

SAE 2012 International Powertrains, Fuels & Lubricants Meeting

Technical Session Schedule

As of 09/24/2012 07:40 pm

Tuesday, September 18

Powertrain Control & Calibration

Session Code: FFL300

Room Audience

Session Time: 10:00

This session covers engine control system and optimization technique developments related to achieving stringent market fuel economy, emissions, performance, reliability and quality demands. Related topics include engine and its subsystem control, signal processing, on-board diagnostic strategy development, sensor, actuator, electronic control unit designs, etc.

Organizers - Elisa Toulson, Michigan State Univ.; Matti Vint, Ricardo Inc.; Xiaojian Yang; Guoming Zhu, Michigan State Univ.

Chairpersons - Per Tunestal, Lund University

Time	Paper No.	Title
10:00 a.m.	2012-01-1628	A Reduced Order Powertrain Model Concept for Model Based Development Process with a Driver Agent Kazuhide Togai, Hisashi Tamaki, Kobe University
10:30 a.m.	2012-01-1572	Multidisciplinary Simulation Model for the Balancing of Powertrain Combustion, Control and Components for Optimal Fuel Consumption, Emissions, Cost and Performance for a Diesel Engine Powered Passenger Car Fredrik B. Ekstrom, Joop Somhorst, Volvo Car Corporation
11:00 a.m.	2012-01-1629	Ethanol to Gasoline Ratio Detection via Time-Frequency Analysis of Engine Acoustic Emission Nicolo Cavina, Davide Moro, University of Bologna; Stefano Sgatti, Filippo Cavanna, Magneti Marelli Powertrain SPA
11:30 a.m.	2012-01-1627	UEGO-based Exhaust Gas Mass Flow Rate Measurement Nicolo Cavina, Alberto Cerofolini, University of Bologna; Matteo De Cesare, Federico Stola, Magneti Marelli Powertrain SPA
	2012-01-1631	HCCI Engine Application on a Hydraulic Hybrid Bus (Written Only -- No Oral Presentation) Ruonan Sun, Richard Patrick Thomas, Xiaoguo Tang, US Environmental Protection Agency

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

Tuesday, September 18

Variable Valve Actuation

Session Code: FFL304

Room Audience

Session Time: 13:30

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

Organizers - Steven Ernest, Jacobs Vehicle Systems Inc.; Timothy Kunz, Delphi Corp.; James Robert Westbrook, Chrysler Group LLC

Chairpersons - Per Tunestal, Lund University

Time	Paper No.	Title
-------------	------------------	--------------

1:30 p.m.	2012-01-1641	Variable Intake Cam Duration Technologies for Improved Fuel Economy <i>Philip Keller, BorgWarner Inc.; Steve Wyatt, BorgWarner Morse TEC; Michael Becker, BorgWarner Inc.</i>
2:00 p.m.	2012-01-1639	Design and Development of a Switching Roller Finger Follower for Discrete Variable Valve Lift in Gasoline Engine Applications <i>Austin Zurface, Scott Brownell, David Genise, Eaton Corporation; Patrick Tow, James Tuttle, General Motors Corporation</i>
2:30 p.m.	2012-01-1640	Switching Roller Finger Follower Meets Lifetime Passenger Car Durability Requirements <i>Daniel B. Trudell, James E. McCarthy, Jr., Eaton Corporation; Patrick J. Tow, General Motors Corporation</i>
3:30 p.m.		BREAK

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

Tuesday, September 18

SI Combustion

Session Code: FFL201

Room Lilla Teatern

Session Time: 10:00

This session focuses on combustion technologies in both 4-stroke and 2-stroke engines characterized by 1) ignition by an external energy source that serves to control combustion phasing, and 2) a combustion rate that is limited by flame propagation. Gasoline and alternative fuels are considered. The scope of topics includes studies of mixture formation, ignition, knock, engine efficiency, flame propagation, and emissions formation.

Organizers - Alasdair Cairns; Simona Silvia Merola, Cinzia Tornatore, Istituto Motori CNR; Lurun Zhong, Chrysler Corporation LLC

Chairpersons - Mattias Richter, Lund Univ.; Cinzia Tornatore, Istituto Motori CNR

Time	Paper No.	Title
10:00 a.m.	2012-01-1634	Fuel Effects on Knock in a Highly Boosted Direct Injection Spark Ignition Engine <i>Amer Amer, Hassan Babiker, Junseok Chang, Gautam Kalghatgi, Saudi Aramco; Philipp Adomeit, FEV, Aachen; Adrien Brassat, Marco Günther, RWTH Aachen University, VKA</i>
10:30 a.m.	2012-01-1633	Influence of Fuel Composition and Combustion Process on Thermodynamic Parameters of SI Engines <i>Johannes Ritzinger, Thomas Koch, Jürgen Lehmann, Daimler AG; Konstantinos Boulouchos, Swiss Federal Institute of Technology</i>
11:00 a.m.	2012-01-1632	Applicability of Ionization Current Sensing Technique with Plasma Jet Ignition Using Pre-Chamber Spark Plug in a Heavy Duty Natural Gas Engine <i>Ashish Shah, Per Tunestal, Bengt Johansson, Lund University</i>

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

Tuesday, September 18

Direct Injection SI Engine Technology

Session Code: FFL202

Room Lilla Teatern**Session Time: 11:30**

Focuses on SI combustion technologies that employ direct, in-cylinder fuel injection. Topics of particular interest include in-cylinder fuel injection and spray studies, flow/spray interaction and in-cylinder mixture formation studies, and combustion chamber shape optimization. Focus includes stratified operation or other modes enabled by DI hardware, DI-specific emissions issues such as particulates and smoke, and technologies enabled by DISI (such as downsizing).

Organizers - Claudia Iyer, Ford Motor Co.; Ming-Chia Daniel Lai, Wayne State Univ.; Jeffrey Naber, Michigan Technological Univ.; Zheng Xu, Ford Motor Co.

Chairpersons - Mattias Richter, Lund Univ.

Time	Paper No.	Title
11:30 a.m.	2012-01-1642	A DOE Approach to Engine Deposit Testing used to Optimize the Design of a Gasoline Direct Injector Seat and Orifice William Imoehl, Continental Automotive Systems USA; Luca Gestri, Marco Maragliulo, Licia Del-Frate, Continental Automotive Italy S.p.A.; Manfred Klepatsch, Continental Automotive GmbH; Ray Wildeson, Continental Automotive Systems USA
12:00 p.m.	2012-01-1643	NO_x-Reduction by Injection-Timing Retard in a Stratified-Charge DISI Engine using Gasoline and E85 Magnus Sjöberg, Sandia National Laboratories; David Reuss, Sandia National Laboratories, Univ. of Michigan
	2012-01-1644	In-cylinder Combustion Visualization of a Direct-injection Spark-ignition Engine with Different Operating Conditions and Fuels (Written Only -- No Oral Presentation) Mayank Mittal, Michigan State University; Harold Schock, Guoming Zhu, Michigan State Univ

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

Tuesday, September 18

Kinetically Controlled CI Combustion (Including HCCI)

Session Code: FFL206

Room Lilla Teatern**Session Time: 13:30**

This session focuses on kinetically controlled combustion. Experimental and simulation studies pertaining to various means of controlling combustion are welcome. Examples are research studies dealing with temperature and composition distribution inside the cylinder and their impact on heat release process. Studies clarifying the role of fuel physical and chemical properties in autoignition are also welcome.

Organizers - Amer Amer, Junseok Chang, Ali Aldawood, Saudi Aramco

Chairpersons - Amer A. Amer, Saudi Aramco; Mattias Richter, Lund Univ.

Time	Paper No.	Title
1:30 p.m.	2012-01-1574	The Effect of Acetylene on Iso-octane Combustion in an HCCI Engine with NVO Srivatsava V. Puranam, Richard R. Steeper, Sandia National Laboratories
2:00 p.m.	2012-01-1577	HCCI Combustion Control by DME-Ethanol Binary Fuel and EGR Gen Shibata, Hideyuki Ogawa, Hokkaido Univ.
2:30 p.m.	2012-01-1575	Combustion Phasing Controllability with Dual Fuel Injection Timings C.A.J. Leermakers, L.M.T. Somers, B.H. Johansson, Eindhoven University of Technology

3:00 p.m.	2012-01-1578	The Usefulness of Negative Valve Overlap for Gasoline Partially Premixed Combustion, PPC <i>Patrick Borgqvist, Martin Tuner, Augusto Mello, Per Tunestal, Bengt Johansson, Lund University</i>
3:30 p.m.	2012-01-1579	Correlating Flame Location and Ignition Delay in Partially Premixed Combustion <i>R.P.C. Zegers, J.E.E. Aussems, L.M.T. Somers, N.J. Dam, C.C.M. Luijten, L.P.H. de Goey, Eindhoven University of Technology</i>
4:00 p.m.	2012-01-1573	HCCI-Combustion in the Z Engine - Part II <i>Timo T. Janhunen, Aumet Oy</i>
4:30 p.m.	2012-01-1576	A Study on a Reduced Kinetic Model for n-Cetane and Heptamethylnonane Based on a PRF Reduced Kinetic Model <i>Hiroshi Kawanabe, Takuji Ishiyama, Kyoto Univ.</i>
	2012-01-1580	Transient Control of HCCI Engines Using MRPR or Its Proxies (Written Only -- No Oral Presentation) <i>Ruonan Sun, Richard Patrick Thomas, Xiaoguo Tang, US Environmental Protection Agency</i>

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00298, and also individually. To purchase visit collections.sae.org

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

Tuesday, September 18

Alternative and Advanced Fuels (Part 1 of 2)

Session Code: FFL215

Room Norra Hallen

Session Time: 10:00

This session focuses on the fundamental properties of fuels and methods for measuring these properties, as well as issues related to fuel storage and transportation. Examples include diesel fuel lubricity determination, fuel effects on deposits, cold weather issues, and environmental and toxicological impacts of new fuels.

