The Essential Automotive Technology Event
April 12-14, 2011
Cobo Center
Detroit, Michigan, USA

EVENT GUIDE
Includes Final Program and Exhibit Directory

Official Publication of:

Host Company
Tier One Strategic Partner

SAE International
www.sae.org/congress
A 0.76mm thin film makes the difference between sweltering heat and soothing comfort. S-LEC™ Solar Control Film adds heat shielding functionality to automobile window glass. The secret is our innovative nanodispersion technology. By blocking the sun’s mid-infrared rays, S-LEC™ Solar Control Film lowers the cabin temperature. A parked car’s steering wheel that becomes too hot to handle in midsummer is 10 degrees cooler* So you can turn down the air conditioner, achieve better fuel efficiency and reduce the burden on the environment. If S-LEC™ Solar Control Film were used in 10 million vehicles, CO₂ emissions would drop by 30,000 tons per year.** Discover the difference S-LEC™ makes, for drivers and the planet.

* SEIKISUI test results, compared to conventional laminated glass.
** SEIKISUI estimate, when used in windshield and side windows, compared to conventional laminated glass.

Cuts heat.
For cabin comfort and the environment.

www.s-lecfilm.com

Interlayer Film for Automobiles
Leading technology, leading the way
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Welcome to SAE 2011 World Congress

I am truly honored to be chairing the 2011 World Congress, here in the Motor City! SAE World Congress is the industry’s largest and most important engineering conference in the world. It is the essential automotive technology event. The World Congress is an important instrument in providing a neutral and open forum for collaboration on important industry issues. Congress is a catalyst for unbiased, thoughtful discussions, as well as a forum for establishing and maintaining relationships and partnerships.

Every year SAE International successfully brings together a group of industry leaders to help shape this conference. I must thank all of the Industry Leadership Coalition Members that have helped us build the momentum for 2011 World Congress. I believe that this is going to be a memorable and invaluable Congress, filled with incredible discussions and technical learnings.

This year’s World Congress is themed, “Charging Forward Together”. It is time to rally our industry. This theme symbolizes the dynamic progress in our industry, exciting new advanced propulsion technology, and the importance of collaborative partnerships. We have worked closely with Prabhakar Patil who represents our SAE World Congress Tier One Strategic Partner LG Chem, to ensure a relevant and exciting conference. We are pleased to have had LG Chem’s support in both business and in the successful planning of this industry event.

During “Charging Forward Together”, I hope that you begin each day with our keynote speakers, who have been carefully selected to kick off discussions and topics for the Management Theatres. We have recruited many government, industry and academic leaders for panel discussions, where you can engage with and learn their perspectives. Fill your day visiting the leading edge exhibits and discovering hundreds of technical sessions on relevant topics. Not to be missed is the Ride and Drive, featuring vehicles you can drive to experience a variety of propulsion and other technologies. Finally, please make time to visit the Jet Toy and Fuel Cell Olympics featuring hundreds of students learning and enjoying SAE’s award winning A World In Motion® program. Enclosed in this program you will find all of the exciting details.

On behalf of SAE, General Motors, LG Chem, Prabhakar Patil, and myself, we thank you for your attendance and wish you an enjoyable and informative three days!
GLOBAL PERFORMANCE. Many automotive suppliers talk about being “global.” But with 71 options for the supply of axle and driveshaft products — including many in the emerging markets of South America and Asia — Dana has more global drivetrain product manufacturing operations than any other supplier. Further, most of these have been established for decades and are supported with local design and engineering resources. So when it comes to considering an experienced and established drivetrain supplier for your next project, rely on Dana to provide precisely the product you need — exactly where it is needed. For more information, call 1-888-670-DANA or visit http://auto.dana.com/a56.
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Location
Cobo Conference/Exhibition Center
(Main location, unless otherwise noted)
One Washington Boulevard
Detroit, MI 48226
Phone: 1-313-877-8777

Detroit Marriott at the Renaissance Center (Headquarters Hotel)
Renaissance Center
400 Renaissance Drive
Detroit, MI 48243
Phone: 1-313-568-8000
Fax: 1-313-568-8146

Hours of Operation

Registration
Monday, April 11
8:00 a.m. – 5:00 p.m.
Tuesday, April 12
7:00 a.m. – 6:30 p.m.
Wednesday, April 13
7:00 a.m. – 6:00 p.m.
Thursday, April 14
7:00 a.m. – 6:00 p.m.

On-Site Registration Fees:
SAE Classic Member $169 / day
SAE Premium Member $144 / day
SAE Elite Member $119 / day
Non-Member $310 / day

Technical Program Participants*
SAE Members Free (3 days)
Non Members $169 / day

*speakers, authors, organizers, chairs, technical paper reviewers, sponsoring committees

Student SAE Members Free (3 days)
Student Non-Members** $25 (3 days)
**Full Time College ID Required

Press*** FREE

Exhibitor / Sponsor Personnel Provided with booth/ sponsorship purchase

All registrations include access to technical sessions, management program, exhibit, lunch, receptions on the exhibit floor, and networking opportunities. NOTE: Students will receive all entitlements noted above except lunch.

SAE 2011 World Congress Industry Leadership Coalition
3M Automotive Market Center
ABC Group
AGC Automotive Americas Co.
Aisin World Corporation of America
Akebono Brake Corporation
Alcoa Electrical and Electronic Solutions
Alcoa, Inc.
Alpine Electronics of America, Inc.
American Axle & Manufacturing Holdings Inc.
American Mitsuba Corporation
American Showa Inc.
Arvin Innovation, Inc.
ArvinMeritor, Inc.
Asahi Glass North America
ATX Group
Autoliv North America, Inc.
AVL North America, Inc.
BASF Corporation
Behr America Inc.
Benteler Automotive Corp
BMW Group
BorgWarner Inc.
Bridgestone Americas
Brose North America, Inc.
Cadence Innovation LLC
Chrysler Group LLC
Citation Corporation
Consulate General of Canada
Consulting4Drive
Continental Automotive Systems, Inc.
Continental North America
Cooper-Standard Automotive
Cummins Inc
Custom Sensors & Technologies (CST)
Dana Corporation
DASSAULT Systemes
Delphi Corporation
DENSO International America, Inc.
Detroit Metropolitan Convention & Visitors Bureau
Donnelly Electronics
Dow Automotive
dSPACE Inc.
DTE Energy
Dura Automotive Systems Inc
EaglePicher Inc.
Eaton Corporation
Eberspacher North America, Inc.
Edscha North America
Facton Incorporated
Faurecia North America
Federal-Mogul Corporation
FEV, Inc.
Findlay Industries, Inc.

Hotel Keycards
Sponsored by

Registration
Sponsored by

Color-coded Badges by Technology Interest
Onsite at the event, look for a color-coded badge system based on attendee interest, making it easier to connect with like-minded individuals at the event. Colors representing technology interest are:

- Emissions/Environment/Sustainability
- Electronics
- Integrated Design & Manufacturing
- Materials
- Propulsion/Powertrain
- Management/Marketplace
- Safety/Testing

All registrants will receive a lanyard and a bag upon registration.
Lanyards compliments of
Bags compliments of

SAE 2011 World Congress Industry Leadership Coalition
Hours of Operation

Additional Ticket Items – Check with on-site registration for availability

Banquet Tickets
Single Ticket $150
Tables of 10 $1500

Tours – Available on first come/first serve basis (see page XX for additional details)
Next Energy $30
GM Detroit/Hamtramck Assembly Plant $30
Shopping Trip to Great Lakes Crossing Outlet Mall $30
Tour – Guided Tour of Downtown Detroit – Sight Seeing Bus $25

Currency Exchange
CHASE BANK
611 Woodward Ave.
Detroit, MI 48226
(313) 225-3774
Monday – Friday
8:00 a.m. – 5:00 p.m.
$5 fee – no account needed
All forms of currency are accepted.

SAE International/Automotive Engineering International
Magazine Booth 701
Lobby Level, Wayne and Oakland Exhibition Halls
Tuesday – April 12
10:00 a.m. – 6:30 p.m.
Wednesday and Thursday, April 13 – 14
10:00 a.m. – 6:00 p.m.
For all things SAE International, visit booth 701. Highlights include resources and standards initiatives, demos of the new professional online network developed for SAE members—EngineerXchange™—and more. Plus, stop by for a free copy of Automotive Engineering International (AEI) magazine. See the full description of activities in the booth on 20.

SAE Marketplace

Oakland Hall Lobby
On-Site Registration / SAE Marketplace
Macomb Hall Lobby

SAE Marketplace
Tuesday, April 12
7:00 a.m. – 6:30 p.m.
Wednesday, April 13
7:00 a.m. – 6:00 p.m.
Thursday, April 14
7:00 a.m. – 6:00 p.m.

