroniksystem und Logistik GmbH
10:30 a.m.	***2009-01-0916***	***Introduction to Vehicular Embedded Security***
		Andre Weimerskirch, escrypt Inc.; Marko Wolf, Thomas Wollinger, escrypt GmbH

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Wednesday, April 22

Electrical Wiring Harnesses

Session Code: ***AE21***

Room W2-61 ***Session Time:*** ***1:30 p.m.***

This session focuses on topics surrounding the electrical system specific to the wiring harness, components, and design processes. New topics to be discussed: hybrid systems, power networks, high voltage, networking design techniques/software, and other specialty components.

Organizers - *Jeremy Tibbett, Leoni Wiring Systems Inc*

Chairpersons - *Roger Reini, Ford Motor Co.; Jeremy Tibbett, Leoni Wiring Systems Inc*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***System Approach for High Voltage Interconnection Technology of Hybrid Electrical Cars***
		Juergen Engbring, Leoni Bordnetz-Systeme GmbH
2:00 p.m.	***2009-01-1093***	***Characterization and Test of Automotive Electrical Power Networks***
		Mohamed Ayeb, Ludwig Brabetz, Patrick Graebel, Giscard Jilwan, Dirk Tellmann, Univ. of Kassel, Germany
2:30 p.m.	***2009-01-1094***	***Efficient Vehicle Power Supply by Adaptive Energy, Charge and Heat Management of an Alternator - Super Capacitor System***
		Ludwig Brabetz, Mohamed Ayeb, Dirk Tellmann, Universitaet Kassel
3:00 p.m.	***2009-01-1096***	***Cable Design for Hybrid Electric/Fuel Cell Vehicles as it Relates to OEM and Harness Maker Requirements***
		Simon Ramer, Leoni Kabel GmbH; Daniel Winkler, Leoni Cable Inc.
3:30 p.m.	***2009-01-1091***	***Comparing the Harness Cost of Hardwired and Networked Integrated Door Systems***
		C. Quigley, R. McMurran, R. P. Jones, Univ. of Warwick; P. Faithfull, Rapicore, Ltd.
4:00 p.m.	***2009-01-1095***	***Electronic Monitoring and Control of Vehicle Circuit System***
		Haoyi Lu, Haikou Saidan Vehicle Technology Ltd., China
4:30 p.m.	***2009-01-1092***	***Membrane Circuit Connector***
		Masahiro Kondo, Yuitsu Sakuraba, Takuya Osaki, Fujikura, Ltd.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Wednesday, April 22

Hardware-in-the-Loop Testing and Technology

Session Code: ***AE25*** ***8:30 a.m.***

Room W2-62 ***Session Time:***

Advanced powertrain, chassis, vehicle dynamics and body systems electronic controls testing are complex undertakings in new vehicle development. HILs play an important role in facilitating invention as well as validation of the millions of algorithm lines, communication and diagnostic code prior to release. This session will highlight advances in process, tools, and technology being applied to reduce design and validation time and cost, and to improve the quality of embedded control software.

Organizers - *Kevin Kott, Vivek Moudgal, dSPACE Inc.; Peter Wältermann, dSPACE GmbH*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0734***	***Vibration Analysis of an Experimental Suspension System Using Artificial Neural Networks*** *Sahin YILDIRIM, Ikbal Eski, Erciyes Univ.*
9:00 a.m.	***2009-01-0736***	***Vehicle System Control Software Validation for the Dual Drive Hybrid Powertrain*** *Yanan Zhao, Sadananda Srinivasaiah, Zhang Yan, Yulei Chen, Chat Nguyen, Raymond Spiteri, Ford Motor Co.*
9:30 a.m.	***2009-01-0735***	***Hardware-in-the-Loop Simulation for Hybrid Electric Vehicles: An Overview, Lessons Learned and Solutions Implemented*** *Shreyas Nagaraj, Syed Ali, Amanjot Dhaliwal, dSPACE Inc.*

Planned by Testing and Instrumentation Committee / Automobile Electronics Activity

Wednesday, April 22

Vehicle Diagnostics

Session Code: ***AE11***

Room W2-62 ***Session Time:*** ***10:30 a.m.***

Vehicle diagnostics deals with the development, delivery and execution of diagnostic procedures for vehicle systems. This session will explore new technologies, processes and trends in the area of vehicle diagnostics.

Organizers - *Jeffrey Craig, Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Chairpersons - *Jeffrey Craig, Vector CANtech Inc*

Time	Paper No.	Title
10:30 a.m.	***2009-01-1026***	***Knowledge Extraction from Real-World Logged Truck Data*** *Thomas Grubinger, Nicholas Wickström, Halmstad Univ.; Anders Björklund, Magnus Hellring, Volvo Parts Corp.*
11:00 a.m.	***2009-01-1028***	***Vehicle Diagnostics Method by Anomaly Detection and Fault Identification Software*** *Magnus Svensson, Volvo Technology AB; Stefan Byttner, Halmstad Univ.; Thorsteinn Rognvaldsson, Halmstad Univ. and Orebro Univ.*
	2009-01-1027	***A Heuristic Approach for Offboard-Diagnostics in Advanced Automotive Systems*** ***(Written Only -- No Oral Presentation)*** *Tobias Carsten Müller, Technische Universität Braunschweig; Olaf Krieger, Andreas Breuer, Klaus Lange, Thomas Form, Volkswagen AG*

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Wednesday, April 22

Military Vehicle: Advanced Propulsion System Technology

Session Code: ***MV2***

Room W2-62 ***Session Time:*** ***1:30 p.m.***

This session will feature papers related to advanced propulsion system technologies aimed at experimental and computational work in the area of diesel engines for military applications utilizing military grade fuels such as JP-8 and DF-2.

Organizers - *Walter Bryzik, Wayne State Univ.; Peter J. Schihl, John D. Tasdemir, US Army*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***Development and Testing of a High-Speed Diesel Engine for Superior Power Density***
		Carl-Anders Hergart, Caterpillar Inc.
2:00 p.m.	***2009-01-1097***	***Demonstration of a Practical Constant Speed Drive System for Engine Driven Accessories***
		Scott T. McBroom, Brad Pohl, Robert Smithson, Doug Feicht, Javier Solis, FallBrook Technologies Inc.
2:30 p.m.	***2009-01-1098***	***Study of Diesel Engine Performance Using Ultra-High Sulfur Fuels***
		Keli Alark, Richard Morton, Ford Motor Co.; Roscoe Carter, Ford Motor Co. (Retired)
	2009-01-1099	***On the Availability of Commercial Off-the-Shelf Heavy-Duty Diesel Engines (COTS) for Military Ground Vehicle Use (Written Only -- No Oral Presentation)***
		Peter J. Schihl, US Army RDECOM-TARDEC

Planned by Military Vehicle Committee / Commercial Vehicle Activity

Wednesday, April 22

Military Vehicle: Human Modeling and Simulation

Session Code: ***MV1***

Room W2-62 ***Session Time:*** ***3:00 p.m.***

The main area is focused on ground vehicle systems and occupant interaction with the systems in the context of human-machine interface. In particular, vehicle structural integrity, materials, crashworthiness, blast survivability and crew injury risk assessment are discussed with specific attention to physical test, analytical and computational methodologies and tools to understand and evaluate ground vehicle systems and occupant protection issues.

Organizers - *Sudhakar Arepally, US Army RDECOM*

Time	Paper No.	Title
3:00 p.m.	***2009-01-0920***	***The Development of Nanoclay-Epoxy Composite for Application in Ballistic Protection***
		Zheng-Dong Ma, Dongying Jiang, Yushun Cui, Yuanyuan Liu, MKP Structural Design Associates Inc.; Basavaraju Raju, US Army TARDEC
3:30 p.m.	***2009-01-0922***	***Repositioning the Human Body Lower Extremity FE Model***
		Dhaval Jani, Anoop Chawla, Sudipto Mukherjee, Rahul Goyal, Indian Institute of Technology Delhi; V Nataraju, General Motors India Pvt Ltd
4:00 p.m.	***2009-01-0921***	***Posture Prediction with External Loads - A Pilot Study (Written Only -- No Oral Presentation)***
		Qinghua Liu, Huazhong University of Science and Technology; Tim Marler, Univ of Iowa; Jingzhou Yang, Texas Tech University

Planned by Military Vehicle Committee / Commercial Vehicle Activity

Wednesday, April 22

Advanced Hybrid Vehicle Powertrains - Production Hybrid Vehicles and Hybrid Powertrain Systems Integration (Part 5 of 6)

Session Code: ***PFL100***

Room W2-63 ***Session Time:*** ***8:30 a.m.***

Hybrid electric vehicle technology may be mature enough to enter volume production; but that does not mean that technology is no longer further developed, or even invented, for these vehicles. This session highlights brand new hybrid electric vehicles going into production, powertrain configurations targeted for production, and aftermarket plug-in battery packs available to consumers.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Toyota Motor Engineering & Manufacturing; Mark A. Theobald, GM Powertrain*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1339***	***Size and Weight Reduction Technology for a Hybrid System***
		Shinya Kubota, Takeshi Sakurai, Hidenori Okada, Honda R&D Co., Ltd.
9:00 a.m.	***2009-01-1332***	***Development of New Hybrid System for Compact Class Vehicles***
		Takuji Matsubara, Hideaki Yaguchi, Toshifumi Takaoka, Kunihiko Jinno, Toyota Motor Corp.
9:30 a.m.	***2009-01-1330***	***Development of A BISG Micro-Hybrid System***
		Bo Gao, AVL Powertrain UK Ltd; Don Kees, Mark Conen, Daniel Kok, Ford Motor Co.; Kamil Svancara, Alan Walker, AVL Powertrain UK Ltd
10:00 a.m.	***2009-01-1331***	***Field Performance of A123 Systems Hymotion ® Plug-in Conversion Module in the Toyota Prius***
		Huang-Yee Iu, A123 Systems; John Smart, Idaho National Laboratory
10:30 a.m.	***2009-01-1329***	***Energy Management for a Dual-Drive Hybrid Electric Vehicle***
		Fazal Syed, Venkatapathi Nallapa, Mark Yamazaki, Ming Kuang, Ford Motor Co

The papers in this session are available in a single publication, SP-2235, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Advanced Hybrid Vehicle Powertrains - Hybrid Powertrain Modeling and Architecture, Hardware Verification (Part 6 of 6)

Session Code: ***PFL100***

Room W2-63 ***Session Time:*** ***1:30 p.m.***

This session highlights software and hardware methods for developing hybrid vehicle configurations and components. It also includes modeling of production hybrid powertrains by third parties and attempts to quantify the fuel economy impact of real-world driver behaviors.

Organizers - *Mark A. Theobald, GM Powertrain; Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Toyota Motor Engineering & Manufacturing*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1338***	***Investigation of an Electrified Air Conditioning System for an SUV by means of Multi-Physical Simulation***
		Johannes Vinzenz Gragger, Dragan Simic, Franz Pirker, Arsenal Research
2:00 p.m.	***2009-01-1307***	***Tahoe HEV Model Development in PSAT***
		Namdoo Kim, Aymeric P. Rousseau, Richard Carlson, Forrest Jehlik, Argonne National Lab.

2:30 p.m.	***2009-01-1321***	***An Analytic Foundation for the Two-Mode Hybrid-Electric Powertrain with a Comparison to the Single-Mode Toyota Prius THS-II Powertrain***
		Jerome Meisel, Georgia Institute of Technology
3:00 p.m.	***2009-01-1322***	***Vehicle Inertia Impact on Fuel Consumption of Conventional and Hybrid Electric Vehicles Using Acceleration and Coast Driving Strategy***
		Jeongwoo Lee, Douglas J. Nelson, Virginia Tech.; Henning Lohse-Busch, Argonne National Laboratory
3:30 p.m.	***2009-01-1315***	***A Modular Automotive Hybrid Testbed Designed to Evaluate Various Components from the Vehicle System***
		Henning Lohse-Busch, Michael Duoba, Neeraj Shidore, Argonne National Lab.; Douglas Nelson, Virginia Tech; Theodore Bohn, Richard Carlson, Argonne National Lab.
4:00 p.m.	***2009-01-1318***	***Optimization and Testing of a Through the Road Parallel,Hybrid-Electric, Crossover Sports Utility Vehicle***
		Daniel Mehr, University of Wisconsin
	2009-01-1320	***Modelling and Control of Series HEVs Including Resistive Losses and Varying Engine Efficiency (Written Only -- No Oral Presentation)***
		Magnus Neuman, Scania and Automatic Control, Royal Institute of Technology; Henrik Sandberg, Bo Wahlberg, Automatic Control, Royal Institute of Technology; Anders Folkesson, Scania

The papers in this session are available in a single publication, SP-2235, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Direct Injection SI Engine Technology (Part 1 of 4)

Session Code: ***PFL205***

Room W2-64 ***Session Time:*** ***8:30 a.m.***

Direct injection spark ignition (DISI) engines will play a major role in improving the fuel efficiency of today's vehicles. The papers in this session will explore the latest advancements in DISI engine technology, including spray formation and mixing, injection technology and modeling strategies, and its synergies with other advanced engine technologies.

Organizers - *Matthew J. Brusstar, US Environmental Protection Agency; Sudhakar Das, Delphi Corp.; Gerald Micklow, East Carolina University; David K. Trumpy; James W G Turner, Lotus Engineering, Ltd.; Jianwen Yi, Ford Motor Co.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1494***	***Development and Optimization of the Ford 3.5L V6 EcoBoost Combustion System***
		Jianwen Yi, Steven Wooldridge, Gary Coulson, James Hilditch, Claudia Iyer, Peter Moilanen, George Papaioannou, David Reiche, Michael Shelby, Brad VanDerWege, Corey Weaver, Zheng Xu, George Davis, Brett Hinds, Andreas Schamel, Ford Motor Co.
9:00 a.m.	***2009-01-1492***	***3D CFD Upfront Optimization of the In-Cylinder Flow of the 3.5L V6 EcoBoost Engine***
		Claudia Iyer, Jianwen Yi, Ford Motor Co.
9:30 a.m.	***2009-01-1493***	***Modeling the Cold Start of the Ford 3.5L V6 EcoBoost Engine***
		Zheng Xu, Jianwen Yi, Steven Wooldridge, David Reiche, Eric Curtis, George Papaioannou, Ford Motor Co.

10:00 a.m.	***2009-01-1491***	***Experimental Optimization of the Cold Start for the EcoBoost Engine***
		David B. Reiche, Steven T. Wooldridge, Peter C. Moilanen, George C. Davis, Ford Motor Co.
10:30 a.m.	***2009-01-1490***	***Optimal Use of E85 in a Turbocharged Direct Injection Engine***
		Robert Stein, Christopher House, Thomas Leone, Ford Motor Co.
11:00 a.m.	***2009-01-1489***	***Investigation of Combustion Robustness in Catalyst Heating Operation on a Spray Guided DISI Engine***
		Xiangdong Chen, Jaguar Cars, Ltd.

The papers in this session are available in a single publication, SP-2241, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Direct Injection SI Engine Technology (Part 2 of 4)

Session Code: ***PFL205***

Room W2-64 ***Session Time:*** ***1:30 p.m.***

Direct injection spark ignition (DISI) engines will play a major role in improving the fuel efficiency of today's vehicles. The papers in this session will explore the latest advancements in DISI engine technology, including spray formation and mixing, injection technology and modeling strategies, and its synergies with other advanced engine technologies.

Organizers - *Matthew J. Brusstar, US Environmental Protection Agency; Sudhakar Das, Delphi Corp.; Gerald Micklow, East Carolina University; David K. Trumpy; James W G Turner, Lotus Engineering, Ltd.; Jianwen Yi, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1487***	***Effects of Cooled EGR Routing on a Second-Generation DISI Turbocharged Engine Employing an Integrated Exhaust Manifold***
		James W G Turner, Richard Pearson, Russell Curtis, Barry Holland, Lotus Engineering, Ltd.
2:00 p.m.	***2009-01-1503***	***Development of a Turbocharged Direct Injection Downsizing Demonstrator Engine***
		Grant Lumsden, Dave OudeNijeweme, Hugh Blaxill, Neil Fraser, Mahle Powertrain Ltd
2:30 p.m.	***2009-01-1486***	***Development of Theta II 2.4L GDI Engine for High Power & Low Emission***
		Chulho Yu, Hyundai-Kia Motors
3:00 p.m.	***2009-01-1485***	***Fuel Efficiency Improvements from Lean, Stratified Combustion with a Solenoid Injector***
		Harry Husted, Delphi; Walter Piock, George Ramsay, Delphi Automotive Systems
	2009-01-1484	***Analysis of Cyclic Variations of Combustion in High Compression Ratio Boosted D.I.S.I. Engine by Ion-Current Probes and CFD (Written Only -- No Oral Presentation)***
		Ei Tsukahara

The papers in this session are available in a single publication, SP-2241, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

HCCI (Part 5 of 7)

Session Code: ***PFL207***

Room W2-65 ***Session Time:*** ***8:30 a.m.***

This session presents studies on HCCI combustion in diesel and gasoline engines. Effects of mixture preparation, injection timing, valve overlap, EGR and intake temperature are presented.

Organizers - *Salvador M. Aceves, Lawrence Livermore National Lab.; Aristotelis Babajimopoulos, Univ. of Michigan; Christopher Gehrke, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Robert M. Wagner, Oak Ridge National Laboratory; Hongming Xu, Birmingham Univ.*

Chairpersons - *Aristotelis Babajimopoulos, Univ. of Michigan; Bengt Johansson, Lund University*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0923***	***Enhancing Light Load HCCI Combustion in a Direct Injection Gasoline Engine by Fuel Reforming During Recompression*** *Nicole Wermuth, Hanho Yun, Paul Najt, General Motors*
9:00 a.m.	***2009-01-0924***	***Homogeneous Charge Compression Ignition (HCCI) Combustion of Diesel Fuel with External Mixture Formation*** *Ganesh Duraisamy, Anna University Chennai*
9:30 a.m.	***2009-01-0925***	***Multiple Event Fuel Injection Investigations in a Highly-Dilute Diesel Low Temperature Combustion Regime*** *Chad P. Koci, Youngchul Ra, Michael Andrie, Roger Krieger, David Foster, Univ of Wisconsin; Robert M. Siewert, Russ Durrett, GM R&D Center*
10:00 a.m.	***2009-01-0926***	***A Study on the Optimization of Operating Conditions for Simultaneous Reduction in NOx and PM in a 4-cylinder Premixed Diesel Engine*** *Hyungmin Kim, Hanyang Graduate University; Kibum Kim, Kihyung Lee, Hanyang University; Yuji Ikeda, Imagineering Inc*
10:30 a.m.	***2009-01-0928***	***Detailed Unburned Hydrocarbon Investigations in a Highly-Dilute Diesel Low Temperature Combustion Regime*** *Chad Koci, Youngchul Ra, Michael Andrie, Roger Krieger, David Foster, Univ of Wisconsin; Robert M. Siewert, Russ Durrett, GM R&D Center; Isaac Ekoto, Paul Miles, Sandia National Laboratories*
11:00 a.m.	***2009-01-1106***	***Investigations into the Effects of Thermal and Compositional Stratification on HCCI Combustion - Part II: Optical Engine Results*** *Randy E. Herold, James M. Krasselt, David E. Foster, Jaal B. Ghandhi, Univ. of Wisconsin - Madison; David L. Reuss, Paul M. Najt, General Motors Corp.*

The papers in this session are available in a single publication, SP-2242, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

HCCI (Part 6 of 7)

Session Code: ***PFL207***

Room W2-65 ***Session Time:*** ***1:30 p.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Salvador M. Aceves, Lawrence Livermore National Lab.; Aristotelis Babajimopoulos, Univ. of Michigan; Christopher Gehrke, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Robert M. Wagner, Oak Ridge*

National Laboratory; Hongming Xu, Birmingham Univ.