Organizers - Christopher Hagen, Colorado State University; George Karavalakis, University of California, Riverside; Amanda Lea-Langton, Univ. of Leeds; Anthony John Marchese, Colorado State Univ.; Paul Richards, Retired (Innospec)

Chairpersons - Sebastian Verhelst, Ghent University

Time	Paper No.	Title
10:00 a.m.	2012-01-1582	Hydrocarbon Permeation in Gasoline Vehicle Fuel Systems Using Isobutanol Blends <i>Ken Kimura, Leslie Wolf, BP; James Baustian, Butamax Advanced Biofuels, LLC; Harold Haskew, Harold Haskew and Associates, Inc.</i>
10:30 a.m.	2012-01-1594	Effect of Higher Content N-Butanol Blends on Combustion, Exhaust Emissions and Catalyst Performance of an Unmodified SI Vehicle Engine <i>Martin Pechout, Martin Mazac, Technical University of Liberec; Michal Vojtisek-Lom, Czech Tech. Univ. of Prague/TU Liberec</i>
11:00 a.m.	2012-01-1586	Iso-Stoichiometric Ternary Blends of Gasoline, Ethanol and Methanol: Investigations into Exhaust Emissions, Blend Properties and Octane Numbers <i>James W G Turner, Richard J Pearson, Lotus Engineering; Arthur Bell, Stefan de Goede, Sasol Technology (Pty) Ltd; Christopher Woolard, University of Cape Town</i>

2012-01-1583 ***Influence of Different Natural Gas Blends on the Regulated Emissions, Particle Number and Size Distribution Emissions from a Refuse Hauler Truck (Written Only -- No Oral Presentation)***
 George Karavalakis, Maryam Hajbabaei, Thomas Durbin, Zhongqing Zheng, Kent Johnson, University of California, Riverside

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00300, and also individually. To purchase visit collections.sae.org

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

Tuesday, September 18

Alternative and Advanced Fuels (Part 2 of 2)

Session Code: **FFL215**

Room *Norra Hallen*

Session Time: **13:30**

This session focuses on the fundamental properties of fuels and methods for measuring these properties, as well as issues related to fuel storage and transportation. Examples include diesel fuel lubricity determination, fuel effects on deposits, cold weather issues, and environmental and toxicological impacts of new fuels.

Organizers - *Christopher Hagen, Colorado State University; George Karavalakis, University of California, Riverside; Amanda Lea-Langton, Univ. of Leeds; Anthony John Marchese, Colorado State Univ.; Paul Richards, Retired (Innospec)*

Chairpersons - *Sebastian Verhelst, Ghent University*

Time	Paper No.	Title
1:30 p.m.	2012-01-1585	<i>Technical Performance of HVO (Hydrotreated Vegetable Oil) in Diesel Engines</i> <i>Tuukka Hartikka, Markku Kuronen, Ulla Kiiski, Neste Oil Corp.</i>
2:00 p.m.	2012-01-1592	<i>Diesel Vehicle Cold Operability: Design of Fuel System Essential Besides Fuel Properties</i> <i>Seppo Mikkonen, Ulla Kiiski, Pirjo Saikkonen, Jari Sorvari, Neste Oil Corp.</i>
2:30 p.m.	2012-01-1581	<i>Suitability of 2-Ethylhexyl Esters from Plant Oils in Diesel Engines</i> <i>Kiyoshi Kawasaki, Yuuta Watanabe, Koji Yamane, Chihiro Kondo, The University of Shiga Prefecture; Takaaki Kanoh, Lion Corporation</i>
3:00 p.m.	2012-01-1593	<i>Towards Model-Based Identification of Biofuels for Compression Ignition Engines</i> <i>Manuel Dahmen, Manuel Hechinger, Juan Victoria Villeda, Wolfgang Marquardt, RWTH Aachen University</i>
3:30 p.m.	2012-01-1584	<i>Effect of Nozzle Opening Pressure on the Combustion, Performance and Emission Parameters of DI Diesel Engine Fueled with Used Transformer Oil</i> <i>Pritinika Behera, Murugan Sivalingam, NIT, Rourkela</i>
4:00 p.m.	2012-01-1590	<i>Emission Reduction Potential with Paraffinic Renewable Diesel by Optimizing Engine Settings or Using Oxygenate</i> <i>Timo Murtonen, Paivi Aakko-Saksa, Paivi Koponen, VTT Technical Research Centre of Finland; Kalle Lehto, Teemu Sarjovaara, Aalto University; Matti Happonen, Juha Heikkilä, Tampere University of Technology</i>
4:30 p.m.	2012-01-1589	<i>FAME Filterability: Understanding and Solutions</i> <i>Stephanie Camerlynck, John Chandler, Infineum USA LP; Ben Hornby, Isabel van Zuylen, Infineum UK Ltd</i>

2012-01-1599 **An Investigation on Abnormal Combustion, Emissions and Performance of Novel Jojoba Bio-Gasoline and Its Blends with Gasoline in a Spark-Ignition Engine (Written Only -- No Oral Presentation)**

M. S. Radwan, Soliman M S Elfeky, Osayed Sayed Mohamed Abu-Elyazeed, Helwan Univ.

2012-01-1600 **The Effects of Oxidation Deterioration Biodiesel on Particulate Emission from Heavy Duty Diesel Engine (Written Only -- No Oral Presentation)**

HoYoung Song, Min-Ho Lee, Hyungkyu Kang, Kiho Kim, Korea Institute of Petroleum Management

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00300, and also individually. To purchase visit collections.sae.org

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

Tuesday, September 18

Welcome and Opening Keynotes

Session Code: **FFL800**

Room Saluhallen

Session Time: **08:00**

Moderators - *Bengt Johansson, Lund University*

Keynote Speakers - *Par Gabrielsson, HALDOR TOPSCE A S; Börje Grandin, Volvo Car Corporation*

Tuesday, September 18

Fuel & Additive Effects on CI Engine Performance (Part 1 of 2)

Session Code: **FFL205**

Room Saluhallen

Session Time: **10:00**

This session presents work investigating the effect of fuel composition on CI engine performance in terms of combustion efficiency, emissions and engine hardware durability. Variations in fuel composition include the inclusion of aromatic compounds, the blending of oxygenated components and the use of additives for cetane number improvement and lubricity enhancement.

Organizers - *Rinaldo Caprotti, Infineum UK, Ltd.; Barbara Goodrich, John Deere Product Engineering Center; Simona Silvia Merola, Istituto Motori CNR; Charles Mueller, Sandia National Laboratories; Paul Richards*

Chairpersons - *Rinaldo Caprotti, Infineum UK, Ltd.; Barbara Goodrich, John Deere Product Engineering Center*

Time	Paper No.	Title
10:00 a.m.	2012-01-1689	Internal Diesel Injector Deposits: Sodium Carboxylates of C12 Succinic Acids and C16 and C18 Fatty Acids <i>Maria Dolores Cardenas Almena, Octavio Lucio Esperilla, Francisco Martin Manzanero, Yolanda Murillo Duarte, Luis Carlos Quintero Toscano, Guillermo Wolff, REPSOL</i>
10:30 a.m.	2012-01-1692	The Properties and Injector Nozzle Fouling Performance of Neat GTL and GTL/EN590 Diesel Blends in Various Diesel Engines <i>Adrian James Velaers, Stefan de Goede, Sasol Fuels Technology</i>

11:00 a.m.	2012-01-1693	Fuel Quality and Diesel Injector Deposits <i>Paul Lacey, Sandro Gail, Jean Marc Kientz, Geoffroy Benoist, Peter Downes, Christian Daveau, Delphi Diesel Systems</i>
11:30 a.m.	2012-01-1687	Fuel Additives for Reduction of Internal Diesel Injectors Deposits (IDID, ζlacqueringζ): A Critical and Priority Route <i>Mathieu Arondel, Helene Rodeschini, Manuel Lopes, TOTAL Supply & Marketing, R&D; Bernard Dequenne, TOTAL Supply & Marketing, TACS</i>
12:00 p.m.	2012-01-1685	A Novel Technique for Investigating the Characteristics and History of Deposits Formed Within High Pressure Fuel Injection Equipment <i>Jim Barker, Innospec; Colin Snape, David Scurr, University of Nottingham</i>

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00297, and also individually. To purchase visit collections.sae.org

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

Tuesday, September 18

Workshop - The Impact of ULSD, Biodiesel Blends and Fuel Additives on Fuel Systems: Injector Deposits and Other Problems

Session Code: FFL900

Room Saluhallen

Session Time: 13:30

This is the fourth in a series of forums on this topic. With the introduction of ULSD and their biodiesel blends, there have been an ever escalating number of injector deposit incidents in particular in High Pressure Common Rail (HPCR) fuel systems (ζ ~1500 Bar), causing deterioration in both performance and emissions. This is a global, industry-wide problem, impacting both on-road and non-road HPCR engines. These deposits tend to primarily be internal and difficult to remove. They can contain both organic and inorganic components. Sometimes the deposits can show up in the nozzle area. There are a number of potential causes. Some that have been cited are use of certain corrosion inhibitors, lubricity additives, low molecular weight detergents, acid carryover from biodiesel processing, and the ability of a fuel to withstand the higher temperature and pressure environment in the HPCR fuel system.

Organizers - Barbara Goodrich, John Deere Product Engineering Center

Panelists - David C. Arters, Lubrizol Corp.; Rinaldo Caprotti, Infineum UK, Ltd.; Richard Chapman, Innospec Fuel Specialties; Julie Galante-Fox, Afton Chemical Corp.; Richard Jones, BP Global Fuels Technology; Paul Lacey, Delphi Corp.;

Tuesday, September 18

Advanced Vehicle Technology Competitions

Session Code: FFL110

Room Saluhallsgangen

Session Time: 10:00

This session covers the work done by student teams in the EcoCAR 2: Plugging in to the Future competition series, sponsored by General Motors and the U.S. Department of Energy.

For SAE Powertrains, Fuels and Lubricants 2012, this session will detail the bulk of the engineering design work done by the teams in the first year of the series. This work includes powertrain architecture selection, control system modeling and simulation, and energy storage system design and component packaging.