E-Badge Registration
(pre-registered)
Oakland Hall Lobby

SAE Marketplace

SAE Marketplace

SAE International World Headquarters
400 Commonwealth Drive
Warrendale, PA 15096-0001 USA
Phone: 1-724-776-4841
Fax: 1-724-776-0790

Customer Service
1-877-606-7323 (toll free U.S. and Canada)
1-724-776-4970
www.sae.org
customerservice@sae.org

Automotive Headquarters
755 W. Big Beaver Rd.
Troy, MI 48084
Phone: 1-248-273-2455
Fax: 1-248-273-2494

SAE Marketplace

SAE Marketplace

continued on next page
GENERAL INFORMATION

Hours of Operation

Media Center
Wayne Hall
Monday – Wednesday, April 12 – 14
8:00 a.m. – 5:00 p.m.
Thursday, April 15
8:00 a.m. – 2:00 p.m.

Seminars Seminars – Check
availability at SAE registration desk at the
Marriott Renaissance Center

Marriott Renaissance Center, Fifth Floor
Monday – Friday, April 11 – 15
8:30 a.m. – 4:30 p.m.

Networking Receptions

Tuesday, April 12 – 5:00 – 6:30 p.m.
Wednesday, April 13 – 4:30 – 6:00 p.m.
Thursday, April 14 – 4:30 – 6:00 p.m.

Operations Office
Inside Oakland Hall–Rooms O–1 & O–2
Monday – Thursday, April 11 – 14
7:00 a.m. – 5:00 p.m.

SAE Virtual Conference Center (VCC)
Complimentary “Live Webcasts” will take place from the AVL Technology Leadership Center and selected technical presentations will be available for purchase following the event. Visit SAE’s Virtual Conference Center at http://vcc-sae.org/.

SAE 2011 World Congress Industry Leadership Coalition continued

Michigan Economic Development Corp.
Millerschin Group
Mitsubishi Electric Automotive America, Inc.
Motorola - Automotive
MTS Systems Corporation
Navistar, Inc.
Neaton Auto Products Manufacturing Inc.
 NSK Americas
NTN Bearing Corporation of America
OESA
OMMC (Ohio Module Manufacturing Co., LLC)
Omnova Solutions, Inc.
Pioneer Automotive Technologies Inc.
Plastic Omnium
PPG Industries, Inc.
Preh, Inc.
Rema International
Ricardo Inc.
Robert Bosch LLC
Saint-Gobain Sekurit, USA Inc.
Schaeffler Group North America
Shape Corp.
Siemens PLM Software
SKD Automotive Group
SKF USA, Inc.
Southwest Research Institute
Specialty Equipment Market Association
(SEMA)
Tenneco Automotive
Teksid Aluminum
The Timken Corporation
ThyssenKrupp Budd Co.
TII Automotive
TRAM Inc.
Trelleborg Automotive
TRW Automotive
U.S. Manufacturing Corp.
University of Michigan
University of Toledo
US Army TARDEC
USCAR
Visteon Corporation
Webasto Roof Systems, Inc.
Woodbridge Group
Yazaki North America, Inc.
ZF Group North American Operations

Tuesday Networking Reception
Sponsored by
Siemens PLM Software

Wednesday Networking Reception
Sponsored by
TOYOTA

Seminars Seminars – Check
availability at SAE registration desk at the
Marriott Renaissance Center

Marriott Renaissance Center, Fifth Floor
Monday – Friday, April 11 – 15
8:30 a.m. – 4:30 p.m.

Operations Office
Inside Oakland Hall–Rooms O–1 & O–2
Monday – Thursday, April 11 – 14
7:00 a.m. – 5:00 p.m.

SAE Virtual Conference Center (VCC)
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SAE 2011 World Congress Industry Leadership Coalition continued

Michigan Economic Development Corp.
Millerschin Group
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Motorola - Automotive
MTS Systems Corporation
Navistar, Inc.
Neaton Auto Products Manufacturing Inc.
 NSK Americas
NTN Bearing Corporation of America
OESA
OMMC (Ohio Module Manufacturing Co., LLC)
Omnova Solutions, Inc.
Pioneer Automotive Technologies Inc.
Plastic Omnium
PPG Industries, Inc.
Preh, Inc.
Rema International
Ricardo Inc.
Robert Bosch LLC
Saint-Gobain Sekurit, USA Inc.
Schaeffler Group North America
Shape Corp.
Siemens PLM Software
SKD Automotive Group
SKF USA, Inc.
Southwest Research Institute
Specialty Equipment Market Association
(SEMA)
Tenneco Automotive
Teksid Aluminum
The Timken Corporation
ThyssenKrupp Budd Co.
TII Automotive
TRAM Inc.
Trelleborg Automotive
TRW Automotive
U.S. Manufacturing Corp.
University of Michigan
University of Toledo
US Army TARDEC
USCAR
Visteon Corporation
Webasto Roof Systems, Inc.
Woodbridge Group
Yazaki North America, Inc.
ZF Group North American Operations

Tuesday Networking Reception
Sponsored by
Siemens PLM Software

Wednesday Networking Reception
Sponsored by
TOYOTA
Not all components are built alike…

With years of research, development, testing and production, Hella’s energy management components combine best in class performance with field-proven quality. Our full line of DC-DC Converters, Voltage Stabilizers and Intelligent Battery Sensors can form the solid, dependable foundation upon which your energy-efficient systems are built.
On-Site Services (all located in Cobo Center)

**Cobo Hospitality / Business Services**
*Cobo Center Lobby*
Monday, April 11
12:00 – 4:00 p.m.
Tuesday – Thursday, April 12 – 14
8:00 a.m. – 5:00 p.m.
Phone: 313-877-8290
Fax: 313-202-1833
Services Available: Copying, faxing, on-site computer workstations, shipping services, restaurant reservations, airport shuttles/transportation, cell phone rental, office supplies, etc.

**First Aid Services**
*Room W-1 (Inside Wayne Hall)*
Tuesday, April 12
8:00 a.m. – 7:00 p.m.
Wednesday, April 13
8:00 a.m. – 6:30 p.m.
Thursday, April 14
8:00 a.m. – 6:30 p.m.

**Food Courts**
*Back of Wayne/Oakland Exhibit Halls*
Tuesday – Thursday, April 12 – 14
11:00 a.m. – 2:00 p.m.

**Housing Changes?**
If calling during regular business hours 9am-8pm EASTERN TIME please call (800) 847-5810 toll free or (801) 505-4138 International. If calling outside regular business hours please call (801) 505-4609.

**People Mover**
Monday – Thursday
6:30 a.m. – 12:00 a.m.
Friday – Saturday
6:30 a.m. – 2:00 a.m.
Sunday
12:00 p.m. – 12:00 a.m.
People Mover Passes can be obtained at each People Mover Station for a fee of $0.50 per ride.

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**Coat Check**
*Wayne Hall Lobby*
Tuesday, April 12
7:00 a.m. – 7:30 p.m.
Wednesday, April 13
7:00 a.m. – 9:30 p.m.
Thursday, April 14
7:00 a.m. – 11:00 p.m.

**Concierge Club**
(by invitation only)
/VIP Check-In
*The Vu*
Tuesday – Thursday, April 12 – 14
7:30 a.m. – 5:30 p.m.

**Cyber Café**
Visit the SAE Cyber Café to access EngineerXchange, Visit Detroit, & Automotive Engineering International On-line!
*Oakland Entrance*
Tuesday – Wednesday, April 12 – 13
9:00 a.m. – 7:00 p.m.
Thursday, April 14
9:00 a.m. – 6:00 p.m.
On-Site Services
(all located in Cobo Center)

Restaurant Services

Security
*Front of Macomb Hall in M3*

Security is of continued importance, so do not possess anything questionable. Your patience and understanding is appreciated as we do everything possible to secure the event.

Photography and audio video recordings are NOT permitted. Also, as a courtesy to presenters and audience members, please turn off all cell phones and pagers before entering technical session rooms.

No one under the age of 16 is permitted on the exhibition floor unless part of an SAE/ AWIM sponsored school tour planned and pre-arranged by SAE.

Shuttle Services
The shuttle for congress will run Tuesday – Thursday, April 12 – 14 for the hours listed below. The shuttle will run a continuous loop at ten minute intervals from the Motor City Lobby of the Marriott Renaissance Center to Cobo.

Tuesday, April 12
6:00 a.m. – 7:30 p.m.

Wednesday, April 13
6:00 a.m. – 9:00 p.m.

Thursday, April 14
6:00 a.m. – 11:00 p.m.

Guest staying at the Courtyard Marriott, Atheneum, and the Hilton Garden Inn will receive people mover passes for these three days. Guests will receive their passes upon check in.

Networking Lounges on Exhibit Floor
*Four Corners of Exhibit Floor*

Tuesday – Thursday, April 12 – 14

Open during exhibit hours

Technology Lounges

**D3-19 – Safety/Testing**

**D0-01 A&B – Electronics/Integrated Design & Manufacturing/Materials**

**W2-60 – Powertrain/Propulsion/Emissions/ Environment/Sustainability**

7:00 a.m. – 5:30 p.m.