Chairpersons - *Aristotelis Babajimopoulos, Univ. of Michigan; Bengt Johansson, Lund University*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1100***	***Which Fuel Properties for Improved CAI Combustion - Study of Fuel Impacts on the Operating Range of a CAI PFI Engine*** *Jean Milpied, Nicolas Jeuland, IFP*
2:00 p.m.	***2009-01-1101***	***An Experimental Study of Dieseline Combustion in a Direct Injection Engine*** *Dale Turner, Guohong Tian, Hongming Xu, Miroslaw Wyszynski, University of Birmingham; Eudoxios Theodoridis, Jaguar Cars Ltd.*
2:30 p.m.	***2009-01-1102***	***Influence of Injection Timing and Piston bowl Geometry on PCCI Combustion and Emissions*** *Li Cao, Markus Kraft, Sebastian Mosbach, Haiyun Su, Univ. of Cambridge; Robert McDavid, Antonis Dris, Caterpillar Inc.; Amit N. Bhave, Reaction Engineering Solutions, Ltd.*
3:00 p.m.	***2009-01-1103***	***In-Cylinder Investigation of CAI Combustion with Negative Valve Overlap and Simultaneous Chemiluminescence Analysis*** *Changho Yang, Hua Zhao, Thanos Megaritis, Brunel University*
3:30 p.m.	***2009-01-1104***	***Investigation of CAI Combustion with Positive Valve Overlap and Enlargement of CAI Operating Range*** *Changho Yang, Thanos Megaritis, Hua Zhao, Brunel University*
4:00 p.m.	***2009-01-1105***	***Investigations into the Effects of Thermal and Compositional Stratification on HCCI Combustion - Part I: Metal Engine Results*** *James Krasselt, Jaal Ghandhi, Randy Herold, Univ. of Wisconsin - Madison; Paul Najt, David Reuss, General Motors Corp.; David Foster, Univ. of Wisconsin - Madison*
4:30 p.m.	***ORAL ONLY***	***Best Brazil Congress Paper Presentation - 2008-36-0305 - 4-Stroke Multi-Cylinder Gasoline Engine with Controlled Auto-Ignition (CAI) Combustion: A Comparison Between Naturally Aspirated and Turbocharged Operation*** *Mario Es Martins, Sygma Motors; Hua Zhao, Brunel University*

The papers in this session are available in a single publication, SP-2242, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Modeling of SI and Diesel Engines (Part 5 of 7) SI Combustion Models

Session Code: ***PFL210***

Room W2-66 ***Session Time:*** ***8:30 a.m.***

0-, 1- and Quasi-Dimensional Models for SI Engine Combustion

Organizers - *Federico Millo, Politecnico di Torino; Thomas Morel, Gamma Technologies Inc.; Angelo Onorati, Politecnico di Milano; Christof Schernus, FEV Motorentechnik GmbH*

Chairpersons - *Gregory J. Hampson, ENSYS; Angelo Onorati, Politecnico di Milano*

Time	Paper No.	Title

8:30 a.m.	***2009-01-0933***	***A Model-Based Technique for Spark Timing Control in an SI Engine Using Polynomial Regression Analysis***
		Kunihiko Suzuki, Hitachi, Ltd.; Mamoru Nemoto
9:00 a.m.	***2009-01-0929***	***Exploring the Charge Composition of SI Engine Lean Limits***
		Pouria Mehrani, Harry Watson, Robert Dingli, Univ. of Melbourne
9:30 a.m.	***2009-01-0932***	***The Always Lean Burn Spark Ignition (ALBSI) Engine - Its Performance and Emissions***
		Harry Watson, Pouria Mehrani, Michael Brear, Univ of Melbourne
10:00 a.m.	***2009-01-0931***	***Thermodynamic Analysis of SI Engine Operation on Variable Composition Biogas-Hydrogen Blends Using a Quasi-Dimensional, Multi-Zone Combustion Model***
		Constantine Rakopoulos, Constantine Michos, Evangelos Giakoumis, National Technical Univ of Athens
10:30 a.m.	***2009-01-0935***	***Numerical Investigation of Laminar Burning Velocities of High Octane Fuel Blends Containing Ethanol***
		Olaf Röhl, Sven Jerzembeck, Joachim Beeckmann, Norbert Peters, RWTH Aachen University
11:00 a.m.	***2009-01-0934***	***Development and Validation of a Gasoline Surrogate Fuel Kinetic Mechanism***
		Crina Heghes, N. Morgan, Uwe Riedel, Juergen Warnatz, Universitat Heidelberg; R. Quiceno, Roger Cracknell, Shell Global Solutions UK
	2009-01-0936	***Performance and Emission Comparison and Investigation of Alternative Fuels in SI Engines (Written Only -- No Oral Presentation)***
		Ali M. Pourkhesalian, Amir H. Shamekhi, Farhad Salimi, K.N. Toosi Univ. of Technology

The papers in this session are available in a single publication, SP-2244, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Modeling of SI and Diesel Engines (Part 6 of 7) Engine Process Simulation and Integrated Simulation Methods

Session Code: ***PFL210***

Room W2-66 ***Session Time:*** ***1:30 p.m.***

0-, 1- and Quasi-Dimensional Models for Engine Thermal Systems and Pollutant Emissions Simulations

Organizers - *Christof Schernus, FEV Motorentechnik GmbH; Robert C. Wang, Gamma Technologies Inc.; Federico Millo, Politecnico di Torino; Thomas Morel, Gamma Technologies Inc.*

Chairpersons - *Federico Millo, Politecnico di Torino; Robert C. Wang, Gamma Technologies Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1108***	***Results from a Thermodynamic Cycle Simulation for a Range of Inlet Oxygen Concentrations Using Either EGR or Oxygen Enriched Air for a Spark-Ignition Engine***
		Jerald Caton, Rajesh Shyani, Texas A&M University
2:00 p.m.	***2009-01-1510***	***1D Thermo-Fluid Dynamic Modeling of Reacting Flows inside Three-Way Catalytic Converters***
		Gianluca Montenegro, Angelo Onorati, Politecnico di Milano

2:30 p.m.	***2009-01-1109***	***Improved Simulation of Transient Engine Operations at Unsteady Speed Combining 1-D and 3-D Modeling***
		Jan Macek, Czech Technical Univ.; Seshasai Srinivasan, Swiss Federal Institute of Technology (ETH); Oldrich Vitek, Czech Technical Univ.; Franz Tanner, Michigan Technological Univ.; Vit Dolecek, Czech Technical Univ.
3:00 p.m.	***2009-01-1112***	***A Comparative Study Between 1D and 3D Computational Results forTurbulent Flow in an Exhaust Manifold and in Bent Pipes***
		Ulrica Renberg, Kungliga Tekiniska Hogskolan
4:00 p.m.	***2009-01-1349***	***Establishment of Engine Lubrication Oil Pressure and Flow Rate Distribution Prediction Technology Using 3D-CFD and Multi Body Dynamics***
		Hiroshi Takagishi, Yoshiyuki Ohtaka, Kiyokazu Nemoto, Honda R&D Co., Ltd.; Atsushi Nagakubo, Hiroyuki Tanaka, PSG Co., Ltd.
4:30 p.m.	***2009-01-1507***	***Analysis of Unsteady Heat Transfer in Periodical Flow in Intake Port Model***
		Takashi Suzuki, Masato Odakura, Yasufumi Oguri, Keisuke Uchida, Sophia Univ.
	2009-01-1111	***Analysis of a Cost Effective Air Hybrid Concept (Written Only -- No Oral Presentation)***
		Cho-Yu Lee; Hua Zhao, Brunel University

The papers in this session are available in a single publication, SP-2244, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Emission Measurement and Testing (Part 1 of 3)

Session Code: ***PFL408***

Room W2-67 ***Session Time:*** ***8:30 a.m.***

The session covers a wide range of topics in Emissions Measurement and Testing that will be of interest to both experienced and novice engineers.

The session organizers would like to thank the authors for their continuing work in expanding the knowledge base of emissions measurement and testing.

Special thanks goes to the paper reviewers without whom this session would not be possible.

Organizers - *Alberto Ayala, California Air Resources Board; Allen B. Duncan, US Environmental Protection Agency; Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Chairpersons - *Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1114***	***Thermal Balance Method for EGR Rate Determination Usable for Real Engine with Uncooled EGR System***
		Lubomir Miklanek, Vojtech Klir, Miloslav Emrich, Ludek Pohorelsky, Czech Technical Univ.
9:00 a.m.	***2009-01-1113***	***Converting Raw Thermocouple Measurements to those Measured with a Thermocouple of a Different Size for Exhaust Gas Temperature***
		Seha Son, Ford Motor Co.
9:30 a.m.	***2009-01-1121***	***Fast Physical Prediction of NO and Soot in Diesel Engines***
		Anders Westlund, KTH CICERO, Royal Institute of Technology

10:00 a.m.	***2009-01-1351***	***Techniques for Improved Correlation Between Constant Volume and Partial Flow Sample Systems.***
		Tim A. Nevius, Scott Porter, Richard Rooney, Dario Rauker, Horiba Automotive Test Systems
10:30 a.m.	***2009-01-1120***	***A Fuel Injector Test Stand (FITS) based on GC/FID technology***
		Mark A. Dearth, Ford Motor Co.
11:00 a.m.	***2009-01-1519***	***Measurement of Low Concentration NH3 in Diesel Exhaust Using Tunable Diode Laser Adsorption Spectroscopy (TDLAS)***
		Thomas D. Durbin, Univ. of California Riverside

The papers in this session are available in a single publication, SP-2256, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Emission Measurement and Testing (Part 2 of 3)

Session Code: ***PFL408***

Room W2-67 ***Session Time:*** ***1:30 p.m.***

The session covers a wide range of topics in Emissions Measurement and Testing that will be of interest to both experienced and novice engineers.

The session organizers would like to thank the authors for their continuing work in expanding the knowledge base of emissions measurement and testing.

Special thanks goes to the paper reviewers without whom this session would not be possible.

Organizers - *Alberto Ayala, California Air Resources Board; Allen B. Duncan, US Environmental Protection Agency; Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Chairpersons - *Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1520***	***Release of Fiber Fragments from Fiber-Based Ceramic Honeycomb Filters and Substrates -- Methods and Results***
		Noah Loren, Adam Wallen, Bilal Zuberi, Geo2 Technologies; Andreas C. Mayer, TTM; Jan Czerwinski, Univ. of Applied Sciences - Biel
2:00 p.m.	***2009-01-1514***	***Development of an Optical Soot Sensor for Modern Diesel Engines***
		Weiwei Cai, Lin Ma, Clemson University
2:30 p.m.	***2009-01-1115***	***Calibration and Validation of Various Commercial Particle Number Measurement Systems***
		Barouch Giechaskiel; Massimo Carriero, Giorgio Martini, Alois Krasenbrink, EC Joint Research Centre; Daniel Scheder, Horiba, Emissions Testing Services
3:00 p.m.	***2009-01-1119***	***The Effect of Drive Cycles on PM Emission Characteristics from a Gasoline Vehicle***
		Qiang Wei, Horiba Instruments Inc.; Michael Akard, Scott Porter, Hiroshi Nakamura, Horiba Instruments Inc
3:30 p.m.	***2009-01-1515***	***Investigation of Aldehyde and VOC Emissions during Cold Start and Hot Engine Operations using 100% Biofuels for a DI Engine.***
		Amanda Lea-Langton, Hu Li, Gordon E. Andrews, University of Leeds

4:00 p.m.	***2009-01-1518***	***Integration of Photoacoustic Innova Analyzer within Bag Bench for Direct Measurement of Ethanol in Vehicle Emissions***
		Mahmoud Yassine, Kamal Nayfeh, Erik Schubert, Richard Michell, Chrysler LLC
4:30 p.m.	***2009-01-1523***	***Enabling Flex-Fuel Vehicle Emissions Testing - Test Cell Modifications and Data Improvements***
		Michael James Loos, Joel Richert, Adolfo Mauti, Stephen Kay, Sandip Shah, Ford Motor Co.
	2009-01-1516	***Uncertainties in Filter Mass Measurements Made to Determine Compliance with the 2007 Diesel PM Standard (Written Only -- No Oral Presentation)***
		Jacob J. Swanson, Univ. of Minnesota - Twin Cities
	2009-01-1517	***Factors Influencing Mass Collected During 2007 Diesel PM Filter Sampling (Written Only -- No Oral Presentation)***
		Jacob J. Swanson, Univ. of Minnesota - Twin Cities

The papers in this session are available in a single publication, SP-2256, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Corrosion Prevention

Session Code: ***B3***

Room W2-68 ***Session Time:*** ***8:30 a.m.***

Exciting new information will be presented with the latest advancements in automotive related corrosion testing. Experts from several different areas of automotive corrosion engineering will be present to answer individual questions.

Organizers - *Kevin A. Smith, Auto Technology Co.; Matthew P. McGreer, Atlas Material Testing Technology LLC*

Chairpersons - *Kevin A. Smith, Auto Technology Co.; Matthew P. McGreer, Atlas Material Testing Technology LLC*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0890***	***Characterization of Zirconium Oxide-Based Pretreatment Coatings. Part 1 Variability in Coating Deposition on Different Metal Substrates***
		Steven Simko, Mark Jagner, Janice Tardiff, Andy Drews, Brian Schneider, Ford Motor Co.
9:00 a.m.	***ORAL ONLY***	***The Transition from Gm9540p to Gmw14872 - Cyclic Corrosion Testing***
		Kevin A. Smith, Auto Technology Co.; Tracie Jafolla, Larry Thompson, General Motors Corp.
9:30 a.m.	***2009-01-0892***	***Characterization of Zirconium Oxide-Based Pretreatment Coatings. Part 2: Challenges in Coating Aluminum Body Panels***
		Brian Schneider, Janice L. Tardiff, Mark Jagner, Andy Drews, Steven Simko, Ford Motor Co.
10:00 a.m.	***2009-01-0891***	***Update on the Development of an Improved Cosmetic Corrosion Test for Aluminum Autobody Panels: Correlation of Laboratory and On-Vehicle Results***
		Francine S. Bovard, Alcoa LLC; Janice Tardiff, Ford Motor Co; Florina Vartolas, Chrysler LLC; Tracie Jafolla, General Motors Corp; Sridhar Ramamurthy, Univ of Western Ontario; John Repp, Elzly Technology Corporation; Kevin Smith, Auto Technology Co; Raymund Singleton, Singleton Corp; Duncan McCune; Gregory Courval, Novelis Inc

10:30 a.m.	***2009-01-0894***	***Viscosity Controlled High Penetration Wax on Paint Process***
		Yasuhisa Shimizu, Takahide Maeda, Honda R&D Co., Ltd.
	2009-01-0895	***Analysis of Compromising Degree of an Internal Combustion Engine Using Biodiesel (Written Only -- No Oral Presentation)***
		Sergio B. Rahde, Karina Ruschel, PUCRS

Planned by Body Engineering Committee / Automobile Body Activity

Wednesday, April 22

CAE Simulation/Test Correlation and Optimization in Automotive Engineering:Vehicle NVH Simulation/Test Correlation and Optimization (Part 3 of 5)

Session Code: ***M21***

Room W2-68 ***Session Time:*** ***3:00 p.m.***

This seesion addresses NVH issues of full vehicle and sub-assembly. The papers in this session cover a range of topics including numerical and experimental techniques for noise and vibration analysis, new approaches to NVH problem and application of NVH materials. The metholodologies being used and developed for resolving related noise and vibration problems include: FEA, SEA, EFEA, Computational Fluid Dynamics(CFD), Modal Tests and Transfer Path Analysis(TPA), etc.

Organizers - *Weiguo Zhang, Comet Tech Corp; Jianmin Gu, Ford Motor Co; Aimin Wang, Univ of Michigan; Guangtian Gavin Song, AM General LLC; Guofei Chen, US Steel*

Chairpersons - *Weiguo Zhang, Comet Tech. Corp.; Jianmin Gu, Ford Motor Co.; Aimin Wang, Univ. of Michigan*

Time	***Paper No.***	***Title***
3:00 p.m.	***2009-01-0773***	***The Vibration Modal Tests and Analysis of Automobile Gearbox on Defferent Constraint Conditions***
		Shunming Li, Nanjing University of Aeronautics
3:30 p.m.	***2009-01-0764***	***Power-train Modal Characterization to Reduce Vehicle In-cab noise***
		Ashish Tiwari, Sivaraman P, TATA Motors Limited
4:00 p.m.	***2009-01-0767***	***Application of Virtual SEA for the Prediction of Acoustic Performance of Cockpit***
		Wontae Jeong, Mobis
4:30 p.m.	***2009-01-0765***	***Diesel Engine Combustion Monitoring through Block Vibration Signal Analysis***
		Ornella Chiavola, Silvia Conforto, Univ. Rome TRE; Medardo Boni, Stefano Manelli, Lombardini S R L; Erasmo Recco, Univ. Rome TRE; Luigi Arnone, Lombardini S R L
	2009-01-0770	***Load Path Analysis of Vehicle Body Structures under Eigenmode Deformation of Bending Vibration (Written Only -- No Oral Presentation)***
		Yasuhisa Okano, Shinichi Maruyama, Takuya Matsunaga, Nissan Motor Co Ltd; Kunihiro Takahashi, Masashi Hanazato, Keio University
	2009-01-0772	***A Study Concerning Booming Noise of a Multi-link Type Variable Compression Ratio Engine (Written Only -- No Oral Presentation)***
		Yusuke Sato, Masahiko Kondo, Masayuki Hara, Nissan Motor Co., Ltd.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 22

HCCI Controls (Part 1 of 2)

Session Code: ***PFL208*** ***8:30 a.m.***

Room W2-69 ***Session Time:***

The session includes presentations on dynamic control of HCCI combustion as well as results on control oriented modeling of HCCI. Observer design for HCCI control and comparisons of different actuators for HCCI control are also covered in the session.