Organizers - Patrick M. Walsh, Kristen G. De La Rosa, Brian Benoy, Argonne National Laboratory

Chairpersons - Thomas Wallner, Patrick Walsh, Argonne National Laboratory

Time	Paper No.	Title
10:00 a.m.	ORAL ONLY	Keynote - EcoCAR 2: Plugging In To The Future. Year 1 Summary of Design, Architecture Selection and Simulation <i>Patrick M. Walsh, Argonne National Laboratory</i>

10:30 a.m.	2012-01-1773	<p>Design, Development and Validation of the 2013 Penn State University E85 Series Plug-In Hybrid Vehicle</p> <p>Eduardo Barrientos, Aram Grigoryan, Gary Neal, Luke Shepley, The Pennsylvania State University</p>
11:00 a.m.	2012-01-1769	<p>Design and Development Process of a Parallel-Through-The-Road Plug-In Hybrid Electric Vehicle</p> <p>Christopher Reid, David Blekhman, Guadalupe Banales, Ren Fang, Phat Liu, California State Univ-Los Angeles</p>
11:30 a.m.	2012-01-1768	<p>Design of a Series-Parallel Plug-in Hybrid Sedan through Modeling and Simulation</p> <p>Matthew Doude, G. Marshall Molen, William Brown, Joshua Hoop, Jonathan Moore, William Dickerson, Mississippi State University</p>
12:00 p.m.	2012-01-1762	<p>Design of a Parallel-Series PHEV for the EcoCAR 2 Competition</p> <p>Katherine Bovee, Amanda Hyde, Shawn Midlam-Mohler, Giorgio Rizzoni, Matthew Yard, Travis Trippel, Matthew Organiscak, Andrew Garcia, Eric Gallo, Mark Hornak, Andrew Palmer, Josh Hendricks, Ohio State University</p>
	2012-01-1761	<p>The University of Waterloo Alternative Fuels Team's Approach to EcoCAR 2 (Written Only -- No Oral Presentation)</p> <p>Gurhari Preet Singh, Mark Cremasco, Eric Evenchick, Josh Lo, Michael Karpinski-Leydier, Trevor Sabiston, Brandon Walton, Roydon A. Fraser, Michael Fowler, University of Waterloo</p>
	2012-01-1763	<p>Designing a Parallel-Through-the-Road Plug-in Hybrid Electric Vehicle (Written Only -- No Oral Presentation)</p> <p>Haley M. Moore, Bryan Whitney Belt, Christopher Rhoades, Ashish Vora, Haotian Wu, Peter Meckl, Vahid Motevalli, Gregory Shaver, Oleg Wasynczuk, Haiyan Zhang, Purdue University</p>
	2012-01-1764	<p>An Innovative 4WD PHEV Utilizing a Series-Parallel Multiple-Regime Architecture (Written Only -- No Oral Presentation)</p> <p>Stefan Kaban, Jason Clancy Nelford, Zuomin Dong, Jian Dong, David Killy, Daniel Prescott, Curran Crawford, Univ. of Victoria</p>
	2012-01-1765	<p>Design of a Fuel Cell Plug-in Hybrid Electric Vehicle in a Range Extending Configuration by Colorado State University for the EcoCAR2 Competition (Written Only -- No Oral Presentation)</p> <p>Thomas Bradley, Benjamin Geller, Matthew Fox, Caleb Alvarado, Patrick Barrett, Hassan Habib, Zachary Koelling, Mohammad Malakoutirad, Jon Miksch, Shawn Salisbury, Steven Sewell, Cutter Shea, Matthew Zevenbergen, Colorado State Univ.; Jason Quinn, Utah State Univ.</p>
	2012-01-1767	<p>Development of a Parallel through the Road Plug-In Hybrid Electric Vehicle (Written Only -- No Oral Presentation)</p> <p>Trevor Fayer, Trevor Crain, University of Washington; Richard Wurden, A123 Systems Inc; Joshua Wilke, Brian Fabien, University of Washington</p>
	2012-01-1770	<p>Preliminary Design of a Bio-Diesel Plug-in Hybrid Electric Vehicle as part of EcoCAR 2: Plugging-in to The Future (Written Only -- No Oral Presentation)</p> <p>Brian Harries, Kenneth Leslie, Embry-Riddle Aeronautical University; Townsend Hyatt, Sandia National Laboratories; Brandon Smith, Cubic Simulation Systems Inc; Kenneth Meierjürgen, General Motors; Jenna Beckwith, Marc Compere, Embry-Riddle Aeronautical University</p>
	2012-01-1771	<p>The University of Tennessee's EcoCAR 2 Final Design Report (Written Only -- No Oral Presentation)</p> <p>Ryan Howell, Mltchel Routh, Travis Childress, Michael Pickelsimer, David Irick, David E. Smith, Univ. of Tennessee</p>

- 2012-01-1772** **Parallel-Through-The-Road Plug-In Hybrid Vehicle Design Development Process (Written Only -- No Oral Presentation)**
 Idan David Regev, Kevin Snyder, Jerry Ku, Rahul Harish, Love Lor, Xiao Liu, Wayne State University
- 2012-01-1774** **Vehicle System Design Process for a Series-Parallel Plug-in Hybrid Electric Vehicle (Written Only -- No Oral Presentation)**
 P. Christopher Manning, Eli White, R. Jesse Alley, Jonathan King, Douglas J. Nelson, Virginia Tech.

The papers in this session are available in SAE Technical Paper Collection, COLL-GTL-00001 and COLL-TP-00295, also individually. To purchase visit collections.sae.org

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

Tuesday, September 18

Emissions Measurement and Testing

Session Code: **FFL408**

Room **Saluhallsgangen**

Session Time: **13:30**

Papers are invited for this session covering emissions measuring techniques and testing regimes. This includes new analysis techniques and the novel application of existing techniques, the comparison of existing and proposed testing regimes with real world experience, including modeling.

Organizers - *Allen B. Duncan, Environmental Protection; Krishna Kamasamudram, Cummins Inc.; Tamas Szailer, Cummins Emission Solution*

Chairpersons - *Tamas Szailer, Cummins Inc*

Time	Paper No.	Title
1:30 p.m.	2012-01-1700	Understanding and Designing Automotive Evaporative Emission Control Systems <i>Sam Reddy, Evaporative Emissions Consulting Inc.</i>
2:00 p.m.	2012-01-1701	Adding Transient Cycle Capabilities to an Existing Engine Test Bench <i>Ondrej Gotfryd, Czech Technical University in Prague</i>
2:30 p.m.	2012-01-1702	Fuel Impact on Exhaust Emissions - Comparison of Two Diesel Fuels <i>Charlotte Sandstroem-Dahl, Jacob Almen, AVL MTC AB; Magnus Lindgren, Swedish Transport Administration</i>
3:00 p.m.	2012-01-1703	Emission Control Test Bench for SCR Testing <i>Kati Lehtoranta, Hannu Vesala, Leif Käll, Raimo Turunen, Sami Nyssönen, VTT Technical Research Centre Of Finland; Niko Soikkeli, Lucas Esselström, Wärtsilä Finland Oy</i>
3:30 p.m.		BREAK
4:00 p.m.	2012-01-1704	A Quantitative Study of Fuel Efficiency of Diesel Vehicles with Diesel Particulate Filter in Repeated Test Cycles <i>Shihoko Noguchi, Yasunori Sogawa, Hiroshi Kawaguchi, Tonen General Sekiyu K K; Naoki Kono, Japan Petroleum Energy Center</i>
4:30 p.m.	2012-01-1705	On Board Exhaust Emission Measurement on Heavy Duty Vehicles Driven on Alternative Fuels <i>Jacob Almen, AVL MTC AB; Per Ohlund, Swedish Transport Agency</i>

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

Tuesday, September 18

Advanced Lubricant Research & Development (Part 1 of 2)

Session Code: FFL508

Room Separaten

Session Time: 10:00

Discussions in this session involve lubricant research and development that is necessary to advance and support new automotive engineering technology. This year the topics include grease designed to reduce vehicle noise, characteristics of low viscosity engine oil that impact fuel economy and reliability and the characterization of diesel particulate filter ash and how this influences the development of filter regeneration strategies.

Organizers - Edward Akucewich, Lubrizol Corp.; Alain Gauthier, Total Supply and Marketing

Chairpersons - William Barton, Lubrizol, Ltd.; Alain Paul Gauthier, Total Supply and Marketing; Gary M. Walker, Lubrizol, Ltd.

Time	Paper No.	Title
10:00 a.m.	ORAL ONLY	Energy efficient lubricants through use of innovative viscosity modifiers Sonia Oberoi, Infineum USA LP
10:30 a.m.	2012-01-1614	Development of ILSAC GF-5 0W-20 Fuel Economy Gasoline Engine Oil Kosuke Fujimoto, Minoru Yamashita, Toyoharu Kaneko, Satoshi Hirano, Yusuke Ito, Toyota Motor Corporation; Shuzo Nemoto, Ko Onodera, TonenGeneral Sekiyu K.K.
11:00 a.m.	2012-01-1618	Fuel Economy Beyond ILSAC GF-5: Correlation of Modern Engine Oil Tests to Real World Performance Jeremy Styer, Gregory Guinther, Afton Chemical Corp.
11:30 a.m.	2012-01-1619	Development of a Novel Vehicle-Based Method to Assess the Impact of Lubricant Quality on Passenger Car Energy Efficiency Gregory Guinther, Jeremy Styer, Afton Chemical Corp.

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00302, and also individually. To purchase visit collections.sae.org

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

Tuesday, September 18

Advanced Lubricant Research & Development (Part 2 of 2)

Session Code: FFL508

Room Separaten

Session Time: 14:00

Discussions in this session involve lubricant research and development that is necessary to advance and support new automotive engineering technology. This year the topics include grease designed to reduce vehicle noise, characteristics of low viscosity engine oil that impact fuel economy and reliability and the characterization of diesel particulate filter ash and how this influences the development of filter regeneration strategies.

Organizers - Edward Akucewich, Lubrizol Corp.; Alain Gauthier, Total Supply and Marketing

Chairpersons - Alain Paul Gauthier, Total Supply and Marketing; Gary M. Walker, Lubrizol, Ltd.

Time	Paper No.	Title
2:00 p.m.	2012-01-1622	Development of New CNG-Gasoline (Bi-fuel) Lubricant, by Taxi Fleet Screening Test and Field Trial in Thailand Sunthorn Predapitakkun, PTT PLC; Boon Ping Chia, Infineum USA LP; Chetwana Rungwanitcha, PTT PLC; Tristan Tang, Infineum Singapore Pte Ltd

2:30 p.m.	2012-01-1615	Investigation of Engine Oil Effect on Abnormal Combustion in Turbocharged Direct Injection - Spark Ignition Engines Kazuo Takeuchi, Toyota Motor Co., Ltd.; Kosuke Fujimoto, Satoshi Hirano, Minoru Yamashita, Toyota Motor Corporation
3:00 p.m.	2012-01-1617	Engine Lube-Oil Consumption Stakes and Benefits from Significant Blow-by Oil Mist Reduction Nicolas Arnault, Samuel Bonne, SOGEFI Group
3:30 p.m.		BREAK
4:00 p.m.	2012-01-1620	Production of Biobased Lubricant Basestocks with Improved Performance George S. Dodos, George Anastopoulos, Fanourios Zannikos, National Technical University of Athens
4:30 p.m.	2012-01-1621	Influence of Lubricant on Impact Load in the Electromechanical Transmission Gear Peter Yakovlev, Gennady Dragunov, South Ural State University; Sergey P. Gladyshev, Michigan-Dearborn University

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00302, and also individually. To purchase visit collections.sae.org

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

Wednesday, September 19

Multi-Dimensional Engine Modeling

Session Code: FFL209

Room Audience

Session Time: 08:30

The spectrum of papers solicited for this session reflect the truly multidisciplinary nature of the field, covering advances in areas such as chemical kinetics, combustion and spray modeling, turbulence, mesh generation, and approaches targeting improved computational efficiency. Papers employing multi-dimensional modeling to gain a deeper understanding of processes related to turbulent transport, transient phenomena, and chemically reacting, two-phase flows are also encouraged.