**Plus, the Safety and Testing Lounge will house the TechXchange Place where SAE standards committee members and those interested in becoming involved in creating industry standards can meet informally with one another and SAE staff representatives. While the SAE Technical Standards Program is always seeking interested participants for the important work of technical document development, there is currently a heightened need for experts in the following areas: Electrical Systems; Materials, Parts, and Processes; Vehicle Safety Systems; Powertrain Systems including Battery Standardization. If you possess technical expertise these areas, stop by the TechXchange.**

UPS Shipping Booth
*Across from SAE Registration*

Open during exhibit hours.
City of Detroit Municipal Parking Department Parking Facilities
Listed below are recommended parking facilities for all exhibitors of the SAE 2011 World Congress. Parking will be handled on a first-come, first-served basis. As long as spaces are available, attendees will be able to park and pay the current rate for the day. These rates do not include reserved parking. Please note that parking facilities do not accommodate overnight parking. Prices are subject to change.

1. Cobo Center Garage
   1 Washington Blvd.
   Detroit, MI 48226
   6:00 a.m. – 11:00 p.m. Monday – Friday
   Saturday, Sunday and holidays as needed
   Maximum rate: $10

3. Cobo Roof Deck
   625 West Congress
   Detroit, MI 48226
   6:00 a.m. – 11:00 p.m. Monday – Friday
   Saturday, Sunday and holidays as needed
   Maximum rate: $10

7. Ford Underground Garage
   30 East Jefferson
   Detroit, MI 48226
   6:00 a.m. – 11:00 p.m. Monday – Friday
   Saturday, Sunday and holidays as needed
   Maximum rate: $10

10. Joe Louis Arena Garage
    900 West Jefferson
    Detroit, MI 48226
    6:30 a.m. – 9:00 p.m. Monday – Friday
    Saturday, Sunday and holidays as needed
    Maximum rate: $15

12. Millennium Garage
    432 West Congress
    Detroit, MI 48226
    6:00 a.m. – 11:00 p.m. Monday – Friday
    Saturday, Sunday and holidays as needed
    Maximum rate: $10

For additional parking information, or to reserve parking, please contact:
Municipal Parking Department
1600 West Lafayette
Detroit, MI 48216
Phone: 313-221-2500
Faster and Easier Control Development!

Save considerable development time and money with dSPACE’s Next Generation!

MicroAutoBox II, our highly popular, compact and robust prototyping unit, now has higher computing power, more memory, higher flexibility and a variety of high-performance I/O and communication interfaces. With MicroAutoBox II, you will speed up your innovations!

SCALEXIO®, our next generation of hardware-in-the-loop (HIL) simulators, introduces a completely new hardware and software technology that enables you to address dynamically changing requirements in HIL projects with flexibility and ease.

ControlDesk® Next Generation is our universal experiment environment for the ECU software development and validation process. It provides access to RCP and HIL platforms such as MicroAutoBox II and SCALEXIO, as well as to bus systems, and performs measurement, calibration and diagnostics on ECUs.

Visit Booth 937 to experience MicroAutoBox II, SCALEXIO and ControlDesk Next Generation at SAE World Congress, April 12-14, 2011, Cobo Center, Detroit, MI.
Opening Ceremonies
AVL Technology Leadership Center, W1-51/52
8:30 – 9:30 a.m.

Welcome:

Mircea Gradu
Director Transmission and Driveline Engineering, Head Virtual Analysis, Chrysler Group LLC and Vice President Automotive–SAE International

Helmut List
Chairman & CEO, AVL List GmbH

Karl Stracke
Chief Executive Officer, Opel/Vauxhall General Motors Company & SAE 2011 World Congress General Chair

The Honorable David Bing
Mayor, City of Detroit

Featured Speaker:

Ray Lane
Managing Partner, Kleiner Perkins Caufield & Byers and non-executive Chairman, Hewlett-Packard Company

SAE Detroit Section Student Exhibit Competition
Oakland Hall
Competition: 10:00 a.m. – 12:30 p.m.

The SAE Detroit Section will host the Annual Student Exhibit Competition during SAE 2011 World Congress. The exhibits showcase SAE collegiate chapter activities and projects. It is a great opportunity for automotive manufacturers and suppliers, as well as alumni, to learn more about the innovative engineering efforts in which SAE collegiate chapters worldwide are engaged.

Exhibits also detail the novel design concepts, engineering analyses, and manufacturing methods employed to construct SAE collegiate design competition vehicles (many of which will be on display). Exhibits will be on display all week. Cash prizes will be awarded to the top three schools. Come see for yourself the remarkable new technologies these enthusiastic and creative young engineers have on display.

SAE Detroit Section Poster Competition
Oakland Hall

Local high school students incorporated the SAE 2011 World Congress theme “Charging Forward Together” into their posters. The top ten winning posters will be on display all week.

SAE Detroit Section Student Exhibit Competition
Sponsored by

Eaton

SAE Detroit Section Poster Competition
Sponsored by

BorgWarner
SAE Annual Business Meeting
FEV Powertrain Innovation Forum, W1-54
3:30 – 4:00 p.m.

SAE Awards Ceremony: Honoring Excellence
FEV Powertrain Innovation Forum, W1-54
4:30 – 5:30 p.m. Awards Ceremony
5:30 – 6:30 p.m. Welcome/Awards Reception*

Join SAE in honoring excellence in engineering as Richard E. Kleine, EdD, 2011 SAE International President, recognizes more than 90 outstanding engineers and educators for their exceptional accomplishments and contributions to the mobility industry. We hope you will join us in honoring your peers by recognizing their accomplishments. Admission to the Awards Ceremony is included for anyone whose badge is valid for Tuesday conference registration.

*Please join the Welcome/Awards Reception underway in the Exhibit Hall.

For additional information about SAE’s awards, please visit www.sae.org/awards.

Welcome/Awards Reception
Exhibit Hall
5:00 – 6:30 p.m.

SAE Foundation presents the 2011 Industry Leadership Award Honorees

John Krafcik
President and Chief Executive Officer
Hyundai Motor America

Peter Marks
Chairman, President and CEO
Robert Bosch LLC

SAE Foundation Banquet
Thursday, May 12, 2011, 6:00 p.m., The Fillmore Detroit, 2115 Woodward Avenue.
For tickets and more information, http://www.saefoundation.org/banquet/, or call 724-772-8508.
www.saefoundation.org
Special Events and Networking Opportunities

Tuesday, April 12

Author Book Signing Reception

SAE Marketplace, Cobo Lobby
5:00 – 6:30 p.m.

Visit the SAE Marketplace during the author book signing reception to purchase one of the following books and have it personally signed by the author.

Chevrolet Volt--Development Story of the Pioneering Electrified Vehicle (PT-149) – Lindsay Brooke
Forensic Biomechanics--Using Medical Records to Study Injury Mechanisms (R-379) – Jeffrey A. Pike
Fundamentals of Automobile Body Structure Design (R-394) – Donald E. Malen
Fundamentals of Vehicle Dynamics (R-114 – Thomas D. Gillespie
Green Technologies and the Mobility Industry (PT-146) – Dr. Andrew Brown, Jr.
Neck Injury Biomechanics (PT-141) – Jeffrey A. Pike
Neck Injury: The Use of X-Rays, CTs, and MRIs to Study Crash-Related Injury Mechanisms (R-268) – Jeffrey A. Pike
Performance Metrics for Assessing Driver Distraction. The Quest for Improved Road Safety (R-402) – Gary L. Rupp
Pregnant Occupant Biomechanics--Advances in Automobile Safety Research (PT-150) – Stefan M. Duma
Principles of Vibration Analysis with Applications in Automotive Engineering (R-395) – Ronald L. Huston
We Were The Ramchargers (R-384) – David Rockwell
Vehicle Accident Analysis and Reconstruction Methods, Second Edition (R-397) – Raymond M. Brach and R. Matthew Brach

SAE EngineerXchange: Live Demonstrations

Exhibit Hall
SAE Booth #701

Hours:
Tuesday – Wednesday, April 12 - 13
1:00 p.m. – 3:00 p.m.
4:00 – 6:00 p.m.
Thursday, April 14
1:00 – 2:00 p.m.

Connecting with Engineers around the world is critical – and now you can get connected through EngineerXchange, a unique online forum launched by SAE International and available only to its members. EngineerXchange gives SAE members the ability to exchange ideas and establish professional relationships, better manage their careers through powerful networking tools, career counseling and management features, plus advance access to SAE technical content. Come to the SAE International Exhibit Booth #701 for a live demo to experience a first-hand view of the network and its content and capabilities.
The Scuderi Engine gains a massive advantage from variable valve control and turbocharging that is simply not possible with conventional four-stroke engine designs.

Less Work Here = More Work Here

With its asymmetrically designed compressor and expander cylinders, the Split-Cycle design of the Scuderi Engine allows unmatched flexibility to optimize the compression and expansion processes through the use of extended expansion, variable valve control strategies and turbocharging.