Organizers - *Per Tunestal, Lund University; Hongming Xu, Birmingham Univ.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1130***	***Optimal Peak Pressure and Exhaust Temperature Tracking Control for a Two-Zone HCCI Engine Model with Mean Burn Duration***
		Varun Tandra, Nilabh Srivastava, Univ. of North Carolina, Charlotte
9:00 a.m.	***2009-01-1133***	***Model-Based Feed-Forward Control of Multi-Cylinder Diesel HCCI Engine Transients***
		James Rynold Popp, Christopher Rutland, Univ of Wisconsin Madison
9:30 a.m.	***2009-01-1134***	***HCCI Combustion Phasing Transient Control by Hydrogen-Rich Gas: Investigation Using a Fast Detailed-Chemistry Full-Cycle Model***
		Ali Aldawood, Sebastian Mosbach, Univ. of Cambridge; Markus Kraft, Univ of Cambridge
10:00 a.m.	***2009-01-1135***	***Actuation Method Comparison for Closed Loop Control of HCCI Combustion Timing***
		Adrian Audet, Charles Koch, Univ of Alberta
10:30 a.m.	***2009-01-1136***	***Dynamic Modeling of HCCI Combustion Timing in Transient Fueling Operation***
		Mahdi Shahbakhti, Charles Robert Koch, University of Alberta

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

HCCI Controls (Part 2 of 2)

Session Code: ***PFL208***

Room W2-69 ***Session Time:*** ***1:30 p.m.***

The session includes presentations on dynamic control of HCCI combustion as well as results on control oriented modeling of HCCI. Observer design for HCCI control and comparisons of different actuators for HCCI control are also covered in the session.

Organizers - *Per Tunestal, Lund University; Hongming Xu, Birmingham Univ.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1128***	***A Study on Ignition Timing and Combustion Switching Control of Gasoline HCCI Engine***
		Toru Kitamura, Junichi Takanashi, Yasuhiro Urata, Ken Ogawa, Honda R&D Co Ltd
2:00 p.m.	***2009-01-1129***	***Control Oriented Model and Dynamometer Testing for a Single-Cylinder, Heated-Air HCCI Engine***
		Yanying Wang, Satheesh Makkapati, Michael Zubeck, Mrdjan Jankovic, Ford Motor Co.; Donghoon Lee
2:30 p.m.	***2009-01-1131***	***Concept and Implementation of a Robust HCCI Engine Controller***
		Jun-Mo Kang, Chen-Fang Chang, Jyh-Shin Chen, Man-Feng Chang, General Motors R&D Ctr.

3:00 p.m.	***2009-01-1132***	***Observer Design for Fuel Reforming in HCCI Engines Using a UEGO Sensor***
		Jun-Mo Kang, Chen-Fang Chang, General Motors R&D Ctr.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Transmission and Driveline: Controls

Session Code: ***PFL604***

Room W2-70 ***Session Time:*** ***8:30 a.m.***

This session covers transmission and driveline controls. Topics covered include both hardware and software control strategies for transmission shift quality and shift responsiveness.

Organizers - *Joel H. Gunderson, Farzad Samie, General Motors Corp.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-0951***	***Closed Loop Pressure Control System Development for an Automatic Transmission***
		Quan Zheng, Jeremy Kraenzlein, Eunjoo Hopkins, Delphi Corp.; Robert Moses, Bret Olson, GM Powertrain
9:00 a.m.	***2009-01-0950***	***Power-By-Wire Piezoelectric-Hydraulic Pump Actuator for Automotive Transmission Shift Control***
		Gi-Woo Kim, Kon-Well Wang, University of Michigan
9:30 a.m.	***2009-01-0954***	***Torque Converter Slip Control using H Infinity Approach***
		Hussein Dourra, Chrysler LLC; Shady Elashhab, Mohamed Zohdi, Oakland University; Gurunath Kedar Dongarkar, Chrysler Technology Center
10:00 a.m.	***2009-01-0952***	***Torque Gap Filler for Automated Manual Transmissions: Principles for the Development of the Control Algorithm***
		Aldo Sorniotti, Univ. of Surrey
10:30 a.m.	***2009-01-0953***	***A New Type Clutch Auto-operating System for Heavy-duty Commercial Vehicle***
		Yulong Lei, Jian Wang, Jilin University
	2009-01-0955	***Development of the Slip Control System for a Lock-up Clutch Part 3 (Written Only -- No Oral Presentation)***
		Yutaka Kaneko, Kazutaka Adachi, Nissan Motor Co., Ltd.; Fumiyo Iino, Mitsuo hirata, Utsunomiya Univ.

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 22

Transmission and Driveline: Simulation/Modeling

Session Code: ***PFL608***

Room W2-70 ***Session Time:*** ***1:30 p.m.***

This session presents papers regarding simulation and modeling of multi-physics FEA model to assess the reliability of hydraulics solenoid valve subjected to thermal and mechanical strains. A novel analysis of transmission torque using the lever analogy to describe the torque behavior during the inertial phase of a shift. Applications of a closed-loop drive-train model for HIL test bench are presented in detail. Methods for multi-domain modeling of clutch actuation system in a MT are discussed.

Organizers - *Chin-Yuan Perng, Ford Motor Co.; Haiyan Henry Zhang, Purdue Univ.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1137***	***Dynamic Analysis of Transmission Clutch and Input Torques using the Lever Analogy***
		Michael Allen Hall, Hussein Dourra, Chrysler LLC
2:00 p.m.	***2009-01-1138***	***Reliability and Life Study of Hydraulic Solenoid Valve - Part 1 - A Multi-physics Finite Element Model***
		Santosh Angadi, Song Choe, Robert L. Jackson, Auburn Univ.
2:30 p.m.	***2009-01-1139***	***A Closed-Loop Drive-train Model for HIL Test Bench***
		Asif Habeebullah, Quan Zheng, Woowon Chung, Delphi Corp.
3:00 p.m.	***2009-01-1141***	***Multi-domain Modeling and Simulation of Clutch Actuation System Based on Modelica (Written Only -- No Oral Presentation)***
		Ming Jiang, Wei Chen, Yunqing Zhang, Liping Chen, Huazhong Univ. of Science and Tech.

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

A View from the Top: Essential Results from the 2008 North American International Powertrain Conference

Session Code: ***ANN203***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***9:30 a.m.***

The panelists, composed of the track chairs of the conference held in Chicago in early September of 2008, will discuss the results of the conference that convened experts from industry, government, academia and NGOs that deal with the North American powertrain market. The conference was a solutions oriented meeting that discussed regulatory, consumer, energy and technology issues that face the market now and in the future.

Moderators - *Yoshihiko Masuda, Managing Director, Toyota Motor Corporation*

Panelists - *Scott Bailey, Gen Mgr, Gas Engine Mgmt Systems, VP, Delphi Corp.; Herbert Everss, President, Global Emergent Inc. & Dir Bus Dev, SAE's ARI; Jeremy W. Holt, CEO, NxtGen Emission Controls Inc.; Douglas Patton, Senior VP, Engrg Div, DENSO International America Inc.; Gary W. Rogers, President & CEO, FEV Inc & Exec VP, FEV, GmbH;*

Thursday, April 23

Green Safety

Session Code: ***ANN103***

Room AVL Technology Leadership Theater ***Session Time:*** ***10:30 a.m.***

The panel will discuss whether improving vehicle safety while facing pressure to reduce vehicle size and weight to attain reduced GHG emissions is both practical and attainable at a cost the consumer will be willing to pay. Various performance issues from braking, to noise, to crash compatibility will be discussed. Green mobility is a global movement. The panel will also highlight what other regions of the world are doing to reach the GHG goals while maintaining safe vehicles.

Moderators - *Joseph Kanianthra, President, Active Safety Engineering LLC (retired NHTSA)*

Panelists - *Pankaj K. Mallick, Prof, Dept of Mech Engrg, Univ. of Michigan-Dearborn; Priya Prasad, President, Prasad Consulting LLC; Tomiji Sugimoto, Executive Chief Engineer, Honda R & D Co., Ltd.; Mike Thoeny, Dir NA Safety Sys Engrg, Delphi Electronics & Safety;*

Thursday, April 23

Testing and Instrumentation

Session Code: ***AE20***

Room D2-08 ***Session Time:*** ***8:30 a.m.***

This session deals with Innovative Engine Test methods along with their test facility development, Vehicle Infotainment systems, Real time customer usage data and correlation/simulation with in-lab drivability methods, Reliability Testing Approach.

Organizers - *Hari Srinivas Babu, Anand Vijay Kulkarni, Tata Motors, Ltd.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1366***	***Automated Functional and Robustness Testing of Vehicle Infotainment System*** *Yingping Huang, Ross McMurran, Gunwant Dhadyalla, Richard Peter Jones, Univ. of Warwick*
9:00 a.m.	***2009-01-1369***	***CAF Characteristics of FR-4 Printed Circuit Board(PCB) for Automotive Electronics*** *Jung Gi Han, Hyundai-Kia R&D Center; Won Sik Hong, Nochang Park, Korea Electronics Technology Institute*
9:30 a.m.	***2009-01-1368***	***Reliability Testing and Damage Analysis of Lead-free Solder Joints: New Assessment Criteria for Laboratory Methods*** *Antje Steller, Axel Zimmermann, Stephan Eisenberg, Volkswagen AG; Klaus-Juergen Wolter, Dresden Univ. of Technology; Petrik Lange, Hella KGaA Hueck & Co.*
10:00 a.m.	***2009-01-1371***	***Superbus Suspension System and Initial Correlation between Vehicle Dynamic Simulations and Testing Results*** *Antonia Terzi, TU Delft*
10:30 a.m.	***2009-01-1372***	***Simulation of Driveability in Real-time*** *Josef Zehetner, Peter Schoeggl, Matthias Dank, Klaus Meitz, AVL LIST GmbH*
11:00 a.m.	***ORAL ONLY***	***Maximum Likelihood Estimation for Type II Right Censored Data of Exponential Distribution*** *Krongkaew Wangniveitkul, Winai Bodhisuwan, Kasetsart Univ.*
11:30 a.m.	***2009-01-1373***	***Development of Engine Test Facility of Armoured Fighting Vehicles*** *G S Simon Sundara Raj, H. Rabibunnisa, A Hameed Faizul, R. Nandagopal, S. Y. Venkataraman, G. Gunasekaran, R. Venugopal, Combat Vehicles Research & Dev. Est.*

Planned by Testing and Instrumentation Committee / Automobile Electronics Activity

Thursday, April 23

System Level Architecture Design Tools and Methods (Part 1 of 2)

Session Code: ***AE10***

Room D2-09/10 ***Session Time:*** ***8:30 a.m.***

This session focuses on methods and design tools for the modeling, design, and analysis of automotive architectures in the presence of known and uncertain constraints on metrics of interest. These methods and tools assist the designers in deciding the communication network topology, the allocation of functions to ECU's, and the IO allocation strategies.

Organizers - *Paolo Giusto, General Motors Corp.*

Time	Paper No.	Title

9:00 a.m.	***2009-01-1146***	***Hardware Virtualization for Pre-Silicon Software Development in Automotive Electronics***
		Frank Schirrmeister, Filip Thoen, Synopsys
9:30 a.m.	***2009-01-1145***	***Adoption of Modeling Standards as a Part of Enterprise-Wide Deployment***
		Mirko Conrad, Michael McMaster Burke, The MathWorks Inc.
10:00 a.m.	***ORAL ONLY***	***A System Data Management Tool for Process Improvement Today and AUTOSAR Tomorrow***
		Mark D. Jensen, Vector CANtech Inc.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Thursday, April 23

System Level Architecture Design Tools and Methods (Part 2 of 2)

Session Code: ***AE10***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

This session focuses on methods and design tools for the modeling, design, and analysis of automotive architectures in the presence of known and uncertain constraints on metrics of interest. These methods and tools assist the designers in deciding the communication network topology, the allocation of functions to ECU's, and the IO allocation strategies.

Organizers - *Paolo Giusto, General Motors Corp.*

Chairpersons - *Paolo Giusto, GM*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1378***	***What Can Go Wrong in CAN (Timing Behavior)***
		Marco Di Natale, Scuola Superiore S. Anna
2:00 p.m.	***2009-01-1379***	***Using Timing Analysis for Evaluating Communication Behaviour and Network Topologies in an Early Design Phase of Automotive Electric/Electronic Architectures***
		Matthias Traub, Vera Lauer, Daimler AG; Juergen Becker, Univ. of Karlsruhe; Marek Jersak, Kai Richter, Symtavision GmbH; Markus Kuehl, Aquintos GmbH
2:30 p.m.	***2009-01-1376***	***Integration Framework: AUTOSAR Virtual Functional Bus using a Spreadsheet Modeler***
		Darryl Koivisto, Mirabilis Design Inc.
3:00 p.m.	***2009-01-1375***	***Moving Design Automation of Networked Systems to Early Vehicle Level Design Stages***
		Horst Salzwedel, MLDesign Technologies
3:30 p.m.	***2009-01-1380***	***Stochastic Analysis of Controller Area Network Message Latencies with Observable Operator Models***
		Andreas Kolling, Stefano Carpin, Univ. of California
4:00 p.m.	***2009-01-1377***	***Fault Tree Analysis for Design Space Exploration of Fault Tolerant Automotive Architectures***
		Mark Mc Kelvin, Alberto Luigi Sangiovanni-Vincentelli, Univ. of California-Berkeley

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Thursday, April 23

Thermal Systems Modeling

Session Code: ***HX4***

Room D2-11/12 ***Session Time:*** ***8:30 a.m.***

Thermal systems (HVAC, engine cooling, transmission, power steering) have significant energy requirements that could adversely affect the vehicle performance. New and innovative approaches are being used to provide the comfort to the customer in an energy efficient way. Optimization of the components and the system is required to fully understand the impact of the components on the system. Hence, modeling of the components and the system is essential for performance predictions.

Organizers - *Ales Alajbegovic, Exa Corp.; Ramesh Kumar Goyal, General Motors Corp. (ret.); Gursaran D. Mathur, CalsonicKansei North America Inc.; Kumar Srinivasan, Chrysler LLC*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1148***	***Assessment of Various Environmental Thermal Loads on Passenger Compartment Soak and Cool-down Analyses***
		Taeyoung Han, General Motors Corp.; Kuo-Huey Chen, General Motors R&D Ctr.
9:00 a.m.	***2009-01-1149***	***Multi-domain Meshes for Automobile Underhood Applications***
		Santosh Kini, Richard Thoms, ESI Group
9:30 a.m.	***2009-01-1152***	***Influences of Free Stream Conditions on Vehicle Thermal Management - An Analytical Study***
		Ken Lan, Belcan Corp.; Kumar Srinivasan, Chrysler LLC
10:00 a.m.	***2009-01-1151***	***Using LES for Predicting High Performance Car Airbox Flow***
		Federico Brusiani, Gian Marco Bianchi, Univ. of Bologna; Thierry Baritaud, Alberto Bianchi D' Espinosa, Ferrari GeS
10:30 a.m.	***2009-01-1150***	***A Combined CFD and Flow Network Modeling Approach for Vehicle Underhood Air Flow and Thermal Analysis***
		Vivek Kumar, Sangeet Kapoor, Gyan Arora, Tata Motors Ltd.; Sandip K. Saha, Pradip Dutta, Indian Institute of Science
	2009-01-1153	***Minimization of Hot Air Re-circulation in Engine Cooling System (Written Only -- No Oral Presentation)***
		Subhashini Raghu Subramanian, Ashok Leyland Ltd. ; Bhairava Murthy Bandaru , Ashok Leyland Ltd., India ; B Balaji, Akella S R Sarma , Ashok Leyland
	2009-01-1154	***Predicting Running Vehicle Exhaust Back Pressure in a Laboratory Using Air Flowing at RoomTemperature and Spreadsheet Calculations (Written Only -- No Oral Presentation)***
		David John Ukrop, Mark Shanks, General Motors Corp.; Michael Carter, Flow Systems Inc.

Planned by Thermal Management Activity / EMB Land and Sea Group

Thursday, April 23

Celebrating Leadership Workshop

Session Code: ***CONG105***

Room D2-11/12 ***Session Time:*** ***1:30 p.m.***

A workshop designed to celebrating leadership along with teaching others to grow and strengthen their leadership skills. The session will begin with a panel discussion and then move into an interactive session. **Sponsored by the SAE Women Engineers Committee

Organizers - *Tracy Williams, AGC Automotive Americas; WEC Chair: Brooke Ashley Hart, MTU Detroit Diesel Inc*

Chairpersons - *Tracy Williams, AGC Automotive Americas*

Panelists - *Donna Adame, Stewart & Stevenson LLC; Sherrie Childers Arb, General Motors Corp.; Lara Minor, Honda*

Research Institute; Elizabeth Ann Spratt, Cummins Inc.;

Planned by Women Engineers Committee / Membership Services Board

Thursday, April 23

Filtration and Separation for Vehicle Emissions Compliance (Part 2 of 2)

Session Code: ***PFL200***

Room D2-13/14 ***Session Time:*** ***8:30 a.m.***

Mandated reductions in hydrocarbon, nitrogen oxide, and particulate emissions have dramatically influenced vehicle fuel injection equipment, fuels, and fuel/lubricant additives. These changes, in turn, have cascaded into substantial shifts in filtration requirements. As filtration constitutes the final, and in many instances, only point of protection for engine components as well as the environment, filtration technology and test methods have experienced rapid development.

Organizers - *Neville J. Bugli, Visteon Corp.; Christine Stanfel, Ahlstrom*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0869***	***Blow-by Gases Coalescing Separation: Performances on Passenger Car Engines***
		Jerome Candy, SOGEFI; Laurent Guerbe, SOGEFI Filter Division
9:00 a.m.	***2009-01-0874***	***Filtration Technology Challenges for Common-Rail Diesel Engine Fuel Systems***
		Christopher Joseph Salvador, Caterpillar
9:30 a.m.	***2009-01-0870***	***Procedure for Determning the Allowable Particle Contamination for Diesel Fuel Injection Equipment (FIE)***
		Dieter Eppinger, Martin P. Mangold, Alexander von Stockhausen, Robert Bosch GmbH; Thomas C. Livingston, Robert Bosch LLC
10:00 a.m.	***2009-01-0873***	***Humidity Affects on a Carbon Hydrocarbon Adsorber***
		Scott Flora, Scott A. Schaffer, Anthony Arruda, Visteon Corporation

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Human Factors in Seating Comfort

Session Code: ***B25***

Room D2-15 ***Session Time:*** ***8:30 a.m.***

A discussion of ergonomics, design and analysis of seating for development of seating comfort.

Organizers - *Currell L. Pattie; Marilyn D. Vala, General Dynamics Land Systems*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1164***	***Ergonomic Data Measurement System for Driver - Pedals Interaction***
		Sam Brook, Ioan F. Campean, George Rosala, Univ. of Bradford; Neil Dixon, Jaguar Land Rover; Rob Freeman, Univ. of Bradford
9:00 a.m.	***2009-01-1165***	***Anthropometrically Designed Smart Seat***
		Kabir Krishan; Paras Loomba
9:30 a.m.	***2009-01-1159***	***Alternative Statistical and Psychological Methods for Interpreting Large-scale Seat Comfort Surveys***
		Scott Ziolek, Dymos of America; Lawrence Smythe, Nissan Technical Center NA Inc; Terry O'Bannon, Lear Corp

10:00 a.m.	***2009-01-1163***	***Seating Comfort: Development of an Innovative Model to Evaluate the Postural Discomfort Level***
		Alessandro Naddeo, Sandro Memoli, Univ. di Salerno

Planned by Human Factors Committee / Automobile Body Activity

Thursday, April 23

Sheet/ Hydro/ Gas Forming Technology and Modeling (Part 2 of 3)

Session Code: ***M9***

Room D3-19 ***Session Time:*** ***8:30 a.m.***

The Sheet/ Hydro/ Gas Forming Technology and Modeling session is designed to provide industrial and academic participants a forum to address current technical issues in sheet metal forming using analytical, numerical and experimental tools. It is hoped that the Session will help to advance the state of the art in sheet metal forming and lead to rapid dissemination of new technologies for industrial applications.