Organizers - Thomas Edward Briggs, Southwest Research Institute; Rainer J. Rothbauer, Ignite 3d Engineering

Chairpersons - Helgi Skuli Fridriksson, Lund University; Martin Tuner, Lund Univ.

Time	Paper No.	Title
8:30 a.m.	2012-01-1714	A Computational Investigation into the Effects of Included Spray Angle on Heavy-Duty Diesel Engine Operating Parameters Raouf Mobasher, Zhijun Peng, Univ of Sussex
9:00 a.m.	2012-01-1715	A CFD Study of Fuel Evaporation and Related Thermo-fluid Dynamics in the Inlet Manifold, Port and Cylinder of the CFR Octane Engine Anja Thiart, Gareth Floweday, Sasol Advanced Fuels Laboratory, Univ. of Cape Town; Chris Meyer, University of Stellenbosch
10:00 a.m.		BREAK
	2012-01-1716	Using Large Eddy Simulation for Studying Mixture Formation and Combustion Process in a DI Diesel Engine (Written Only -- No Oral Presentation) Raouf Mobasher, Zhijun Peng, Univ. of Sussex

2012-01-1717

**Effect of Intake Air Filter Condition on Light-Duty Gasoline Vehicles
(Written Only -- No Oral Presentation)**

*John Thomas, Brian West, Shean Huff, Kevin Norman, Oak Ridge National
Laboratory*

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

Wednesday, September 19

Modeling of SI and Diesel Engines

Session Code: FFL208

Room Audience

Session Time: 10:30

Zero-dimensional, one-dimensional, and quasi-dimensional models for simulation of SI and CI engines with respect to: engine breathing and boosting; SI combustion and emissions; CI combustion and emissions; fundamentals of engine thermodynamics; thermal management; mechanical and lubrication systems; system level models for controls; system level models for vehicle fuel economy and emissions predictions.

Organizers - *Efthimos Pariotis, Hellenic Naval Academy; Rainer J. Rothbauer, Ignite 3d Engineering; Lurun Zhong, Chrysler Corporation LLC*

Chairpersons - *Helgi Skuli Fridriksson, Lund University; Martin Tuner, Lund Univ.*

Time

Paper No.

Title

10:30 a.m.

2012-01-1678

Study of Unconventional Cycles (Atkinson and Miller) with Mixture Heating as a Means for the Fuel Economy Improvement of a Throttled SI Engine at Part Load

*Lubomir Miklanek, Oldrich Vitek, Ondrej Gotfryd, Vojtech Klir, Czech
Technical University in Prague*

11:00 a.m.

2012-01-1679

Virtual GDI Engine as a Tool for Model-Based Calibration

*Rita Di Gioia, Domenico Papaleo, Fabio Massimo Vicchi, Magneti Marelli
Powertrain SPA; Nicolo Cavina, University of Bologna*

11:30 a.m.

2012-01-1680

A Monte Carlo Based Turbulent Flame Propagation Model for Predictive SI In-Cylinder Engine Simulations Employing Detailed Chemistry for Accurate Knock Prediction (Written Only -- No Oral Presentation)

*Simon Bjerkborn, Karin Frojd, Cathleen Perlman, LOGE AB; Fabian Mauss,
BTU Cottbus*

2012-01-1682

Numerical Model of Effect of Coolant Physical Properties on the Diesel Engine Liner Cavitation (Written Only -- No Oral Presentation)

*Gautam S. Chandekar, Cummins College of Engineering; Richard D.
Hercamp, Consultant, Cummins; Doug Hudgens, Cummins Filtration Inc*

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

Wednesday, September 19

Advanced Propulsion Systems

Session Code: FFL100

Room Audience

Session Time: 13:30

Hybrid powertrain technologies to be addressed include new and near-production hybrid powertrains, hybrid architecture, testing, hybrid fleet studies, drive-cycle analyses, energy usage calculations, charging communications for plug-in vehicles, energy management, hybrid powertrain system controls and more for PHEV, HEV, ZEV and other hybrid powertrain applications.

Organizers - *Sergey P. Gladyshev, Michigan-Dearborn University; Dohoy Jung, Univ. of Michigan-Dearborn; Liguang Li, Tongji Univ.; James Miller, Argonne National Laboratory; Hamid Servati, ServoTech.*

Engineering; David K. Trumpy, TES International; Serdar Yonak, Infineon Technologies North America Corp.

Chairpersons - Patrick M. Walsh, Argonne National Laboratory

Time	Paper No.	Title
1:30 p.m.	2012-01-1609	Development of Energy Management Strategies and Analysis with Standard Drive Cycles for Fuel Cell Electric Vehicles Prasada Rao Akula, Lakshmi Jandhyala, Mercedes-Benz R&D India; Frieder Herb, Daimler AG; Akash Narayana, Mercedes-Benz R&D India
2:00 p.m.	2012-01-1608	Research of Adaptability to Battery Energy on Heavy-Duty Hybrid Electric Vehicle Nobunori Okui, Tetsuya Niikuni, Terunao Kawai, National Traffic Safety & Enviro Lab.
2:30 p.m.	2012-01-1610	Permanent Magnetic Model Design and Characteristic Analysis of the Short-stroke Free Piston Alternator Huajie Ding, Xiumin Yu, College of Automotive Eng., Jilin Univ.; Junjie Li, Shanghai Volkswagen Automotive Company
	2012-01-1611	Lithium Ion Battery for Hybrid and Electric Mobility under Indian Ambient Conditions - A Perspective (Written Only -- No Oral Presentation) Kannan Subramanian, Ganeshkumar Ramakrishnan, Palanivelu Prabakaran, Mahindra & Mahindra Ltd.
	2012-01-1612	Axion PbC[®] Battery: Charge Acceptance Solution for Micro-Hybrid Vehicles (Written Only -- No Oral Presentation) Enders Dickinson, Philippe Westreich, Michael Romeo, Axion Power International Inc

The papers in this session are available in SAE Technical Paper Collection, COLL-GTL-00001, and also individually. purchase visit collections.sae.org

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

Wednesday, September 19

Fuel Injection and Sprays

Session Code: FFL210

Room Lilla Teatern

Session Time: 08:30

This session is devoted to experimental and computational work in the area of fuel injection systems and sprays. Topics include: spray characterization, cavitation, multi-phase jet modeling, CFD models for spray processes, wall films and impingement, hydraulic circuit analysis, and dissolved gas effects. Studies of gasoline, diesel and alternative fuel sprays and fuel injection equipment are encouraged.

Organizers - David L.S. Hung, Univ of Michigan-SJTU Joint Inst.; Tiegang Fang, North Carolina State Univ.

Chairpersons - Mattias Richter, Lund Univ.

Time	Paper No.	Title
8:30 a.m.	2012-01-1652	Computational Evaluation of Nozzle Flow and Cavitation Characteristics in a Diesel Injector Hagar Alm El-Din Bastawissi, Huazhong University of Science and Technology; Medhat Elkelawy, Tanta University
9:00 a.m.	2012-01-1654	Spray and Failure Analysis of Porous Injection Nozzles Noud Maes, Jos Reijnders, Michael Boot, Carlo Luijten, Philip de Goey, Technische Universiteit Eindhoven; Marcel Dhaenens, Fontys Hogescholen

9:30 a.m.	2012-01-1658	<p>Quantitative DISI Spray Vapor Temperature Study for Different Biofuels by Two-Line Excitation Laser-Induced Fluorescence</p> <p><i>Tobias Knorsch, Johannes Trost, Lars Zigan, Michael Wensing, Alfred Leipertz, Univ. of Erlangen-Nuremberg (FAU)</i></p>
10:00 a.m.		BREAK
10:30 a.m.	2012-01-1659	<p>Simulation of the μMist[®] Fuel Injection System's Fine Droplet Spray Air-Entrainment from Injection Point, within the Intake Manifold, to the Cylinder</p> <p><i>Novid Beheshti; Richard Walker, Swedish Biomimetics 3000</i></p>
11:00 a.m.	2012-01-1660	<p>Numerical Simulation of the ECN Spray A Using Multidimensional Chemistry Coordinate Mapping: n-Dodecane Diesel Combustion</p> <p><i>Mehdi Jangi, Lund University; Gianluca D'Errico, Politecnico di Milano; Xue-Song Bai, Lund University; Tommaso Lucchini, Politecnico di Milano</i></p>
	2012-01-1655	<p>An Experimental Study on High Pressure Pulsed Jets for DI Gas Engine Using Planar Laser-Induced Fluorescence (Written Only -- No Oral Presentation)</p> <p><i>Jingzhou Yu, Ville Vuorinen, Harri Hillamo, Teemu Sarjovaara, Ossi Kaario, Martti Larmi, Aalto University</i></p>
	2012-01-1657	<p>Comparative Analysis of Two Injection Systems Fueled with Biodiesel (Written Only -- No Oral Presentation)</p> <p><i>Radu Rosca, Gheorghe Manolache, Petru Carlescu, Ioan Tenu, University of Agricultural Sciences Iasi</i></p>
	2012-01-1662	<p>Experimental and Numerical Investigations into Diesel High-Pressure Spray - Wall Interaction under Various Ambient Conditions (Written Only -- No Oral Presentation)</p> <p><i>Krzysztof Wislocki, Ireneusz Pielecha, Jakub Czajka, Pawel Stobnicki, Poznan Univ. of Technology</i></p>

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00299, and also individually. To purchase visit collections.sae.org

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

Wednesday, September 19

Fuel & Additive Effects on CI Engine Performance (Part 2 of 2)

Session Code: FFL205

Room Norra Hallen

Session Time: 08:30

This session presents work investigating the effect of fuel composition on CI engine performance in terms of combustion efficiency, emissions and engine hardware durability. Variations in fuel composition include the inclusion of aromatic compounds, the blending of oxygenated components and the use of additives for cetane number improvement and lubricity enhancement.