Come See Us At Booth 419!
Jet Toy Olympics (JTO)
Detroit Hall
9:00 a.m. – 2:00 p.m.

More than 500 students, teachers, and volunteers — who have participated in the A World In Motion - JetToy Challenge in their classrooms — come to demonstrate and share what they have learned. Students in Engineering Design Teams of four build these balloon-powered vehicles and compete in distance, accuracy, weight carrying and timed events. The SAE Foundation hosts this competition yearly, thanks to lead sponsor Johnson Controls. Visit www.awim.org/events/jettoy_olympics/ for more information.

SAE Detroit Section Meeting - Featuring the Chevrolet Volt
W1-51 and W1-52 (1st Floor)
5:30 p.m. – Social Hour
6:30 p.m. – Dinner
7:30 p.m. – Presentation

Don’t miss the popular SAE Detroit Section Meeting featuring the Chevrolet Volt. Ticket holders are invited to attend the social hour prior to the meeting, providing the perfect opportunity to interact with engineering professionals and peers. The SAE Detroit Section is the largest SAE section with over 9,000 members, from southeastern lower Michigan, including Ann Arbor, Jackson, and Toledo. The event is open to both industry and SAE members.

This event is not included with your SAE 2011 World Congress registration. Tickets can be purchased in advance through the Detroit Section website at www.sae-detroit.org. Only a limited number of tickets will be available for purchase onsite. Tickets are $40/SAE member, $55/non-member, and $15/SAE student member.

Limited onsite Volt Section Meeting tickets will be available outside W1-51 & W1-52, Riverview Ballroom at 3:00 p.m. or call the SAE Detroit Section office at (248) 324-4445 before noon that day.

Attendee Networking Reception
Exhibit Hall
4:30-6:00 p.m.

SAE EngineerXchange: Live Demonstrations
Exhibit Hall
SAE Booth #701

Connecting with Engineers around the world is critical – and now you can get connected through EngineerXchange, a unique online forum launched by SAE International and available only to its members. EngineerXchange gives SAE members the ability to exchange ideas and establish professional relationships, better manage their careers through powerful networking tools, career counseling and management features, plus advance access to SAE technical content. Come to the SAE International Exhibit Booth #701 for a live demo to experience a first-hand view of the network and its content and capabilities.
FISITA 2012 World Automotive Congress
27-30 November, 2012  Beijing, China

Automobiles and Mobility in a Low Carbon Economy
— China and the World

We call for papers under the following topics:

- Advanced Internal Combustion Engines
- Future Powertrains
- Energy Efficient Transmissions & Drivelines
- Vehicle Electronics
- Safety Solutions
- Integrated Chassis Technology
- Vehicle Design
- Advanced Vehicle Manufacturing Technology
- Mobility Internet & ITS
- NVH

Please submit your papers through the Congress website www.fisita2012.com
The paper submission system will open from 1st May to 15th November, 2011.
Fuel Cell Olympics (FCO)
Back of Oakland Hall
9:00 a.m. – 2:00 p.m.

General Motors sponsors this premiere event, modeled after the JetToy Olympics (JTO). The Fuel Cell – one of A World In Motion’s newest challenges - introduces students to the concepts of alternative energy and chemical reactions. Local area middle school students will build cars that convert water to hydrogen and see whose team’s vehicle performs best in distance, accuracy, weight carrying and speed events.

Visit http://www.awim.org/events/fuelcell_olympics/ for more information. Jet Toy Olympics/Fuel Cell Olympics Tours: Sign up for your personalized tour of the 2011 JTO and/or the FCO, and see these exciting AWIM activities in action! Register TODAY at: www.saefoundation.org/events/viptour.htm.

SAE EngineerXchange: Live Demonstrations
Exhibit Hall
SAE Booth #701
Hours:
Tuesday – Wednesday, April 12 - 13
1:00 p.m. – 3:00 p.m.
4:00 – 6:00 p.m.
Thursday, April 14
1:00 – 2:00 p.m.

Connecting with Engineers around the world is critical – and now you can get connected through EngineerXchange, a unique online forum launched by SAE International and available only to its members. EngineerXchange gives SAE members the ability to exchange ideas and establish professional relationships, better manage their careers through powerful networking tools, career counseling and management features, plus advance access to SAE technical content. Come to the SAE International Exhibit Booth #701 for a live demo to experience a first-hand view of the network and its content and capabilities.

DON’T FORGET TO VOTE!
Best of the Best Booth Awards
Kiosks located in the front of Oakland Hall

New this year, the Best of the Best Booth Awards recognize exhibitors with the most innovative technology. Please vote for the most innovative exhibitor in each of the following categories:

- Poster Display
- 10x10 Booth
- 10x20 Booth
- 20x20 Booth
- Most Innovative Booth Overall

Voting will close at 12:00 pm on Thursday, April 14th, so be sure to visit the voting kiosks in the front of Oakland Hall before that time.

Best of the Best Award winners will be recognized during the World Congress Annual Banquet.
Daniel F. Akerson became GM Chairman effective January
1, 2011 after serving as CEO since September 1, 2010.
Prior to joining General Motors, Akerson was a managing director of The Carlyle Group
and the head of global buyout. He served on the firm's executive committee and was
based in Washington, D.C. He joined the GM board of directors July 24, 2009.

Akerson is a seasoned executive with extensive operating and management
experience, having served as chairman, chief executive officer, or president of
several major companies, including General Instrument, MCI, Nextel, and XO
Communications. His corporate management experience, private equity track record,
and deep understanding of Carlyle’s global operation provided a strong foundation
for his leadership of Carlyle’s buyout activities in Asia, Europe, Financial Services,
Infrastructure, Japan, and the United States.

Prior to joining Carlyle, Akerson served in several key roles at MCI Communications
Corporation from 1983-1993 including executive vice president and chief financial
During his tenure, Akerson formulated and executed MCI’s global strategy.

In 1993, Akerson became a general partner of private equity firm Forstmann Little &
Company, during which time he served as chairman and chief executive officer of
General Instrument Company from 1993-1995. While at General Instrument, he led
a successful effort to develop and deploy the first digital video, satellite, and cable
systems domestically and internationally.

Akerson served as chairman from 1996-2001 and as chief executive officer of Nextel
Communications, Inc., from 1996-1999, where he transitioned the company from a
regional analog walkie-talkie provider into a national digital wireless competitor. From
late 1999 until January 2003, Akerson served as chairman and chief executive officer
of XO Communications, Inc. where he led the successful restructuring of the company.

In addition to serving on GM’s Board, Akerson also serves on the Boards of the American
Express Company and the U.S. Naval Academy Foundation. Akerson graduated from the
U.S. Naval Academy in 1970 with a bachelor of science in engineering. He earned his
master’s of science in economics from the London School of Economics.

Pre-Banquet Industry
Networking Reception
Exhibit Hall
4:30 – 6:00 p.m.

Afterglow
Immediately following the banquet for networking over dessert, a nightcap
and live entertainment
Room W2-60 (Level 2)
Sponsored by

BOSCH
Invented for life

To open the banquet, the U.S.
National Anthem will be performed
by the Wayne State University Men’s
Glee Club.

Join Master of
Ceremonies Paul W.
Smith, Talk Host on
WJR Radio News as
we honor this year’s
top OEM and supplier
executives.

Dress is business attire. Each full
table purchased includes one bottle
of red and one bottle of white wine.
Tickets are priced at $150 each
or $1500 per table. Check SAE
registration desk for availability.

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of red and one bottle of white wine.
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or $1500 per table. Check SAE
registration desk for availability.
Tours

All tours depart from the Atwater Street Entrance of Cobo Center. Check on-site registration desk for ticket availability.

NextEnergy

This tour is designed for those individuals with an interest in smart grid implementation and also for those entrepreneurs interested in learning more about product incubation process. NextEnergy is one of the nation’s leading research catalysts and business accelerators for alternative and renewable energy. Its mission is “To accelerate energy security, economic competitiveness and environmental responsibility through the growth of advanced energy technologies, businesses and industries.” This walking tour will showcase the various alternative energy systems and real world testing on Detroit’s smart grid.

Highlights of the tour:

• Review of bi-directional infrastructure for electric vehicles including high rate dc charging
• Electric Charging systems, Bio-diesel and Hydrogen fueling stations with renewable energy inputs
• Alternative fuel infrastructure (hydrogen and bio-fuels) for vehicle applications
• Overview of the incubator lab area including tours of NextTek and the National Biofuel Energy Lab (NBEL) where attendee will hear about taking an idea from the lab and moving it through the process of product development to actual implementation in the marketplace.