Organizers - *Z. Cedric Xia, Ford Motor Co.; Thomas J. Oetjens, Thomas Stoughton, General Motors Corp.; Michael J. Worswick, Univ. of Waterloo; Ching-Kuo Hsiung, General Motors Corp.*

Chairpersons - *Ching-Kuo Hsiung, Thomas J. Oetjens, General Motors Corp.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1170***	***Application of Innovative PVD Coating to Stamping Dies for Processing Ultra-High Tensile Strength Steel Sheets***
		Kenji Yamamoto, Kobe Steel, Ltd.
9:00 a.m.	***2009-01-1171***	***Experimental Analysis of Die Wear in Sheet Metal Forming***
		Rui Zhou, Jian Cao, Northwestern Univ.; Z Xia, Ford Motor Co.; Qian Wang PhD, Ibrahim Alali, Northwestern Univ.
9:30 a.m.	***2009-01-1172***	***Development of Shear Fracture Criterion for Dual-Phase Steel Stamping***
		Dan Zeng, Z. Xia, Ford Motor Co.; Hua-Chu Shih, Ming Shi, U. S. Steel
10:00 a.m.	***2009-01-1173***	***Comparison of Forming Limit Curves for Advanced High Strength Steels Using Different Techniques***
		Sriram Sadagopan, Gang Huang, Benda Yan, ArcelorMittal Global R&D - E. Chicago
10:30 a.m.	***2009-01-1174***	***Measurement of Fracture Strains for Advanced High Strength Steels (AHSS) Using Digital Image Correlation***
		Gang Huang, Benda Yan, Hong Zhu, ArcelorMITTAL
11:00 a.m.	***2009-01-1175***	***Analysis of Trimming Processes for Advanced High Strength Steels***
		Sergey Golovashchenko, Ford Motor Co.; Andrey Ilinich, Nicholas Bessonov, Lorenzo Smith, Oakland Univ.

Planned by Ferrous Committee / Materials Engineering Activity

Thursday, April 23

Sheet/ Hydro/ Gas Forming Technology and Modeling (Part 3 of 3)

Session Code: ***M9***

Room D3-19 ***Session Time:*** ***1:30 p.m.***

The Sheet/ Hydro/ Gas Forming Technology and Modeling session is designed to provide industrial and academic participants a forum to address current technical issues in sheet metal forming using analytical, numerical and experimental tools. It is hoped that the Session will help to advance the state of the art in sheet metal forming and lead to rapid dissemination of new technologies for industrial applications.

Organizers - *Z. Cedric Xia, Ford Motor Co.; Thomas J. Oetjens, Thomas Stoughton, General Motors Corp.; Michael J. Worswick, Univ. of Waterloo; Ching-Kuo Hsiung, General Motors Corp.*

Chairpersons - *Thomas Stoughton, General Motors Corp.; Z. Cedric Xia, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1390***	***Results of Auto/Steel Partnership (A/SP) Steel Tube Hydroforming Materials and Lubricants Experimental Projects***
		Ronald J. Soldaat, ArcelorMittal; Jamal Alghanem, Chrysler LLC; Ming Chen, United States Steel Corp.; Stephen Kernosky, Ford Motor Co.; Thomas Stoughton, General Motors Corp.; Lorraine Tervo, AK Steel Corp.
2:00 p.m.	***2009-01-1391***	***Drawbead Restraining Force Modeling: Influence of Friction***
		Feng Ren, Laurent Chappuis, Z. Xia, Ford Motor Co.
2:30 p.m.	***2009-01-1392***	***A Generalized Anisotropic Hardening Rule Based on the Mroz Multi-Yield-Surface Model and Various Classical Yield Functions***
		Kyoo Sil Choi, Pacific Northwest National Labs; Jwo Pan, Univ of Michigan-Ann Arbor
3:00 p.m.	***2009-01-1393***	***Mechanical Behavior and Failure Mechanism of Nb-Cladded Stainless Steel Sheets under Bending and Flattening Tests***
		Kamran Asim, Univ. of Michigan; Sung-Tae Hong, Univ. of Ulsan; Scott weil, Pacific Northwest National Laboratory; William Hosford, Jwo Pan, Univ. of Michigan-Ann Arbor
3:30 p.m.	***2009-01-1394***	***Sheet Thinning during Plane-Strain Bending***
		Bernard S. Levy, Chester J. Van Tyne, Colorado School of Mines
4:00 p.m.	***2009-01-1395***	***Predicting the Radius of a Sheet Bent Around Drawbeads***
		Bernard Levy, B.S. Levy Consultants; Chester J. Van Tyne, Colorado School of Mines
	2009-01-1396	***Analytical approach to bursting and obtaining suitable load path in tube hydroforming by strain gradient plasticity (Written Only -- No Oral Presentation)***
		Ahmad Assempour, Sharif Univ of Technology; Ramin Hashemi, University of Tehran; Ehsan Masoumi K. A., Alireza Safikhani, Sharif Univ of Technology; Karen Abrinia, University of Tehran

Planned by Ferrous Committee / Materials Engineering Activity

Thursday, April 23

Reliability and Robust Design in Automotive Engineering: Reliability and Robust Design in Automotive Aero-Thermal and Fluid Systems

Session Code: ***IDM26***

Room D3-20/21 ***Session Time:*** ***8:30 a.m.***

The purpose of this session is to bring awareness among the automotive aerodynamics, thermal and hydraulic systems development community to address the need of reliability analysis and robust design to improve the overall product quality. This session also introduces CAE based optimization of aero-thermal and fluid systems to improve automotive fuel economy. This session presents papers covering both testing and simulation.

Organizers - *Zissimos Mourelatos, Oakland Univ.; Sadek S. Rahman, Richard Sun, Chrysler LLC*

Chairpersons - *Sadek Rahman, Richard Sun, Chrysler LLC*

Time	Paper No.	Title

8:30 a.m.	***2009-01-1176***	***Numerical Investigation of the Sensitivity of the Performance Criteria of an Automotive Cyclone Particle Separator to CFD Modeling Parameters***
		Naser Hineiti, Laila Guessous, Oakland Univ.
9:00 a.m.	***2009-01-1177***	***Engine Cooling Module Sizing Using Combined 1-Dimensional and CFD Modeling Tools***
		Dhananjay S. Joshi, Chrysler LLC; Timothy Scott, Univ of Virginia
9:30 a.m.	***2009-01-1179***	***Development of an Engineering Analysis Tool for Time-Temperature Analysis of Automotive Components***
		Alaa El-Sharkawy, George Woronowycz, Edward Luibrand, John Kohler, Chrysler LLC
10:00 a.m.	***2009-01-1178***	***Application of Kinetics of Thermal Degradation of Time-Temperature Analysis of Automotive Components***
		Alaa El-Sharkawy, Edward Luibrand, Chrysler LLC
	2009-01-1180	***Investigation of Fuel System Component O-Ring Interface Design and Assembly (Written Only -- No Oral Presentation)***
		Edward John Vinarcik, Design Direction - Technical Instruction and Writing

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Thursday, April 23

Advances and Applications in Sealings and Gaskets

Session Code: ***M14***

Room D3-22/23 ***Session Time:*** ***8:30 a.m.***

Sealing technology continues to evolve with increasing requirements for performance and fuel economy, and changes in operating fluids. New developments in sealing materials for biofuel compatibility, advances in engine gasket modeling and materials, and seal modeling and performance are among the topics covered in this session.

Organizers - *Richard E. Robertson, Univ. of Michigan*

Chairpersons - *Richard Robertson, Univ of Michigan*

Time	***Paper No.***	***Title***
8:30 a.m.	***~~2009-01-0992~~***	***THERBAN/HNBR for Automotive and Heavy Duty Applications***
	CANCELLED	*Victor Nasreddine, Lanxess Corp.*
9:00 a.m.	***2009-01-0999***	***A Study on Sealing Behavior of Rubber O-Ring in High Pressure Hydrogen Gas***
		Junichiro Yamabe, Shin Nishimura, Kyushu Univ.; Atsushi Koga, NOK Corporation
9:30 a.m.	***2009-01-0993***	***Cylinder Head Gasket for High Combustion Pressure Diesel Engines***
		Tadao Nishiyama, Osamu Murakami, Honda R&D Co Ltd; Takashi Katsurai, Honda R&D Americas, Inc.; Kazuhiko Adachi, Sumitomo metal industries, Ltd.
10:00 a.m.	***2009-01-0996***	***Next Generation Formed-In-Place Gasket (FIPG) Liquid Sealant for Automotive Intake Manifold Application***
		Kiyotaka Sawa, Henkel Japan, Ltd.; Shingo Tsuno, Henkel Japan Ltd; Chiu-Sing Lin, Henkel Corp.; Masahiro Masujima, Honda
10:30 a.m.	***2009-01-0995***	***A Study on the Surface Temperature of Rotary Lip Seals***
		Wataru Tokunaga; Hyakutake Hideharu; Miyake KuniakiI, NOK Corp.

11:00 a.m.	***2009-01-0994***	***Fluoroelastomer Compatibility with Bioalcohol Fuels***
		Eric Thomas, DuPont Performance Elastomers
11:30 a.m.	***ORAL ONLY***	***Development of Impact Durable Structural Adhesive***
		Haruya Kato, Development Technologies

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Thursday, April 23

Lean and Six Sigma: Getting the Most Out of Your Quality Toolbox

Session Code: ***IDM2***

Room D3-24/25 ***Session Time:*** ***8:30 a.m.***

This technical session deals with research and development efforts addressing the advancement and applications of Lean and Six Sigma methodologies in the mobility Industry. Papers presented in this session will portray the latest developments in the principles, practices, tools, processes, and applications of Lean, Six Sigma, and Lean Six Sigma.

Organizers - *Mohamed El-Sayed, Kettering Univ.; Clement J. Goebel; Chergn Tarng Lin, Kettering Univ.*

Chairpersons - *Mohamed El Sayed, Kettering Univ.*

Assistant Chairpersons - *Beena Anand, DataNet Quality Systems; Ravi Anand, Isoftwareworks*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1188***	***Lean Engineering Implementation Challenges for Automotive Remanufacturing***
		Ramesh Subramoniam, Gary Abusamra, Dale Hostetler, Delphi Product & Service Solutions
9:00 a.m.	***2009-01-1189***	***Finding the ¿Pulse¿ of your Process ¿ A New Way to Monitor Manufacturing Quality***
		Paul Hogendoorn, OES Inc.
9:30 a.m.	***2009-01-0117***	***Lean Product Development - Redefining the Indian Automotive Product Development Process using Lean Framework***
		Uma Anand D, Janakiraman Simizhi Ramakrishnan, Sethukannan V S, Tata Consultancy Services
10:00 a.m.	***2009-01-1187***	***Sustainable Green Design and Manufacturing Requirements and Risk Analysis Within A Statistical Framework***
		Paul G. Ranky, New Jersey Institute of Technology
10:30 a.m.	***2009-01-0116***	***Lean Product Development in the Automotive Supplier Industry***
		Geir Ringen, Norwegian University of Science and Technology; Eirin Lodgaard
11:00 a.m.	***2009-01-1190***	***A 6 Sigma Framework for the Design of Flatfish Type Autonomous Underwater Vehicle (AUV) (Written Only -- No Oral Presentation)***
		T. R. Sreeram, Caterpillar India Pvt. Ltd; M Santhakumar, T Asokan, Indian Institute of Technology - Madras
11:30 a.m.	***ORAL ONLY***	***Six Sigma Project at an OEM Hybrid Battery Supplier***
		Mark R. Ripple, BBK, Ltd.

	2009-01-1191	***Applying Lean Manufacturing Principles & Tools to Laboratory Operations (Written Only -- No Oral Presentation)***
		Edward John Vinarcik, Design Direction - Technical Instruction & Writing
	2009-01-1192	***Improving the Productivity of Business Proposal Development Using Six Sigma Methodologies (Written Only -- No Oral Presentation)***
		Badari Kotejoshyer, Sai Sridhar, Rituraj Shrivastava, Honeywell Technology Solutions Lab
	2009-01-1546	***Statistical Capability Analysis for Geometric Tolerances Using the MMC Modifier (Written Only -- No Oral Presentation)***
		Daniel P. Bauer, Integrated Training Resources Inc.

Planned by Lean - Six Sigma Committee / Integrated Design and Manufacturing Activity

Thursday, April 23

Reliability and Robust Design in Automotive Engineering: Model Validation and Verification

Session Code: ***IDM27***

Room D3-24/25 ***Session Time:*** ***1:30 p.m.***

Model Validation and Verification invite papers that deal with the theoretical and/or applied aspects of one or more of the following representative topics: model development, model correlation/calibration, model verification, model validation, uncertainty quantification, uncertainty propagation, validation metrics, predictive capability assessment, etc.

Organizers - *Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.*

Chairpersons - *Mary Fortier, General Motors Corp.*

Assistant Chairpersons - *Yan Fu, Ford Motor Co*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1404***	***Bayesian Probabilistic PCA Approach for Model Validation of Dynamic Systems***
		Xiaomo Jiang, General Electric Co; Ren-Jye Yang, Saeed Barbat, Para Weerappuli, Ford Motor Co
2:00 p.m.	***ORAL ONLY***	***Sensitivity Analysis of Model Validation Decisions Obtained with Bayesian Validation Methods***
		Michael Kokkolaras, Univ. of Michigan-Ann Arbor
2:30 p.m.	***2009-01-1402***	***Auto-Correlation of Occupant Restraint System Model Using Bayesian Model Validation Metrics***
		Yan Fu, Ford Motor Co.; Xiaomo Jiang, General Electric Co.; Ren-Jye Yang, Ford Motor Co.
3:00 p.m.	***2009-01-1403***	***Bridging the Gap between Virtual and Physical Testing in Electric & Electronic Automotive Systems***
		Jérôme Colléaux, Omar Sahraoui, Renault SA
3:30 p.m.	***2009-01-1401***	***Identification of Hyperelastic Constitutive Model for Rubber-Like Materials Based On Digital Image Correlation (DIC) and Model Updating***
		Faouzi Ghrib, Univ. of Windsor

The papers in this session are available in a single publication, SP-2232, and also individually.

Planned by Quality, Reliability and Robust Design Committee / Integrated Design and Manufacturing Activity

Thursday, April 23

Glass Applications

Session Code: ***B7***

Room D3-26/27 ***Session Time:*** ***8:30 a.m.***

Organizers - *Ashoka Jinka, Glasstech Inc.*

Time	Paper No.	Title
8:30 a.m.	***ORAL ONLY***	***Variable Light Transmission Glazing***
		Charles Voeltzel, Pittsburgh Glass Works LLC
9:00 a.m.	***2009-01-1143***	***Electromagnetic Compatibility of Conductive Heat Reflecting Automotive Windows***
		Charles Voeltzel, Pittsburgh Glass Works LLC
9:30 a.m.	***2009-01-1199***	***Predictive Molding of Precision Glass Optics***
		Shriram Palanthandalam Madapusi, Nam-Ho Kim, Univ. of Florida
10:00 a.m.	***ORAL ONLY***	***Asymmetric Tempering of Silicate Glasses***
		Suresh T. Gulati, Balram Suman, Corning Inc.
10:30 a.m.	***ORAL ONLY***	***Forming Simulation of Automotive Backlite Forming***
		Ashoka Jinka, Glasstech Inc.

Planned by Body Engineering Committee / Automobile Body Activity

Thursday, April 23

Advanced Battery Technology (Part 1 of 2)

Session Code: ***PFL104***

Room M2-29 ***Session Time:*** ***8:30 a.m.***

Batteries pose one of the biggest challenges and opportunities on the road to electrifying the automobile. The success or failure of Hybrid, Plug-In, and Electric vehicles is highly dependent on their batteries. This session features a variety of talks by the OEMs and suppliers active in the field. Subjects range from the electrochemical modeling of cells, to the thermal aspects of current pack design, to the remaining challenges in moving from Nickel Metal Hydride to Lithium Ion batteries.

Organizers - *Theodore Peter Bohn, Argonne National Laboratory; Alvaro Masias, Toyota Motor Engineering & Manufacturing*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1381***	***Parameterization of a Battery Simulation Model Using Numerical Optimization Methods***
		Robyn Jackey, The MathWorks Inc.; Gregory Plett, Univ of Colorado-Colorado Springs; Martin Klein, Compact Power Inc
9:00 a.m.	***2009-01-1388***	***Modeling of Li-ion Battery Performance in Hybrid Electric Vehicles***
		Weifeng Fang, Ou Jung Kwon, Chao-Yang Wang, Penn State Univ-University Park; Yosuke Ishikawa, Honda R&D Americas ,Inc.
9:30 a.m.	***2009-01-1385***	***Hybrid Vehicle Battery Technology - The Transition From NiMH to Li-Ion***
		Kent Snyder, Xiao Guang Yang, Ted Miller, Ford Motor Co.
10:00 a.m.	***2009-01-1383***	***Impact of Real-World Drive Cycles on PHEV Battery Requirements***
		Aymeric P. Rousseau, Argonne National Laboratory

10:30 a.m.	***2009-01-1387***	***Design, Control, and Power Management of a Battery/Ultra-Capacitor Hybrid System for Small Electric Vehicles***
		Alireza Khaligh, Illinois Institute of Technology
11:00 a.m.	***2009-01-1384***	***"Just-in-Time" Battery Charge Depletion Control for PHEVs and E-REVs for Maximum Battery Life***
		Robert C. DeVault, Oak Ridge National Laboratory

The papers in this session are available in a single publication, SP-2250, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Advanced Battery Technology (Part 2 of 2)

Session Code: ***PFL104***

Room M2-29 ***Session Time:*** ***1:30 p.m.***

Batteries pose one of the biggest challenges and opportunities on the road to electrifying the automobile. The success or failure of Hybrid, Plug-In, and Electric vehicles is highly dependent on their batteries. This session features a variety of talks by the OEMs and suppliers active in the field. Subjects range from the electrochemical modeling of cells, to the thermal aspects of current pack design, to the remaining challenges in moving from Nickel Metal Hydride to Lithium Ion batteries.