Organizers - Rinaldo Caprotti, Infineum UK, Ltd.; Barbara Goodrich, John Deere Product Engineering Center; Simona Silvia Merola, Istituto Motori CNR; Charles Mueller, Sandia National Laboratories; Paul Richards

Chairpersons - Rinaldo Caprotti, Infineum UK, Ltd.; Barbara Goodrich, John Deere Product Engineering Center

Time	Paper No.	Title
------	-----------	-------

8:30 a.m.	2012-01-1683	Performance and Emission Analysis of a Single Cylinder Constant Speed Diesel Engine Fuelled with Diesel-Methanol-Isopropyl Alcohol Blends Sundarraaj Chockalingam, AVC College of Engineering, India; Saravanan Ganapathy, Annamalai University, India
9:00 a.m.	2012-01-1688	Combustion Studies with FACE Diesel Fuels: A Literature Review Junghwan Kim, C. Scott Sluder, Robert M. Wagner, Oak Ridge National Laboratory
9:30 a.m.	2012-01-1690	Combustion Characteristics of a Dual Fuel Diesel Engine with Natural Gas (Lower limit of Cetane Number for Ignition of the Fuel) Yasufumi Yoshimoto, Niigata Inst. of Technology; Eiji Kinoshita, Kagoshima Univ.; Shanbu Luge, Takatoshi Ohmura, Niigata Inst. of Technology
10:00 a.m.		BREAK
10:30 a.m.	2012-01-1691	Activation and Control of Autoignition in HCCI Engines Using Volumetrically-Distributed Ignition of As-Produced Single-Walled Carbon Nanotubes Bruce Chehroudi, Advanced Technology Consultants
11:00 a.m.	2012-01-1694	Onboard Optimisation of Engine Emissions and Consumption According to Diesel Fuel Quality Eric Hermitte, Alain Lunati, SP3H; Thaddaeus Delebinski, IAV
11:30 a.m.	2012-01-1624	Combustion and Emission Characteristics of a Typical Biodiesel Engine Operated on Waste Cooking Oil Derived Biodiesel Abul Kalam Hossain, Philip Andrew Davies, Aston University
	2012-01-1695	A Comparison of Combustion and Emissions of Diesel Fuels and Oxygenated Fuels in a Modern DI Diesel Engine (Written Only -- No Oral Presentation) Eric M. Kurtz, Douglas Kuhel, James E. Anderson, Sherry A. Mueller, Ford Motor Company
	2012-01-1697	The Effect of the Position of Oxygen Group to the Aromatic Ring to Emission Performance in a Heavy-Duty Diesel Engine (Written Only - - No Oral Presentation) Lei Zhou, M.D. Boot, L.P.H. de Goey, Eindhoven University Of Technology

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00297, and also individually. To purchase visit collections.sae.org

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

Wednesday, September 19

Biofuels Workshop (Part 1 & 2)

Session Code: FFL700

Room Saluhallen

Session Time: 09:00

This workshop focused on the Next Generation Biofuels.

This session covers 'Biomass to Liquid' technology, especially Gasification and FT synthesis.

The techno-economic analysis of biofuel is also introduced and discussed.

Organizers - Muriel Desaegeer, Toyota Motor Europe; Midori Mori, Toyota Motor Corporation

Moderators - Ausilio Bauen, E4Tech; Jeremy Woods, Imperial College

Time	Paper No.	Title
------	-----------	-------

9:00 a.m.	ORAL ONLY	Opening Remarks <i>Muriel Desaegar, Toyota Motor Europe</i>
9:15 a.m.	ORAL ONLY	A Model-Based Techno-Economic Analysis of Second-Generation Biofuels <i>Takuya Hara, Toyota Central R&D Labs Inc.</i>
9:40 a.m.	ORAL ONLY	Technologies for the Production of High Quality Biofuels from a Wider Range of Biomass Feedstock <i>Stephane Fedou, Axens</i>
10:05 a.m.	ORAL ONLY	Key Issues for the Thermo-Chemical Pathway to Renewable Fuels <i>Ingvar Landälv, Chemrec AB</i>
10:30 a.m.		BREAK
10:50 a.m.	ORAL ONLY	Towards Sustainable Commercial-Scale Production of Algae Biofuels - from the Laboratory to the Pilot Plant <i>Michael Borowitzka, Murdoch University</i>
11:15 a.m.	ORAL ONLY	Fuel from Microalgae: Integration with Photovoltaics Allow to Achieve a Positive Energy Balance of Algae Biomass Production <i>Mario R. Tredici, Univ. of Florence</i>
11:40 a.m.	ORAL ONLY	Tailored Oils: Bio-Based Feedstocks for Renewable Fuel and Renewable Chemical Production <i>Bob Ames, Solazyme Inc.</i>

Wednesday, September 19

Biofuels Workshop (Part 3)

Session Code: FFL700

Room Saluhallen

Session Time: 13:30

This workshop focused on the Next Generation Biofuels.

This session is the panel discussion. The key points that raised in the Part1(BTL) and Part2(Algae) will be addressed and discussed by presenters(Part1&2) and panelists who are in oil and car industry.

Organizers - *Muriel Desaeger, Toyota Motor Europe NV/SA; Midori Mori, Toyota Motor Corporation*

Moderators - *Ausilio Bauen, E4tech; Jeremy Woods, Imperial College*

Panelists - *Bob Ames, Solazyme Inc.; Michael Borowitzka, Murdoch University; Stephane Fedou, Axens; Takuya Hara, Toyota Central R&D Labs Inc.; Stewart Kempell, Shell Intl. Petroleum Co., Ltd.; Dorothee Lahaussais, Toyota Motor Europe; Ingvar Landälv, Chemrec AB; Mario R. Tredici, Univ. of Florence; Rolf Willkrans, Volvo;*

Wednesday, September 19

Particle Emissions from Combustion Sources

Session Code: FFL409

Room Saluhallsgangen

Session Time: 08:30

Papers are invited for this session on particle emissions from combustion engines, including measurement and testing methods, and the effects of changes in fuel composition. Papers are also invited on the topics of the environmental and health effects of elemental carbon and organic carbon that constitutes solid cored particles plus the environmental and health effects of secondary organic aerosol emissions. This includes particulate emissions from both gasoline and diesel engines.

Organizers - *Imad A. Khalek, Southwest Research Institute; John M. Storey, Oak Ridge National Laboratory*

Chairpersons - *John Hoard, Univ. of Michigan-Ann Arbor*

<i>Time</i>	<i>Paper No.</i>	<i>Title</i>
8:30 a.m.	2012-01-1664	Reduction of Heavy-Duty Diesel Exhaust Particle Number and Mass at Low Exhaust Temperature Driving by the DOC and the SCR Panu Karjalainen, Topi Ronkko, Tero Lahde, Antti Rostedt, Jorma Keskinen, Tampere Univ of Technology; Sanna Saarikoski, Minna Aurela, Risto Hillamo, Finnish Meteorological Institute; Aleksi Malinen, Liisa Pirjola, Metropolia Univ of Applied Sciences; Arno Amberla, Proventia Emission Control Oy
9:00 a.m.	2012-01-1663	Effects of Biodiesel Distillation Process of Waste Cooking Oil Blends on DPF Behavior Stefano Cordiner, Francesco Mecocci, Vincenzo Mulone, Vittorio Rocco, University of Rome Tor Vergata
10:00 a.m.		BREAK
	2012-01-1666	Effects of Biodiesel Blends on Emissions of a Diesel Engine Using DPF (Written Only -- No Oral Presentation) Ilias Stogiantzikis, T.E.I. of Serres; Merkourios Gogos, John Triandafyllis, T.E.I. of Thessaloniki

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

Wednesday, September 19

In-Use and On-Board Emissions Measurement

Session Code: FFL410

Room Saluhallsgangen

Session Time: 10:30

Papers are invited for this session on engine emissions measurement from an in-use and OBD perspective. This covers data collection during real-world operation, including various advanced analysis techniques to report and determine emissions levels under in-use operations. It also covers the topics related to the on-board detection of emissions for control of aftertreatment devices and to ensure continued functionality of emissions compliance strategies.

Organizers - Shouxian Ren, General Motors LLC; Hui Xu, Cummins

Chairpersons - John Hoard, Univ. of Michigan-Ann Arbor

<i>Time</i>	<i>Paper No.</i>	<i>Title</i>
10:30 a.m.	ORAL ONLY	Validation of CO2 Reduction Effects and Analysis of Real-world Emissions with Eco-driving - Relationship between Eco-driving Techniques and CO2 and NOx Emission Characteristics of Diesel Freight Vehicles - Susumu Sato, Tokyo Institute of Technology; Hisakazu Suzuki, National Traffic Safety & Enviro Lab; Masayoshi Miya, Norimasa Iida, Keio Univ
11:00 a.m.	2012-01-1672	Mileage Influence on Conversion Efficiency of Catalytic Converter from In-Use Vehicles Leonid Tartakovsky, Vladimir Baibikov, Mark Veinblat, Doron Popescu, Yoram Zvirin, Marcel Gutman, Technion Israel Inst. of Technology
11:30 a.m.	2012-01-1673	Inference of Steady-state Non-road Engine Exhaust Emissions Values from Non-stabilized Data Michal Vojtisek-Lom, Czech Technical University of Prague

- 12:00 p.m. 2012-01-1674 **Comparison of Gaseous Emissions for B100 and Diesel Fuels for Real World Urban and Extra Urban Driving**
 Seyed Ali Hadavi, Hu Li, The University of Leeds, UK; Grzegorz Przybyla, Silesian University of Technology; Ross Jarrett, Gordon Andrews, The University of Leeds, UK
- 2012-01-1676 **Development of New On-Board Diagnostic (OBD) Methods for Three-Way Catalysts Applicable to Various Driving: Examples of Application to a CNG Vehicle (Written Only -- No Oral Presentation)**
 Umerujan Sawut, Nikki Co., Ltd.

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

Wednesday, September 19

Exhaust Emission Control: Modeling

Session Code: FFL407

Room Saluhallsgangen

Session Time: 13:30

Papers are invited for this session covering diesel engine exhaust aftertreatment system models as well as their validation and application. Technologies covered include DOC, HC Trap, DPF, LNT, SCR, ammonia oxidation catalysts, hybrid or combined catalysts, urea-water solution spray dynamics, and mixture non-uniformity. Modeling aspects range from fundamental, 3D models of individual components to system level simulation, optimization, and control.