Date(s): Monday – Tuesday, April 11 – 12
Depart Cobo: 10:00 a.m.
Return to Cobo: 11:30 a.m.
Length of Tour: 1 ½ hour including travel time
Price: $30
Size is limited 20 participants per tour

GM Detroit/Hamtramck Assembly Plant (Chevrolet Volt)

During the 2011 SAE World Congress, tours of nearby Detroit/Hamtramck’s General Assembly Department will be offered highlighting Chevrolet Volt specific operations. The tour will include a plant overview, 30 minute cart tour of General Assembly with stops at the Volt Battery Load and Body Marriage operations and a short question and answer session in the plant visitors lobby before departure.

Date(s): Monday, April 11, Tuesday, April 12 (pm only), Wednesday – Thursday, April 13 - 14

Time:  
Tour 1  
Depart Cobo 8:15 a.m.  
Return to Cobo 10:00 a.m.

Tour 2  
Depart Cobo 9:30 a.m.  
Return to Cobo 11:15 a.m.

Tour 3  
Depart Cobo 12:30 p.m.  
Return to Cobo 2:20 p.m.

Tour 4  
Depart Cobo 2:15 p.m.  
Return to Cobo 4:00 p.m.

Length of Tour: 1 ¾ hours including travel time
Price $30
Size is limited 40 participants per tour
Guided Tour of Downtown Detroit
Detroit is an amazing city. With its vibrant nightlife, world-class museums, championship sports teams and unparalleled architecture, it’s no wonder the New York Times named Detroit one of the 53 Places to Go. The route includes all the major landmarks as well as Earthworks Garden, the Heidelberg Project, Rivard Plaza/Dequindre Cut, Belle Isle, the Guardian Building and much more. By the end of this tour you’ll have an insider’s perspective of Detroit’s rich history, current Renaissance and limitless future.

Date: Monday, April 11
Depart Cobo: 1:00 p.m.
Return to Cobo: 3:00 p.m.
Length of Tour: 2 hours
Price: $25

Shopping Trip to Great Lakes Crossing Outlet Mall
Great Lakes Crossing Outlets is the market’s dominant retail outlet and entertainment destination, attracting customers throughout the Midwest and Canada. With 185 manufacturers’ outlets and traditional retail stores, Great Lakes Crossing Outlets is Michigan’s only enclosed value-regional mall. The mall is home to Michigan’s largest food court and seven full-service restaurants.

Date: Monday, April 11
Depart Cobo: 10:00 a.m.
Return to Cobo: 3:00 p.m.
Length: 5 hours
Price: $30

At Indo-MIM, we understand that the automotive industry looks for key qualifiers from supply chain partners. High reliability, competitive pricing, large production capacity and just-in-time zero PPM performance. We are a leading and trusted production house, supplying critical MIM components to the global automotive industry. The applications we serve include turbochargers, fuel systems, passenger safety and interior components.

Automotive component solutions from Indo-MIM
- Safety Systems: seat belt latches, cams, sensor housings, braking and ABS components
- Fuel Systems: armature, armature inserts, fuel pump components, injector components and fuel rail components
- Interior Systems: seating mechanisms and lock components
- Powertrain: hydraulic spools, rocker arm inserts and wear components
- Turbochargers: vanes, adjusting rings and high temperature wear bushes
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www.indo-mim.com
Career Fair Activities

SAE Career Fair
The Career Fair at the SAE 2011 World Congress will provide unique opportunities for engineers and professionals to explore available jobs, network with exhibiting companies and learn valuable career tips.

Cobo Center Lobby – Outside Oakland Hall
Tuesday - Wednesday, April 12 – 13
10:00 a.m. – 6:00 p.m.

Resume Critique Clinic
SAE Career Fair
Wednesday, April 13
10:00 a.m. – 12:00 p.m.

Have your resume critiqued by a professional and receive tips on how to advertise your skills in the right format. Preferred appointment times are available to SAE members. Stop by the Career Fair to sign up for a time slot.

Career Development Session - Reinvent Yourself for Green Jobs!
Room D3-24/25
Wednesday, April 13
1:00 – 3:00 p.m.

Green careers in Michigan – do you have the skills? Find out from employers about the jobs that are available and what is required; find out from academia about the courses that have been created; and if you may qualify for funding to learn these skills?

Presented by Michigan Academy for Green Mobility Alliance (MAGMA) in partnership with The Michigan Department of Energy, Labor & Economic Growth and collaborated with automotive manufacturing employers, educational institutions and Michigan Works!, and in conjunction with the Michigan’s Green Jobs Initiative.

Attendance to the Career Fair activities is free for engineering professionals. Please proceed to the Career Fair in the Lobby outside Wayne Hall. It is not necessary to register prior to attending the Career Fair.

The SAE International Mobility History Committee will have a display at the SAE World Congress. Keeping with the Congress’s theme, Charging Forward Together, the Committee has obtained two electric vehicles:
- 1914 Detroit Electric
- 1903 Columbus Electric

These two vehicles, in combination, will allow the committee to provide a comprehensive overview of the early history of the electric automobile in America. While attending World Congress, we hope you visit the display located in the lobby of the Cobo Convention Center.
Career Fair Exhibiting Companies
(as of March 10, 2011)
Aerotek
Brose North America, Inc
Calsonic Kansei
Chrysler Group LLC
Delta Staffing
EcoMotors International
Eicher Engineering Solutions
FEV, Inc.
Ford Motor Company-
    Electrification Technologies
Ford Motor Company-Powertrain
    Manufacturing Engineering
General Electric
General Motors Company
Global Technology Associates
Honda R&D Americas, Inc.
HUSCO Automotive
Hyundai-KIA America Technical Center, Inc. (HATCI)
Keihin North America, Inc.
LHP Software
Magna Powertrain
Magna Steyr
MBtech Group
MOBIS Alabama, Inc.
Nexteer Automotive
Quanta Staffing Solutions
Southwest Research Institute
Talascend, LLC
Tata Motors Ltd.
Toyota Motor Engineering & Manufacturing North America-
    Toyota Technical Center R&D
TRW Automotive
TVS Motor Company Ltd
University of Michigan-Dearborn
    College of Engineering & Computer Science
Valeo Sylvania L.L.C.
Volkswagen Group of America, LLC-Chattanooga Operations
Webasto Roof Systems, Inc.

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Electrification Inside - Optimized for Every Application

AVL is an expert partner in the development, testing and simulation of conventional and innovative electrified powertrain systems. AVL provides a broad spectrum of integrated solutions with varying electrification levels to meet your specific needs. Using its wide range of versatile technologies and tools, AVL optimizes each individual system by building on the synergy effects between all powertrain elements and combining them to form a perfectly integrated overall system.

www.avl-hybrid.com

Meet us at SAE show at AVL booth Nr. 719.
Chats with the Experts are designed to encourage small groups to explore subjects of interest to them, pose questions, and share ideas and practical solutions in an informal setting. The subject matter experts will provide brief opening statements on the topic to kick things off and will facilitate an interactive dialogue. Chats with the Experts will feature additional technology topics such as safety, powertrain controls, and hybrid and electric vehicles.

**MATERIALS**

**Room D0-06A**
Tuesday, April 12
4:00 – 5:00 p.m.
*Reliability-Based Fatigue Analysis and Testing*
Dr. Yung-Li Lee, Chrysler LLC

**Room D0-03D**
Tuesday, April 12
4:00 – 5:00 p.m.
*Composite Design, Manufacturing and Simulation for Automotive Applications*
Rani Richardson, Dassault Systèmes

**Room D0-03D**
Wednesday, April 13
4:00 – 5:00 p.m.
*The Challenges of High Volume Composites for the Automotive Industry*
Dan Houston, Ford Motor Co.

**Room D0-04A**
Wednesday, April 13
4:00 – 5:00 p.m.
*Integration of Finite Element/Multibody System Algorithms for Vehicle System Simulations*
Ahmed A. Shabana, Department of Mechanical and Industrial Engineering, University of Illinois at Chicago

**Room D0-04C**
Thursday, April 14
1:00 – 2:00 p.m.
*An Overview for Application of Modeling and Simulations in Support of Combat Vehicle Development – Past, Present and Future*
Dr. Bahram Fatemi, BAE Systems

**Room D0-05A**
Thursday, April 14
4:00 – 5:00 p.m.
*Conventional and AHSS Materials Stamping and their Application in the Car Structure*
Dr. Aleksy (Alex) A. Konieczny, U.S. Steel Automotive Center

**ELECTRONICS**

**Room D0-03B**
Wednesday, April 13
4:00 – 5:00 p.m.
*A Panel Chats on Service Diagnostic Demands - Diagnosing Today’s Sophisticated Vehicles*
Kathy Kedzior, MAHLE Test Systems, LLC

**Room D0-03C**
Wednesday, April 13
4:00 – 5:00 p.m.
**U.S. DOT’s V2V and V2I Technology Test Bed Update**
Walton Fehr, Systems Engineering Manager, U.S. Department of Transportation (USDOT), Research and Innovative Technology Administration (RITA), Intelligent Transportation System (ITS) Joint Program Office

**INTEGRATED DESIGN & MANUFACTURING**

**Room D0-06A**
Wednesday, April 13
4:00 – 5:00 p.m.
*Computer Model Validation and Verification (V&V) in Design*
Zissimos P. Mourelatos, Oakland University
Ramesh Rebba, General Motors

**Room D0-07A**
Wednesday, April 13
4:00 – 5:00 p.m.
*The Changing Value Proposition of the Automotive Supply Chain*
G. Michael Smith, Linamar Corporate Quality

**Room D0-02B**
Thursday, April 14
1:00 – 2:00 p.m.
*A Panel Chats on Getting Innovation Noticed within Industry*
David Stout, David B Stout Associates LLC
EMISSIONS/ENVIRONMENT/ SUSTAINABILITY

Room 02-33
Tuesday, April 12
4:00 – 5:00 p.m.
Vehicle Emissions Technologies
Dr. Timothy V. Johnson, Director Emerging Technologies & Regulations, Corning Inc.