Organizers - *Theodore Peter Bohn, Argonne National Laboratory; Alvaro Masias, Toyota Motor Engineering & Manufacturing*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1386***	***Design and CFD Simulation of a Battery Module for a Hybrid Electric Vehicle Battery Pack***
		Debashis Ghosh, Delphi Thermal Systems; Douglas Zhu, Patrick Maguire, Ford Motor Co
2:00 p.m.	***ORAL ONLY***	***Intercalation-induced Stress and Heat Generation within Single Lithium-Ion Battery Cathode Particles***
		Xiangchun Zhang, Ann Marie Sastry, Wei Shyy, Univ. of Michigan, Ann Arbor
2:30 p.m.	***ORAL ONLY***	***Effects of Mechanical Stresses on Electrochemical Performance of Lithium-ion Batteries***
		HyonCheol Kim, Myoungdo Chung, Myounggu Park, Ann Marie Sastry, Univ. of Michigan, Ann Arbor
3:00 p.m.	***ORAL ONLY***	***Self-Assembly in Li-ion Batteries: Simulation and Optimization***
		Min Zhu, Sangwoo Han, Ann Marie Sastry, University of Michigan
3:30 p.m.	***ORAL ONLY***	***Porous Cathode Design and Optimization in Lithium Systems: Ionic and Electronic Conductivity, Capacity, and Selection of Materials***
		Yen-Hung Chen, Univ. of Michigan-Ann Arbor; Chia-Wei Wang, Sakti3 Inc., Ann Arbor, Michigan; Xiangchun Zhang, Ann Marie Sastry, Univ. of Michigan-Ann Arbor
	2009-01-1389	***Research on Large Capacity, High Power Lithium-ion Batteries (Written Only -- No Oral Presentation)***
		Kazuki Miyatake, Nissan Motor Co., Ltd.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Electronic Engine Controls (Part 5 of 5)

Session Code: ***PFL304***

Room M2-30 ***Session Time:*** ***8:30 a.m.***

This session covers engine control system design developments related to achieving stringent market fuel economy, emissions, performance, and quality demands. Control system, state estimator, signal processing, and on-board diagnostic algorithm designs and their related design practices are among the software-related topics presented. Sensor, actuator, and electronic control unit system designs are among the hardware-related topics are also presented.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; Junmin Wang, Ohio State Univ.; Ming Zheng, Univ. of Windsor*

Chairpersons - *Usman Asad, Meiping Wang, Univ. of Windsor*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0583***	***Rapid Transient Fuelling Calibration Method for the PFI SI Engine***
		Paul B. Dickinson, Andrew Shenton, Univ. of Liverpool
9:00 a.m.	***2009-01-0589***	***Crank-Angle Resolved Real-Time Engine Simulation - An Integrated Simulation Tool Chain from Office to Testbed***
		Johann C. Wurzenberger, AVL LIST GmbH; Roman Heinzle, Henrik Schuemie, MathConsult GmbH; Tomaz Katrasnik, Univ of Ljubljana
9:30 a.m.	***2009-01-1428***	***Managing and Configuring OBD Interactions (Written Only -- No Oral Presentation)***
		David Parenti, Chrysler Technology Center
10:00 a.m.	***2009-01-1429***	***Electronic Control of Air/Fuel Ratio in a Carburetor for Two-Wheeler Application (Written Only -- No Oral Presentation)***
		Sundar D, VenuMadhav S, Srinivasan B, Govindarajan S, Subbulakshmi B, UCAL Fuel Systems Ltd; Madhuri Marathe
	2009-01-1025	***Identification and Robust Control of LPG Fuel Supply System (Written Only -- No Oral Presentation)***
		Umerujan Sawut, Nikki Co Ltd

The papers in this session are available in a single publication, SP-2248, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Occupant Protection: Rear Impact

Session Code: ***B36***

Room M3-31 ***Session Time:*** ***9:00 a.m.***

Organizers - *William Newberry, Donald Parker, Exponent Inc.; Nathan A. Rose, Kineticorp LLC*

Time	Paper No.	Title
9:00 a.m.	***2009-01-1200***	***Front-Seat Occupant Injuries in Rear Impacts: Analysis of the Seatback Incline Variable in NASS-CDS***
		Mark L Edwards, The Edwards Partnership, Inc.; Chantal S Parenteau, David C Viano, ProBiomechanics LLC
9:30 a.m.	***2009-01-1201***	***Relationship between Seatback Stiffness and Risk of Serious/Fatal Injury in Rear Impact Crashes***
		Jeya Padmanaban, JP Research Inc; Roger Burnett, Ford Motor Co.; Andrew Levitt, Collision Research & Analysis Inc

10:00 a.m.	***2009-01-1204***	***Optimum Design Of A Seat For Low Speed Rear Impact***
		Balakrishna Chinta, Srini Mandadapu, Michael Carpenter, General Motors Corp.
10:30 a.m.	***2009-01-1203***	***Analysis of Shoulder Injury Potential in Automotive Rear-End Impacts***
		Scott Lucas, Exponent Failure Analysis; Kevin Toosi, Univ of Pittsburgh; Allyson Ianuzzi, Joseph McGowan, Exponent Failure Analysis
	2009-01-1202	***Evaluation of Anti-Whiplash Seat Robustness for Multi-Peak Crash Pulses in Low-Speed Rear-End Crashes (Written Only -- No Oral Presentation)***
		Daisuke Murakami, Pal Chinmoy, Nissan Motor Co., Ltd.; Hirofumi Asano, Digital Process Ltd.

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 23

Occupant Protection: Side Impact

Session Code: ***B39***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

This session will include presentations on various aspects of safety of occupants when vehicles are involved in lateral impacts. Papers may be related to analysis of crash compatibility, statistical data analysis, design of vehicle systems, biomechanics and dummy development, etc.

Organizers - *Mukul K. Verma, M.P. Holcomb Engineering; Diana Spurgeon, Transportation Research Center Inc.; Charles J. Griswold, C J Griswold Inc.*

Chairpersons - *Mukul Verma, MP Holcomb Engineering Corp*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1430***	***Analysis of Factors Influencing Side Impact Compatibility***
		Satoshi Takizawa, Eisei Higuchi, Tatsuo Iwabe, Masahiko Emura, Honda R&D Co., Ltd.; Kisai Takayuki, Takayuki Suzuki, PSG Co., Ltd.
2:00 p.m.	***2009-01-1432***	***Development and Application of an Enhanced SID-IIs Dummy for Analyzing Side Impact Kinematics***
		Taisuke Fujiwara, Toyota Motor Corp.
2:30 p.m.	***2009-01-1433***	***A Validated Oblique Pole Sled Test Methodology to Analyze Occupant Response***
		Jeff Dix, Nissan Technical Center North America; Douglas Stein, Autoliv North America
3:00 p.m.	***2009-01-1434***	***Injury Mechanism of the Head and Face of Children in Side Impacts***
		Paul Scullion, Lilly Nix, Richard Morgan, Vinay Nagabhushana, Kennerly Digges, Cing-Dao Kan, George Washington Univ; Tony Lamb, Johnson Controls Automotive Sys Group
3:30 p.m.	~~***2009-01-1431***~~ ***ORAL ONLY***	***Opportunities for Reducing Casualties in Far-side and Far-corner Crashes***
		Kennerly H. Digges, Shaun Kildare, Vinay Nagabhushana, Joseph Cuadrado, George Washington Univ.

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 23

Occupant Protection: Pedestrian Safety (Part 1 of 2)

Session Code: ***B35*** ***8:30 a.m.***

Room M3-32 ***Session Time:***

This session focuses on everything related to pedestrian safety. The topics of the presentations include but are not limited to the biomechanics of pedestrian impact, development of test devices and countermeasures for pedestrian protection, and epidemiology of pedestrian injury. The session should be of interest for everyone within the fields of pedestrian safety and biomechanics.

Organizers - *Dominique Cesari, INRETS; B. Johan Ivarsson, Exponent Failure Analysis*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1205***	***A Comparative Study between China and IHRA for the Vehicle-Pedestrian Impact***
		Chen Huipeng, China Automotive Technology & Res. Ctr.; FU Lianxue; ZHENG Heyue
9:00 a.m.	***2009-01-1207***	***The Crash Depth Necessary in the Frontal Structure of a Car for Pedestrian Head Protection***
		Ming Ji, Kanto Auto Works, Ltd.
9:30 a.m.	***2009-01-1208***	***Influence of System Boundaries and Boundary Conditions on the Pedestrian Protection Head Impact***
		Florian Woergoetter, Heribert Kassegger, Stephan Winkler, MAGNA STEYR
10:00 a.m.	***2009-01-1209***	***Using National Databases to Evaluate Injury Patterns in Pedestrian Impacts***
		Michelle Heller, Michael Prange, B. Johan Ivarsson, Jacob Fisher, Exponent Failure Analysis; Heather Watson, Exponent Failure Analysis
	2009-01-1206	***Development of Fender Structure for Pedestrian Protection (Written Only -- No Oral Presentation)***
		Kunji Nagae, Nissan Motor Co., Ltd.

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 23

Occupant Protection: Pedestrian Safety (Part 2 of 2)

Session Code: ***B35***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

Organizers - *Dominique Cesari, INRETS; B. Johan Ivarsson, Exponent Failure Analysis*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1211***	***Sensitivity Analysis of Muscle Parameters and Identification of Effective Muscles in Low Speed Lateral Impact at Just below the Knee***
		Anurag Soni, Anoop Chawla, Sudipto Mukherjee, Indian Institute of Technology; Rajesh Malhotra, All India Institue of Medical Sciences
2:00 p.m.	***2009-01-1214***	***Pedestrian Dummy Pelvis Impact Responses***
		Masayoshi Okamoto, Akihiko Akiyama, Yukou Takahashi, Honda R&D Co., Ltd.
2:30 p.m.	***2009-01-1212***	***Estimation of Knee Ligament Injury Measures for a Pedestrian Dummy***
		Yukou Takahashi, Masayoshi Okamoto, Akihiko Akiyama, Yuji Kikuchi, Honda R&D Co., Ltd.

3:00 p.m.	***2009-01-1210***	***Development of Omni-directional Injury Criteria for a Pedestrian Dummy for Evaluating Rib Fracture*** *Akihiko Akiyama, Yukou Takahashi, Osamu Ito, Masayoshi Okamoto, Honda R&D Co., Ltd.*

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 23

In-Cylinder Diesel Particulate and Nox Control (Part 2 of 3)

Session Code: ***PFL209***

Room O2-33 ***Session Time:*** ***8:30 a.m.***

This session deals with the formation and destruction of particulate and NOx within the cylinder of a compression ignition diesel engine. Examples include but are not limited to: early or late injection timing for lower temperature combustion, multiple injections, auxiliary air injection, combustion chamber design, etc.

Organizers - *Dale R. Tree, Brigham Young Univ.; Stefan Simescu, Southwest Research Institute; Song-Charng Kong, Iowa State Univ.; Robert M. McDavid, Caterpillar Inc.; Yong Yi, Caterpillar Inc. Tech. Svcs Div.*

Chairpersons - *Chad Koci, Southwest Research*

Assistant Chairpersons - *Dale Tree, Brigham Young Univ*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1438***	***Effective NOx Reduction in High Boost, Wide Range and High EGR Rate in a Heavy Duty Diesel Engine*** *Takayuki Adachi, Yuzo Aoyagi, Masayuki Kobayashi, Tetsuya Murayama, New Ace Institute Co., Ltd.; Yuichi Goto, Hisakazu Suzuki, National Traffic Safety and Environment Laboratory*
9:00 a.m.	***2009-01-1446***	***Sources of UHC Emissions from a Light-Duty Diesel Engine Operating in a Partially Premixed Combustion Regime*** *Isaac Ekoto, William Colban, Paul Miles, Sandia National Laboratories; Rolf Reitz, Sung Wook Park, David Foster, Univ of Wisconsin*
9:30 a.m.	***2009-01-1442***	***Operating a Heavy-Duty Direct-Injection Compression-Ignition Engine with Gasoline for Low Emissions*** *Reed Hanson, Rolf Reitz, Derek Splitter, Univ of Wisconsin*
10:00 a.m.	***2009-01-1450***	***Development of the Euro 5 Combustion System for Volvo Cars 2.4 l Diesel Engine*** *Oivind Andersson, Lund Univ.; Jozef Somhorst, Mattias Ljungqvist, Ronny Lindgren, Roger Blom, Volvo Car Corp.*
10:30 a.m.	***2009-01-1449***	***Characteristics of Smokeless Low Temperature Diesel Combustion in Various Fuel-Air Mixing and Expansion of Operating Load Range*** *Tie Li, Hideyuki Ogawa, Hokkaido Univ.*
11:00 a.m.	***2009-01-1440***	***Operating Range of Low Temperature Diesel Combustion with Supercharging*** *Sangwook Han, Euijoon Shim, Jinyoung Jang, Jungseo Park, Choongsik Bae, Korea Advanced Inst of Science & Tech; Jongnam Park, Hyun-ok Kim, Ssangyong Motor Co Ltd*

The papers in this session are available in a single publication, SP-2243, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

In-Cylinder Diesel Particulate and Nox Control (Part 3 of 3)

Session Code: ***PFL209***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

This session deals with the formation and destruction of particulate and NOx within the cylinder of a compression ignition diesel engine. Examples include but are not limited to: early or late injection timing for lower temperature combustion, multiple injections, auxiliary air injection, and combustion chamber design.

Organizers - *Dale R. Tree, Brigham Young Univ.; Stefan Simescu, Southwest Research Institute; Song-Charng Kong, Iowa State Univ.; Robert M. McDavid, Caterpillar Inc.; Yong Yi, Caterpillar Inc. Tech. Svcs Div.*

Chairpersons - *Dale Tree, Brigham Young Univ*

Assistant Chairpersons - *Chad Koci*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1443***	***Relations among NOx, Pressure Rise Rate, HC and CO in LTC Operation of a Diesel Engine*** *Naoto Horibe, Kyoto Univ.; Takuji Ishiyama, Kyoto Univ*
2:00 p.m.	***2009-01-1444***	***Technologies for Improved Emission Potential of a Small Displacement Volume Passenger Diesel Engine*** *Buomsik Shin, Kumjung Yoon, Haengpyo Heo, Hyeungwoo Lee, Yohan Chi, Hyundai Motor Co.*
2:30 p.m.	***2009-01-1451***	***Control Strategy Optimization for Hybrid EGR Engines*** *John Shutty, BorgWarner Inc.*

The papers in this session are available in a single publication, SP-2243, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Hydrogen IC Engines

Session Code: ***PFL103***

Room O2-35/36 ***Session Time:*** ***8:30 a.m.***

The H2 IC Engines sessions covers aspects of using H2 as a single fuel in internal combustion engines as well as combustion enhancer and blending agent for dual fuel applications. Concepts are evaluated on both single cylinder research engines as well as multi-cylinder engines for both spark ignition as well as compression ignition. The session further covers improvements in hydrogen engine modeling and safety requirements for H2 vehicles.

Organizers - *Thomas Wallner, Argonne National Laboratory; Scott A. Miers, Michigan Technological Univ.; Brad A. Boyer, Ford Motor Co.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1422***	***Design Considerations for Hydrogen Management System on Ford Hydrogen Fueled E-450 Shuttle Bus*** *Alan Richardson, Ravi Gopalakrishnan, Ford Motor Co.; Tejas Chhaya, Stephen Deasy, Jacob Kohn, Mahle Powertrain LLC*
9:00 a.m.	***2009-01-1418***	***Study of Basic Injection Configurations using a Direct-Injection Hydrogen Research Engine*** *Thomas Wallner, Abhijeet Nande, Argonne National Laboratory; Jeffrey Naber, Michigan Technological Univ*

9:30 a.m.	***2009-01-1421***	***New and Innovative Combustion Systems for the H2-ICE: Compression Ignition and Combined Processes***
		Rene Heindl, Helmut Eichlseder, Christian Spuller, Graz Univ. of Technology; Falk Gerbig, Klaus Heller, BMW Group Research and Technology
10:00 a.m.	***2009-01-1423***	***Application of a Flow Field Based Heat Transfer Model to Hydrogen Internal Combustion Engines***
		Adolf Nefischer, Michael Hallmannsegger, BMW Group Research and Technology; Andreas Wimmer, Graz Univ. of Technology; Gerhard Pirker, Large Engines Competence Center
10:30 a.m.	***2009-01-1420***	***Potential of Synergies in a Vehicle for Variable Mixtures of CNG and Hydrogen***
		Helmut Eichlseder, Graz Univ. of Technology; Manfred Klell, Markus Sartory, HyCentA Research GmbH; Klaus Schaffer, Daniel Leitner, Graz Univ. of Technology
11:00 a.m.	***2009-01-1419***	***Controlling Onset of Heat Release by Assisted Spark Ignition in Hydrogen HCCI Engine Supported by DME Supplement***
		Yoshifumi Sakashita, Hideyuki Suzuki, Yasuo Takagi, Tokyo City University
	2009-01-1424	***Effects of Spark Advance, A/F Ratio and Valve Timing on Emission and Performance Characteristics of Hydrogen Internal Combustion Engine (Written Only -- No Oral Presentation)***
		Farhad Salimi, Amir H. Shamekhi, Ali M. Pourkhesalian, K. N. Toosi University of Technology
	2009-01-1425	***Numerical Study of a Turbocharged, Jet Ignited, Cryogenic, Port Injected, Hydrogen Engine (Written Only -- No Oral Presentation)***
		Alberto Boretti, Univ. of Melbourne

The papers in this session are available in a single publication, SP-2251, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Primary Ride

Session Code: ***AC5***

Room O2-37 ***Session Time:*** ***9:00 a.m.***

The session will present papers related to vehicle ride quality.Suspension Design Factors(SDF) influencing performance ride metrics.Computer simulation and testing for ride design will be presented as well.

Organizers - *Pinhas Barak, Kettering Univ.; Richard D. Tonda, Ford Motor Co.*

Chairpersons - *Richard D. Tonda, Ford Motor Company*

Time	***Paper No.***	***Title***
9:00 a.m.	***2009-01-1221***	***Pseudo-Excitation Method and its Application to Vehicle Ride Comfort***
		Jie Li, Yuying QIn, Qi Zhao, Jilin Univ.
	2009-01-1222	***Nonparametric Identification Modeling of Magnetorheological Damper Using Chebyshev Polynomials Fits (Written Only -- No Oral Presentation)***
		Hassan Metered, P Bonello, S Oyadiji, Univ. of Manchester
	2009-01-1223	***Effects of Driver's Head Motion and Visual Information on Perception of Ride Comfort (Written Only -- No Oral Presentation)***
		Kazuhito Kato, Satoshi Kitazaki, Takayuki Sonoda, Nissan Motor Co., Ltd.

	2009-01-1225	***Pitch Control for a Semi-track Air-cushion Vehicle Based on Optimal Power Consumption (Written Only -- No Oral Presentation)***
		Dong Xie, Cong Ma, Zhe Luo, Fan Yu, Shanghai Jiao Tong Univ.

Planned by Steering and Suspension Committee / Automobile Chassis Activity; Vehicle Dynamics Committee / Auton Chassis Activity

Thursday, April 23

Compression Ignition Combustion Processes (Part 3 of 4)

Session Code: ***PFL203***

Room O2-44 ***Session Time:*** ***8:30 a.m.***

This session includes modeling and experimental results regarding the physical and chemical processes that occur in compression ignition engines, along with the resulting emissions. Materials presented help to advance the art and science of compression ignition engine performance and emissions.