Organizers - Maruthi Devarakonda, Pacific Northwest National Laboratory; Vincenzo Mulone, University of Rome Tor Vergata

Chairpersons - Vincenzo Mulone, University of Rome Tor Vergata

Time	Paper No.	Title
1:30 p.m.	2012-01-1636	Tuning the Standard SCR Reaction Kinetics to Model NO Conversion in a Diesel Engine Exhaust SCR Catalyst System Under Steady State Conditions in 1D and 3D Geometries Using Ammonia Gas as the Reductant S. F. Benjamin, M. Gall, C. A. Roberts, Coventry University, UK
2:00 p.m.	2012-01-1637	The Effects of Jatropa-derived Biodiesel on Diesel Engine Combustion and Emission Characteristics XiaoDan Cui, Teagun Kim, Yusuke Fujii, Jin Kusaka, Yasuhiro Daisho, WASEDA University; Manida Tongroon, Nuwong Chollacoop, MTEC
2:30 p.m.	2012-01-1638	Limitations of Global Kinetic Parameters for Automotive Application Jonathan Stewart, Roy Douglas, Alexandre Goguet, Laura Glover, Queen's Univ of Belfast

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

Wednesday, September 19

Driveline Lubricants

Session Code: FFL509

Room Separaten

Session Time: 08:30

Discussions in this session involve lubricant studies that offer improvements to current fluids, alterations of test methods or provide new insights into how lubricants impact current technology.

Organizers - Alain Gauthier, Total Supply and Marketing; Timothy P. Newcomb, BorgWarner Inc.; Richard Vickerman, Lubrizol Corp.

Chairpersons - Alain Paul Gauthier, Total Supply and Marketing

Time	Paper No.	Title
8:30 a.m.	2012-01-1671	The Limitations of the Viscosity Index and Proposals for Other Methods to Rate Viscosity-Temperature Behavior of Lubricating Oils Jack Zakarian, Chevron Lubricants
9:30 a.m.	2012-01-1667 ORAL ONLY	Impact of Viscosity Modifiers on Gear Oil Efficiency and Durability: Part 2 William Barton, Lubrizol Limited; Daniel Knapton, Mark Baker, Lubrizol Corp; Andrew Rose PhD, Lubrizol Limited; Elizabeth Schiferl, Michael E. Huston, Lubrizol Corp; Gareth Brown, Gregory Hunt, Lubrizol Limited
10:00 a.m.		BREAK
10:30 a.m.	2012-01-1668	Understanding MTF Additive Effects on Synchroniser Friction - Part 2, Structure Performance Analysis G.M. Walker, G. Brown, C. Friend, W. R. S. Barton, A. Rose, Lubrizol Limited; B. M. O'Connor, M. E. Huston, C. McFadden, The Lubrizol Corp.; Y. Higuchi, Lubrizol Japan Limited
11:00 a.m.	2012-01-1669	Anatomy of an L-37 Hypoid Gear Durability Test Ridging Failure Chris McFadden, Lubrizol Corp.; William Barton, Lubrizol Ltd.; Edward Akucewich, Lubrizol Corp.; Lisa Blanz, Lubrizol Ltd.; Michael Huston, Wes Venhoff, James Supp, Lubrizol Corp.
11:30 a.m.	2012-01-1670	Development of Next-Generation Continuously Variable Transmission Fluid Technology Sang Yeob Cha, Hyundai Motor Co. & KIA Motor Corp.; David Whitticar, Lubrizol Corporation; Ananda Gajanayake, Masahiko Ikeda, Lubrizol Japan Ltd

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

Thursday, September 20

Gaseous Fueled Engines and Vehicles

Session Code: FFL106

Room Audience

Session Time: 08:30

This session covers several aspects related to the use of gaseous fuels in engines and vehicles. While the main focus of the session is on natural gas for light- and heavy-duty applications, hydrogen as a fuel is also discussed.

Organizers - Riccardo Scarcelli, Argonne National Laboratory; Dohoy Jung, Univ. of Michigan-Dearborn; Sebastian Verhelst, Ghent University; Thomas Wallner, Argonne National Laboratory; Patric Ouellette, Westport Innovations Inc.

Chairpersons - Sebastian Verhelst, Ghent University; Thomas Wallner, Argonne National Laboratory

Time	Paper No.	Title
8:30 a.m.	2012-01-1649	Feasibility Study of Exhaust Emissions in a Natural Gas Diesel Dual Fuel (DDF) Engine Satoshi Taniguchi, Masahiko Masubuchi, Koji Kitano, Kazuhisa Mogi, Toyota Motor Corporation

9:00 a.m.	2012-01-1651	A Study on the Characteristics of Natural Gas Combustion at a High Compression Ratio by Using a Rapid Compression and Expansion Machine Akira Kikusato, Hiroyuki Fukasawa, Kazutoshi Nomura, Jin Kusaka, Yasuhiro Daisho, Waseda Univ
9:30 a.m.	2012-01-1647	Influence of Natural Gas Composition on Turbocharged Stoichiometric SI Engine Performance Jiri Vavra, Michal Takats, Vojtech Klir, Marcel Skarohlid, Czech Technical Univ.
10:00 a.m.		BREAK
10:30 a.m.	2012-01-1650	Feasibility Study of a Fossil Fueled Zero Emission Vehicle Sebastian Stenger, Energy Technology; Steffi Köhler, Anna-Theresia Nasch, Reinhard Leithner, Stephan Scholl, Ulrike Krewer, Peter Eilts, Technische Universität Braunschweig
11:00 a.m.	2012-01-1646	Working Fluid Properties Variation During Combustion in Premixed Charge Hydrogen Engines Adrian Irimescu, Politehnica University of Timisoara

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

Thursday, September 20

Fuel & Additive Effects on SI Engine Performance

Session Code: FFL203

Room Audience

Session Time: 14:00

This session focuses on the impact of conventional and alternative fuels as well as fuel additives on the operation, performance and emissions of SI engines. Papers focus on the impact of bio-derived fuels (ethanol, butanol and others) on engine design and performance as well as gasoline properties and additives, and their impact.

Organizers - William P Attard, MAHLE Powertrain LLC; Thomas Edward Briggs, Southwest Research Institute; Thomas Wallner, Argonne National Laboratory

Chairpersons - Sebastian Verhelst, Ghent University; Thomas Wallner, Argonne National Laboratory

Time	Paper No.	Title
2:00 p.m.	2012-01-1741	Cold-Start/Warm-Up Vehicle Performance and Driveability Index for Gasolines Containing Isobutanol James Baustian, Butamax Advanced Biofuels, LLC; Leslie Wolf, BP
2:30 p.m.	2012-01-1740	GEM Ternary Blends of Gasoline, Ethanol and Methanol: An Initial Investigation into Fuel Spray and Combustion Characteristics in a Direct-Injected Spark-Ignition Optical Engine Using Mie Imaging G Pitcher, J W G Turner, R J Pearson, Lotus Engineering
3:00 p.m.	2012-01-1742	Influence of Laminar Burning Velocity on Performance of Gasoline Engines Roger Cracknell, Shell Global Solutions (UK); Arjun Prakash, Shell Global Solutions (US) Inc.; Robert Head, Shell Global Solutions (UK)
3:30 p.m.		BREAK
4:00 p.m.	2012-01-1738	The Application of Telematics to the High-Precision Assessment of Fuel-Borne Fuel Economy Additives Stephen R. Nattrass, Wayne R. Jones, Shell Global Solutions (UK)

Thursday, September 20

Mixing-Controlled CI Combustion (Part 1 of 2)

Session Code: FFL204

Room Lilla Teatern

Session Time: 08:30

Features CI combustion technologies distinguished by 1) mixing processes that influence combustion; and 2) combustion phasing closely coupled to the timing of fuel injection. Includes the impact of the fuel injection and jet-mixing processes (e.g. multiple injection strategies, group-hole/ complex injector geometries); impact of swirl/spray targeting on mixing processes; combustion chamber/engine geometry optimization; sources of combustion inefficiency; and the impact of operating conditions.

Organizers - Kalyan Srinivasan, Mississippi State Univ.; Theodoros Zannis, Hellenic Naval Academy

Chairpersons - Oivind Andersson, Lund University

Time	Paper No.	Title
8:30 a.m.	2012-01-1719	Effects of Variable Inlet Valve Timing and Swirl Ratio on Combustion and Emissions in a Heavy Duty Diesel Engine Malin Ehleskog, Volvo Group Truck Technology; Savo Gjirja, Ingemar Denbratt, Chalmers University of Technology
9:00 a.m.	2012-01-1721	The Influence of Fuel Injection Pressure and Intake Pressure on Conventional and Low Temperature Diesel Combustion Sangwook Han, Choongsik Bae, Korea Advanced Inst of Science & Tech.
9:30 a.m.	2012-01-1723	UV-Visible Imaging and Natural Emission Spectroscopy of Premixed Combustion in High Swirl Multi-Jets Compression Ignition Engine Fuelled with Diesel-Gasoline Blend Simona Silvia Merola, Cinzia Tornatore, Gerardo Valentino, Luca Marchitto, Istituto Motori CNR
10:00 a.m.		BREAK
10:30 a.m.	2012-01-1724	Effects of the Biodiesel Fuel Physical Properties on the Swirl Stabilised Spray Combustion Characteristics Mohd Fairus Mohd Yasin, University of Cambridge, Universiti Teknologi Malaysia; Stewart Cant, Dept. of Engineering, Univ. of Cambridge; Cheng Tung Chong, Universiti Teknologi Malaysia; Simone Hochgreb, Dept. of Engineering, Univ. of Cambridge
11:00 a.m.	2012-01-1722	Nanostructure Analysis of Primary Soot Particles Directly Sampled in Diesel Spray Flame via HRTEM Masanori Sakai, Hiroki Iguma, Katsufumi Kondo, Tetsuya Aizawa, Meiji University

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00296, and also individually. To purchase visit collections.sae.org

Thursday, September 20

Mixing-Controlled CI Combustion (Part 2 of 2)

Session Code: FFL204

Room Lilla Teatern

Session Time: 14:00

Features CI combustion technologies distinguished by 1) mixing processes that influence combustion; and 2) combustion phasing closely coupled to the timing of fuel injection. Includes the impact of the fuel injection and jet-mixing processes (e.g. multiple injection strategies, group-hole/ complex injector geometries); impact of swirl/spray targeting on mixing processes; combustion chamber/engine geometry optimization; sources of combustion inefficiency; and the impact of operating conditions.