Room 02-38
Wednesday, April 13
4:00 – 5:00 p.m.
Everything LCA—LCA and Sustainability
Lise Laurin, EarthShift

Room W2-61
Tuesday, April 12
4:00 – 5:00 p.m.
HVAC Air Handling System Design and Applied CFD
Paul Hoke, Ford Motor Company
Mark Doroudian, ESI North America

POWERTRAIN

Room W2-62
Wednesday, April 13
4:00 – 5:00 p.m.
Energy Management Controls for Electrified Vehicles
Ryan McGee, Ford Motor Co.

Room W2-64
Wednesday, April 13
4:00 – 5:00 p.m.
Biodiesel Role as an Advanced Biofuel under Renewable Fuel Standard -- 2
Steve Howell, President, MARC-IV and Technical Director, NBB

SAFETY/TESTING (MOTORSPORTS)

Room D3-19
Tuesday, April 14
4:00 – 5:00 p.m.
Racing Powertrain
Wiley McCoy, Director, Technical Advisory Board, McLaren Performance Technologies

Race Car Aerodynamics
Thomas Ramsay, Senior Engineer, Honda R&D Americas, Inc.
Raymond Leto, President, TotalSim LLC
Peter Tkacik, Asst. Professor, Univ. of North Carolina Charlotte
Bob Welge, Chief Engr., Roberts Engineering Development

Race Car Safety
Kirk Russell, Consultant
John Melvin, President, Tandelta
John Patalak, Senior Safety Engineer, NASCAR

Race Car Chassis Set Up
David Finch, President, Raetech Corp.

Formula SAE and the Safety Challenges for Hybrid Race Cars
Michael Royce, Albion Consulting
Ride and Drive

Macomb Hall

Hours:
Tuesday – Thursday, April 12 – 14
10:30 a.m. – 4:30 pm.

OEMs and suppliers participating as of February 8, 2011*
• General Motors Company — including Chevrolet Volt
• Nissan — including the Nissan Leaf
• Protean Electric — including the Protean Drive™ Test Vehicle – Ford F-150 BEV
• Robert Bosch — including the 2010 Volkswagen Jetta TDI Cup “Street” Edition
• Ford Motor Company — including the F-150 EcoBoost
• Honda — including the Honda FCX Clarity Hydrogen - powered Electric Car

All participants must show proof of a valid driver’s license and insurance card.

SAE Registration Acknowledgement
I understand and agree that my registration enables participation in the SAE 2011 World Congress Ride and Drive. SAE International has the right to terminate my participation in the Program at any time if, in the sole judgment and determination of SAE International or the program administration, such action is reasonably warranted by the circumstances. SAE International may take such action and request me to vacate the premises without reimbursement, refund or payment of any other costs incurred by me with regard to the Program. SAE International reserves the right to seek reimbursement for willful damage to and/or loss of property of SAE International.
Choose the membership level that best fits your membership needs

- Elite - The most member benefits
- Premium - Exclusive member benefits
- Classic - Member benefits to get you started

Each membership level increases your benefits:
- More discounts on SAE conference registration
- More SAE magazine subscriptions
- More discounts on professional development seminars
- More discounts on SAE standards, technical papers, and books
- More networking opportunities
- 45-day free access to selected new video content from major SAE events (Elite and Premium members only)

SAE Membership e-Valuator: The quickest way to find the membership level that’s right for you!
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Chrysler’s Pentastar V6 Engine

FEV is proud to have been a technical engineering partner as Chrysler designed and developed this new world-class engine and moved it into volume production.

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8:30 – 9:30 a.m.

Welcome:

Mircea Gradu
Director Transmission and Driveline Engineering, Head Virtual Analysis, Chrysler Group LLC and Vice President Automotive–SAE International

Helmut List
Chairman & CEO, AVL List GmbH

The Honorable David Bing
Mayor, City of Detroit

Karl Stracke
Chief Executive Officer, Opel/Vauxhall General Motors Company & SAE 2011 World Congress General Chair

Featured Speaker:

Ray Lane
Managing Partner, Kleiner Perkins Caufield & Byers and non-executive Chairman, Hewlett-Packard Company
Powertrain Strategies for 2017 and Beyond

Manufacturers have their individual strategies in place to meet the fuel economy and emissions requirements through 2016. However, with the advent of EPA’s and CARB’s 2017 to 2025 targets released in the Fall of 2010, a new set of powertrain strategies will need to be developed. Representatives of government, suppliers and vehicle manufacturers will engage in a discussion as to possible directions the industry will beginning in 2017.

Moderator:

Sujit K. Jain
Regional President, Gasoline Systems Division, Robert Bosch LLC

Panelists:

Lee Carducci
President, Revstone Power-Tec

Bob Fascetti
Director, Large Gas & Diesel Engine Engineering, Ford Motor Company

Uwe Grebe
Executive Director – GM Powertrain Global Advanced Engineering, General Motors Company

Takashi Moriya
Senior Chief Engineer (Technology Research Division 5), Honda R&D Co., Ltd.

Margo Oge
Director, Office of Transportation & Air Quality, U.S. EPA

Paul Whitaker
Chief Technologist, Gasoline Engines, AVL Powertrain Engineering Inc.
10:00 a.m. – 12:00 p.m.

New Transmission Technologies That Could Change the Face of Powertrain Performance

New transmission concepts and developments are occurring in parallel with new innovations in engine technology, allowing OEMs to produce powertrain systems that meet both government regulatory mandates while still giving the consumer the drivability they have come to expect. Not only have the number of speeds increased, new types of transmissions and control strategies are coming to market. These include DCT, electrically assisted AMT, electrically assisted hybrid automatics, etc. Transmission experts on the panel will discuss new development trends, control and calibration strategies as well as provide a glimpse into the future for these new design trends.

Moderator:
Mircea Gradu
Director Transmission and Driveline Engineering, Head Virtual Analysis, Chrysler Group LLC

Panelists:
Thomas Brown
General Manager - Drivetrain Engineering, Aisin Tech. Center of America

Kiran Govindswamy
Chief Engineer, Vehicle and Driveline Development, FEV, Inc.

Steven G. Thomas
Manager, Global Transmission & Driveline, Research & Advanced Engineering, Ford Motor Company

Hamid Vahabzadeh
General Director, Global Advanced Transmission Engineering, GM Powertrain, General Motors Company

Andy Yu
Vice President - Engineering, BorgWarner Drivetrain Systems Group
**Challenge of Electrification for Personal Mobility**

The level of market penetration for vehicles using electrification as the primary “fuel” will depend on meeting the many challenges facing the automotive industry, including its suppliers, the utility industry and governments in general. The type, style and size (capacity) of vehicles using electrification to provide personal use mobility will be discussed. Updates on the strategies to ensure the consumer as seamless a transition as possible when interfacing with the electrical grid will also be presented.

**Moderator:**

**Michael Bly**  
Executive Director, Group Global Functional Leader – Global Electrical Systems, Hybrids, Electric Vehicles, Batteries, Infotainment, OnStar Eng., General Motors Company

**Panelists:**

**Anthony Earley Jr.**  
Executive Chairman of the Board, DTE Energy

**Todd L. Jackson**  
Strategic Growth Platform Leader, GE Energy Services-Digital Energy

**Sherif Marakby**  
Director, Electrification Programs & Engineering, SMT, Ford Motor Company

**Minoru Shinohara**  
Senior Vice President, Nissan Motor Co., Ltd.

**Mary Ann Wright**  
Vice President, Global Tech & Innovation Accelerator, Johnson Controls Power Solutions
Charging Forward Toward 2017: The Powertrains That Will Get Us There

While much of the regulatory attention may be shifting to CAFE, ozone and CO2 limits proposed by both CARB and EPA for 2017 to 2025, the 2016 regulations still must be met. The experts convened will outline the technologies and strategies that will allow manufacturers to attain the required CO2 and CAFE numbers. Technologies in the mix include GDI, downsizing with boosting, low temperature combustion, variable valve timing, torsional damping, dual fuel combustion, etc.

Moderator:
Gary W. Rogers
President & CEO, FEV, Inc.