Organizers - *John F. Wright, Cummins Inc.; Ming Zheng, Univ. of Windsor; Mark P. B. Musculus, Sandia National Laboratories; Song-Charng Kong, Iowa State Univ.; Raul Payri, CMT; Budhadeb Mahakul, John Deere & Co.*

Chairpersons - *Satbir Singh, General Motors Corp*

Assistant Chairpersons - *Mark Musculus, Sandia National Laboratories*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1352***	***Study of the Mixing and Combustion Processes of Short Double Diesel Injections***
		Gilles Bruneaux, David Maligne, IFP
9:00 a.m.	***2009-01-1353***	***Analysis of Smokeless Spray Combustion in a Heavy-Duty Diesel Engine by Combined Simultaneous Optical Diagnostics***
		Clement Chartier, Rolf Egnell, Marcus Alden, Robert Collin, Oivind Andersson, Mattias Richter, Hans Seyfried, Ulf Aronsson, Lund University
9:30 a.m.	***2009-01-1354***	***Effect of Multiple Injection strategies on Emission and Combustion Characteristics in a Single Cylinder Direct-Injection Optical Engine***
		Jinwoo Lee, Jinwoog Jeon, Jungseo Park, Choongsik Bae, Korea Advanced Inst. of Science & Tech.
10:00 a.m.	***2009-01-1355***	***Entrainment Waves in Diesel Jets***
		Mark P. B. Musculus, Kyle Kattke, Sandia National Laboratories
10:30 a.m.	***2009-01-1356***	***Influence of Diesel Injection Parameters on End-of-Injection Liquid Length Recession***
		Sanghoon Kook, Lyle M. Pickett, Mark P.B. Musculus, Sandia National Laboratories
11:00 a.m.	***2009-01-1357***	***Analysis of the Correlation Between Engine-Out Particulates and Local Equivalence Ratio in the Lift-Off Region of a Heavy Duty Diesel Engine Using Raman Spectroscopy***
		Ulf Aronsson, Mattias Richter, Oivind Andersson, Johan S., Clement Chartier, Marcus Alden, Rolf Egnell, Lund University

The papers in this session are available in a single publication, SP-2239, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Compression Ignition Combustion Processes (Part 4 of 4)

Session Code: ***PFL203***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

This session focuses on experiments and modeling investigations of in-cylinder physical and chemical processes that affect efficiency, performance, and pollutant emissions of compression-ignition engines. Materials presented contribute to the science-base for compression-ignition engines to help meet future emissions and efficiency targets.

Organizers - *John F. Wright, Cummins Inc.; Ming Zheng, Univ. of Windsor; Mark P. B. Musculus, Sandia National Laboratories; Song-Charng Kong, Iowa State Univ.; Raul Payri, CMT; Budhadeb Mahakul, John Deere & Co.*

Chairpersons - *Ming Zheng, Univ of Windsor*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1524***	***Potential to improve specific power using very high injection pressure in HSDI Diesel engines*** *Maria Thirouard, Sylvain Mendez, Pierre Pacaud, Vincent Chmielarczyk, IFP; Frederic Lavoisier, Renault SAS; Didier Ambrazas, IFP; Christophe Garsi, Delphi Diesel Systems; Bertrand Barbeau, PSA*
2:00 p.m.	***2009-01-1526***	***Characteristics of Unburned Hydrocarbon Emissions in a Low Compression Ratio DI Diesel Engine*** *Hideyuki Ogawa, Hokkaido Univ.; Noboru Miyamoto, Hokkaido University; Takuo Kawabe, Yanmar Co., Ltd; Shigeru Tosaka, Hokkaido Institute of Technology*
2:30 p.m.	***2009-01-1527***	***Development of a Fuel Injection Strategy for Partially Premixed Compression Ignition Combustion*** *William De Ojeda, Navistar*
3:00 p.m.	***2009-01-1528***	***Adaptive PCCI Using Micro-Variable Circular-Orifice (MVCO) Fuel Injector - Key Enabling Technologies for High Efficiency Clean Diesel Engines*** *Deyang Hou, QuantLogic Corporation; Houshun Zhang, Yury Kalish, Detroit Diesel Corp; Chia-Fon Lee, Way Lee Cheng, Univ of Illinois at Urbana-Champaign*
3:30 p.m.	***2009-01-1525***	***BSFC Investigation using Variable Valve Actuation in a Heavy Duty Diesel Engine*** *Richard Stobart, Loughborough University*

The papers in this session are available in a single publication, SP-2239, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Design Optimization - Methods and Applications (Part 1 of 2)

Session Code: ***B4***

Room O3-45 ***Session Time:*** ***8:30 a.m.***

Organizers - *Vesna Savic, GM Technical Center; Mallikarjuna Bennur, Pattabhi Sitaram, General Motors Corp.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1236***	***Integrating a Particle Swarm Optimizer in a Multi-Discipline Design Optimization Environment for Conceptual Ship Design*** *Christopher Hart, Nickolas Vlahopoulos, Univ. of Michigan*

9:00 a.m.	***2009-01-1237***	***Synthesis of Dynamically Loaded Structure with Topology Optimization*** *Kishore K. Pydimarry, Honda R&D Americas Inc.; Chandan K. mozumder, Neal M. Patel, John E. Renaud, Univ of Notre Dame*
9:30 a.m.	***2009-01-1234***	***Harnessing Structural Optimization Techniques for Developing Efficient Light-Weight Vehicles*** *Srinivasan Laxman, Severstal North America Inc; Ramakrishna Koganti, Ford Motor Co.; Raj Mohan Iyengar, Severstal North America Inc.; Shawn Morgans, Ford Motor Co.*
10:00 a.m.	***2009-01-1233***	***Study of Topography Optimization on Automotive Body Structure*** *Rajan R. Chakravarty, General Motors Corp.*
10:30 a.m.	***2009-01-1238***	***Automated Performance Evaluation of a Vehicle¿s Space-Frame Design Parametric Model*** *Ricardo Garza, Pedro Orta, Ricardo Ramirez, Tecnologico de Monterrey*
11:00 a.m.	***~~2009-01-1235~~ ORAL ONLY***	***Two Hybrid 3-Level Power Management Powertrains - An Optimization Feasibility Study*** *Abigail R. Mechtenberg, Univ. of Michigan*

Planned by Body Engineering Committee / Automobile Body Activity

Thursday, April 23

Design Optimization - Methods and Applications (Part 2 of 2)

Session Code: ***B4***

Room O3-45 ***Session Time:*** ***1:30 p.m.***

Organizers - *Vesna Savic, GM Technical Center; Mallikarjuna Bennur, Pattabhi Sitaram, General Motors Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1232***	***A Study on the Optimal Design of Automobile Interior Plastic Parts (A-Pillar Trim) Considering Heat-Resistant and Mechanical Characteristics*** *Hyun-Jun Kim, Hoon Cho, Young-Tak Son, Sungkyunkwan Univ.; Seung-Soo Ryu, Hae-Ryong Kim, Hun-Soo Kim, Hyundai & Kia Corp.; Myung-Won Suh, Sungkyunkwan Univ.*
2:00 p.m.	***2009-01-1231***	***The Optimization of Open COWL Structure to Give Free Shape to the Design of a Pillar Outer Panel Front*** *Do Hoi KIm, Hyundai & Kia Corp*
	2009-01-1239	***The Optimization of Automotive Suspension System Considering Multidisciplinary Design Requirements (Written Only -- No Oral Presentation)*** *Byung-Lyul Choi, Framax Inc.; Sunmin Yook, Dong-Hoon Choi, Hanyang Univ.; Jin-Ho Choi, In-dong Kim, GM Daewoo Auto@Technology Co.; Hong-Jeon Baek, Austem Co.*

Planned by Body Engineering Committee / Automobile Body Activity

Thursday, April 23

Occupant Protection: Occupant Restraints (Part 1 of 2)

Session Code: ***B34*** ***8:30 a.m.***

Room O3-46 ***Session Time:***

This session includes papers on the design and performance of occupant restraints. Topics include field performance, laboratory studies, and computational modeling of adult / child restraint systems, occupant sensing systems, pre-crash sensing systems, and associated components.

Organizers - *Walter K. Kosiak, Delphi; Robert Mehl, Exponent Failure Analysis; Jeffrey A. Pike, Biomechanics Consulting; Michael John Scavnicky, Takata Holdings Inc.; Scott David Thomas, General Motors; Chris A. Van Ee, Design Research Engineering*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1245***	***Evaluation of Seat Belt Assembly Physical Evidence in Properly Functioning and Intentionally Disabled Retractor Demonstrations***
		Daniel E. Toomey, Michael Klima, Design Research Engineering; Eddie Cooper, B33 Consulting Inc
9:00 a.m.	***2009-01-1243***	***Comparison of Restraint System Marks with Proper and Improper Belt Usage***
		Jeffrey C. Brown, Exponent Inc.; Christine Raasch, Exponent Failure Analysis; Daniel Davee, Exponent Inc
9:30 a.m.	***2009-01-1249***	***Frontal Impact Rear Seatbelt Load Marks: An In-Depth Analysis***
		Roger Burnett, William Ballard, Ford Motor Co.; Debora Marth, Safety Forensics PLLC; William Van Arsdell, Engineering Principles LLC
10:00 a.m.	***2009-01-1242***	***Forensic Analysis of Seat Belt Retractor Torsion Bars***
		William W. Turvill, Jeffrey A. Jenkins, Charles E. Steffens, TRW Vehicle Safety Systems Inc.
10:30 a.m.	***2009-01-1246***	***Vehicle Chassis, Body and Seat Belt Buckle Acceleration Responses in the Vehicle Crash Environment***
		Daniel E. Toomey, Design Research Engineering; Roger Burnett, Ford Motor Co.; Edward Paddock, Eric Winkel, Design Research Engineering
11:00 a.m.	***2009-01-1251***	***Safety Belt Buckle Environment in Vehicle Rollover Crash Tests***
		Michael Haldenwanger, Antonio Antonucci, Gerald Cooper, General Motors Corp; William Malopolski, W A Malopolski Consulting Inc; Jennifer Sevigny, James White, General Motors Corp; Jack Yee, J K Yee Consulting Inc
	2009-01-1252	***Marks on Seat Belt Systems with Pretensioners and Force Limiters in Airbag Deployment Crashes (Written Only -- No Oral Presentation)***
		Mark W. Jakstis, Harold Clyde, Barry Hare, Robert Landis, Lance Lewis, Toyota Motor Sales USA Inc.

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 23

Occupant Protection: Occupant Restraints (Part 2 of 2)

Session Code: ***B34***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

Organizers - *Walter K. Kosiak, Delphi; Robert Mehl, Exponent Failure Analysis; Jeffrey A. Pike, Biomechanics Consulting; Michael John Scavnicky, Takata Holdings Inc.; Scott David Thomas, General Motors; Chris A. Van Ee, Design Research Engineering*

Time	Paper No.	Title

1:30 p.m.	***2009-01-1244***	***Effect of Padding on Child Restraint Performance during Side Impact Collisions***
		William Van Arsdell, Engineering Principles LLC; Michael Prange, Exponent Failure Analysis; Stephen Oltman, David Amirault, Dorel Juvenile Group; Darrin Richards, Exponent Failure Analysis; Andrew Marsden, Dorel Juvenile Group
2:00 p.m.	***2009-01-1253***	***Police Accident Report Restraint Usage Accuracy and Injury Severity***
		Tara Moore, Rose Ray, Exponent Inc.; Christine Raasch, Exponent Failure Analysis; Su-Wei Huang, Catherine Corrigan, Exponent Inc.
2:30 p.m.	***2009-01-1250***	***Numerical Models of Gas Leakage for Side Air Bags***
		June-Young Song, WonPil Ha, Hyundai Mobis
3:00 p.m.	***2009-01-1248***	***Prioritization of Crash Scenarios for Pre-Crash Sensing Applications***
		Ana Maria Eigen, US Dept. of Transportation; Wassim Najm, Volpe Natl Transportation Systems Center
3:30 p.m.	***2009-01-1247***	***The Study on the Semi Occupnat Sensing System***
		Yong Sun Kim, Hyeongho Choi, Seung Hoon Lee , Hyundai Motor Co.; Jaeho Hwang, Youngsoo Hwang , Hyundai Mobis
	2009-01-1254	***Vehicle Occupant Posture Classification System using Seat Pressure Sensor for Intelligent Airbag (Written Only -- No Oral Presentation)***
		Zhenhai Gao

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 23

New Diesel Engines and Components (Part 1 of 2)

Session Code: ***PFL502***

Room W1-51 ***Session Time:*** ***8:30 a.m.***

A wide range of topics will be presented, such as: new engine concepts, cycle-to-cycle EGR, 2-step variable compression ratio, new engine cooling system, variable drive for turbo / superchargers, and a combustion system for PCCI. Additional topics include: reduced oil pump power consumption, improved vacuum pump design, innovative water separator, lead-free bronze and brass bushings, innovative oil condition sensor and measurement of EGR deposits.

Organizers - *Jeffrey E. Mossberg, Richard E. Vanderpoel, Jacobs Vehicle Systems Inc.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1456***	***About a New Conception of Internal Combustion Engine Construction. Oscillating Engines.***
		Wieslaw Julian Oledzki, Academy
9:00 a.m.	***2009-01-1457***	***Two Stage Variable Compression Ratio with Eccentric Piston Pin and Exploitation of Crank Train Forces***
		Karsten Wittek Ing
9:30 a.m.	***2009-01-1461***	***Direct Measurement of EGR Cooler Deposit Thermal Properties for Improved Understanding of Cooler Fouling***
		Michael J. Lance, C. Scott Sluder, Hsin Wang, John M.E. Storey, Oak Ridge National Laboratory
10:00 a.m.	***~~2009-01-1458~~***	***Performance Simulation of a Non Conventional Gasoline MOD Engine.***
	CANCELLED	*Savo Gjirja, Senior Research Engineer*

10:30 a.m.	***2009-01-1464***	***Combustion-System Development for a Low Compression-Ratio Automotive PCCI Diesel Engine for Light-duty Application***
		Andrea Emilio Catania, Roberto Finesso, Politecnico di Torino; Giovanni Cipolla, General Motors Corp; Ezio Spessa, Stefano d'Ambrosio, Politecnico di Torino; Alberto Vassallo, General Motors
11:00 a.m.	***2009-01-1465***	***Application of a Variable Drive to Supercharger & Turbo Compounder Applications***
		Christopher Brockbank, Torotrak (Development), Ltd.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

New Diesel Engines and Components (Part 2 of 2)

Session Code: ***PFL502***

Room W1-51 ***Session Time:*** ***1:30 p.m.***

A wide range of topics will be presented, such as: new engine concepts, cycle-to-cycle EGR, 2-step variable compression ratio, new engine cooling system, variable drive for turbo / superchargers, and a combustion system for PCCI. Additional topics include: reduced oil pump power consumption, improved vacuum pump design, innovative water separator, lead-free bronze and brass bushings, innovative oil condition sensor and measurement of EGR deposits.

Organizers - *Jeffrey E. Mossberg, Richard E. Vanderpoel, Jacobs Vehicle Systems Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1459***	***Innovative Water Separation Technology and Electrostatic Discharge System Developed and Validated for the New Diesel Fuel Filtration Module of the Future Ford Diesel F-Series***
		Mathieu Petiteaux, Sogefi Filter Division
2:30 p.m.	***2009-01-1462***	***Improvement of the Performance of Cam-operated Vacuum Pump for Multijet Diesel Engine***
		J. Sureshkumar, Ramalingam Sivanantham, Nagendiran Ravichandran, UCAL Fuel Systems, Ltd.
3:00 p.m.	***2009-01-1460***	***Lead-free Bronze and Brass Bushings for High-end Engine Applications***
		Rainer Augustin, Boegra Technologies
3:30 p.m.	***2009-01-1463***	***Investigations on Reduction of Power Consumption of Oil Pump for Multijet Diesel Engine***
		J. Sureshkumar, Ramalingam Sivanantham, Loganathan Sekar, UCAL Fuel Systems, Ltd.
4:00 p.m.	***2009-01-1467***	***Ford I5 Engine Cooling System Design (Written Only -- No Oral Presentation)***
		Murat Cetrez, Turkan Edege, Bulent Balta, Ford Otomotiv Sanayi AS
	2009-01-1466	***Development and Testing of an Innovative Oil Condition Sensor (Written Only -- No Oral Presentation)***
		Amiyo K. Basu, Ford Motor Co.; Heiko Dobrinski, Hella Fahrzeugsysteme GmbH; Garry Zawacki, Jaco Visser, Arup Gangopadhaya, Ford Motor Co.; Marco Doebrich, Hella Electronics Corp; William Ruona, David Scholl, Ford Motor Co.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Transmission and Driveline: Transmission Systems/Drive Unit

Session Code: ***PFL600***

Room W1-52 ***Session Time:*** ***8:30 a.m.***

This session covers new automatic transmission design, system integration, and transmisison controls architecture design

Organizers - *James Hendrickson, General Motors Corp.; Berthold Martin, Chrysler LLC; Tejinder Singh*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0511***	***Design Methodology for a Compact Dual Clutch Transmission (DCT)*** *Syed T. Razzacki, Chrysler LLC*
9:00 a.m.	***2009-01-0513***	***Proven High Efficiency Actuation and Clutch Technologies for eAMT and eDCT*** *Jonathan C. Wheals, Ricardo MTC, Ltd. UK*
9:30 a.m.	***2009-01-0509***	***Selectable One-Way Clutch in GM RWD Six-Speed Automatic Transmissions*** *Farzad Samie, Chunhao Lee, General Motors Corp.; Brice Pawley, Means Industries*
10:00 a.m.	***2009-01-0514***	***Development of a Dual-Clutch Transmission System for ATVs*** *Kinya Mizuno, Seiji Hamaoka, Eiji Kittaka, Masaki kobayashi, Honda R&D Co., Ltd.*
10:30 a.m.	***2009-01-0512***	***Development of New Control System for 7-speed Automatic Transmission for RWD Vehicles.*** *Kazuhiro Takatori, Shinichi Tazunegi, Naoki Takahashi, JATCO Ltd; Masaaki Uchida, Nissan Motor Co., Ltd.*

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Transmission and Driveline: Hybrid

Session Code: ***PFL601***

Room W1-52 ***Session Time:*** ***1:30 p.m.***

This session covers hybird drive unit design, system integration, and controls architecture.

Organizers - *James Hendrickson, General Motors Corp.; Berthold Martin, Chrysler LLC; Tejinder Singh*

Time	Paper No.	Title
1:30 p.m.	***2009-01-0510***	***ZF New 8-Speed Transmission 8HP70 - Base Design and Hybridization*** *Heribert Scherer, Manfred Bek, ZF Getriebe GmbH; Stefan Kilian, ZF Friedrichshafen AG*
2:00 p.m.	***2009-01-0508***	***General Motors 2 Mode Hybrid Transmission for Front Wheel Drive*** *James Hendrickson, Alan Holmes, General Motors Corp.*
2:30 p.m.	***2009-01-0726***	***Development of a New Hybrid Transmission for Compact Class Vehicles*** *Yota Mizuno, Ryuji Ibaraki , Koichi Kondo , Kenji Odaka , Hideto Watanabe, Tatsuhiko Mizutani, Keiichi Kaneshige , Daisuke Kitada , Toyota Motor Corporation*

3:00 p.m.	***2009-01-0725***	***Drivability Development Based on CoSimulation of AMESim Vehicle Model and Simulink HCU Model for Parallel Hybrid Electric Vehicle*** *Jeongho Hong, Seokjoon Kim, Byungsoon Min, Hyundai Motor Company*

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Diesel Exhaust Emission Control - DPF Systems (Part 2 of 2)

Session Code: ***PFL402***

Room W1-54 ***Session Time:*** ***8:30 a.m.***

This is the second of two sessions considering DPF Systems. This session considers new DPF Systems and the assessment of soot loading, both experimental techniques and modelling techniques.

