Blue Ribbon Panel: Supplier Partnerships

Session Code: CV902
Room Technology Theater

Session Time: 3:30 p.m.

The tradition and legacy of leadership for this event continues as the SAE 2007 Commercial Vehicle Engineering Congress Executive Co-chairs return for 2008 as organizers of the Blue Ribbon Panel focused on OEM and supplier partnerships. This panel will cover shared experiences in global product development; lessons learned and suggestions for success; and insights relative to collaborative processes.

Moderators - H.J. Markley, Deere & Co.
Panelists - Andrew Brown, Delphi; Lorenzo Maria Garro, DENSO Thermal Systems SpA; Gwenne A. Henricks, Caterpillar Inc.; Malcolm Shute, AGCO Corp.; Landon Sproull, Peterbilt Motors Co.;

Global Product Development Process Panel

Session Code: CV901
Room 1 - 3

Session Time: 10:30 a.m.

The product development of Commercial Vehicles has become global in nature due to locations of technical resources, production facilities and market application of common products. This panel will discuss the challenges of the global product development process and the tools required to enable efficient engineering of products designed for a global market.

Moderators - Christopher A. Myers, Deere & Co.

Keynote Address Dan Rasmus

Session Code: CV806
Room 1-3

Session Time: 1:00 p.m.

Presenters - Dan Rasmus, Microsoft Corp.

State-of-the-Art in Modeling and Testing of On- and Off-Road Tires

Session Code: CV210
Room 10

Session Time: 8:00 a.m.
The complexity of the tire and its importance as a key vehicle component motivates the increasing interest in understanding its behavior and in developing new and improved modeling tools and tire testing equipment. This session is dedicated to the discussion of aspects related to the modeling, design, dynamics, and testing of tires, in order to better understand and quantify their mobility, traction and braking capabilities, in on-road and off-road conditions. The session will consist of short technical presentations given by the members of the panel, followed by a moderated discussion with representatives from the tire industry, from governmental research agencies, and from academia.

**Organizers** - Corina Sandu, Virginia Tech.

**Panelists** - Jonah Lee, Univ. of Alaska Fairbanks; Mohamed Kamel Salaani, Transportation Research Center Inc.; Deborah M. Freund, US Dept. of Transportation

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

**Tuesday, October 7**

**Fuel, Fuel, Fuel and Your Tires**

**Session Code:** CV603

**Room 10**

**Session Time:** 10:30 a.m.

This session will address how commercial truck tires are designed and compounded to maximize fuel economy. You will also learn about the latest advantages to utilize widebase tires versus dual tires. We will discuss the fuel efficient options that exist for retreads and new tires. The panel will review the importance and repercussions of running your tires over and/or underinflated.

**Organizers** - Al E. Cohn, Pressure Systems International Inc.

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:30 a.m.</td>
<td>Panel</td>
<td>Designing and Compounding Commercial Truck Tires to Maximize Fuel Economy</td>
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<tr>
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<td><strong>Panelists</strong> - Guy Walenga, Bridgestone Bandag Tire Solutions;</td>
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<tr>
<td>10:45 a.m.</td>
<td>Panel</td>
<td>Advantages of Widebase Tires versus Dual Tires</td>
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<td><strong>Panelists</strong> - Douglas L. Jones, Michelin North America, Inc.;</td>
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<tr>
<td>11:00 a.m.</td>
<td>Panel</td>
<td>Fuel Efficient Options for New Tires and Retreads</td>
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<td><strong>Panelists</strong> - Randy Patterson, Bridgestone Bandag Tire Solutions;</td>
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<tr>
<td>11:15 a.m.</td>
<td>Panel</td>
<td>Importance and Repercussions of Running Tires Over and/or Underinflated</td>
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<td></td>
<td><strong>Panelists</strong> - Al E. Cohn, Pressure Systems International Inc.;</td>
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</table>

Planned by CV Maintenance Group / Commercial Vehicle Activity

And the Wheels Go Round and Round: Wheel End Design and Maintenance Panel

**Session Code:** CV606

**Room 10**

**Session Time:** 1:00 p.m.

Wheel-end performance is a fundamental expectation. The mechanical complexity of wheel-end components -- and their interactions -- demand careful attention. This places exacting demands on those who design, manufacture, operate, and maintain highway vehicles. This session's speakers will address wheel-end design, wheel bearing design and maintenance, the importance of proper torque in wheel-end installation, defects investigations and findings, and fleet operational perspectives.

**Organizers** - Deborah M. Freund, US Dept. of Transportation

**Panelists** - Dave Archer, Archetype Joint LLC; Tom Bowman, National Hwy Traffic Safety Admin; Brian T. Strunck, Timken Corp.; Dale Overton, Accuride Corp.; Ronald L. Szapacs, Air Products & Chemicals Inc.;

Planned by CV Maintenance Group / Commercial Vehicle Activity
Tuesday, October 7

Education in Vehicle Dynamics Panel

Session Code: CV202
Room 10
Session Time: 3:30 p.m.

This session is intended to address important educational aspects related to the formal instruction in the area of vehicle dynamics, especially as it is currently implemented in academia. A panel of experts will present their experience in teaching vehicle dynamics, emphasizing the course topics, format of the course, laboratory and/or associated projects and homework assignments. A moderated discussion will address current and future instructional needs, as related to the industry demands, as well as proposed course material improvements and recommended pedagogical strategies.

Organizers - Corina Sandu, Virginia Tech.
Panelists - Mehdi Ahmadian, Virginia Tech.; Thomas D. Gillespie, Mechanical Simulation Corp.; L. Daniel Metz, Metz Engineering & Racing; Vladimir V. Vantsevich, Lawrence Technological Univ.;

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Tuesday, October 7

Advanced Chassis Control and Rollover Stability

Session Code: CV212
Room 11
Session Time: 8:00 a.m.

This session, organized by the SAE Chassis & Suspension Committee, provides a technical discussion on one of the current popular topics: advanced control systems for enhancing stability and safety of road vehicles, especially heavy vehicles. It includes various control systems for improvements of directional and roll stabilities of commercial vehicles, as well as their effects on suspension kinematic characteristics that affect vehicle handling and safety in a significant manner.

Organizers - Brad Bean, Transportation Research Center Inc.; Dongpu Cao, Concordia Univ.; Saied Taheri, Virginia Polytechnic Inst. & State Univ.

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>8:00 a.m.</td>
<td>2008-01-2595</td>
<td>Yaw Stability Control of Tractor Semi-Trailers</td>
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<td>Seyed Hossein Tamaddoni, Saied Taheri, Virginia Polytechnic Inst. &amp; State Univ.</td>
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<tr>
<td>8:30 a.m.</td>
<td>2008-01-2596</td>
<td>Influence of Different Semi Active Control Strategies on the Performance of Macpherson Suspension Kinematic Parameters</td>
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<td>Mohammad Saber Fallah, Concordia Univ.</td>
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<tr>
<td>9:00 a.m.</td>
<td>2008-01-2597</td>
<td>A New Fuzzy Based Stability Index Using Predictive Vehicle Modeling and GPS Data</td>
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<td>Benjamin Duprey, Saied Taheri, Virginia Polytechnic Inst. &amp; State Univ.</td>
</tr>
<tr>
<td>9:30 a.m.</td>
<td>ORAL ONLY</td>
<td>Lebesgue Control for Improved Operation of Stability Enhancement Systems Incorporating Event-Based Communications</td>
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<td>Roy McCann, Anh Le, Univ. of Arkansas</td>
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<tr>
<td>10:00 a.m.</td>
<td>2008-01-2598</td>
<td>LPV Model Based Robust Gain Scheduling Control of Vehicle Stability</td>
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<td>Xiu Jian Yang, Zengcai Wang, Weili Peng, Shandong Univ. of Technology</td>
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</tbody>
</table>

The papers in this session are available in a single publication, SP-2216, and also individually.

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Tuesday, October 7

Recent Advances in Commercial Vehicle Chassis and Suspensions

Session Code: CV205
Room 11
Session Time: 10:30 a.m.
This session will include presentations by distinguished panelists from the original equipment manufacturers, suppliers, and possibly government agencies. The purpose of the session is to discuss some of the recent advanced technologies in the area of commercial vehicle chassis and suspensions. The panelists will make a brief presentation of the technologies that their organization is involved with, and answer questions from the audience at the end of the session.

Organizers - Mehdi Ahmadian, Virginia Tech.

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<tr>
<th>Time</th>
<th>Paper No.</th>
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<tbody>
<tr>
<td>10:30 a.m.</td>
<td>Panel</td>
<td>Multi-Link Front Air Suspension for Heavy Duty Trucks</td>
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<td>Panelists - Ryan S. Rochester, Navistar Inc.;</td>
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<tr>
<td>10:45 a.m.</td>
<td>Panel</td>
<td>Energy Efficient Power Steering Systems</td>
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<td>Panelists - Daniel Williams, TRW Commercial Steering Systems;</td>
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<tr>
<td>11:00 a.m.</td>
<td>Panel</td>
<td>Magnetorheological Fluids in Heavy-Duty Vehicle Suspension Systems</td>
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<td>Panelists - J. David Carlson, Lord Corp.;</td>
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<tr>
<td>11:15 a.m.</td>
<td>Panel</td>
<td>A Numerical Evaluation of the Suspension and Driveline Dynamic Coupling</td>
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<td>Panelists - Mehdi Ahmadian, Center for Vehicle Systems and Safety;</td>
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<tr>
<td>11:30 a.m.</td>
<td>Panel</td>
<td>NVH, Ride Comfort, and Psyco Acoustics for Commercial Vehicles</td>
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<td>Panelists - Logan Mullinix, Commercial Vehicle Group;</td>
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Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Tuesday, October 7

Reliability & Durability

Session Code: CV206

Room 11

This section focuses on analysis, methods, and techniques to predict the reliability, durability and life of components, structures and systems in commercial vehicles. Reliability and Durability are key topics to improve design quality in the design phase, improve safety and improve life-cycle maintainability costs of vehicles and components.

Organizers - Mehdi Ahmadian, Virginia Tech.; Richard Current, NIOSH; Tjong T. Lie

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<thead>
<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>2:00 p.m.</td>
<td>2008-01-2621</td>
<td>Qualitative Examination on Dependability of European Road Train Architecture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Timea Fulep, Budapest University of Technology and Economics; Laszlo Palkovics, Michael Herges, Knorr-Bremse SFN GmbH</td>
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<tr>
<td>2:30 p.m.</td>
<td>2008-01-2622</td>
<td>Dynamic Simulation and Endurance Limit Safety Factor Calculation for Crankshaft under the Effect of Dynamic and Inertial Loads</td>
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<td>Ertugrul Tolga Duran, Cagri Sever, Ford Otosan AS</td>
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<tr>
<td>2008-01-2623</td>
<td>2008-01-2623</td>
<td>Transient Analysis of Engine Parts under Engine Loads and Random Road Vibration for Fatigue Evaluation (Written Only -- No Oral Presentation)</td>
</tr>
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<td>Alper Tekeli, Ibrahim Hazar, Cagri Sever, Ford Otosan</td>
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Planned by Chassis and Suspension Group / Commercial Vehicle Activity
Tuesday, October 7

Electrical Wiring Design Software, Practices and Diagnostic Testing

Session Code: CV407
Room 11
Session Time: 3:30 p.m.