Panelists:
Uwe Grebe
Executive Director – GM Powertrain Global Advanced Engineering, General Motors Company

John W. Juriga
Director, North American Powertrain, Hyundai-Kia America Technical Center, Inc.

Dan Kapp
Director, Powertrain Research & Advanced Engineering, Ford Motor Company

Bob Lee
Vice President, Engine, Electrified Propulsion & Advanced Powertrain, Chrysler Group LLC

Hans Hohenner
General Manager & Development Drivetrain Product Manager, BMW Group
9:00 – 9:45 a.m.

**Keynote Address**

*Featured Speaker:*

**David Sandalow**  
Assistant Secretary for Policy and International Affairs,  
U.S. Department of Energy

10:30 a.m. – 12:30 p.m.

**Charging Forward on Petroleum Alternatives**

The pace of replacement of petroleum-based fuels as the primary fuel supply for transportation may still be a point of debate. However, the need to find a viable replacement fuel or group of fuels is no longer a major point of debate. The panel will outline what has changed on the journey during the past few years and what the future holds. Viewpoints from government, the military, fuel suppliers and academia will be presented.

*Moderator:*

**Patrick Davis**  
Program Manager, Vehicle Technologies, Program Office, U.S. Department of Energy

*Panelists:*

**Andre Boéhman**  
Professor of Fuel Science & Materials Science & Engineering, Penn State University

**William (Bill) J. Brady**  
Chief Executive Officer, Mascoma Corporation

**David Friedman**  
Deputy Director, Clean Vehicles, Union of Concerned Scientists

**Alan I. Taub**  
Vice President, GM Global Research & Development, General Motors Company

**Harold Wright**  
Senior Vice President & Chief Technology Officer, Rentech, Inc.
The Top 5 Electrification Technologies for 2011: Will They Electrify the Automotive Industry as We Know It Today?

No development in automotive technology has dominated discussion more than the electrification of the automotive powertrain. A new segment of automotive suppliers are driving innovations that will support companies in this industry as they attempt to achieve their market share and penetration goals. The panel will outline the top 5 emerging technologies/developments in this field. Potential technologies include new EV control concepts, battery energy density and chemistries, Smart Grid interface and technologies which will lead to greater range, better reliability, and longer product life.

Moderator:
Oliver Hazimeh
Director, e-Mobility Practice & N.A. Auto Segment, PRTM

Panelists:
Mohamed Alamgir
Research Director, LG Chem Power Inc.

Charles Gray
Chief Engineer, Core Electrification Engineering, Ford Motor Company

Jay Iyengar
Global Director & Chief Engineer, Electrified Powertrain Propulsion Systems, Chrysler LLC

Jon Lutz
Global Director & Chief Engineer, Electrified Powertrain Propulsion Systems, Chrysler LLC

Larry T. Nitz
Executive Director, Hybrid & Electric Powertrain Engineering, General Motors Company
1:30 – 3:30 p.m.

The Challenges of Implementing New Technologies While Improving Safety

Advances in technology have enabled enormous, positive developments in automotive safety. At the same time, consumer use of technology (cell phones, entertainment and navigation systems, etc.) while operating vehicles has presented challenges to regulatory agencies as well as suppliers and vehicle manufacturers who must integrate systems into the vehicles. The panel will discuss steps the regulatory agencies and industry have and are planning to take to ensure safety is not compromised.

Moderator:

Jeffrey M. Boyer
Executive Director, Global Interior Engineering & Safety Performance Vehicle, General Motors Company

Panelists:

James A. Buczkowski
Global Director, Electrical & Electronics Systems Engineering, Ford Motor Company

Koichi Kamiji
Senior Chief Engineer, Safety Technologies, Automobile R&D Center, Honda R&D Co., Ltd.

Mitsuhiko Masegi
General Manager of Safety & Chassis Systems Product Division and Managing Officer, DENSO Corporation

Thomas B. Schalk
Vice President of Voice Technology, ATX

Beth Schwarting
Vice President, Electronic Controls PBU, Delphi Electronics & Safety
1:00 – 3:00 p.m.

**It’s Homegrown, It’s Green and It’s Available Right Now: Has CNG’s Time Finally Come?**

Much has been said about North American dependence on foreign sources of energy, particularly those that are non-diversified, such as oil. The relationship between domestic economic growth and the balance of trade in energy cannot be disregarded. CNG represents a domestically available and geographically diversified source of energy, resulting in the serious consideration of CNG as a transportation fuel. To date, CNG has had very limited use in light duty as well as medium and heavy duty vehicle applications. The panel of experts will discuss the challenges associated with elevating CNG as a mainstream transportation fuel, new technologies that may enable broader CNG market penetration and the approaches being taken by both industry and government to overcome the challenges.

**Moderator:**

Dean Tomazic  
Vice President, Engine Performance & Emissions Division, FEV, Inc.

**Panelists:**

Robert J. Bienenfeld  

John E. Gonzales  
Senior Engineer, Advanced Vehicle Deployment, National Renewable Energy Laboratory

Dick C. Kauling  
Engineering Manager - Gaseous Fuels, General Motors Company

Bob Lee  
Vice President, Engine, Electrified Propulsion & Advanced Powertrain, Chrysler Group LLC

John Sledge  
Vice President, Sales & Marketing, Landi Renzo USA Corp.
Global Collaboration -- Next Steps

The automotive industry has transformed itself in the past decades into a global business. The financial and procurement aspects of going global have been discussed in detail in many forums. The panel of experts for this discussion will instead concentrate on how collaboration is accomplished globally in the engineering phase of the automotive business. Aspects such as resource allocation, employee training, virtual design systems and standards usage in different regions will be the focal point of the discussion.

Moderator:
Paul Mascarenas
Chief Technical Officer and Vice President, Research & Advanced Engineering, Ford Motor Company

Panelists:
Paolo Ferrero
Senior Vice President – Chrysler Powertrain, Chrysler Group LLC

Daniel M. Hancock
Vice President, Global Strategic Product Alliances, General Motors Company

Tony Hemmelgarn
Senior Vice President, U.S. Country Manager, Siemens PLM Software

Paul Smith
Director of Consulting Services, The MathWorks

Robert Sump
Vice President, Component Engineering, Nissan Technical Center North America
9:45 – 11:45 a.m.

21st Century Off-Roading: New Powertrains for an Evolving Sport

Powertrain innovations and technologies such as vehicle electrification, hybrids, gas direct injection, clean diesels and dual clutches are becoming synonymous with the next-generation of off-road products. Next-generation performance is fusing with the golden age of the internal-combustion engine. While the internal combustion engine will be around for the foreseeable future, these new and emerging technologies are where the action will be – along with the engineering, R&D, investment, business opportunities and perhaps, most importantly, the next generation of performance enthusiasts. Commercialization and consumer acceptance of these new technologies are driving the innovations that will achieve industry growth, increased sales and market share; success in this business is measured by being the first to use technology to meet consumer needs and wants. This session will include presentations on the role that emerging technologies will play in the off-road segment as well as a panel session in which attendees will interact with the speakers.

Moderator:

John M. Waraniak
Vice President, Vehicle Technology, Specialty Equipment Market Association

Panelists:

Raymard E. Durham
Chrysler Vehicle Line Executive - SUV Programs, Chrysler Group LLC

Timothy M. Grewe
Chief Engineer, Global RWD Hybrid System, Director, Global Power Electronics & Controls, General Motors Company

Jamal Hameedi
SVT Chief Nameplate Engineer, Ford Motor Company

Santhosh Jogi
Director of Engineering, dSPACE Inc.

Paul M. Williamsen
National Manager, Lexus College, Lexus Division, Toyota Motor Sales USA, Inc.
At the forefront of ground vehicle standards development.

Then and now.

The first engine oil viscosity standard and the introduction of engine horsepower ratings. The influence of motorcycle headlamps and rollover protective structures for tractors. A standard that defines electric-vehicle charging couplers and the creation of those to aid in the development of the Smart Grid.

For over 100 years, SAE International has played a critical role in the progress of the automobile and the ground vehicle industry.

And while the work of engineering today's vehicles may on the surface look very different given the complexity of technology and global markets, SAE International and its standards development program have essentially remained unchanged. It continues to provide a neutral forum for collaboration on common engineering challenges and the creation of standards, thereby helping industry reduce costs, increase productivity, improve market position, and advance new technologies.

Whether it is bringing standards for and from the United States market to the global table or serving as the world's center of expertise on Commercial Vehicle/ConAg standards, SAE International is uniquely positioned to provide innovative standards solutions—be they by consensus, consortia or harmonization—that offer industry, companies, and individuals opportunities to influence, grow, and prosper.

Join the important work of SAE Technical Standards Development

Currently there is a heightened need for experts in the following areas:

- Electrical Systems
- Materials, Parts & Processes
- Vehicle Safety Systems
- Powertrain Systems/Battery Standardization

Visit the TechXchange, room D3-19 at the SAE World Congress.
## Sessions

### Technical, Business & Executive

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### Technical Session Oral Evaluation Incentives

In an effort to collect more evaluation ratings for the technical session speakers, SAE will be holding daily drawings for anyone who completes an oral evaluation card distributed in technical session rooms. Simply complete the card, tear off the perforation with your name and contact number, and turn it in to the session moderator. Three (3) winners will be announced daily to receive $50 gift certificates. Winners will be announced daily and posted in the technology lounges.
### Tuesday, April 12 - Morning

#### Technical and Business Sessions

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<th>Time</th>
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| 10:00 a.m. | **Model-Based Design of Embedded Systems (AE316)**  
To reduce development time and improve quality while delivering technical innovations, companies use math-based models and a process known as Model-Based Design for developing embedded controllers. Engineers use an executable specification to iterate quickly through design concepts using simulation and without relying on physical prototypes. The specification then serves as the basis for early verification, hardware-in-the-loop test, and production code generation. |
| 10:00 a.m. | **Multi-Media Systems (AE307)**  
This session covers topics relating to vehicular entertainment and information systems. Specific subjects include: multiband antennas, satellite radio reception, measuring and evaluating audio systems, navigation, displays, infotainment busses, audio amplifiers, and loudspeakers. |
| 10:00 a.m. | **Software/Hardware Systems (AE202)**  
Software/Hardware Systems is where you share your latest state of the art technology in the development of software as well as hardware to keep up with the rapid change in our daily life. |
| 10:00 a.m. | **Best Practices for Outsourcing in a Model-Based Design Environment**  
(Virtual Only)  
Vrdio Reddy, Siemens VDO |
| 10:00 a.m. | **Design of Rear On-Glass Antennas for FM Radio Reception**  
(2011-01-0048)  
Fan Bia, Donald Grimm, Tim Talty, Cern Saraydar, General Motors Company |
| 10:00 a.m. | **Do Vehicles Need Data Security?**  
(2011-01-0049)  
Atsushi Yamamoto, Koji Nakamura, Masaaki Shinoda, Shinko Corp.  
(Oral Only)  
Audrey Winterskich, escrypt Inc. |
| 10:00 a.m. | **Developing Production Software Applications Utilizing a Common Architecture and Complete Model-Based Design**  
(2011-01-0054)  
Brian Guther, BongWanger Inc.; Dirk Fleischer, dSPACE Inc.; John S. Mills, SimQuest Inc. |
| 10:00 a.m. | **Vehicular 3D Visual Applications and Requirements**  
(2011-01-0050)  
Sam Yang, Peter Diehl, Huan Lu, Fei Feng, Shanghai GM Corp. Ltd. - General Motors Company |
| 10:00 a.m. | **Balance of Electrical Power Requirements through Smart Electric Power Management**  
(2011-01-0042)  
Mark J. Rychlinski, Kevin R. Bainbridge, David W. Walters, General Motors Company |
| 10:00 a.m. | **Model-based Toolchain for the Efficient Development of Safety-Related Automotive Embedded Systems**  
(2011-01-0056)  
Eric Armingaud, Markus Zier, Virtual Vehicle; Andreas Baumgart, DFFS e.V.; Matthias Biehl, DeJu Chen, Royal Institute of Technology; Gerhard Grieser, AVL; Christian Herr, Tom Ritter, Fraunhofer FOKUS; Ramin Tavakoli Kolagari, Volvo Technology Corporation |
| 10:00 a.m. | **Plmp My Ride . . . with Telepresence**  
(Oral Only)  
Scott Penmack, QNX Software Systems, Ltd. |
| 10:00 a.m. | **Adaptive Remote Vehicle Start Operation for Reduced Fuel Consumption (Written Only -- No Oral Presentation)**  
(2011-01-0045)  
David T. Proefke, William Biondo, General Motors Company |
| 10:00 a.m. | **Efficient Method for Modeling and Code Generation of Custom Functions**  
(2011-01-0055)  
| 10:00 a.m. | **Making Sense of the Smartphone-Vehicle Coacphony**  
(Oral Only)  
Andrew J. Glyn, QNX Software Systems, Ltd. |
| 10:00 a.m. | **Method and System for Determining the Location of a Lost Vehicle Key Fob (Written Only -- No Oral Presentation)**  
(2011-01-0044)  
David T. Proefke, William Biondo, General Motors Company |
| 10:00 a.m. | **Human Driving Behavior Analysis and Model Representation with Expertise Acquiring Process for Controller Rapid Prototyping**  
(2011-01-0051)  
Kazuhito Togai, Mitsubishi Motors Corporation; Hisashi Tamaki, Kobe University |
| 10:00 a.m. | **Wideband Multi-Service Automotive Antenna Conformal to a Curved Surface (Written Only -- No Oral Presentation)**  
(2011-01-0047)  
Brendan D. Pell, Edin Sulic, Wayne S.T. Rowe, Kamran Ghorbani, Sabu John, RMIT University |
| 10:00 a.m. | **HMI Proximity Sensing for Vehicle Personalization and Enhanced Safety (Written Only -- No Oral Presentation)**  
(2011-01-0043)  
John Michael Washeleski, Thomas Gronski, Edward Cox, Nauto Corp |
### Technical and Business Sessions

**TIME** | **SESSION TITLE, DESCRIPTION, AND ROOM**
---|---
1:00 p.m. | **Automobile Electronics Design and Systems Reliability (AE302)**  
Meeting reliability, Design, quality and safety requirements for electrical/electronic systems becomes more challenging every year as E/E content, complexity, time-to-market and globalization pressures increase. This session focuses on intelligent practices for achieving high reliability. New approaches and techniques for integrating robust design and robustness validation into the mainstream global automotive electronics product development and manufacturing processes are discussed.  
1:00 p.m. - 3:00 p.m.  
Organizers: Dennis L. Craggs, Chrysler Group LLC
---|---
1:20 p.m. | **Intelligent Transportation Systems - Safer, Smarter, Faster (AE313)**  
Intelligent Transportation Systems (ITS) includes smart vehicles, smart roads and infrastructure, and wired and wireless communications to link them together. This session will provide insights and progress reports on the latest ITS research, development, and deployment around the world. Time to collision estimations, embedded processor control, adaptive cruise control and image recognition along with discussion on the management of safety and safety systems.  
1:00 p.m. - 2:20 p.m.  
Organizers: David Acton, The-Transformation-Network LLC; Stephan Tarnutzer, DGE Inc.  
Chairpersons: Stephan Tarnutzer, DGE Inc.
---|---
1:20 p.m. | **Prevention of Premature Failure of Electric Actuator Motors in Proximity to Lubricants**  
A blind spot assistance system based on direct yaw-moment intervention  
(2011-01-0207) (2011-01-0202)  
Jeffrey Konchan, Frank Arabia Jr., General Motors Company; Kris Tomaszewski, Ray Zeller, Shant Pailian, Magna
---|---
1:20 p.m. | **RF Circuit Performance Optimization in Microcontroller Based Circuits in Road Vehicles**  
Utilizing ACC Radar Data to Signal Trailing Drivers of Forward Decelerations.  
Ajay Dandge, TATA Technologies Ltd; Steve Thorne, i-B.L. Research Group; Bruce W. Leppla, i-b.l. research group
---|---
1:40 p.m. | **An Approach to the Safety Design and Development of a Brake-by-Wire Control System**  
Integrating Secure Beamforming into Car-to-X Architectures  
(2011-01-0212)  
Michael Roberts, General Motors Company; Tejas Ohiyaya, MAHLE Powertrain LLC
---|---
2:00 p.m. | **Open Engine Management System for future Engine Concepts**  
On the Example of the PowerSAR - Powertrain Manager  
(2011-01-0209)  
Armin Graf, Martin Jehle, Gerd Winkler, Continental Automotive
---|---
2:20 p.m. | **Anti-counterfeiting system of drunk driving using driver's facial image identification**  
The Development of a Parking Support System Considering Driving Characteristics  
(2011-01-0210)  
Yu-Sung Chen, Jia-Xiu Liu, Chung-Chih Tsai, Chia-Tsing Chen, Automotive Research & Testing Center
---|---
2:40 p.m. | **Platform Independent System Integration**  
Planned by Electrical and Electronic Systems Committee / Automotive Electronics Activity  
(2011-01-0211)  
Jan A. van Deventer, Andrey Kruglyak, Johan Nordlander, Jerker Delsing, Lulea University of Technology
---|---
2:40 p.m. | **Intelligent Transportation Systems**  
SAE International® offers online based learning in multiple formats to suit your learning needs.  
- **Live or Recorded Webinars** — informative, interactive content-rich classroom seminars delivered via telephone/internet; available live and on-demand  
- **e-Seminars** — industry expertise and instruction with the convenience of anytime access  
- **Fast Tracks** — online short-courses that capture the essence of a topic and teach you exactly what you need to know - fast  
- **Ford online courses** — online courses from Ford Motor Company that extend to you Ford’s engineering training on essential powertrain and quality topics
---|---