Organizers - *Z Gerald Liu, Cummins Inc.; Paul J. Richards, Innospec, Ltd.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1264***	***Development and In-Field Application of a New Type of Partial Filter System for Diesel Retrofit*** *Phil Blakeman, Johnson Matthey Catalysts; Kunisuke Matsuda, Johnson Matthey Japan Inc.; Young-Hoon Yoon, Johnson Matthey Catalysts Korea; Duck-Euy Lee, Man-Ho Park, Fibertech Inc.; Dong-Soeb Lee, Johnson Matthey Catalysts Korea*
9:00 a.m.	***2009-01-1261***	***Scanning Electron Microscopy and Raman Spectroscopy Studies of ULSD and Biodiesel Soot Loading in a Diesel Particulate Filter*** *Paul Charbonneau, James S. Wallace, Univ. of Toronto*
9:30 a.m.	***2009-01-1262***	***Different Approaches of Soot Estimation as Key Requirement for DPF Applications*** *Dominik Rose, Corning GmbH; Thorsten Boger, Corning Incorporated*
10:00 a.m.	***2009-01-1263***	***Measurement of Multi-Dimension Soot Distribution in Diesel Particulate Filters by Dynamic Neutron Radiography*** *Glenn David Harvel, Univ. of Ontario Institute of Technology; Jen-Shih Chang, McMaster Univ; Paul Fanson, Toyota Motor Engineering & Mfg NA Inc*
10:30 a.m.	***2009-01-1476***	***Microscopic Visualization of PM Trapping and Regeneration in Micro-Structural Pores of a DPF Wall*** *Preechar Karin, Liyan Cui, Pedro Rubio, Teppei Tsuruta, Katsunori Hanamura, Tokyo Institute of Technology*
11:00 a.m.	***ORAL ONLY***	***Mechanism Analysis of Carbon Particles Combustion over Hexagonal YMnO3 Catalyst*** *Yuji Isogai, Honda R&D Co., Ltd.*
	2009-01-1473	***Visualization of the PM Deposition and Oxidation Behavior inside the DPF Wall (Written Only -- No Oral Presentation)*** *Shigeki Daido, Nippon Soken Inc.; Nobuyuki Takagi, Toyota Motor Corp.*

The papers in this session are available in a single publication, SP-2254, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Diesel Exhaust Emission Control Modeling (Part 3 of 3)

Session Code: ***PFL406***

Room W1-55 ***Session Time:*** ***8:30 a.m.***

This session includes papers describing modeling techniques of various diesel engine aftertreatment technologies, such as SCR systems, DPFs and DOCs. The models cover approaches characterized by different degrees of detail (from 0-D to 3-D), and most of the papers present comparison with experimental data.

Organizers - *Cornelius N. Opris, Caterpillar Inc.; Colin P. Garner, Loughborough Univ.; Vincenzo Mulone, Univ. di Roma Tor Vergata*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1285***	***Automated Model fit Tool for SCR Control and OBD Development***
		Edwin A.C. Eijnden van den, TNO Automotive
9:00 a.m.	***2009-01-1284***	***A Switched, Controls-Oriented SCR Catalyst Model Using On-line Eigenvalue Estimation***
		Thomas L. McKinley, Cummins Emission Solutions; Andrew Alleyne, Univ of Illinois at Urbana-Champaign
9:30 a.m.	***2009-01-1269***	***A Urea Decomposition Modeling Framework for SCR Systems***
		Thomas L. McKinley, Cummins Emission Solutions; Andrew Alleyne, Univ of Illinois at Urbana-Champaign
10:00 a.m.	***2009-01-1282***	***Development of Emission Transfer Functions for Predicting Deterioration of a Cu/Zeolite SCR Catalyst***
		Giovanni Cavataio, Jeong Kim, James R. Warner, James W. Girard, Devesh Upadhyay, Christine K. Lambert, Ford Motor Co.
10:30 a.m.	***2009-01-1275***	***Investigation into Different DPF Regeneration Strategies Based on Fuel Economy Using Integrated System Simulation***
		Navtej Singh, Christopher Rutland, David Foster, Univ. of Wisconsin Madison; Kushal Narayanaswamy, Yongsheng He, GM R&D Center
11:00 a.m.	***2009-01-1273***	***Development of Real Time Catalyst Model for Engine & Powertrain Control Design***
		Seth Wenzel, Benoit Despujols, Syed Wahiduzzaman, Iakovos Papadimitriou, Gamma Technologies Inc
	2009-01-1265	***Genetic Algorithm based Automated Calibration Tool for Numerical Selective Catalytic Reduction (SCR) Models (Written Only -- No Oral Presentation)***
		Praveen Chavannavar, James Driscoll, Caterpillar Inc

The papers in this session are available in a single publication, SP-2255, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Intelligent Vehicle Initiative (IVI) Technology Advanced Controls and Navigation Systems (Part 1 of 2)

Session Code: ***AE7***

Room W2-61 ***Session Time:*** ***8:30 a.m.***

Technical papers presented by leading experts in the field of Intelligent Vehicle Technologies covering topics such as: vehicle navigation, collision avoidance, sensor and camera-based autonomous driving and parking, vehicle to vehicle communications. Practical examples include the use of sensors, sofware, control logic and data to assist, control and/or guide the driver and/or vehicle.

Organizers - *John W. Phillips, Jeffery W. Sankey, Transportation Research Center Inc.*

Chairpersons - *John W. Phillips, Jeffery W. Sankey, Transportation Research Center Inc.*

Time	Paper No.	Title
8:30 a.m.	2009-01-1290	**Development of an Active Steering Control System in a Car Driving Simulator** *Azim Eskandarian, Damoon Soudbakhsh, Johann Moreau, Julien Karcher, George Washington Univ.*
9:00 a.m.	2009-01-1286	**Data-Driven Driving Skill Characterization: Algorithm Comparison and Decision Fusion** *Yilu Zhang, General Motors Global R & D; William Lin, GM R&D Center; Yuen-Kwok Chin, General Motors Corp.*
10:00 a.m.	2009-01-1287	**Ideal Vehicle Sideslip Estimation Using Consumer Grade GPS and INS** *King Tin Leung, James Whidborne, School of Engineering, Cranfield Univ.; David Purdy, DESM, Cranfield Univ.; Alain Dunoyer, Jaguar Land Rover*
10:30 a.m.	2009-01-1288	**Estimation of the Free Space in Front of a Moving Vehicle** *Christian Lundquist, Thomas B. Schon, Linkoping Univ.*
	2009-01-1291	**Blind Spot Monitoring by a Single Camera (Written Only -- No Oral Presentation)** *Shunji Miyahara, Visteon Japan, Ltd.; Kenneth A. Freeman, Visteon Corp.; Anatoli Koulinitch; Kevin Tiedje, Visteon Corp.*

The papers in this session are available in a single publication, SP-2230, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Thursday, April 23

Intelligent Vehicle Initiative (IVI) Technology Advanced Controls and Navigation Systems (Part 2 of 2)

Session Code: ***AE7***

Room W2-61 ***Session Time:*** ***1:30 p.m.***

Technical papers presented by leading experts in the field of Intelligent Vehicle Technologies covering topics such as: vehicle navigation, collision avoidance, sensor and camera-based autonomous driving and parking, vehicle to vehicle communications. Practical examples include the use of sensors, sofware, control logic and data to assist, control and/or guide the driver and/or vehicle.

Organizers - *John W. Phillips, Jeffery W. Sankey, Transportation Research Center Inc.*

Chairpersons - *John W. Phillips, Transportation Research Center Inc; Jeffery W. Sankey, Transportation Research Center Inc.*

Time	Paper No.	Title
1:30 p.m.	2009-01-1480	**Powering Navigation Systems with SMP-Based Multicore Engine** *Danny Gangapersaud, NEC Electronics America*
2:00 p.m.	2009-01-1477	**Intelligent Routing and Notification System for Emergency Services Vehicles** *Alex E. Smith, Sepiawave*
2:30 p.m.	2009-01-1479	**Integration of Car-to-Car Communication into IAV** *Tae-Kyung Moon, Jun-nam Oh, Hyuck-min Na, Pal-Joo Yoon, Mando Corp.*
	2009-01-1478	**Network Language Model Generated from a Modification Structure-based Language Model Template (Written Only -- No Oral Presentation)** *Keiko Katsuragawa, Daisuke Saitoh, Takeshi Oono, Minoru Tomikashi, Nissan Motor Co., Ltd.*

2009-01-1481	***A Fuzzy On-Line Self-Tuning Control Algorithm for Vehicle Adaptive Cruise Control System with the Simulation of Driver Behavior (Written Only -- No Oral Presentation)***
	Zhenhai Gao, Jilin Univ.
2009-01-1482	***An Adaptive PID Controller with Neural Network Self-Tuning for Vehicle Lane Keeping System (Written Only -- No Oral Presentation)***
	Zhenhai Gao, Jilin Univ.

The papers in this session are available in a single publication, SP-2230, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronics Activity

Thursday, April 23

Advances in Plastic Components, Processes and Technologies (Part 1 of 2)

Session Code: ***M11***

Room W2-62 ***Session Time:*** ***8:30 a.m.***

This session presents the latest developments in automotive applications of aluminum castings and wrought products. The papers cover a wide range of the technical aspects including alloy development, lightweight design, process development and simulation as well as performance optimization.

Organizers - *Kartik Srinivas, Akron Rubber Development Laboratory Inc.; Robert Maynard, Nova Chemicals Inc*

Chairpersons - *Robert Maynard, Nova Chemicals Inc.; Robert Maynard, Nova Chemicals Inc*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1297***	***Polyamide Resin Technologies for High Temperature and Automotive Chemical Exposure Environments***
		John Gavenonis, Joshua McIlvaine, DuPont Engineering Polymers
9:00 a.m.	***2009-01-1292***	***Weathering Performance Advantages of Mold-In-Color Acrylic Versus Coated Plastics for Exterior Trim Applications***
		H. Reid Banyay, Altuglas International Div. of Arkema Inc.
9:30 a.m.	***2009-01-1298***	***An Experimental Method to Study the Sensitivity of Transmission Laser Welding of Plastic Parts to Interfacial Gaps***
		Daniel F. Watt, Stephanie Masse, Univ. of Windsor; Bobbye Baylis, Mahle Filter Systems Canada
10:00 a.m.	***2009-01-1300***	***Development of Production System for Automotive Lamps using a Film Forming Technology within Injection Molds***
		Takao Umezawa, Masayuki Ito, Oshima Electric Works Co., Ltd.; Yosuke Fukasawa, Katsuo Matsunaga, Ryuichi Kowada, Mitsuba Corporation; Motosuke Ishizawa, Sanko Electric Co., Ltd.
10:30 p.m.	***2009-01-1293***	***A New High-Performance Plastic Magnetic Encoder***
		Takayuki Miyagawa, Takeshi Murakami, NSK, Ltd.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Thursday, April 23

Advances in Plastic Components, Processes and Technologies (Part 2 of 2)

Session Code: ***M11***

Room W2-62 ***Session Time:*** ***1:30 p.m.***

This session presents the latest developments in automotive applications of aluminum castings and wrought products. The papers cover a wide range of the technical aspects including alloy development, lightweight design, process development and simulation as well as performance optimization.

Organizers - *Robert Maynard, Nova Chemicals Inc.; Kartik Srinivas, Akron Rubber Development Laboratory Inc.*

Chairpersons - *Robert Maynard, Nova Chemicals Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1299***	***Study of Scratch visibility of Automotive Interior Components***
		Mrunal R. Hatwalne, Tata Motors, Ltd.; Jayant Haridas, Tata Motors, Ltd
2:00 p.m.	***2009-01-0963***	***Advantages of a thermoplastic bumper Energy Absorber in a world without a 5 mph bumper requirement***
		Dan Ralston, Shape Corp & Netshape International LLC
2:30 p.m.	***2009-01-0962***	***Bumper system development to meet New IIHS Bumper Test using CAE and Optimization***
		SooSang Kim, Hyundai Mobis
3:00 p.m.	***2009-01-1302***	***Development of Antimicrobial Polyurethane Foam for Automotive Seat***
		Chae-Hwan Hong, Hyundai Motor Co.
	2009-01-1295	***Effect of Carbon Black Fraction in Natural Rubber for Automobile Rubber Components (Written Only -- No Oral Presentation)***
		Asmita Sathaye, Jayant Haridas, Sanjay Parkhi, Tata Motors, Ltd.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Thursday, April 23

Power Boost Technology

Session Code: ***PFL504***

Room W2-63 ***Session Time:*** ***8:30 a.m.***

The papers in this session present advanced concepts in engine turbocharging and new developments in turbocharger technology

Organizers - *Dinu Taraza, Wayne State Univ.; Arjun D. Tuteja*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1472***	***Parametric Studies of the Impact of Turbocharging on Gasoline Engine Downsizing***
		Karl-Heinz Bauer, Honeywell Automotive Inc.; Syed M. Shahed, Honeywell Int'l (Turbo Technologies)
9:00 a.m.	***2009-01-1471***	***Simulation-based Assessment of Various Dual-Stage Turbocharging Systems in Terms of Performance and Fuel Economy Improvements***
		Byungchan Lee, Zoran Filipi, Dennis Assanis, Univ. of Michigan-Ann Arbor; Dohoy Jung, Univ. of Michigan-Dearborn
9:30 a.m.	***2009-01-1470***	***Numerical study of ultra low solidity vane diffuser in an automotive turbocharger compressor***
		Liangjun Hu; Harold Sun, Ford Motor Co; Ming-Chia Lai, Wayne State Univ
10:00 a.m.	***2009-01-1469***	***Numerical Investigation of Advanced Compressor Technologies to Meet Future Diesel Emission Regulations***
		Kui Jiao, Univ. of Waterloo; Harold H. Sun, Ford Motor Co.

10:30 a.m.	***2009-01-1468***	***Influence of Environmental Conditions and Thermodynamic Considerations in the Calculation of Turbochargers Efficiency***
		Jose R. Serrano, Vincente Dolz, Andres Tiseira, Arlington Paez MD, Universidad Politecnica de Valencia

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Direct Injection SI Engine Technology (Part 3 of 4)

Session Code: ***PFL205***

Room W2-64 ***Session Time:*** ***8:30 a.m.***

Direct injection spark ignition (DISI) engines will play a major role in improving the fuel efficiency of today's vehicles. The papers in this session will explore the latest advancements in DISI engine technology, including spray formation and mixing, injection technology and modeling strategies, and its synergies with other advanced engine technologies.

Organizers - *Matthew J. Brusstar, US Environmental Protection Agency; Sudhakar Das, Delphi Corp.; Gerald Micklow, East Carolina University; David K. Trumpy; James W G Turner, Lotus Engineering, Ltd.; Jianwen Yi, Ford Motor Co.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1499***	***An Experimental Investigation of Hydrogen Combustion in a Direct Injection Spark Ignition Natural Gas Engine***
		Muhamad Adlan Abdullah, Petronas; Abd Rashid Abd Aziz, UTP
9:00 a.m.	***2009-01-1498***	***The Effect of Fuel Rail Pressure on the Performance of a CNG-Direct Injection Engine***
		Abd Rashid Abd Aziz, . Firmansyah, UTP
9:30 a.m.	***2009-01-1504***	***An Analytical and Experimental Study of a High Pressure Single Piston Pump for Gasoline Direct Injection (GDi) Engine Applications***
		Timothy Spegar, Shi-Ing Chang, Sudhakar Das, Delphi Powertrain Systems; Eugene Norkin, Robert Lucas, Stanadyne Corporation
10:00 a.m.	***2009-01-1495***	***Engine Test for Accelerated Fuel Deposit Formation on Injectors Used in Gasoline Direct Injection Engines***
		Paul Von Bacho, Jay Sofianek, Julie Galante-Fox, Charles McMahon, Delphi Powertrain Systems
10:30 a.m.	***2009-01-1496***	***Stratified Cold Start Sprays of Gasoline-Ethanol Blends***
		Stina Hemdal, Chalmers Univ of Technology; Jonas Warnberg, General Motors Powertrain Sweden AB; Ingemar Denbratt, Petter Dahlander, Chalmers Univ of Technology
	2009-01-1497	***Keys to Understanding Spray-Guided Combustion of a Narrow-Spacing Gasoline Direct Injection SI Engine with a Centrally Mounted Multi-Hole Injector (Written Only -- No Oral Presentation)***
		Shigeo Yamamoto, Dai Tanaka, Kimihiko Sato, Mitsubishi Motors Corporation; Minoru Yokoe, Mitsubishi Automotive Engineering Corporation

The papers in this session are available in a single publication, SP-2241, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Direct Injection SI Engine Technology (Part 4 of 4)

Session Code: ***PFL205***

Room W2-64 ***Session Time:*** ***1:30 p.m.***

Direct Injection Spark Ignition (DISI) engines have demonstrated their potential for achieving ultra-low pollutant and CO2 emissions targets, while at the same time improving vehicle performance. This session explores the latest advancements in DISI engine technology, including spray development and mixture formation in both wall-guided and spray-guided systems, and the role of DI in next-generation, high-specific-power turbocharged engines.

Organizers - *Matthew J. Brusstar, US Environmental Protection Agency; Sudhakar Das, Delphi Corp.; Gerald Micklow, East Carolina University; David K. Trumpy; James W G Turner, Lotus Engineering, Ltd.; Jianwen Yi, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1502***	***Numerical and Experimental Analyses of Mixture Formation Process Using a Fan-shaped DI Gasoline Spray: Examinations on Effects of Crosswind and Wall Impingement***
		Yasuo Moriyoshi, Ryo Uchida, Chiba Univ.; Masahide Takagi, NMRI; Masato Kubota, Toyota Motor Corporation
2:00 p.m.	***2009-01-1488***	***Spray Pattern Recognition for Multi-Hole Gasoline Direct Injectors Using CFD Modeling***
		Sudhakar Das, John Kirwan, Shi-Ing Chang, Delphi Powertrain Systems
2:30 p.m.	***2009-01-1500***	***Spray and Evaporation Characteristics of Multi-Hole Injector for DISI Engines - Effect of Diverging Angle Between Neighboring Holes***
		Kiyotaka Sato, Mazda Motor Corp.; Tadashi Tadokoro , Masahisa Yamakawa, Hideaki Yokohata , Mazda Motor Corp; Keiya Nishida, Yasuki Sumoto , Jiangping Tian , Univ of Hiroshima
3:00 p.m.	***2009-01-1483***	***Cavitation and Hydraulic Flip in the Outward-Opening GDi Injector Valve-Group***
		Bizhan Befrui, Delphi; Giovanni Corbinelli, Delphi Luxembourg; Richard J. Andrews, Delphi Diesel Systems; Guy Hoffmann , Delphi Customer Technology Centre; Satish Sankhalpara , Delphi Diesel Systems
3:30 p.m.	***2009-01-1501***	***The Prediction of Flash Atomization in GDI Multi-Hole Injectors***
		Gian Marco Bianchi, Sergio Negro, Piero Pelloni, Giulio Cazzoli, Claudio Forte, University of Bologna
	2009-01-1505	***Fuel Injector Flow Rate Analysis for the Duratec 35 EcoBoost Engine (Written Only -- No Oral Presentation)***
		Anand H. Gandhi, Mark Meinhart, Ford Motor Co.