Organizers - Kalyan Srinivasan, Mississippi State Univ.; Theodoros Zannis, Hellenic Naval Academy

Chairpersons - Magnus Sjoberg, Sandia National Laboratories

Time	Paper No.	Title
2:00 p.m.	2012-01-1725	Phenomenological Modelling of Oxygen-Enriched Combustion and Pollutant Formation in Heavy-Duty Diesel Engines using Exhaust Gas Recirculation <i>Dimitrios Hountalas, Spiridon Raptotasios, National Technical Univ. of Athens; Theodoros Zannis, Hellenic Naval Academy; Roussos Papagiannakis, Hellenic Air Force Academy</i>
2:30 p.m.	2012-01-1718	Air-Entrainment in Wall-Jets Using SLIPI in a Heavy-Duty Diesel Engine <i>Clement Chartier, Johan Sjöholm, Elias Kristensson, Oivind Andersson, Mattias Richter, Bengt Johansson, Marcus Alden, Lund University</i>
3:00 p.m.	2012-01-1726	Time and Spatially Resolved Measurements of the Interaction of Combusting Diesel Spray and Walls with Elevated Temperatures <i>Frank Robert Held, LTT & SAOT Erlangen; Thomas Werblinski, LTT Erlangen; Thomas Vogel, Michael Wensing, LTT & SAOT Erlangen</i>
3:30 p.m.		BREAK

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00296, and also individually. To purchase visit collections.sae.org

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

Thursday, September 20

New CI & SI Engines and Components (Part 1 of 2)

Session Code: FFL500

Room Norra Hallen

Session Time: 08:30

This session covers topics regarding new CI and SI engines and components. This includes analytical, experimental, and computational studies covering hardware development as well as design and analysis techniques.

Organizers - Gareth Dowd, BP; Jeffrey Naber, Michigan Technological Univ.; Andreas Panayi

Time	Paper No.	Title
8:30 a.m.	2012-01-1754	Oil Filter Clogging Rule - Correlation between Mileage and Lab Test Clogging <i>Samuel Bonne, Nicolas Arnault, Sogefi Group</i>
9:00 a.m.	2012-01-1750	Improvements in Fuel Efficiency through Improvements in Cord Reinforcements for Timing Belts <i>Chris A. Stevens, Craig H. Hayes, NGF Europe Limited</i>
9:30 a.m.	2012-01-1753	Concepts and Evolution of Injector for Common Rail System <i>Shuichi Matsumoto, Koichi Yamada, Kenji Date, DENSO CORPORATION</i>
10:00 a.m.		BREAK

10:30 a.m.	2012-01-1623	Layout and Optimization of a Piston Ring-pack for AUDI V6 SI-engine Thomas Hellwig, Martin Knoerr, Georg Wachtmeister, Technische Universitaet Muenchen
11:00 a.m.	2012-01-1751	Internal Combustion Engine Blow-by Modeling: Importance of Thermal Environment Simulation for an Accurate Prediction Gabriel Cavallaro, Fabrice DEMESSE, Pierre-Damien MASSON, PSA Peugeot Citroën

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00301, and also individually. To purchase visit collections.sae.org

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

Thursday, September 20

New CI & SI Engines and Components (Part 2 of 2)

Session Code: FFL500

Room Norra Hallen

Session Time: 14:00

This session covers topics regarding new CI and SI engines and components. This includes analytical, experimental, and computational studies covering hardware development as well as design and analysis techniques.

Organizers - Gareth Dowd, BP; Jeffrey Naber, Michigan Technological Univ.; Andreas Panayi

Time	Paper No.	Title
2:00 p.m.	2012-01-1749	Experimental Analysis of Engine Exhaust Waste Energy Recovery Using Power Turbine Technology for Light Duty Application Rutger Dijkstra, Michael Boot, Ruud Eichhorn, David Smeulders, Eindhoven University of Technology; Johan Lennblad, Volvo Cars; Alexander Serrarens, Drivetrain Innovations BV
2:30 p.m.	2012-01-1625	Analysis of Ticking Noise from Cam Bearing of a Diesel Engine Jouji Kimura, Ayumi Kasai, Shuji Saitoh, Atsushi Yamamoto, Isuzu Motors Ltd.; Naoya Takeshige, Isuzu Technical Center of Asia Co., Ltd.
3:30 p.m.		BREAK
	2012-01-1752	Development of a Low Friction Chain Drive System for Gasoline Engines (Written Only -- No Oral Presentation) Hong-Kil Baek, Hyundai & Kia Corp.; HoYoung Kang, Borg Warner
	2012-01-1755	Novel Crankshaft Mechanism and Regenerative Braking System to Improve the Fuel Economy of Light Duty Vehicles and Passenger Cars (Written Only -- No Oral Presentation) Alberto Boretti, Missouri Univ. of Science and Tech.; Joseph Scalzo, Automotive Research Pty Ltd

The papers in this session are available in SAE Technical Paper Collection, COLL-TP-00301, and also individually. To purchase visit collections.sae.org

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

Thursday, September 20

Engine Boosting Systems

Session Code: FFL501

Room Norra Hallen**Session Time: 16:00**

Trends of ever increasing power density, better fuel economy and now reduced emissions are increasing focus on turbocharging/ supercharging and turbochargers/ superchargers, as part of overall engine system optimization. Increased amounts of EGR and use of aftertreatment devices present new challenges. This session will cover conceptual, modeling and experimental studies relating to advanced turbochargers/superchargers and advanced boosting systems to respond to above challenges.

Organizers - Philip Keller, BorgWarner Inc.; Ahmet Selamet, Ohio State Univ.; Kevin V. Tallio, Ford Motor Co.

Chairpersons - Philip Keller, BorgWarner Inc

Time	Paper No.	Title
4:30 p.m.	2012-01-1737	Effects of Variable Speed Supercharging Using a Continuously Variable Planetary on Fuel Economy and Low Speed Torque Scott McBroom, Robert A. Smithson, Roberto Urista, FallBrook Technologies Inc.; Christopher Chadwell, Southwest Research Institute
5:00 p.m.	2012-01-1735	Assessing Boost-Assist Options for Turbocharged Engines Using 1-D Engine Simulation and Model Predictive Control Alexander Darlington, Dariusz Cieslar, Nick Collings, Keith Glover, Univ of Cambridge
	2012-01-1734	System Optimization of Turbo-Compound Engine (Second Report: Effects of Compression Ratio) (Written Only -- No Oral Presentation) Mitsunori Ishii, Kanagawa Institute of Technology

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

Thursday, September 20

Gasoline Compression Ignition, GCI

Session Code: FFL600

Room Saluhallen**Session Time: 08:30**

This session focuses on kinetically controlled combustion. Experimental and simulation studies pertaining to various means of controlling combustion are welcome. Examples are research studies dealing with temperature and composition distribution inside the cylinder and their impact on heat release process. Studies clarifying the role of fuel physical and chemical properties in autoignition are also welcome.

Organizers - Bengt Johansson, Lund University

Chairpersons - Maja Novakovic, Lund University

Time	Paper No.	Title
8:30 a.m.	ORAL ONLY	Gasoline Compression Ignition Combustion in Light and Heavy Duty Engines Vittorio Manente, Volvo
9:00 a.m.	ORAL ONLY	Outlook on transport Fuels and GCI Gautam Kalghatgi, Saudi Aramco
9:30 a.m.	ORAL ONLY	Multizone Stratified Compression Ignition (MSCI) - A Practical Approach to High Efficiency and Low Emissions Stephen Ciatti, Argonne National Laboratory
10:00 a.m.		BREAK
10:30 a.m.	ORAL ONLY	Reactivity Controlled Compression Ignition Combustion on a Multi-Cylinder Light-Duty Diesel Engine Robert M. Wagner, Oak Ridge National Laboratory

11:00 a.m. **ORAL ONLY** **Dual Fuel Reactivity Controlled Compression Ignition (RCCI) Research at the University of Wisconsin-Madison's Engine Research Center**

Adam B. Dempsey, University of Wisconsin

Panel **Panel discussion with all speakers**

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

Thursday, September 20

High Efficiency IC Engines

Session Code: **FFL216**

Room Saluhallen

Session Time: **14:00**

This session will highlight technologies impacting IC engine efficiency, including engine downsizing, pressure boosting and turbocharging; intelligent combustion such as high dilution, low temperature and stratified charge; variable compression ratios and fully variable valvetrains; advanced fuel injection technologies, and much more.

Organizers - *Terrence Alger, Southwest Research Institute; Bengt Johansson, Lund University; Robert M. Wagner, Oak Ridge National Laboratory*

Chairpersons - *Bengt Johansson, Lund University; Robert M. Wagner, Oak Ridge National Laboratory*

Time	Paper No.	Title
2:00 p.m.	2012-01-1602	Waste Heat Recovery from Multiple Heat Sources in a HD Truck Diesel Engine Using a Rankine Cycle - A Theoretical Evaluation <i>Prakash Narayanan Arunachalam, Mengqin Shen, Martin Tuner, Per Tunestal, Marcus Thern, Lund University</i>
2:30 p.m.	2012-01-1603	Potential of Exhaust Heat Recovery by Turbocompounding <i>Youssef Ismail, VALEO-Ecole Centrale de Nantes; David Durrieu, Pascal Menegazzi, VALEO; Pascal Chesse, David Chalet, Ecole Centrale de Nantes</i>
3:00 p.m.	2012-01-1604	Analysis of Errors in Heat Release Calculations Due to Distortion of the In-Cylinder Volume Trace from Mechanical Deformation in Optical Diesel Engines <i>Ulf Aronsson, Volvo Group Trucks Technology; Hadeel Solaka, Guillaume Lequien, Oivind Andersson, Bengt Johansson, Lund University</i>
3:30 p.m.		BREAK
4:00 p.m.	2012-01-1601	Off-Cycle Fuel Consumption Evaluation of Stop-Start Systems <i>Ian Whittal, Transport Canada</i>
4:30 p.m.	2012-01-1606	Drive Cycle Analysis of Load Control Strategies for Methanol Fuelled ICE Vehicle <i>Kaname Naganuma, Jeroen Vancoillie, Louis Sileghem, Sebastian Verhelst, Ghent University; James Turner, Richard Pearson, Lotus Engineering Ltd; Kris Martens, Karel De Grote-Hogeschool</i>
	2012-01-1605	Optimization of Specific Fuel Oil Consumption and Emission Considering Part Load Operation in Marine Generator Engines (Written Only -- No Oral Presentation) <i>Byong Seok Kim, Kidoo Kim, Wook Yoon, Hyundai Heavy Industries Co., Ltd.</i>

2012-01-1607 Study on Variable Combustion Chamber (VCC) Engines (Written Only -- No Oral Presentation)

Jian Dong, Lin Ouyang, Yue Zhou, Qingchuan Pan, Wuhan University of Technology

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

Thursday, September 20

Exhaust Emission Control: Adv Catalysts, Particulate Filter Systems, System Integration & Durability

Session Code: FFL402

Room Saluhallsgangen

Session Time: 08:30

Papers are invited for this session covering various aspects of Particulate Filter (PF) systems including the accumulation and oxidation of particulate matter within the PF, the performance of different PF technologies, and their use with different fuel specifications, engine technologies and testing protocols. Papers are also invited on novel PF construction techniques and materials and new regeneration strategies.

Organizers - Ronald Heck; John Hoard, Univ. of Michigan-Ann Arbor

Chairpersons - John Hoard, Univ. of Michigan-Ann Arbor; Joseph E. Kubsh, Manufacturers of Emission Controls Assoc.

Time	Paper No.	Title
8:30 a.m.	2012-01-1727	Evaluation of a Gasoline Particulate Filter to Reduce Particle Emissions from a Gasoline Direct Injection Vehicle <i>Tak W. Chan, Eric Meloche, ERMS, Environment Canada; Joseph Kubsh, Manufacturers of Emission Controls Assoc; Deborah Rosenblatt, ERMS, Environment Canada; Rasto Brezny, Manufacturers of Emission Controls Assoc; Greg Rideout, ERMS, Environment Canada</i>
9:00 a.m.	2012-01-1732	Ash Transport in Diesel Particle Filters <i>Achim Dittler, Daimler AG</i>
9:30 a.m.	2012-01-1733	Different Properties of Biodiesel in Comparison with Standard Diesel Fuel and their Impact on EURO VI Exhaust Aftertreatment Systems <i>Peter Kattwinkel, Christoph Reith, Umicore AG & Co. KG; Martin Petersson, Volvo Corporation</i>
10:00 a.m.		BREAK
10:30 a.m.	2012-01-1731	Partial Flow Sintered Metal Filter as Part of a Tier 4 Emission Reduction Strategy <i>Klaus Schrewe, Simon Steigert, Peter Neumann, HJS Emission Technology GmbH & Co. KG</i>
11:00 a.m.	2012-01-1730	Exhaust Temperature Control Enhances Dual Stage Catalyst System Performance on Engines Fueled with Low-Pressure Natural Gas <i>Jean P. Roy, Robert Panora, Joseph Gehret, Ranson Roser, Tecogen, Inc; Bruce Falls, AVL North America Inc; Richard Geiss</i>
	2012-01-1728	Influence of Material Properties and Pore Design Parameters on Non-Catalyzed Diesel Particulate Filter Performance with Ash Accumulation (Written Only -- No Oral Presentation) <i>Iason Dimou, Alexander Sappok, Victor Wong, Massachusetts Institute of Technology; Shuji Fujii, NGK Automotive Ceramics USA; Hirofumi Sakamoto, Kazuya Yuuki, NGK Insulators Ltd; Claus Dieter Vogt, NGK Insulators, Ltd.</i>

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

Thursday, September 20

Exhaust Emission Control: New Developments & Diesel Engine SCR

Session Code: FFL405

Room Saluhallsgangen

Session Time: 14:00

Papers are invited for this session covering the Selective Catalytic Reduction (SCR) process, in which a non-hydrocarbon reductant known as Diesel Exhaust Fluid (DEF) is injected to create ammonia which reacts with NOx and converts it into harmless Nitrogen. The topic includes various aspects of SCR technology such as different washcoats, two-way (SCR washcoat on DPF substrate), aging and poisoning impact on catalyst performance, importance of DEF injection and mixing and SCR modeling.

Organizers - Brad Adelman, Navistar Engine Group; Danan Dou, John Deere Product Engineering Center; Magdi Khair; Rahul Mital, General Motors LLC; Kenneth S. Price, Umicore Autocat USA Inc.; Ronald Silver, Caterpillar Inc.; Marek Tatur, FEV Inc.

Chairpersons - Barbara Goodrich, John Deere Product Engineering Center; Joseph E. Kubsh, Manufacturers of Emission Controls Assoc.

Time	Paper No.	Title
2:00 p.m.	2012-01-1743	Modelling of NO_x Conversion in a 1D Diesel Engine Exhaust SCR Catalyst System under Transient Conditions Using Ammonia Gas as the Reductant S. F. Benjamin, M. Gall, C. A. Roberts, Coventry University, UK
2:30 p.m.	2012-01-1744	Reaction Mechanism Analysis of Di-Air-Contributions of Hydrocarbons and Intermediates Yuki Bisajji, Kohei Yoshida, Mikio Inoue, Nobuyuki Takagi, Takao Fukuma, Toyota Motor Corporation
3:00 p.m.	2012-01-1745	A Study on N₂O Formation Mechanism and Its Reduction in a Urea SCR System Employed in a DI Diesel Engine Wataru Matsui, Tetsu Suzuki, Yasuo Ohta, Soichiro Ito, Yo Tanaka, Yutaka Kikuchi, Yasuhiro Daisho, Waseda University; Hisakazu Suzuki, Hajime Ishii, National Traffic Safety & Enviro Lab
3:30 p.m.		BREAK
4:00 p.m.	2012-01-1746	Impact of Thermal and Engine Ageing on a Fully Formulated Lean NO_x Trap Dihya Adouane, Hugo Dutilleul, Philippe Guibert, Université Pierre et Marie Curie; Mario Teixeira, Renault SA; Patrick Da Costa, Université Pierre et Marie Curie
4:30 p.m.	2012-01-1747	High Speed Video Measurements of a Heated Tip Urea Injector Spray Nic van Vuuren, Hamid Sayar, Continental Automotive Systems USA

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

Thursday, September 20

Fuel Efficient Technologies for Sustainability and Green Opportunities Panel Discussion

Session Code: FFL505

Room Separaten

Session Time: 08:30

This SAE Panel Discussion Session will cover the advanced green energy technologies and future environmental opportunities including the major issues of greenhouse emissions, next generation propulsion system, and fuel-efficient lubricants. We will discuss the well-to-wheel energy efficiency and their total greenhouse emission of the current and advanced propulsion systems in details. A technology overview of advanced energy systems will be provided with more feasible technology solutions for greenhouse emission reduction and energy diversity. In addition, advanced fuel efficient lubricants, renewable fuels, and new diesel oils focused on engine durability, after-treatment compatibility and fuel economy have a very high potential for future global market. The converging issues of energy sustainability and environmental solutions will be discussed in details in this panel discussion.

Organizers - Simon C. Tung, RT Vanderbilt

Time	Paper No.	Title
8:30 a.m.	Panel	Introduction Panelists - Simon C. Tung, RT Vanderbilt Co.;
8:35 a.m.	Panel	Synergistic Engine Technologies to Advanced Fuels and lubricants in Meeting Sustainability and Environmental Demands Panelists - Victor W. Wong, Massachusetts Institute of Technology;
9:00 a.m.	Panel	Friction Reduction in Engines and Powertrains by Polyglycols and/or Alternative Steels and/or Thin Films Panelists - Mathias Woydt, BAM;
9:50 a.m.	Panel	Global Diesel Oil Category Focuses on Engine Durability, After-Treatment Compatibility and Fuel Economy Panelists - James A. McGeehan, Chevron;
10:15 a.m.	Panel	Responding to Global Green Challenges - Automotive Lubricant Development Trends for Future Energy Sustainability and Environmental Opportunities Panelists - Simon C. Tung, RT Vanderbilt Co.;
10:40 a.m.	Panel	Panel Discussion

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

Thursday, September 20

Cold Start and Transients (all written only papers)

Session Code: FFL211

Room TBD

Session Time: 17:00

This session focuses on both SI and CI combustion and mixture preparation during cold start and transient engine operation. Example topics include engine performance, emissions, control strategies and calibrations for cold start and transient operation impact on NOx, PM, HC, CO, and CO2 emissions; also including the impact of variable valve timing, spark, and turbocharger controls.

Organizers - Tarek M. Abdel-Salam, Gerald Micklow, East Carolina University

Chairpersons - Vincenzo Mulone, University of Rome Tor Vergata

Time	Paper No.	Title
	2012-01-1711	The Effect of Engine Operating Conditions on Engine-out Particulate Matter from a Gasoline Direct-injection Engine during Cold-start. (Written Only -- No Oral Presentation) Ian Whelan, William Smith, David Timoney, University College Dublin; Stephen Samuel, Oxford Brookes University

2012-01-1712 ***Effect of In-Cylinder Liquid Fuel Films on Engine-Out Unburned Hydrocarbon Emissions for an SI Engine (Written Only -- No Oral Presentation)***

Vincent S. Costanzo, John B. Heywood, Massachusetts Institute of Technology

2012-01-1713 ***Design of Rankine Cycle Systems to Deliver Fuel Economy Benefits over Cold Start Driving Cycles (Written Only -- No Oral Presentation)***

Alberto Boretti, Missouri Univ. of Science and Tech.; Azmi Osman, Proton Berhad; Ishak Aris, Universiti Putra Malaysia

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

Thursday, September 20

Heat Transfer and Advances in Thermal & Fluid Sciences (all written only papers)

Session Code: **FFL214**

Room TBD

Session Time: **17:00**

Organizers - *Brian Bratvold, Barbara Goodrich, John Deere Product Engineering Center*

Time

Paper No.

Title

2012-01-1758 ***The Effect of the Random Inflow Conditions and Initial Conditions to Cycle-to-Cycle Variations Using Detachment Eddy Simulation (Written Only -- No Oral Presentation)***

Mustapha Mahdaoui, Abdelouahad Ait Msaad, Mhamed Mouqallid, ENSAM, Meknes Morocco; Elhoussin Affad, FST of Mohammedia, Morocco

2012-01-1759 ***Modeling of Transient Heat Transfer for the 3-D Coupling Components in an Internal-Combustion Engine (Written Only -- No Oral Presentation)***

Zhelin Dong, Guohua Chen, Yankun Jiang, Chunfa Wang, Huazhong University of Science and Tech

2012-01-1760 ***A Wavelet Neural Network Method to Determine Diesel Engine Piston Heat Transfer Boundary Conditions (Written Only -- No Oral Presentation)***

Juan Du, Wuhan University of Technology

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