This session supports OEM engineers responsible for reliable wiring harness designs with technologies dealing with harness design software, design methodologies, best practices and tests methods to improve reliability and lower cost.

Organizers - James C. Miller, John Deere Tech. Center

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>3:30 p.m.</td>
<td>ORAL ONLY</td>
<td>Automating Wire Harness Design in Today's Commercial Vehicle and Off-Highway Industry</td>
</tr>
<tr>
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<td>Nick Smith, Mentor Graphics</td>
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<tr>
<td>4:00 p.m.</td>
<td>ORAL ONLY</td>
<td>Implementing Electrical Ground Strategies using Rule-Based Composite Wire Synthesis</td>
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<td>Nigel Hughes, Mentor Graphics</td>
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<tr>
<td>4:30 p.m.</td>
<td>2008-01-2628</td>
<td>Streamlining the Integration of Electrical and Mechanical Design Data and Processes between OEMs and Suppliers</td>
</tr>
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<td>John P. Wilson, Mentor Graphics Corp.</td>
</tr>
<tr>
<td>2008-01-2629</td>
<td></td>
<td>Voltmeter-only Diagnostics Resisting the Temptation to Ohm it Out</td>
</tr>
<tr>
<td>CANCELLED</td>
<td></td>
<td>Daniel Sullivan, Sullivan Training Systems</td>
</tr>
</tbody>
</table>

Planned by Electrical and Electronics Group / Commercial Vehicle Activity

Tuesday, October 7

REACH - Regulation Affecting Business with Europe

Session Code: CV804
Room 13
Session Time: 8:00 a.m.

REACH Registration, Evaluation, Authorization and Restriction of Chemical substances is a new European Community Regulation (EC 1907/2006) on chemicals and their safe use which went into affect beginning 1 June 2007. REACH affects vehicle manufacturers and suppliers alike who are exporting to Europe. This forum will include an industry expert panel discussion on the new regulation - what it is, how it will affect exporters and what steps companies should take for compliance in meeting this new regulation. The chemicals currently on the EU market which meet the regulation's definition of phase-in substances should be pre-registered between 1 June and 1 December 2008. Pre-registration can qualify your company for extended registration deadlines. Find out more about this and other timely issues for which exporters need to prepare.

Organizers - Jack Pokrzywa, SAE International

Tuesday, October 7

Open Forum - Role of Industry Standard Lubricant Specifications

Session Code: CV805
Room 13
Session Time: 1:00 p.m.

The diversity of how OEMs deal with the evolving needs for emissions control, fuel economy, and durability have led to increased use of supplementary manufacturer requirements, beyond those required by industry standards, for lubrication of their equipment. This adds complexity and product proliferation for the lubricant marketer and formulators. This open forum will address the tradeoffs between the conflicting needs of specialized lubricant requirements versus simplicity for users and producers

Panelists - Daniel P. Arcy, Shell Global Solutions (US) Inc.; Mesfin Belay, Detroit Diesel Corp.; Kenneth K. Chao, Deere & Company; Todd Coady, Hicks Oils and Hicksgas Inc.; Roy Sambuchino, Lubrizol Corp.; Gregory Shank, Mack/Volvo Powertrain; Shawn D. Whitacre, Cummins Inc.;
Tuesday, October 7

Alternative Fuels (Part 1 of 2)

Session Code: CV301

Room 14

Session Time: 8:00 a.m.

Rising petroleum costs and increased concerns with climate change have intensified the implementation of transport/equipment fuel alternatives. This session will address the challenges presented by alternative fuels as potential replacement of petroleum fuels, specifically in terms of engine system interaction on performance and emissions.


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<tr>
<th>Time</th>
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<tr>
<td>8:00 a.m.</td>
<td>2008-01-2608</td>
<td>Study of the Effects of Ethanol use on a Ford Escort Fitted with an Old Technology Engine</td>
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<td></td>
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<td>Merkourios Gogos, Technological Educational Institute of Thessaloniki, Greece; John Triandafyllis, Tei of Thessaloniki</td>
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<tr>
<td>8:30 a.m.</td>
<td>2008-01-2609</td>
<td>Experimental Investigation on Homogeneous Charge Diesel Combustion Engine using Premixed Charge of Ethanol</td>
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<td>M. Himabindu, Anna Univ.; G. Sathyanarayanan, Anna Univ; S. Thomson, N. V. Mahalakshmi, Anna Univ.</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>2008-01-2610</td>
<td>The Impact of Bio-diesel / Diesel Blend Levels have on Engine Performance</td>
</tr>
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<td>Rob P. Jokai, FPinovations - Feric Division</td>
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<tr>
<td>9:30 a.m.</td>
<td>2008-01-2607</td>
<td>Bio-diesel and Its Performance in Vehicles</td>
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<td>C. L. Dhamejani, VRDE</td>
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</tbody>
</table>

Planned by Drivetrain, Powertrain and Transmissions Group / Commercial Vehicle Activity

Tuesday, October 7

Alternative Fuels (Part 2 of 2)

Session Code: CV301

Room 14

Session Time: 10:30 a.m.

Rising petroleum costs and increased concerns with climate change have intensified the implementation of transport/equipment fuel alternatives. This session will address the challenges presented by alternative fuels as potential replacement of petroleum fuels, specifically in terms of engine system interaction on performance and emissions.


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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>10:30 a.m.</td>
<td>2008-01-2611</td>
<td>An Old Ford Escort 1.6 was Tested on a Chassis Dynamometer and Compared with a New Volvo V70 2.5, Using the Same Blends of Cottonseed Biodiesel and Neat Diesel</td>
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<td>Dimitrios Savvidis, Technological Educational Institute of Thessaloniki, Greece</td>
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Planned by Drivetrain, Powertrain and Transmissions Group / Commercial Vehicle Activity

Tuesday, October 7

New Developments

Session Code: CV304
Room 14

This session will primarily focus on dynamic simulation and modeling to improve design of gears and transmissions to improve vehicle efficiency, noise, and fuel economy.

Organizers - Ryan Jefferis, Freightliner LLC; Gary D. McConeghey, Sauer-Danfoss; Xubin Song, Eaton Corp.

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>1:00 p.m.</td>
<td>2008-01-2630</td>
<td>Dynamic Modeling of Vehicle Gearbox for Early Detection of Localized Tooth Defect</td>
</tr>
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<td>Nabil Hammad, Nagwa abd-elhalim, Magdy Abdel-hady, Shawki Abouel-Seoud, Eid Mohamed, Helwan Univ.</td>
</tr>
<tr>
<td>1:30 p.m.</td>
<td>2008-01-2631</td>
<td>The Importance of Vehicle Gear Tooth Meshing Stiffness in Gear Tooth Damage Quantification</td>
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<td></td>
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<td>Nabil Hammad, Nagwa abd-elhalim, Magdy Abdel-hady, Shawki Abouel-Seoud, Eid Mohamed, Helwan Univ.</td>
</tr>
<tr>
<td>2:00 p.m.</td>
<td>2008-01-2632</td>
<td>Achieving Balanced Design of Transmission Gears for Bending, Contact-life and NVH for Agricultural Tractor Application</td>
</tr>
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<td>Y. Subbaiah, Tractors &amp; Farm Equipment, Ltd.</td>
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<tr>
<td>2:30 p.m.</td>
<td>2008-01-2633</td>
<td>Gear Shifting Performance Optimisation (Crash Noise) in Constant Mesh Gearbox for Agricultural Tractor Applications</td>
</tr>
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<td>Y. Subbaiah, Tractors &amp; Farm Equipment, Ltd.</td>
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<tr>
<td></td>
<td>2008-01-2634</td>
<td>Axial Equivalent Loads for Cross Roller Slew Ring Bearings (Written Only -- No Oral Presentation)</td>
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<td>Noboru (Bob) Kashino, Antex Corp.</td>
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<tr>
<td></td>
<td>2008-01-2635</td>
<td>Prediction of Transmission Ratio at Preliminary Design Stage to Match Vehicle Performance Parameters and Application Requirement (Written Only -- No Oral Presentation)</td>
</tr>
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<td>T. R. Karthikeyan, Mahindra &amp; Mahindra Ltd.</td>
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Planned by Drivetrain, Powertrain and Transmissions Group / Commercial Vehicle Activity

Tuesday, October 7

Emissions (Part 1 of 3)

Session Code: CV302

Room 4

This session discusses the causes and control of exhaust emissions from reciprocating, internal combustion engines. Topics covered include base engine operation along with aftertreatment systems for reducing tailpipe emissions.

Organizers - Edward M. Derybowski, Navistar, Inc.; Nabil Hakim, NabMag Technologies

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>8:00 a.m.</td>
<td>ORAL ONLY</td>
<td>Heavy Duty Diesel Exhaust Aftertreatment Systems for Future Applications</td>
</tr>
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<td>Kenneth E. Voss, BASF</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>2008-01-2638</td>
<td>New Developments in Diesel Oxidation Catalyst</td>
</tr>
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<td>Svetlana M. Zemskova, Caterpillar Inc.</td>
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</table>
Tuesday, October 7

Emissions (Part 2 of 3)

Session Code: CV302

Room 4 

Session Time: 10:30 a.m.

This session discusses the causes and control of exhaust emissions from reciprocating, internal combustion engines. Topics covered include base engine operation along with aftertreatment systems for reducing tailpipe emissions.

Organizers - Edward M. Derybowski, Navistar, Inc.; Nabil Hakim, NabMag Technologies

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>10:30 a.m.</td>
<td>2008-01-2637</td>
<td>Emissions Generated from a Suzuki Liane Running on Unleaded Gasoline and LPG under the Same Load Conditions</td>
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<td>Svetlana M. Zemskova, Caterpillar Inc.</td>
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<tr>
<td>11:00 a.m.</td>
<td>2008-01-2644</td>
<td>Development of a Lube Filter with Controlled Additive Release for Modern Heavy Duty Diesel Engines Utilizing EGR</td>
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<td>Weston H. Gerwin, Honeywell Int'l Inc.; Charles Passut, Afton Chemical</td>
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<tr>
<td>11:30 a.m.</td>
<td>ORAL ONLY</td>
<td>Efficiency Improvements and Emissions Reduction via the Sturman Digital Engine/Sturman Cycle</td>
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<td>Joseph Vollmer, Sturman Industries</td>
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<tr>
<td>12:00 p.m.</td>
<td>2008-01-2640</td>
<td>SCR Technology with Focus to Stringent Emissions Legislation - New Challenges and Solutions in the Development of Car and Commercial Vehicle Exhaust Systems</td>
</tr>
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<td>Joerg Johannes Oesterle, Silvia Calvo Zuero, Bjorn Damson, Felix Neumann, Josef Rudelt, J. Eberspaecher GmbH &amp; Co. KG</td>
</tr>
<tr>
<td>2008-01-2645</td>
<td></td>
<td>Investigation of DME Diesel Emission Based on Orthogonal Experiment (Written Only -- No Oral Presentation)</td>
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<td>Jing Lang, Huazhong University of Science and Technology</td>
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The papers in this session are available in a single publication, SP-2217, and also individually.

Planned by Drivetrain, Powertrain and Transmissions Group / Commercial Vehicle Activity

Tuesday, October 7

Emissions (Part 3 of 3)

Session Code: CV302

Room 4 

Session Time: 1:00 p.m.

This session discusses the causes and control of exhaust emissions from reciprocating, internal combustion engines. Topics covered include base engine operation along with aftertreatment systems for reducing tailpipe emissions.
The impact of fuel costs on commercial vehicle operations has increased significantly resulting in the growth of numerous technologies and industries focused on reducing fuel use and increasing vehicle fuel economy. Recent studies indicate that aerodynamic technology may hold the greatest potential for near term fuel economy improvement for commercial vehicles. The application of advanced aerodynamic design to heavy trucks has the potential to improve fuel economy by more than 20 percent. This session will cover a wide array of aerodynamic drag reduction technologies that are available to the heavy truck community.

Edward M. Derybowski, Navistar, Inc.; Nabil Hakim, NabMag Technologies
Victor A. Suski, Shenandoah Express Inc.; Richard M. Wood, Solus-Solutions and Technologies
Ronald E. Schoon, Navistar Inc.

1:00 p.m. 2008-01-2636 Improved NOx Reduction using Wiremesh Themrolysis Mixer
Sivanandi Rajadurai, ACS Industries Inc.

1:30 p.m. ORAL ONLY The Emitec PM Metalit: An Innovative Method for Particulate Reduction for Diesel On and Off Road Engines and Equipment
Michael E. Rice, Jan Kramer, Raimund Mueller, Klaus Mueller-Haas, Emitec Inc.

2:00 p.m. 2008-01-2642 NOx Performance of an LNT+SCR System Designed to Meet EPA 2010: Results of Engine Dynamometer Tests
Erik Charles Dykes, Eaton Corporation

2:30 p.m. 2008-01-2641 Transient On-Road Emission Reduction of an LNT & SCR Aftertreatment System
Christian Thomas Chimner, Eaton Corporation

2008-01-2646 Modeling and Testing of the Throttle Body Usage in a Diesel Engine to Improve NOx Emissions
Muzaffer Senoguz, Alper Bozkurt, Canan Karadeniz, Kazi Adil, Ford OTOSAN

The papers in this session are available in a single publication, SP-2217, and also individually.
Planned by Drivetrain, Powertrain and Transmissions Group / Commercial Vehicle Activity

Tuesday, October 7

Aerodynamics and Fuel Economy - Aerodynamic Devices (Part 1 of 2)

Session Code: CV701

The impact of fuel costs on commercial vehicle operations has increased significantly resulting in the growth of numerous technologies and industries focused on reducing fuel use and increasing vehicle fuel economy. Recent studies indicate that aerodynamic technology may hold the greatest potential for near term fuel economy improvement for commercial vehicles. The application of advanced aerodynamic design to heavy trucks has the potential to improve fuel economy by more than 20 percent. This session will cover a wide array of aerodynamic drag reduction technologies that are available to the heavy truck community.

Victor A. Suski, Shenandoah Express Inc.; Richard M. Wood, Solus-Solutions and Technologies
Ronald E. Schoon, Navistar Inc.

8:00 a.m. 2008-01-2599 Drag Force Reduction of a Bluff-Body with an Underbody Slant and Rear Flaps
Shinsuke Kowata, Jongsoo Ha, Shuya Yoshioka, Takuma Kato, Yasuaki Kohama, Tohoku Univ.

8:30 a.m. 2008-01-2601 Investigation of a Trailer Underbody Fairing for Heavy Vehicle Aerodynamic Drag Reduction
Jason Ortega, Kambiz Salari, Lawrence Livermore National Laboratory

9:00 a.m. 2008-01-2602 Improving Fuel Efficiency of Tractor Trailer Trucks with Deturbulator Aero-Drag Reduction
Sumon Kumar Sinha, Sinhatech
Tuesday, October 7

Aerodynamics and Fuel Economy - Methods and Technologies (Part 2 of 2)

Session Code: CV701

Room 5

Session Time: 10:30 a.m.

Over the past decade the importance of fuel efficiency on commercial vehicle operations has increased significantly and future world events and U. S. policy are expected to have an even greater impact on the economics of today's trucking community. Of equal importance is the impact of fossil fuel emissions on our environment. To address these serious issues the commercial vehicle community is exploring many modeling and simulation methods as well as technology areas that have the potential to reduce fuel use and green house gas emissions. This session will review several options available to the community.

Organizers - Victor A. Suski, Shenandoah Express Inc.; Richard M. Wood, Solus-Solutions and Technologies

Chairpersons - Gary Gaussoin, Silver Eagle Mfg Co.

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<tr>
<th>Time</th>
<th>Paper No.</th>
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<tbody>
<tr>
<td>10:30 a.m.</td>
<td>ORAL ONLY</td>
<td>A Different View of &quot;Fuel Efficiency&quot; in Commercial Vehicles</td>
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<td>Robert D. Leopold, Allison Transmission</td>
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<tr>
<td>11:00 a.m.</td>
<td>2008-01-2612</td>
<td>Aerodynamic Simulations of a Generic Tractor-Trailer: Validation and Analysis of Unsteady Aerodynamics</td>
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<td>Kevin Horrigan, Bradley Duncan, Anthony Keating, Anurag Gupta, Joaquin Gargoloff, Exa Corp.</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>2008-01-2613</td>
<td>Flow Simulations around a Generic Ground Transportation System: Using Immersed Boundary Method</td>
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<td>Reza Ghias, ANSYS Inc.; Ashok Khondge, Automotive CFD; Sandeep Dinkar Sovani, ANSYS Inc.</td>
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</tbody>
</table>

The papers in this session are available in a single publication, SP-2219, and also individually.

Planned by Total Vehicle Group / Commercial Vehicle Activity

Tuesday, October 7

Aerodynamic Drag and Fuel Economy Assessment Methods and Techniques Panel

Session Code: CV702

Room 5

Session Time: 1:00 p.m.

The nations energy, environmental, and economic (E3) security is greatly affected by our reliance upon oil for our transportation needs. This is especially true for the commercial vehicle community that is the backbone to our economy. Perhaps the hardest hit segment of the commercial vehicle community is the freight sector which has started to look to aerodynamics as a means to reduce the impact of the rising fuel costs. In response to this growing interest a number of aerodynamic solutions and concepts are being developed and entering the marketplace; therefore, it is critical that the most accurate, representative, and cost effective methods and technologies be used to assess the aerodynamic performance and fuel economy benefit of these technologies. The panel will discuss a wide range of issues surrounding this critical topic.

Organizers - Richard M. Wood, Solus-Solutions and Technologies

Panelists - Marius-Dorin Surcel, FPInnovations - FERIC Division; Gary Gaussoin, Silver Eagle Mfg Co.; Ronald E.
Diesel OBD

Session Code: CV403
Room 5  Session Time: 3:30 p.m.

This session covers the many aspects of on board diagnostics for diesel powertrains. The session has been a part of the SAE Commercial Vehicle Congress since 2002. In past years the session has accepted papers on topics as varying as new sensor technology as applied to on board diagnostics, analyses of new monitoring techniques, overview papers of the development of diagnostics and tool interfaces used to retrieve diagnostic information.

Organizers - Michiel Van Nieuwstadt, Ford Motor Co.; Benjamin J. Zwissler, Cummins Inc.; Magda Hakim

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<th>Time</th>
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<tr>
<td>3:30 p.m.</td>
<td>2008-01-2647</td>
<td>Vehicle On-Board Diagnostics Added Values</td>
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<td>Sylvain Plante, Kongsberg Automotive; Jean-Francois Hetu, Kongsberg Automotive Inc.</td>
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<tr>
<td>4:00 p.m.</td>
<td>2008-01-2648</td>
<td>Uncertainty Analysis of Model Based Diesel Particulate Filter Diagnostics</td>
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<td></td>
<td>Michiel Van Nieuwstadt, Avra Brahma, Ford Motor Co</td>
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<tr>
<td>4:30 p.m.</td>
<td>ORAL ONLY</td>
<td>Statistical Methods to Calibrate the OBD Threshold</td>
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<td>Theodore Kostek, Southwest Research Institute</td>
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<tr>
<td>5:00 p.m.</td>
<td>ORAL ONLY</td>
<td>Designing NOx Adsorption Catalyst Efficiency OBD: Some Challenges and Their Solutions</td>
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<td>Steven Fraser, TRW Automotive US LLC; Benjamin Zwissler, Nusawardhana Nusawardhana, Cummins Inc</td>
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Planned by Total Vehicle Group / Commercial Vehicle Activity

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Total Vehicle Design Economics - Achieving Lifecycle Optimization in a Global Economy

Session Code: CV707
Room 6  Session Time: 8:00 a.m.

Immense changes in the global economy create new market prospects and operational opportunities for vehicle manufacturers. New technologies offer a plethora of means to improve vehicle design, enhance operator efficiency and safety, and offer superior customer experience and cost of ownership.

However, these opportunities also bring about new operational and technological complexities that can quickly lead to suboptimal design decisions, resulting in lower quality, high warranty costs, and increased inefficiencies throughout the product lifecycle. Vehicle manufacturers must rethink the traditional decision-making models they use to govern vehicle design processes and apply economically-driven decision models that enable a lean and agile vehicle lifecycle management.

This session offers formal presentations on the topic, followed by a moderated panel discussion. Panelists from OEMs and product lifecycle software companies will discuss a variety of topics, including:
- Value engineering
- Managing product complexity
- Lean innovation
- Design for X practices
- Program office as a governance body for product development
- Collaboration for global design teams

Organizers - Joseph J. Barkai, IDC Manufacturing Insights; Radhey L. Kushwaha, Univ. of Saskatchewan
New Developments in Sensors
Session Code: CV409
Room 6

Achieving innovative growth requires new technology, and many of these new technologies include electronics and software. In order for electronics and software products to be successful, they require accurate measurements of machine properties, material properties, and the operating environment, in a word sensors. This session will cover a broad range of sensors ranging from fabrication of sensors to emerging applications for sensors.

Organizers - James Lenz, Deere & Co.

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<tr>
<th>Time</th>
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<tr>
<td>10:30 a.m.</td>
<td>2008-01-2614</td>
<td>Providing Embedded, In-situ Oil Quality Monitoring for Improved Maintenance and On-Board Diagnostics in Trucking and Automotive Applications</td>
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<td>Mark Baybutt, Flowtonics LLC; Joseph Tario, New York State Energy Res. &amp; Dev. Auth.; Nicholos Mackos, Flowtonics LLC; Carl Palmer, Impact Technologies LLC</td>
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<tr>
<td>11:00 a.m.</td>
<td>2008-01-2615</td>
<td>Vehicle Stability Applications in Commercial Vehicles</td>
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<td>Richard Livdahl, Nikolai Tevs, Phoenix International; Jonathan L. Tolstedt, North Dakota State Univ.</td>
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<td>11:30 a.m.</td>
<td>ORAL ONLY</td>
<td>Development of Low Cost Parallel Parking Assist System using Ultrasonic Sensors</td>
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<td>Seong Hee Jeong, Mando Corp.; Kwae Hi Lee, Sogang Univ.</td>
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<td>12:00 p.m.</td>
<td>ORAL ONLY</td>
<td>Creating Value in On-board Electronic Systems: The Role of Sensors</td>
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<td>James Lenz, James Phelan, Deere &amp; Co.</td>
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<tr>
<td>12:00 p.m.</td>
<td>2008-01-2617</td>
<td>Wireless Sensor Networks vs Wired Sensor Networks for Commercial Vehicles (Written Only -- No Oral Presentation)</td>
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<td>CANCELLED</td>
<td>Yaamini Devi Loganathan, Ashok Leyland</td>
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</table>
**Tuesday, October 7**

**Sustainability (Green) Including Regulations, Biomaterials, Alternative Energy and Recycling**

**Session Code:** CV706

**Room 6**

In its most basic definition, sustainability means “meeting the needs of the present without compromising the ability of future generations to meet their own needs,” clearly emphasizing the importance of taking a short-term and long-term perspective to caring for the environment.

Manufacturers are going green, not only to reduce regulatory costs, but also to attract the next generation of talent for their workforces and remain competitive in the future. This session will provide insight into how companies can achieve their sustainability goals with initiatives such as shifting from qualitative to quantitative data to calculate the environmental footprint of a product or company; utilizing bio-materials to make products and processes greener; exploring alternative energy; or reuse or recycling in the product lifecycle.

**Organizers** - Kimberly Knickle, Manufacturing Insights; Richard Miller, NIOSH; Satya Panigrahi, Univ. of Saskatchewan

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<th>Time</th>
<th>Paper No.</th>
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<tr>
<td>1:00 p.m.</td>
<td>2008-01-2624</td>
<td>U.S. Department of Transportation Proposed Changes to Accommodate Hydrogen as an Alternative Fuel in Commercial Vehicles</td>
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<td>Quon Kwan, FMCSA; William Chernicoff, US Dept. of Transportation</td>
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<td>1:30 p.m.</td>
<td>2008-01-2625</td>
<td>Biodegradable Green Composite Boards for Industrial Application</td>
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<td>Satya Panigrahi, Anup Rana, Radhey L. Kushwaha, Univ. of Saskatchewan; Bhabani Sankar Panigrahy, Univ. of Regina</td>
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<td>2:00 p.m.</td>
<td>2008-01-2626</td>
<td>Development of Biocomposite Material from Scrap Tire Rubber</td>
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<td>Agricultural Fiber for Industrial Application</td>
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<td>Satya Panigrahi, Jimmy Fung, Sujata Panigrahi, Univ. of Saskatchewan</td>
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<tr>
<td>2:30 p.m.</td>
<td>ORAL ONLY</td>
<td>Trucker's Energy Challenges in an Idle Reduction World</td>
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<td>2008-01-2724</td>
<td>Mil Ovan, Firefly Energy Inc.</td>
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<td>Characteristics of Hybrid Fibre-Composites Boards for Potential Structural Application (Written Only -- No Oral Presentation)</td>
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<td></td>
<td>Satya Panigrahi, Univ. of Saskatchewan; B. Panigrahy, Univ. of Regina; Radhey Kushwaha, K. Arachchilage, R. Oraji, Univ. of Saskatchewan</td>
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Planned by Total Vehicle Group / Commercial Vehicle Activity

**Tuesday, October 7**

**Model-based Design**

**Session Code:** CV408

**Room 6**

To meet the challenge of reducing development time and improving quality in the face of increasing demands to reduce complexity while still delivering technical innovations, many leading OEMs and suppliers are using math-based models to support the development of the next generation of embedded systems through a process that has become known as Model-Based Design. In Model-Based Design, engineers use an executable specification that lets them iterate quickly through design concepts and simulations without needing to build physical prototypes. Later, they can use these executable specifications as the basis for real-time simulation and hardware-in-the-loop testing, automatic code generation and increasing to perform verification early in the process.

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

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<th>Time</th>
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<tr>
<td>3:30 p.m.</td>
<td>2008-01-2661</td>
<td>Heavy Duty Truck Driveline Optimization using Six Sigma Methodology</td>
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<td>Mukul Mitra, S Srinivas, Ashokleyland Limited</td>
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</tbody>
</table>
Advancements in Braking Systems

Session Code: CV109
Room 7
Session Time: 8:00 a.m.

This session highlights recent advancements in brake system design. Several studies will be presented on new, regenerative brake systems, as well as a new modeling technique to save time and energy while examining brake configuration packages for reducing stopping distances.

Organizers - Roy Zeitlow, Navistar, Inc.

Time | Paper No. | Title
--- | --- | ---
8:00 a.m. | 2008-01-2604 | Prediction of Heavy Truck Stopping Distance and Vehicle Behavior using Real-time HIL and SIL Simulation
Cheng Chen, Gary Wagner, Max Pace, Tony Rogness, Navistar, Inc.

8:30 a.m. | ORAL ONLY | Switched Reluctance Machines for Regenerative Braking in Commercial Vehicles
Roy McCann, Wendyam Traore, Univ. of Arkansas

9:00 a.m. | 2008-01-2605 | Energy Generating Suspension System for Commercial Vehicles
Shaiju Murithottathil Belsus, Mukul Mitra, Ashok Leyland

9:30 a.m. | 2008-01-2606 | Electric Regenerative Power Assisted Brake Algorithm for a Front and Rear Wheel Drive Parallel Hybrid Electric Commercial Van
Ahu Ece Hartavi, Ismail Uygan, Volkan Sezer, Istanbul Technical Univ.; Tankut Acarman, Galatasaray Univ.; Levent Guvenc, Istanbul Technical Univ.; Varlik Kilic, Ford Otosan AS

The papers in this session are available in a single publication, SP-2216, and also individually.

Planned by Braking and Steering Group / Commercial Vehicle Activity

Drivers for Idling Reduction: Legislation, Economics, and New Technology

Session Code: CV711
Room 7
Session Time: 10:30 a.m.

As fuel prices continue their volatility, trucking fleet managers and owner-operators are searching for better ways to improve their bottom line while complying with regulatory demands. This session will cover three drivers for idling reduction: (1) an update on legislative restrictions and sources of funding to purchase idling reduction equipment, (2) the economics every business person needs to know before purchasing idling reduction equipment, and (3) new technology that may be in the marketplace soon.
**Tuesday, October 7**

**Indirect Viewing**

Session Code: CV710

Room 7  

**Session Time:** 1:30 p.m.

This session will present information on visibility around a commercial motor vehicle and recent advances in technology to improve visibility beyond conventional mirrors. Innovative technology developments that will be highlighted during this session include testing and evaluating camera/video imaging systems that can be used as an enhancement to mirrors.

**Organizers** -  

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<th>Time</th>
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<tr>
<td>1:30 p.m.</td>
<td>2008-01-2627</td>
<td>Enhanced Camera/Video Imaging Systems (E-C/VISs) for Heavy Vehicles</td>
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<td>2:00 p.m.</td>
<td>ORAL ONLY</td>
<td>Field Demonstration of an Advanced Heavy Vehicle Indirect Visibility System</td>
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<td>Richard J. Hanowski, Virginia Tech.</td>
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<td>2:30 p.m.</td>
<td>ORAL ONLY</td>
<td>Perspectives from the Trucking Industry on Mirrors and Indirect Viewing Systems</td>
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<td>Jerry K. Hubbell, DJL Associates International</td>
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**Wednesday, October 8**

**Global Executive Leadership Panel**

Session Code: CV903

Room Technology Theater  

**Session Time:** 10:15 a.m.

Design and development of commercial vehicles for on-road and off-road use is supported significantly by the engineering consulting community. This group of leaders will offer their perspectives and visions of the future of the engineering, research, and development of commercial vehicles and equipment as well as the challenges that lie ahead for this industry.

**Organizers** -  
Patrick E. Charbonneau, International Truck & Engine Corp.
Moderators - John C. Wall, Cummins Inc.
Panelists - Raymond W. Corbin, AVL Powertrain Engineering Inc.; Dean P. Harlow, Ricardo; Magdi K. Khair, Southwest Research Institute; Gary W. Rogers, FEV Inc.

Wednesday, October 8

53rd Annual L. Ray Buckendale Lecture / Reception

Session Code: CV801
Room Technology Theater Session Time: 2:00 p.m.

The Buckendale Lecture/Paper Series historically offered topics which covered a wide variety of areas in the truck and bus industries. These are considered and selected based on SAE members' interests to address a perceived industry need. The Buckendale Committee invites an industry expert to develop a reference paper on the selected topic and deliver a lecture at the SAE Commercial Vehicle Engineering Congress & Exhibition. L. Ray Buckendale, 1946 SAE President, by his character and work, endeared himself to all who were associated with him. Foremost among his many interests was the desire to develop the potential abilities in young people. To this end, the lecture is directed primarily to the needs of young engineers and students with emphasis on practical aspects of the topic.


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Planned by Buckendale Lecture Committee / Board Awards Committees

Wednesday, October 8

Global Carbon Footprint Panel: The Challenge of CO2 Control

Session Code: CV904
Room Technology Theater Session Time: 3:30 p.m.

The concerns with global warming continue to grow on a global basis. The contribution of vehicle CO2 emissions to global warming continues as a major focus. The continued growth in consumption of fossil-based fuels adds to these concerns, as well as those of energy security and energy independence for countries without significant domestic fuel supplies.

As the commercial vehicle industry, we are large consumers of petroleum fuels and play a significant role in mitigating CO2 emissions, as well as reducing fuel consumption and deploying alternative energy forms. The challenges are many, and daunting in total scale and timing. Just as we have seen significant technological change occur in the past when challenges of this scope are met, we will likely see another wave of technological innovation impact our industry as CO2 emissions reduction is handled. The panel will review these problems and challenges from a global perspective, and provide insight into the opportunities for future improvements.

Organizers - Thomas R. Hinman, Corning Inc.; Sree K. Menon, Robert Bosch LLC
Moderators - Timothy V. Johnson, Corning Inc.

Wednesday, October 8

Materials Development (Chassis Composites)

Session Code: CV203
Room 10 Session Time: 8:30 a.m.
This session focuses on new materials and their ability to lightweight vehicular structures of future commercial vehicles and their implements. Lightweighting of vehicles, through composites and other materials, is a key future topic for its ability to reduce fuel and power requirements and to increase cargo capacity.

Organizers - Mehdi Ahmadian, Virginia Tech.; Richard Current, NIOSH

Time | Paper No. | Title
---|---|---
8:30 a.m. | 2008-01-2653 | Structural Behavior of Jute Fiber Composites - A Review
S. Dhanasekaran, Sathya Prasad Mangalaramanan, Ashok Leyland Ltd.

9:00 a.m. | 2008-01-2654 | Innovative Structural Concepts for Lightweight Design of Heavy Vehicle Systems
Jacky Prucz, West Virginia Univ.

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Wednesday, October 8

IT Tools in Total Vehicle Design (CAD/CAM Applications, Simulation, Product Life Cycle Management)

Session Code: CV705
Room 10 | Session Time: 10:15 a.m.
This session covers how software tools are used to enhance product development and product quality. Case studies with real world data is emphasized.

Organizers - Joseph J. Barkai, IDC Manufacturing Insights; Radhey L. Kushwaha, Univ. of Saskatchewan; Richard Miller, NIOSH; Satya Panigrahi, Univ. of Saskatchewan; Michael R. Sevcovic, International Truck & Engine Corp.

Time | Paper No. | Title
---|---|---
10:15 a.m. | 2008-01-2657 | Thermal Analysis and Simulations for Optimizing HVAC Load on Heavy Trucks
Amit B. Shah, Craig M. Cless, John S. Curlee, ThermoAnalytics Inc.; Jeremy Edmondson, Volvo Trucks NA

10:45 a.m. | 2008-01-2658 | Investigation and Assessment of Factors affecting the Underhood Cooling Air Flow Using CFD (Computational Fluid Dynamics)
Timothy Juan, Navistar International Corp.

11:15 a.m. | 2008-01-2659 | Data Based Damage Prediction of Commercial Vehicles using Bayesian Networks
Andrea Lorenz, Martin Kozek, Vienna University of Technology

Planned by Total Vehicle Group / Commercial Vehicle Activity

Wednesday, October 8

Simulation of Commercial Vehicles (Part 1 of 3)

Session Code: CV208
Room 10 | Session Time: 1:45 p.m.
This session addresses various aspects related to vehicle sub-systems, in particular to the chassis and suspension systems, through studies that employ modeling, simulation, and control. Examples of topics include modeling and control of hybrid electric buses and other vehicles, commercial vehicles manufacturing process planning, semi-active air suspension systems for heavy vehicle cabs, heat exchanger and cooling fan airflow analysis, computational simulations for agricultural sprayer machines, design for six sigma for engine water pump optimization, and tire modeling and inflation studies.
### Simulation of Commercial Vehicles (Part 2 of 3)

**Session Code:** CV208  
**Room 10**  
**Session Time:** 3:30 p.m.

This session addresses various aspects related to vehicle sub-systems, in particular to the chassis and suspension systems, through studies that employ modeling, simulation, and control. Examples of topics include modeling and control of hybrid electric buses and other vehicles, commercial vehicles manufacturing process planning, semi-active air suspension systems for heavy vehicle cabs, heat exchanger and cooling fan airflow analysis, computational simulations for agricultural sprayer machines, design for six sigma for engine water pump optimization, and tire modeling and inflation studies.


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<th>Time</th>
<th>Paper No.</th>
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<th>Authors</th>
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<tbody>
<tr>
<td>1:45 p.m.</td>
<td>2008-01-2665</td>
<td>Design of Ribs of Wind Deflector using Topology Optimization and Validation of Design Through FE Structural Analysis and Test in Laboratory</td>
<td>Satyen Kumar Maladahiya, Girish M G, Chandrasekaran Vijay Ram, Sathya Mangalaramanan, Ashok Leyland Ltd.</td>
</tr>
<tr>
<td>2:15 p.m.</td>
<td>2008-01-2666</td>
<td>Approach for Dynamic Analysis of Automotive Exhaust System</td>
<td>Sanjay Patil, Tata Motors Ltd.; Vidyadhar Katkar, Tata Motors Ltd.</td>
</tr>
<tr>
<td>2:45 p.m.</td>
<td>2008-01-2667</td>
<td>Full Frame Fatigue Test on Heavy Trucks and their Setup using Finite Element Simulation</td>
<td>Raziel Vallejo, Metalsa</td>
</tr>
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</table>

The papers in this session are available in a single publication, SP-2218, and also individually.

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

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**Wednesday, October 8**

**Vehicle Dynamics (Part 1 of 2)**

**Session Code:** CV211
Wednesday, October 8

Vehicle Dynamics (Part 2 of 2)

Session Code: CV211

Room 11

Session Time: 8:30 a.m.

In this session, various papers will be presented by their authors. The subjects range from:

Handling and braking analysis of a hydraulic suspension, ride dynamic analysis of a hybrid discrete and continuous vehicle model, non linear suspension and damper characteristics, multibody system/finite element simulation of belt drive and rubber tracked vehicles to the baffle design analysis of a road tanker.

Organizers - Brad Bean, Transportation Research Center Inc.; Tjong T. Lie

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<th>Time</th>
<th>Paper No.</th>
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<tr>
<td>8:30 a.m.</td>
<td>2008-01-2669</td>
<td>Optimization of Nonlinear Spring and Damper Characteristics for Vehicle Ride and Handling Improvement</td>
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<td>Dincer Ozcan, Umit Sonmez, Istanbul Technical Univ; Levent Guvenc, Istanbul Technical Univ.; Server Ersolmaz, Erhan Eyol, Ford Otosan AS</td>
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<tr>
<td>9:00 a.m.</td>
<td>2008-01-2671</td>
<td>Ride Dynamic Analysis of a Hybrid Discrete and Continuous Vehicle Model</td>
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<td>Khodabakhsh Saeedi, Concordia Univ.</td>
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<tr>
<td>9:30 a.m.</td>
<td>2008-01-2672</td>
<td>Handling and Braking Analyses of a Heavy Vehicle with a Cross-Axle Fluidically-Coupled Suspension</td>
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<td>Dongpu Cao, Subhash Rakheja, Chun-Yi Su, Concordia Univ.</td>
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Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Wednesday, October 8

Hybrids

Session Code: CV303

Room 11

Session Time: 10:15 a.m.

In this session, various papers will be presented by their authors. The subjects range from:

Handling and braking analysis of a hydraulic suspension, ride dynamic analysis of a hybrid discrete and continuous vehicle model, non linear suspension and damper characteristics, multibody system/finite element simulation of belt drive and rubber tracked vehicles to the baffle design analysis of a road tanker.

Organizers - Brad Bean, Transportation Research Center Inc.; Tjong T. Lie

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:15 a.m.</td>
<td>2008-01-2668</td>
<td>Multibody System/Finite Element Simulation of Belt Drives and Rubber Tracked Vehicles</td>
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<td></td>
<td>Ahmed A. Shabana, Univ. of Illinois</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>2008-01-2670</td>
<td>Baffle Design Analysis for a Road Tanker: Transient Fluid Slosh Approach</td>
</tr>
<tr>
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<td></td>
<td>Guorong Yan, Subhash Rakheja, K. Siddiqui, Concordia Univ.</td>
</tr>
</tbody>
</table>

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Wednesday, October 8
Room 11  
Session Time:  1:45 p.m.

Presentations from manufacturers of HD hybrid systems who will highlight technical details on what is currently available from them in the market today and what will be available in the future.

Organizers -  Kevin A. Walkowicz, NREL

Panelists -  Colin Jay Casey, Navistar Inc.; William C. Kahn, Peterbilt Motors Co.; George W. Kalet, ISE Corporation; Derek Matthews, BAE Systems Electronics & Integrated;

Planned by Drivetrain, Powertrain and Transmissions Group / Commercial Vehicle Activity

Wednesday, October 8

Testing and Experimental Studies for Commercial Vehicles

Session Code:  CV209

Room 11  
Session Time:  3:30 p.m.

Experimental studies are extremely valuable in better understanding the vehicle systems and sub-systems. Through testing and laboratory work one can substantially improve the design and performance of a vehicle, as well as validate computer models or theoretical assumptions. Examples of topics include experimental studies for trailer design, laboratory trials for bake hardening steel characterization, stress and fatigue crack growth studies in steel, estimation of the friction performance for wet friction materials in torque converter clutches, experimental testing for hybrid electric buses, tire-road pressure studies for dual tires for heavy-vehicles, piston pin dynamics and temperature in C.I. engines.


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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>3:30 p.m.</td>
<td>2008-01-2685</td>
<td>Contact Force and Pressure between Tire and Road using Dual Tires under Different Loads and Inflation Pressures</td>
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<tr>
<td></td>
<td></td>
<td>Manuel Jesus Fabela-Gallegos, Ricardo Hernandez, Miguel Martinez-Madrid, David Vazquez-Vega, Oscar Flores-Centeno, Instituto Mexicano del Transporte</td>
</tr>
<tr>
<td>4:00 p.m.</td>
<td>2008-01-2684</td>
<td>Bake Hardening Steel (BH220) Characterization</td>
</tr>
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<td>Subhrajyoti Ghosal, B. R. Galgali, M. M. Ogale, S. P. Joshi, Tata Motors, Ltd.</td>
</tr>
<tr>
<td>4:30 p.m.</td>
<td>ORAL ONLY</td>
<td>Near-Hole Residual Stress and Fatigue Crack Growth for Typical Siderail Hole-Making Processes - Applied to Heat-treated Steel (MET1123) and Ultra High Strength Low Alloy Steel (120XF)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sean Michael Fleming, Metalsa</td>
</tr>
</tbody>
</table>

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Wednesday, October 8

Trailer Rebuild or Purchase New

Session Code:  CV601

Room 13  
Session Time:  8:30 a.m.

Organizers -  George Sturmon, ATRO Engineered Systems

Panelists -  Dennis Damman, Direct Chassis; Greg Filer, Triple Crown Services; Bruce Thompson, Isaac Trailer Repair;

Planned by CV Maintenance Group / Commercial Vehicle Activity

Wednesday, October 8

Bagels & Briefings
Do you know what SAE and ISO Standards are being developed? How will they affect you? Come enjoy a light breakfast while hearing about the latest technological standards currently being developed. The SSAE Construction Agricultural & Off-Road Machinery Council, Truck & Bus Council, and the Fuels & Lubricants Council 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. There will be time for audience participation and questions.

Wednesday, October 8

Heavy Duty Electric Technology

Session Code: CV413

Session Time: 10:15 a.m.

Session CV 413 supports OEM engineers with strategies, technologies and best practices to introduce hybrid and electric technologies in off-road agricultural and construction machines.

Organizers - James Lenz, James C. Miller, John Deere & Co.; Joseph F. Ziomek


Time Paper No. Title

ORAL ONLY  L220F Hybrid Wheel Loader
Jack Bolton, Stefan Salomonsson, Volvo Construction Equipment NA Inc.

ORAL ONLY  D7E Electric Drive Track Type Tractor
Edward L. Zwilling, Caterpillar Tech. Center

2008-01-2660 High Voltage Electric Tractor-Implement Interface
Klaus Hahn, John Deere Werke Mannheim

Planned by Electrical and Electronics Group / Commercial Vehicle Activity

Wednesday, October 8

Volvo Truck AUTOSAR Presentation

Session Code: CV416

Session Time: 1:45 p.m.

Through the AUTOSAR cooperation in the automotive industry, there is now a standard specifying a hardware-independent software interface. The relation with the hardware supplier will remain but as it will be possible to add any software, a wide range of new suppliers can enter the market - from big suppliers in the telecom industry to small entrepreneurial companies. Adoption of the new standard has the potential of reducing cost, increasing quality and reducing time to market. Volvo Truck’s implementation of AUTOSAR across their next generation trucks might possibly change the business model and development process for electronics architecture throughout the commercial vehicle industry.

Organizers - John Cain, Vector CANtech Inc.

Presenters - Jens Svensson, Hakan Berglund, Volvo Truck

Wednesday, October 8

Distraction and Drowsiness Measurability/Monitoring (Counter Measures) - Part 1 of 2

Session Code: CV404

Session Time: 3:30 p.m.
This session will draw attention to recent progress achieved in non-contact monitoring and measuring driver fatigue and driver distraction. It will highlight recent deployment of machine vision systems including Eye Tracking and Lane Position in assessing driver's state in real-world driving scenarios. The topics of this session encompass many disciplines of non-invasive driver state monitoring including automatic spatial eye and head position tracking, binary eye closure recognition, PERCLOS, disparate sensors fusion, driver fatigue detection, visual and cognitive driver distraction detection, comparative analysis, standards, non-contact physiological measurements, infrared systems, and safety countermeasures.


Time    | Paper No. | Title
---|---|---
3:30 p.m. | 2008-01-2692 | PERCLOS+: Moving Beyond Single-Metric Drowsiness Monitors
4:00 p.m. | 2008-01-2691 | Driver Eye Closure Recognition for Commercial Vehicles
         |          | Riad Hammoud, Delphi Corp.

Planned by Electrical and Electronics Group / Commercial Vehicle Activity

Wednesday, October 8

Government/Industry Brake Research, Rulemaking & Technologies and Beyond: 2009 and Beyond - Short Term and Long Term Changes for Commercial Vehicles (Part 1 of 2)

Session Code: CV105

Room 4

With the expected final stopping distance rule publication in 2008, this session will update what brake system changes are now expected to meet the new regulations. Looking forward, the session will also provide a view of what future technologies may offer additional commercial vehicle safety improvements.


Moderators - Claude H. Harris, National Hwy. Traffic Safety Admin.

Time    | Paper No. | Title
---|---|---
8:30 a.m. | Panel | NHTSA Heavy Vehicle Regulatory Update
         |          | Panelists - Nathaniel Beuse, National Hwy. Traffic Safety Admin.;
8:50 a.m. | Panel | CVSA Update on Brake Related Initiatives
         |          | Panelists - Stephen Keppler, Commercial Vehicle Safety Alliance;
9:05 a.m. | Panel | The Future of Commercial Vehicle Safety Systems DAS and Beyond
         |          | Panelists - Richard E. Beyer, Bendix Commercial Vehicle Systems LLC;
9:20 a.m. | Panel | Future Technology Solutions to Achieve Higher Levels of Commercial Vehicle Safety
         |          | Panelists - Alan Korn, Meritor Wabco;
9:35 a.m. | Panel | Brake Safety on the Road
         |          | Panelists - Deborah M. Freund, US Dept. of Transportation;

Planned by Braking and Steering Group / Commercial Vehicle Activity
Wednesday, October 8

Government/Industry Brake Research, Rulemaking & Technologies: Stability Control for Commercial Vehicles and Beyond (Part 2 of 2)

Session Code: CV105  
Room 4  
Session Time: 10:15 a.m.

With the implementation of stability control regulations for light vehicles now in place, the focus has turned to the commercial vehicles in the ongoing quest to improve safety on the national highways. This technical session will provide an update on the current regulatory activities and available stability control products. This session will also provide a view of what future technologies may offer additional commercial vehicle safety improvements.


Moderators - Claude H. Harris, National Hwy. Traffic Safety Admin.

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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</table>
| 10:15 a.m.| Panel     | Stability Control Research and Development - Problem Definition and Safety Benefits  
Panelists - Timothy Johnson, National Hwy. Traffic Safety Admin.; |
| 10:35 a.m.| Panel     | Stability Control Research and Development - NHTSA Performance Testing  
Panelists - Frank S. Barickman, National Hwy. Traffic Safety Admin.; |
| 10:50 a.m.| Panel     | Commercial Vehicle Stability Availability: Today into the Future  
Panelists - Richard John Conklin, Bendix; |
| 11:05 a.m.| Panel     | Trailer Stability Systems  
Panelists - David G. Engelbert, Haldex Brake Products; |
| 11:20 a.m.| Panel     | Fleet Perspective of Vehicle Stability Control Systems  
Panelists - Brian Routhier, American Trucking Associations; |

Planned by Braking and Steering Group / Commercial Vehicle Activity

Diesel Engine Development (Part 1 of 3)

Session Code: CV306  
Room 4  
Session Time: 1:45 p.m.

Development of new diesel engines and related technology are addressed in three sessions. The sessions cover engine, component and subsystem design and development. The work is often a result of worldwide team collaboration, using existing and new technology and processes.


<table>
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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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| 1:45 p.m. | 2008-01-2675 | The Development of New 7400 and 9400 Series Ford ECOTORQ Heavy-Duty Engines  
Omer Rustu Ergen, Bulent Unuvar, Ford Otomotiv San. A.S.; Andreas Göttler, Chemical Engineer; Bilge Dalarslan, Goktan Kurnaz, Ford Otomotiv San. A.S. |
Diesel Engine Development (Part 2 of 3)

Session Code: CV306
Room 4

Session Time: 3:30 p.m.

Development of new diesel engines and related technology are addressed in three sessions. The sessions cover engine, component and subsystem design and development. The work is often a result of worldwide team collaboration, using existing and new technology and processes.


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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>3:30 p.m.</td>
<td>2008-01-2688</td>
<td>Reduced Oil Consumption by Laser Surface Texturing on Cylinders</td>
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<td>Goktan Kurnaz, Nedim Soydemir, Ford Otomotiv San AS</td>
</tr>
<tr>
<td>4:00 p.m.</td>
<td>2008-01-2676</td>
<td>Design and Development of High Performance Diesel Engines for Off-Highway and Genset Applications with Emerging Technologies</td>
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<td>S. S. Ramdasi, Raju Bharani Dharan, Neelkanth V Marathe, Automotive Research Association of India</td>
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<tr>
<td>4:30 p.m.</td>
<td>2008-01-2674</td>
<td>Crankshaft and Bearing Analysis Process for a Light Duty Automotive Engine</td>
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<td>Ilya Piraner, Matthew Meek, Cummins Inc.</td>
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Planned by Electrical and Electronics Group / Commercial Vehicle Activity

Hydraulic Hybrid Powertrain & Controls (Part 1 of 3)

Session Code: CV505
Room 5

Session Time: 8:30 a.m.

As we strive to improve vehicle operation efficiency and reduce fuel consumption, we find that hydraulic drivetrains and hydraulic hybrids may provide interesting opportunities for consideration. This session will focus on current trends and advancements in the hydraulic powertrain and controls arena. It is anticipated that papers and presentations will include discussions on: Recent hydraulic powertrain developments; System optimization for hydraulic drivetrains; System optimization for hydraulic hybrid vehicles (engine, hydraulic drivetrain, accessory, etc.)

Organizers - David E. Herbert, Sun Hydraulics Corp.; Stanton E. Miller, Navistar, Inc

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tr>
<td>8:30 a.m.</td>
<td>2008-01-2686</td>
<td>An Inclusive, System-Oriented Approach for the Study and the Design of Hydrostatic Transmissions: The Case of an Articulated Boom Lift</td>
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<td>Andrea Vacca, Univ. of Parma; Germano Franzoni, Parker Hannifin Corp.; Francesco Bonati, Parmafluid</td>
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</tbody>
</table>
As we strive to improve vehicle operation efficiency and reduce fuel consumption, we find that hydraulic drivetrains and hydraulic hybrids may provide interesting opportunities for consideration. This session will focus on current trends and advancements in the hydraulic powertrain and controls arena.

Organizers - David E. Herbert, Sun Hydraulics Corp.; Stanton E. Miller, Navistar, Inc

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>10:15 a.m.</td>
<td>ORAL ONLY</td>
<td>Control of a Series Hydraulic Hybrid Drive Train by Means of Hydraulic Transformers</td>
</tr>
<tr>
<td>10:45 a.m.</td>
<td>ORAL ONLY</td>
<td>Evaluating the Low-emission Potential of the Series Hydraulic Hybrid Using the Engine-In-the-Loop Capability</td>
</tr>
<tr>
<td>11:15 a.m.</td>
<td>ORAL ONLY</td>
<td>Series Hydraulic Hybrids - Synergies with the HCCI Engine</td>
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Planned by Fluid Power and Hydraulics Group / Commercial Vehicle Activity

Wednesday, October 8

Hydraulic Hybrid Powertrain & Controls (Part 3 of 3)

Session Code: CV505

As we strive to improve vehicle operation efficiency and reduce fuel consumption, we find that hydraulic drivetrains and hydraulic hybrids may provide interesting opportunities for consideration. This session will focus on current trends and advancements in the hydraulic powertrain and controls arena. It is anticipated that papers and presentations will include discussions on: Recent hydraulic powertrain developments; System optimization for hydraulic drivetrains; System optimization for hydraulic hybrid vehicles (engine, hydraulic drivetrain, accessory, etc.)

Organizers - David E. Herbert, Sun Hydraulics Corp.; Stanton E. Miller, Navistar, Inc

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<th>Time</th>
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<tbody>
<tr>
<td>1:45 p.m.</td>
<td>ORAL ONLY</td>
<td>High Efficiency Hydraulic Hybrid Drive System for Mobile Applications</td>
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<tr>
<td>2:15 p.m.</td>
<td>ORAL ONLY</td>
<td>Fuel Efficiency Benefits of Advanced Series Hybrid Applications</td>
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Planned by Fluid Power and Hydraulics Group / Commercial Vehicle Activity
Wednesday, October 8

Education of Fluid Power

Session Code: CV502

Room 5  Session Time: 3:30 p.m.

This session brings together panelists from industry and academia to discuss fluid power education both internationally and within the United States. Within the past several years and as a result of many groups working together, there are new projects and activities to expose younger students to careers in science, technology, engineering and math using fluid power as the vessel. NFPA, NSF, universities, and the fluid power industry have joined together as part of the NSF Center for Compact and Efficient Fluid Power (CCEFP) to develop and promote educational activities and opportunities in fluid power. Please come participant and share your opinion on this important topic.

Organizers - Monika Ivantysynova, Purdue Univ-West Lafayette

Panelists - William Durfee, Univ. Of Minnesota; Monika Ivantysynova, Purdue Univ-West Lafayette; William Parks, Deltrol Fluid Products; Gregory Willard, Quality Control Corp.;

Planned by Fluid Power and Hydraulics Group / Commercial Vehicle Activity

Wednesday, October 8

Telematics (Part 1 of 2)

Session Code: CV412

Room 6  Session Time: 8:30 a.m.

This session will focus on vehicle Telematics and the recent advances in wireless connectivity to and from the vehicle. Today's environment is an ever increasing trend to be connected all the time and it is a natural extension to have this same level of connectivity in the vehicle. The reasons for this connectivity or Telematics include safety, providing up to date information for the operator, entertainment, fleet management, and many others. This session will look at some of the ways the markets will impact Telematics deployment and the ways vehicles may be connected, including connectivity to each other. The standards being developed for the message structures and the status of these standards will also be discussed.

Organizers - Gary A. Streelman, Delphi

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>8:30 a.m.</td>
<td>ORAL ONLY</td>
<td>Market Driven Telematics Technology Deployments</td>
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<td>Emad Isaac, The Morey Corp.</td>
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<td>9:00 a.m.</td>
<td>2008-01-2649</td>
<td>Overview of Vehicle Infrastructure Integration (VII) Applications</td>
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<td>Chris A. Hedges, Douglas Welk, Delphi Electronics</td>
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<tr>
<td>9:30 a.m.</td>
<td>2008-01-2650</td>
<td>Overview and Use of SAE J2735 Message Sets for Commercial Vehicles</td>
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<td>Chris A. Hedges, Delphi Electronics; Frank Perry, Booz / Allen / Hamilton</td>
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</table>

Planned by Electrical and Electronics Group / Commercial Vehicle Activity

Wednesday, October 8

Telematics (Part 2 of 2)

Session Code: CV412

Room 6  Session Time: 10:15 a.m.

This session will focus on vehicle Telematics and the recent advances in wireless connectivity to and from the vehicle. Today's environment is an ever increasing trend to be connected all the time and it is a natural extension to have this same level of connectivity in the vehicle. The reasons for this connectivity or Telematics include safety, providing up to date information for the operator, entertainment, fleet management, and many others. This session will look at some of the ways the markets will impact Telematics deployment and the ways vehicles may be connected, including connectivity to each other. The standards being developed for the message structures and the status of these standards will also be discussed.

Organizers - Gary A. Streelman, Delphi

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<tr>
<td>10:15 a.m.</td>
<td>2008-01-2651</td>
<td>5.9 GHz DSRC Standards Overview and Status</td>
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<td>Justin P. McNew, Janine McGraw, Kapsch TrafficCom Inc.</td>
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</tbody>
</table>
There has been a continuous increase in embedded system content in commercial vehicles over the past twenty years. Today electronics and software, which implements the intelligence for the embedded electronics, play a central role in reducing emission and fuel consumption and at the same time bringing to the market innovative new functionalities from hybrid electric drives to adaptive seat controller to driver information displays. To address the increase in complexity and to meet customers’ requirement for high reliability products, the traditional development tools and processes need to be adapted so the quality of electronics and software components can be measured, tracked, and improved.

**Electronics Reliability (Embedded Systems and V&V) (Part 1 of 2)**

**Session Code:** CV406  
**Room:** Room 6  
**Session Time:** 1:45 p.m.

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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</table>
| 1:45 p.m. | 2008-01-2713 | Next-Generation Hardware-in-the-Loop Test Systems for Commercial Vehicle Applications  
Jacobus P. Zwaanenburg, ETAS |
| 2:15 p.m. | 2008-01-2709 | Verification, Validation, and Test with Model-Based Design  
Thomas Erkkinen, Mirko Conrad, The MathWorks Inc. |
| 2:45 p.m. | 2008-01-2711 | Open Architecture Solution for Hardware-in-the-Loop Testing  
Laurence Long, Vehicle Systems Integration LLC; Brian McKay, The MathWorks Inc.; Gardell Gefke, Vehicle Systems Integration LLC |

**Electronics Reliability (Embedded Systems and V&V) (Part 2 of 2)**

**Session Code:** CV406  
**Room:** Room 6  
**Session Time:** 3:30 p.m.

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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</table>
| 3:30 p.m. | ORAL ONLY  | Designing and Implementing Architectures for Distributed Commercial Vehicles E/E Systems  
Thomas Heurung, Mentor Graphics |
| 4:00 p.m. | 2008-01-2710 | Integrated Control, Regulated DC Supply with High Power Quality for Automotive Applications  
Nabil Mohammad Hammad, Helwan Univ. |
This session will provide a venue for Class 8, Line-haul OEMs, drivers, owner/fleet supervisors, safety and economic specialists to share what features or elements are most important for them to see in an ideal truck, as seen from their industry’s segment viewpoint. The objective is to initiate a dialogue among builders and users. We are looking to hear practical and economically feasible visions for improvements, or solutions to problems, with current or near-term technologies. Each speaker will provide his own viewpoint as a panelist. A question and answer period will follow the last speaker.

Organizers - Teri H. Elliot, Transportation Research Center Inc.; Duane A. Perrin, Truxpertise LLC
Moderators - Paul N. Abelson, Land Line Magazine
Panelists - Jesse Averhart, Navistar Inc.; Stephen Keppler, Commercial Vehicle Safety Alliance; DuWayne Marshall, Owner/Operator;

Planned by Total Vehicle Group / Commercial Vehicle Activity

Wednesday, October 8

Ideal Truck
Session Code: CV704
Room 7
Session Time: 8:30 a.m.

The interfaces between the operator and the equipment will be discussed, including ergonomics and operator comfort.

Organizers - Amy L. Houser, Federal Motor Carrier Safety; Richard Miller, NIOSH; Paul S. Rau, National Hwy. Traffic Safety Admin.

Wednesday, October 8

Human Factors (Driver Comfort, Seat Design, Ergonomics) (Part 1 of 2)
Session Code: CV703
Room 7
Session Time: 1:45 p.m.

The interfaces between the operator and the equipment will be discussed, including ergonomics and operator comfort.

Organizers - Amy L. Houser, Federal Motor Carrier Safety; Richard Miller, NIOSH; Paul S. Rau, National Hwy. Traffic Safety Admin.

Time | Paper No. | Title
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Nadine Levick, EMS Safety Foundation; Raphael Grzebieta, NSW Injury Risk Management Research Center, UNSW

2:15 p.m. | 2008-01-2696 | Evaluation of Light Vehicle Side Underride Collisions into Combination Trucks
Jeya Padmanaban, Benjamin Martz, Josh Thomas Salvage, JP Research Inc.

2:45 p.m. | 2008-01-2697 | R-134a Heat Pump Application for the Buses by Using Engine Coolant as a Heat Source
Seongkook Shin, Changhoon Yun, Seok-joo Lim, Hyundai & Kia Corp.; Jung-hoon Moon, Youngdoo Cho, Taewoo Koo, Sanggon Lee, Modine Korea
**Wednesday, October 8**

**Human Factors (Driver Comfort, Seat Design, Ergonomics) (Part 2 of 2)**

**Session Code:** CV703  
**Room 7**  
**Session Time:** 3:30 p.m.

The interfaces between the operator and the equipment will be discussed, including ergonomics and operator comfort.

**Organizers** - Amy L. Houser, Federal Motor Carrier Safety; Richard Miller, NIOSH; Paul S. Rau, National Hwy. Traffic Safety Admin.

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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</table>
| 3:30 p.m. | ORAL ONLY | **Ingress/Egress Systems on Heavy Trucks: Step and Handhold Configurations**  
Matthew Reed, Univ. of Michigan |
| 4:00 p.m. | 2008-01-2698 | **Seat Design: An Important Consideration for Occupant Safety in Public Transit Buses**  
M. J. Macnabb, Macnabb Consulting; A. K. Little, TranSolution Consulting; A. D. Lamb, BC Transit |

**Planned by Total Vehicle Group / Commercial Vehicle Activity**

**Wednesday, October 8**

**Lessons Learned from the LTCCS - Future Technology Opportunities for Commercial Vehicles**

**Session Code:** CV105-4  
**Room TBD**  
**Session Time:**

**Panelists** - Kristin Kingsley, National Hwy Traffic Safety Admin;

**Thursday, October 9**

**Tier 4 Panel**

**Session Code:** CV905  
**Room Technology Theater**  
**Session Time:** 10:30 a.m.

The SAE Commercial Vehicle Engineering Congress Executive Planning Council will focus on the Tier 4 topic over the next three years. Installment one of this discussion will focus on Standards and Technology. The overall goal of this three part dialogue is to communicate industry's intentions and product plans in order to ensure early awareness for users. Subsequent editions of the Tier 4 Panel will cover machine impact and vehicle integration service and aftermarket impact.

**Organizers** - Klaus Hoehn, Deere & Co.; Alain P. Jablonowski, Bosch Automotive Diesel Systems Co. Ltd.; Wayne Martenas, Case New Holland

**Moderators** - Duane D. Tiede, ATI Inc.

**Panelists** - Richard Heisey, CNH America LLC; Cleophas C. Jackson, US Environmental Protection Agency; Sethuraman Rajasekhar, Robert Bosch LLC; Michael S. Weinert, Deere & Co.; Graham B. Weller, Ricardo;
Simulation of Commercial Vehicles (Part 3 of 3)

Session Code: CV208  
Session Time: 8:00 a.m.

Room 10
This session addresses various aspects related to vehicle sub-systems, in particular to the chassis and suspension systems, through studies that employ modeling, simulation, and control. Examples of topics include modeling and control of hybrid electric buses and other vehicles, commercial vehicles manufacturing process planning, semi-active air suspension systems for heavy vehicle cabs, heat exchanger and cooling fan airflow analysis, computational simulations for agricultural sprayer machines, design for six sigma for engine water pump optimization, and tire modeling and inflation studies.


Time | Paper No. | Title
--- | --- | ---
8:00 a.m. | ORAL ONLY | Rethinking Scheduling - The Art of Staying Lean While Delivering Just-In-Time
Srinivas Netrakanti, Optessa

8:30 a.m. | 2008-01-2700 | Truck Driver’s Driving Performance Assessment
Bharathi Krishnamoorthy, S. Gopalakrishnan, Ashok Leyland Ltd.

9:00 a.m. | 2008-01-2655 | An Improved Design of a Vehicle Based Off-Road Terrain Profile Measurement System
Feilong Liu, Nicholas Dembski, Ahmed Soliman, Giorgio Rizzoni, Center for Automotive Research, Ohio State Univ.; Brian Thompson, Bowie Vaughn, US Army Yuma Proving Ground

2008-01-2656 | Study of Parameter Optimization and Control for a Semi-Track Air-Cushion Vehicle Based on Fuel Consumption Minimization (Written Only -- No Oral Presentation)
Shuo Xu, Fan Yu, Shanghai Jiao Tong Univ.

The papers in this session are available in a single publication, SP-2218, and also individually.

Planned by Chassis and Suspension Group / Commercial Vehicle Activity

Autonomous/Robotic Vehicles

Session Code: CV415  
Session Time: 10:30 a.m.

Room 10
The goal of this session is to highlight (1) recent advances made on building autonomous ground vehicles, and (2) the lessons learned from different competitions including the DARPA (Defense Advanced Research Projects Agency) Autonomous Vehicle Race.

Organizers - Riad Hammoud, Delphi Electronics & Safety

Time | Paper No. | Title
--- | --- | ---
10:30 a.m. | 2008-01-2717 | Low-Cost Autonomous Vehicles for Urban Environments
Mahesh Chengalva, Richard Bletsis, Delphi Electronics & Safety; Bernard Moss, Control Point Corp.

11:00 a.m. | 2008-01-2719 | Homogeneous Resource Configuration and Access for an Autonomous Robotic Vehicle
Steven D. Johnson, Bryce Himebaugh, Scott Dial, Indiana Univ.

11:30 a.m. | 2008-01-2718 | Ohio State University Experiences at the DARPA Challenges
Keith A. Redmill, Umit Ozguner, Scott Biddlestone, Alex Hsieh, John Martin, Ohio State Univ.
Advancements in Steering Systems

Session Code: CV102
Room 11
Session Time: 8:00 a.m.

New developments in commercial vehicle steering are presented, including analysis of conventional steering systems, auxiliary axle steering systems, and computer control of commercial vehicle steering systems.

Organizers - Donald L. Long, R H Sheppard Co.; Daniel Williams, TRW Commercial Steering Systems

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<thead>
<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>8:00 a.m.</td>
<td>2008-01-2701</td>
<td>Fuzzy-logic Controller for Automatic Forced-Steering in Semi-trailers</td>
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<tr>
<td>8:30 a.m.</td>
<td>2008-01-2703</td>
<td>Gain Scheduling Control in Commercial Vehicles with Electrohydraulic</td>
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<td>Power Steering</td>
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<tr>
<td>9:00 a.m.</td>
<td>2008-01-2702</td>
<td>Reduction of Transit Bus Driver Workload using Synthetic Torque</td>
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<td>Feedback</td>
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<tr>
<td>9:30 a.m.</td>
<td>ORAL ONLY</td>
<td>Development of Rack and Pinion Steering System for Trucks, Class C</td>
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<td></td>
<td>Motor Homes and Specialty Heavy Duty Vehicles with Independent Front</td>
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<td>Suspension</td>
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<tr>
<td>10:00 a.m.</td>
<td>2008-01-2704</td>
<td>Modeling and Simulation of Hydraulic Steering System (Written Only --</td>
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<td>No Oral Presentation)</td>
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<tr>
<td>10:30 a.m.</td>
<td>2008-01-2705</td>
<td>Experimental Study of the Maneuverability of a Testing Trailer with a</td>
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<td>Steering Axle at Low Speed Maneuvers (Written Only -- No Oral</td>
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<td>Presentation)</td>
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The papers in this session are available in a single publication, SP-2216, and also individually.

Planned by Braking and Steering Group / Commercial Vehicle Activity

Advances in Fluid Power Research

Session Code: CV501
Room 13
Session Time: 10:30 a.m.

This session covers international research activities in fluid power, including system level modeling, testing, design, and computational fluid dynamics. Current areas of research in fluid power address efficiency, noise, and performance; topics covered in this session.

Organizers - Monika Ivantsynova, John H. Lumkes, Purdue Univ.

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<th>Time</th>
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<td>10:30 a.m.</td>
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Thursday, October 9

Distraction and Drowsiness Measurability/Monitoring (Counter Measures) - Part 2 of 2

Session Code: CV404

Room 14 Session Time: 8:00 a.m.

This session will draw attention to recent progress achieved in non-contact monitoring and measuring driver fatigue and driver distraction. It will highlight recent deployment of machine vision systems including Eye Tracking and Lane Position in assessing driver's state in real-world driving scenarios. The topics of this session encompass many disciplines of non-invasive driver state monitoring including automatic spatial eye and head position tracking, binary eye closure recognition, PERCLOS, disparate sensors fusion, driver fatigue detection, visual and cognitive driver distraction detection, comparative analysis, standards, non-contact physiological measurements, infrared systems, and safety countermeasures.


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<th>Time</th>
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<tr>
<td>8:00 a.m.</td>
<td>2008-01-2693</td>
<td>An Experimental Study Using EEG to Detect Driver Drowsiness</td>
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<td>Yingzi Lin, H Leng, Northeastern Univ.; Ronald Mourant, Oakland Univ.</td>
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<tr>
<td>8:30 a.m.</td>
<td>2008-01-2694</td>
<td>Driver Distraction Monitoring and Adaptive Safety Warning Systems</td>
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<td>Riad Hammoud, Matthew R. Smith, Robert Dufour, Delphi Corp.; Deborah L. Bakowski; Gerald J. Witt, Delphi Energy and Chassis</td>
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</tbody>
</table>

Planned by Electrical and Electronics Group / Commercial Vehicle Activity

Thursday, October 9

Advanced Vehicle Technology - Women Engineers Panel Discussion

Session Code: CV802

Room 3 Session Time: 8:30 a.m.

This session will encompass the different sectors of SAE; Commercial Vehicle, Aerospace, Automotive, and Motor Sports, giving an overview of what is in the making for these industries. The focus of the discussion will be on the leading technologies driving industry trends and design.

Moderators - Carol Story, Navistar Inc.

Panelists - Sue Jensen, Caterpillar Inc.; Christin Rauche, General Electric Aviation; Steve Charles Southward, Virginia Tech.;

Thursday, October 9

Diesel Engine Development (Part 3 of 3)
Thursday, October 9

Calibration
Session Code: CV305
Room 4
Session Time: 10:30 a.m.
The purpose of the Engine and Transmission Calibration forum is to allow automotive professionals an opportunity to discuss and exchange ideas affecting the performance of a vehicle's engine and transmission components. Topics would include engine and transmission ECU development, ECU tools, current standards and proposed changes for future development.
Organizers - George Bracken, Cyrilla Jane Menon, Accurate Technologies Inc.

Time | Paper No. | Title
--- | --- | ---
10:30 a.m. | 2008-01-2714 | Calibration Scenario Editor Enables Higher Calibration Efficiencies
10:30 a.m. | 2008-01-2716 | An Effective Algorithm for Creating Precise Oil Level Information (Written Only -- No Oral Presentation)

Planned by Drivetrain, Powertrain and Transmissions Group / Commercial Vehicle Activity

Thursday, October 9

Serviceability (Part 1 of 2)
Session Code: CV709
Room 5
Session Time: 8:00 a.m.
Today's global economy, emerging technologies and tightening energy resources are placing demands on serviceability and service information like never before. Globally located and integrated teams, "world" products, globally sourced components, shorter product development cycles, telematics, machine health and electric and hybrid vehicles are all affecting product serviceability and service information. Topics should cover how leading OEMs and suppliers are successfully adapting to today's and tomorrow's environments; increasing first time fix and reducing No Fault Found rates while achieving "better, faster, cheaper" authoring and production of service information.
Organizers - Mark Pope, General Motors Corp.; Arnold Taube, Deere & Co.

Time | Paper No. | Title
Today’s global economy, emerging technologies and tightening energy resources are placing demands on serviceability and service information like never before. Globally located and integrated teams, "world" products, globally sourced components, shorter product development cycles, telematics, machine health and electric and hybrid vehicles are all affecting product serviceability and service information. Topics should cover how leading OEMs and suppliers are successfully adapting to today’s and tomorrow’s environments; increasing first time fix and reducing No Fault Found rates while achieving “better, faster, cheaper” authoring and production of service information.

Mark Pope, General Motors Corp.; Arnold Taube, Deere & Co.
Roberta Herron, Vansco Electronics LP

Organizers - Mark Pope, General Motors Corp.; Arnold Taube, Deere & Co.

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<th>Time</th>
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<tr>
<td>10:30 a.m.</td>
<td>2008-01-2706</td>
<td>Protecting Intellectual Property when Publishing 3-D Models</td>
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<td>Arnold Taube, Deere &amp; Co.; Daniel Conway, Indiana Univ.</td>
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<tr>
<td>11:00 a.m.</td>
<td>ORAL ONLY</td>
<td>Improving the Effectiveness and Control of Field Service Documents</td>
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<td>Michael Morel, Adobe Systems</td>
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Planned by Total Vehicle Group / Commercial Vehicle Activity

Thursday, October 9

Connected Worksite

Planned by Electrical and Electronics Group / Commercial Vehicle Activity
## Vibration, Dampening Noise

**Session Code:** CV507

**Room 7**

**Organizers** - Monika Ivantysynova, Purdue Univ. - West Lafayette; Massimo Milani, Universita’ di Modena e Reggio Emilia

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<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
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| 8:00 a.m. | 2008-01-2721 | **PUMA I5 Diesel Engine Oil Pan Assembly NVH Optimization with Optistruct and AVL-Excite**  
Ertugrul Tolga Duran, Cagri Sever, Ford Otosan AS |
| 8:30 a.m. | 2008-01-2722 | **Influence of Line Length Concerning Noise Source Generation in Hydrostatic Transmissions**  
Richard James Klop, Monika Ivantysynova, Purdue Univ. |
| 9:00 a.m. | 2008-01-2720 | **Vibration of a Sliding Vane Impacting on the Stator in a Rotary Compressor**  
Yuan Mao Huang, National Taiwan Univ. |
| 9:30 a.m. | 2008-01-2723 | **Multi-objective Optimization Tool for Noise Reduction in Axial Piston Machines**  
Ganesh Kumar Seeniraj, Monika Ivantysynova, Purdue Univ. - West Lafayette |

Planned by Fluid Power and Hydraulics Group / Commercial Vehicle Activity