The papers in this session are available in a single publication, SP-2241, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

HCCI (Part 7 of 7)

Session Code: ***PFL207***

Room W2-65 ***Session Time:*** ***8:30 a.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Salvador M. Aceves, Lawrence Livermore National Lab.; Aristotelis Babajimopoulos, Univ. of Michigan; Christopher Gehrke, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Robert M. Wagner, Oak Ridge National Laboratory; Hongming Xu, Birmingham Univ.*

Chairpersons - *Martin Tuner, Lund University*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1342***	***Performance of Biodiesel Blends of Different Fame Distributions in HCCI Combustion*** *Bruce Bunting, Scott Eaton, Oak Ridge National Laboratory; Robert Crawford, Rincon Ranch Consulting; Les Wolf, BP; Shankar Kumar, Donald Stanton, Howard Fang, Cummins Inc.*
9:00 a.m.	***2009-01-1343***	***Limitation of Charge Stratification for High Load Extension of HCCI Combustion in a GDI Engine with NVO*** *Dongbo Yang, Fan Xu, Zhi Wang, Jianxin Wang, Tsinghua Univ*
9:30 a.m.	***2009-01-1344***	***Homogeneous Charge Progressive Combustion (HCPC): CFD Study of an Innovative Diesel HCCI Concept*** *Ettore Musu, Università degli Studi di Pisa; Rolf Reitz, Univ of Wisconsin; Roberto Gentili, Università degli Studi di Pisa*
10:00 a.m.	***2009-01-1345***	***Experimental Investigation of Cycle-by-Cycle Variations in CAI/ HCCI Combustion of Gasoline and Methanol by Varying Different Engine Operating Conditions*** *Avinash Kumar Agarwal, Rakesh Maurya, Indian Institute of Technology - Kanpur*
10:30 a.m.	***2009-01-1347***	***Investigation of Transient Emissions and Mixed Mode Combustion for a Light Duty Diesel Engine*** *Jonathan L. Burton, D. Ryan Williams, William J. Glewen, Roger B. Krieger, Michael J. Andrie, David E. Foster, Univ of Wisconsin*

The papers in this session are available in a single publication, SP-2242, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

General Emissions (Part 1 of 2)

Session Code: ***PFL411***

Room W2-66 ***Session Time:*** ***8:30 a.m.***

Organizers - *Matthew Henrichsen, Pradeep Prasad, Cummins Emission Solutions*

Time	Paper No.	Title
8:30 a.m.	***2009-01-0975***	***A Novel Technology to Inhibit Mat Mount Erosion and Promote Substrate Retention in Catalytic Converters*** *Mitchell Robert Watson, 3M Automotive*
9:00 a.m.	***2009-01-0976***	***Analysis of the Butane Diffusion in Activated Carbon Canister*** *Koji Yamasaki, Kazunari Sato, Tsugio Suzuki, Mahle Filter Systems Japan Corporation; Noriyuki Kobayashi, Hiroyuki Tanaka, Hiroshi Endo, Nagoya University*
9:30 a.m.	***2009-01-0977***	***New Intumescent Mat Mount Formulations with Improved Resiliency and Reduced Organic Binder for Diesel and Low Temperature Applications*** *Gary F. Howorth, 3M Co.; Kim Sachs, 3M Automotive*

10:00 a.m.	***2009-01-0978***	***Support Mat Test Equipment Artifact Identification and Elimination***
		Ruth A. Latham, Steven Freis, Adam Kotrba, Keith Olivier, Tenneco Inc.; Benedikt Mercker, Tenneco - Heinrich Gillet Gmbh
10:30 a.m.	***2009-01-1398***	***Development of High Performance Three-Way-Catalyst Technology to Lower NOx emission***
		Takahiko Fujiwara, Nobuyuki Takagi, Hiroki Ichinose, Mamoru Yoshioka, Toyota Motor Corporation; Masaaki Kawai, Cataler Corporation
11:00 a.m.	***2009-01-0974***	***Highly Efficient Oil Separation Systems for Crankcase Ventilation***
		Gerd Kissner, Mahle
	2009-01-1400	***Particle and Gaseous Emission Characteristics of a Formula SAE Race Car Engine (Written Only -- No Oral Presentation)***
		Adam Ragatz, David Kittelson, Jacob Swanson, Univ of Minnesota - Twin Cities

The papers in this session are available in a single publication, SP-2257, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

General Emissions (Part 2 of 2)

Session Code: ***PFL411***

Room W2-66 ***Session Time:*** ***1:30 p.m.***

Effects of fuel and argon dilution on emissions, including an extensive review on fuel effects. Characterization of combustion and calibration effects on PM emissions.

Organizers - *Matthew Henrichsen, Pradeep Prasad, Cummins Emission Solutions*

Time	***Paper No.***	***Title***
1:30 p.m.	***2009-01-1181***	***Fuel Effects on Vehicle Exhaust Emissions - A Literature Review***
		Albert M. Hochhauser
2:00 p.m.	***2009-01-1184***	***Impact of Biodiesel on Emissions and Aftertreatment Systems on a Light-Duty Multi-Cylinder DI Diesel Engine Operating in LTC Combustion Modes***
		Amy Peterson, Wayne State University
2:30 p.m.	***2009-01-1182***	***Influence of Methanol Gasoline Blend Fuel on Engine and Catalyst Performance***
		Fan Zhang, Shi-Jin Shuai, Jianxin Wang, Tsinghua Univ
3:00 p.m.	***2009-01-1185***	***Detailed Particulate Characterisation from HCCI Combustion for Future DPF Development***
		Stephane Zinola, Jacques Lavy, IFP
3:30 p.m.	***2009-01-1183***	***PM Concentration and Size Distributions from a Heavy-duty Diesel Engine Programmed with Different Engine-out Calibrations to Meet the 2010 Emission Limits***
		Raffaello Ardanese, Michelangelo Ardanese, Marc Besch, Theodore Adams, Arvind Thiruvengadam, Benjamin Shade, Mridul Gautam, West Virginia Univ; Adewale Oshinuga, Matt Miyasato, South Coast Air Quality Mgmt District

	2009-01-1186	***Effects of Diluting the Intake Air of SI Engine with Argon Inert Gas on the NOx Emissions and Performance (Written Only -- No Oral Presentation)***
		Mohsen Abdelaal PhD, Al-Azhar University; Hany Moneib, Helwan University; Mohamed Y. E. Selim, United Arab Emirates Univ; Osama Osama A. Abdallah, Sharjah Inst. of technology

The papers in this session are available in a single publication, SP-2257, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Emission Measurement and Testing (Part 3 of 3)

Session Code: ***PFL408***

Room W2-67 ***Session Time:*** ***8:30 a.m.***

The session covers a wide range of topics in Emissions Measurement and Testing that will be of interest to both experienced and novice engineers.

The session organizers would like to thank the authors for their continuing work in expanding the knowledge base of emissions measurement and testing.

Special thanks goes to the paper reviewers without whom this session would not be possible.

Organizers - *Alberto Ayala, California Air Resources Board; Allen B. Duncan, US Environmental Protection Agency; Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Chairpersons - *Allen B. Duncan, US Environmental Protection Agency; Yuan Shen, AVL Powertrain Engineering Inc.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1521***	***A New Method of Coupling HiL-Simulation and Engine Testing Based on AUTOSAR-Compliant Control Units***
		Christian Schyr, Stefan Jakubek, Gerhard Stempfer, AVL LIST GmbH
9:00 a.m.	***2009-01-1513***	***Reconstruction of Time-Resolved Vehicle Emissions Measurements by Deconvolution***
		James D. Pakko, Ford Motor Co.
9:30 a.m.	***2009-01-1118***	***Development of a State-of-the-Art Transient Test Facility for Powertrain R&D***
		Derek Mangun, Austin R. Lemke, John Moskwa, Univ of Wisconsin
10:00 a.m.	***2009-01-1117***	***Design of Low-Inertia, High-Speed External Gear Pump/Motors for Hydrostatic Dynamometer Systems***
		Aaron Heisler, John Moskwa, Frank Fronczak, University of Wisconsin; Masayuki Adachi, Horiba Instruments Inc.
10:30 a.m.	***2009-01-1116***	***Research on Measurement Method of Road Gradient and Altitude by On-Road Driving***
		Susumu Sato, Toshiro Yamamoto, Yasuhiro Ogawa, Noriko Fukuro, National Traffic Safety & Enviro Lab.
11:00 a.m.	***2009-01-1522***	***Evaluating the Effects of Restraint Systems on 4WD Testing Methodologies: A Collaborative Effort between the NVFEL and ANL***
		Maria R. Peralta, U.S. EPA; Geoffrey Amann, Argonne National Lab.; Carl Paulina, U.S. EPA; Michael Duoba, Argonne National Lab.
11:30 a.m.	***2009-01-1350***	***Factors Affecting Driving Force Characteristics of 4WD Vehicles on a 4WD Chassis Dynamometer***
		Tomoya Nakajo, Kenji Tsuchiya, Japan Automobile Research Institute

The papers in this session are available in a single publication, SP-2256, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

CAE Simulation/Test Correlation and Optimization in Automotive Engineering:Vehicle Durability CAE Simulation/Test Correlation and Optimization (Part 4 of 5)

Session Code: ***M21***

Room W2-68 ***Session Time:*** ***8:30 a.m.***

This session addresses new development in durability cae analyses of full vehicle, sub-assembly and components. The papers in this session cover a range of topics including durability/fatigue and stress/strength analyses, design optimization, CAE and testing correlation, material modeling and methodology development. Applications to vehicle body structures, chassis, closures, powertrains, fuel system, exhaust and cooling systems, etc. are to be discussed.

Organizers - *Guofei Chen, United States Steel Corp; Michael Guo, Chrysler Corp; Guangtian Gavin Song, AM General LLC*

Chairpersons - *Guofei Chen, US Steel; Michael Guo, Chrysler Corp.*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1228***	***Transient CFD Simulation of Exhaust Gas Recirculation Coolers for Further Structure Analyses***
		Julie Paterson, Thomas Heckenberger, Wolfram Kuehnel, Friedrich Brotz, Stephanie Larpent, Nuria Fernandez, Claudia Lang, Behr GmbH & Co. KG
9:00 a.m.	***2009-01-1452***	***Weight and Friction Optimized Cranktrain Design Supported by Coupled CAE Tools***
		M. Cagri Cevik, VKA; Martin Rebbert, Franz Maassen, FEV Motorentechnik GmbH
9:30 a.m.	***2009-01-1230***	***Weight Reduction of Structural Vibration Isolation Hydro-Mount Bracket through Design Analysis and Use of Advanced High Strength Steels***
		Kavesary Raghavan, Thomas Howard, John Buttles, Bailey Tool & Manufacturing Co.
10:00 a.m.	***2009-01-1227***	***A Practical Design Process to Optimize Fatigue Performance for Chassis Components***
		Xiaoqin 'Andrew' Chen, Xianggang Zhang, ZF Lemforder Corp.
10:30 a.m.	***2009-01-1229***	***An Integral Engineering Solution for Design of Exhaust Manifolds***
		Taner Gocmez, VKA; Udo Deuster lng, FEV Motorentechnik GmbH
11:00 a.m.	***ORAL ONLY***	***Optimization of Flexible Bodies in a Transient Multi-Body Dynamic (MBD) System using Equivalent Static Load Method***
		Warren Jude Dias, Altair Engineering Inc.; Kshitij Kulkarni

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 23

CAE Simulation/Test Correlation and Optimization in Automotive Engineering: Vehicle Durability and Mulit-Body Dynamics Simulation (Part 5 of 5)

Session Code: ***M21***

Room W2-68 ***Session Time:*** ***1:30 p.m.***

This session addresses new development in durability cae analyses of full vehicle, sub-assembly and components followed by addressing vehicle multi-body modeling method development or model validation for vehicle handling performance, ride comfort or road load minimization. Topics include: durability/fatigue and stress/strength analyses, design optimization, CAE and testing correlation, suspension modeling and design is the main focus on the vehicle performance optimization.

Organizers - *Guofei Chen, United States Steel Corp; Dexin Wang, Ford Motor Co; Michael Guo, Chrysler Corp; Guangtian Gavin Song, AM General LLC*

Chairpersons - *Guofei Chen, US Steel; Dexin Wang, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1226***	***Structured Feature Analysis in Heavy Truck Platform Projects***
		Sofi Sjogren, Anders Lindstrom, Per G. Sundell, Volvo 3P
2:00 p.m.	***2009-01-1453***	***Fatigue Strength of an Urban Type MIDI Bus Vehicle Chassis by using FEM Aanalysis and Accelerated Fatigue Life Test***
		Kubilay Yay, Istanbul Technical Univ; Mehmet Bilir, Anadolu ISUZU
2:30 p.m.	***2009-01-1454***	***Study on Modeling Method of Anti-Roll Bar based on one Dimensional Beam Element***
		Linbo Zhang, Chery Automobile Co. Ltd.
	2009-01-1455	***Analytical Target Cascading for Handing Performance and Ride Quality Based on Conceptual Suspension Model and Multi-body Models (Written Only -- No Oral Presentation)***
		Shiwei Wu, Yuming Hou, Lingyang Li, Yunqing Zhang, Liping Chen, Huazhong University of Science and Tech

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 23

Fundamental Advances in Thermal & Fluid Sciences (Experimental & Numerical Analyses)

Session Code: ***PFL206***

Room W2-69 ***Session Time:*** ***8:30 a.m.***

This session focuses on fundamental numerical and experimental research in the thermal-fluids sciences that impacts engine and powertrain performance and design.

Organizers - *Daniel C. Haworth, Pennsylvania State Univ.; Raj P. Ranganathan, GM Powertrain*

Time	Paper No.	Title
8:30 a.m.	***2009-01-1529***	***Nonlinear Stability of Plane Liquid Films in a Stationary Air Medium***
		Jianming Cao, Xiaoping Jian Sr, Zhiwei Chen Sr, Lei Wang Sr, Qiuxia Zhang, Chang'an Univ.
9:00 a.m.	***2009-01-1530***	***Heat Transfer Predictions using the Chen Correlation on Subcooled Flow Boiling in a Standard IC Engine***
		Ho Sung Lee, Western Michigan Univ.
9:30 a.m.	***2009-01-1531***	***Prediction of the Low-Reynolds Number Flows Around the Airfoil and Bluff Body Components of an Automotive Cooling Fan Module***
		Ehab Abu-Ramadan, Behzad Ghafouri, Eric Savory, Chao Zhang, Robert Martinuzzi, Univ. of Western Ontario
10:00 a.m.	***2009-01-1532***	***Numerical Study of Entrainment Mixing of Two Gases***
		Raj P. Ranganathan, GM Powertrain; Bala Murthy, General Motors Corp

10:30 a.m.	***2009-01-1533***	***Neutron Radiography Study of Diesel Engine Exhaust Soot Depositions in a Exhaust Pipe with and Without Water Coolant***
		Jen-Shih Chang, Daniel Ewing, James Cotton PhD, McMaster Univ.
11:00 a.m.	***2009-01-1534***	***Optimizing Precision and Accuracy of Quantitative PLIF of Acetone as a Tracer for Hydrogen Fuel***
		Sebastian Arnold Kaiser, Victor Salazar, Sandia National Laboratories; Fabien Halter, Universite d'Orleans

The papers in this session are available in a single publication, SP-2238, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Transmission and Driveline: IVT/CVT

Session Code: ***PFL603***

Room W2-70 ***Session Time:*** ***8:30 a.m.***

This session examines the state of the art in variable pulley and traction type CVTs. Paper topics include controls, dynamic performance analysis, design optimization, new production transmission overviews, and testing.

Organizers - *Robert A. Smithson, FallBrook Technologies Inc.; Erich L. Wilfinger, Jatco USA Inc.*

Time	***Paper No.***	***Title***
8:30 a.m.	***2009-01-1535***	***Intelligent Control of Metal-Belt CVT Based on Fuzzy Logic***
		Xuexun Guo, Qi Sun, Wuhan Univ of Technology
9:00 a.m.	***2009-01-1541***	***Torque Converter-type High Fuel Economy CVT for Small Passenger Vehicles***
		Masaaki Yamaguchi, Mitsurou Ootaki, Keisuke Ito, Hideo Nirasawa, Hirohiko Totsuka, Honda R&D Co., Ltd.
9:30 a.m.	***2009-01-1542***	***Design, Construction and Experimental Testing of an High Efficiency Continuously Variable Transmission***
		Antonio Rondinelli, EL.P.; Paolo Baldissera, Cristiana Delprete, Politecnico di Torino
10:00 a.m.	***2009-01-1540***	***Development of the Epicycloidal Roller Control System for the Torotrak Full Toroidal Infinitely Variable Transmission***
		Christopher Brockbank, Torotrak (Development), Ltd.; Christopher Greenwood Esq, Torotrak (Development) Ltd
10:30 a.m.	***2009-01-1539***	***Optimising the Design of a Milner CVT using Simulation Based Design of Experiments***
		S. Akehurst, Univ. of Bath
11:00 a.m.	***2009-01-1538***	***Dynamic Performance of a Metal V-belt CVT During Rapid Shift-Ratio Conditions for Control Applications***
		Rohan Bhate, Nilabh Srivastava, Univ. of North Carolina, Charlotte

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 23

Transmission and Driveline: All Wheel Drive

Session Code: ***PFL602***

Room W2-70 ***Session Time: 1:30 p.m.***

The session contains four papers dealing with a variety of Subjects Spanning Off-road tractive effort of large commercial vehicles, torque vectoring controls strategy, wet clutch dynamics as an AWD coupling means, and software / control algorithm construction via fuzzy logic methodologies.

Organizers - *Robert A. Smithson, FallBrook Technologies Inc.; Erich L. Wilfinger, Jatco USA Inc.*

Time	Paper No.	Title
1:30 p.m.	***2009-01-1537***	***Innovative Self-Optimizing Clamping Force Strategy for the Pushbelt CVT***
		Erik van der Noll, Francis van der Sluis, Tom van Dongen, Van Doorne's Transmissie-Bosch
2:00 p.m.	***ORAL ONLY***	***Load Simulation Analysis of Belt Drives and Rubber Chains***
		Ahmed A. Shabana, Univ. of Illinois
2:30 p.m.	***2009-01-1358***	***Shift Strategy Research on Off-Road Vehicle***
		Jian Wang, Jilin University
3:00 p.m.	***2009-01-1359***	***Evaluation of Potential Benefit of 6 X 2 Over 6 X 4 Drive Mode to Improve the Fuel Economy on Heavy Commercial Vehicle***
		Babalal Sahebji Mulani, Tata Motors, Ltd.; K Gopalakrishna, Narayan Jadhav, Tata Motors Ltd
3:30 p.m.	***2009-01-1360***	***Experimental Characterization of Wet Clutch Friction Behaviors Including Thermal Dynamics***
		Vladimir Ivanovic, Josko Deur, Zvonko Herold, Univ. of Zagreb; Matthew Hancock, Francis Assadian, Jaguar Cars Ltd.
4:00 p.m.	***2009-01-1361***	***Development of Electronic Controlled Four Wheel Drive Vehicle by Using Performance Analysis Tool***
		Ryu Jemyoung, Hyundai-Kia Motor Co.

The papers in this session are available in a single publication, SP-2249, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity