

An SAE Convergence Series Event

# SAE 2011 Electric Systems for Vehicle Propulsion Symposium

November 8-9, 2011  
Troy Marriott, Troy, Michigan, USA

For improving Engine and Powertrain Performance

## Maximum Savings!

**Join SAE and Pre-register  
by October 21, 2011!**

Join us for an in-depth discussion that will address the entire vehicle electronics infrastructure related to vehicle propulsion including:

- Application of vehicle electronics technology for HEV, EV, ICE vehicles
- Electrification impacts on engine and transmission management

## Attendee Bonus!

Receive FREE access to the co-located SAE Intelligent Vehicle Systems Symposium with your registration to this event!



Co-located with  
**SAE Intelligent Vehicle  
Systems Symposium**  
See page 4 for details.

[www.sae.org/esvp](http://www.sae.org/esvp)



# Overview

Automakers are increasingly relying more heavily on electronics technology to make vehicles more efficient. Electronic components currently comprise nearly 25% of the total cost of an ICE vehicle.

By 2015, it is estimated that this cost will reach 40%. If you include the growing HEV and EV market – that figure is anticipated to nearly double, with electronic component costs comprising the majority of material/component cost of the vehicle.

This new SAE Convergence Series Event will focus on the latest innovations in vehicle electronics infrastructure and the application of vehicle electronics technology for HEV, EV and ICE vehicles. The discussion will concentrate on electrification impacts on engine and transmission management on these vehicles.

Attendees will hear experts from OEMs, integrators, tier suppliers and academia address issues critical to vehicle engine, powertrain and electrification. Each session will work from systems level down to the component by addressing all the factors that are critical to a given application.

**Don't miss this important in-depth discussion!**

## Who Should Attend?

- Electrical Engineers
- Mechanical Engineers
- Mechatronics Engineers
- Powertrain Engineers and Designers
- Service Engineers/Managers
- Research and Development
- Inspection and Maintenance Personnel
- Emissions Specialists
- Telematics Specialists
- Test Equipment Designers
- Vehicle Electronics Designers
- Tier Suppliers

## ▶ Registration Bonus!

**Paid Attendees have FREE access to the co-located SAE Intelligent Vehicle Systems Symposium (IVS)!** See a session or keynote that interests you at IVS? Feel free to attend – it's all part of your registration to the Electronic Systems for Vehicle Propulsion Symposium. See page 4 for event highlights or visit [www.sae.org/ivs](http://www.sae.org/ivs) for event details.

# Event Highlights

## Plenary Keynotes



*The Future of Propulsion Electronics*

**Mircea Gradu**  
Vice President and Head of Transmission, Powertrain and Driveline Engineering  
Chrysler Group LLC

## Panel Discussions



*How to Bridge Conventional Engine & Transmission to Electrified Propulsion System: A Technical and Economical View*

Moderator:  
**Tom Reinhart**,  
Institute Engineer  
Southwest Research Institute (SwRI)



*Energizing the Future Mobility Enterprise*

Moderator:  
**Dr. Andrew Brown, Jr.**, PE, FESD, PhD, NAE  
Chief Technologist,  
Delphi Corp.

**ICE and Electrification, Maintaining Personal Mobility** – Government Perspective - Speaker TBA

## Exhibition & Networking Reception

See the innovative organizations leading the industry while enjoying peer-to-peer networking during the joint Electronics Systems for Vehicle Propulsion Symposium/Intelligent Vehicle Symposium exhibit and networking reception.

## Organizers



**Patrick Leteinturier**  
Senior Principal  
Automotive Systems  
Infineon Technologies AG



**Bernard Challen**  
CEO, Shoreham  
Services Engineering  
Consultancy



**Magdi Khair**  
Institute Engineer  
Southwest Research  
Institute (SwRI)

## Tuesday, November 8

### 8:00 – 9:00 a.m. Plenary Keynote: *The Future of Propulsion Electronics* - Mircea Gradu, Chrysler Group LLC

Topics to be addressed:

- Mega trends in propulsion
- Infrastructure issues
- Standardization and regulation
- Regional differences and need for synergies
- Innovations in engine, transmission, & electrification
- Trends and challenges in propulsion electronics.
- New technology transition issues.
- Need for new methods, processes, and tools. Changes in development & validation cycle.
- Challenges in modeling, simulation, calibration.
- Challenges for manufacturing.
- Service and maintenance.
- Recycling

9:00 - 9:30 a.m. Break – Exhibition Open

### Session: Engine Control

This section of presentations will deal directly with the control of engines for both ICE and HEV. As technologies advance in engine development and regulation become more pronounced the need for advanced electronic systems to help with engine control becomes more critical to successful application. Presentations will address the areas of concerns for such advancements.

9:30 -10:00 a.m. Thermal Dynamics and Combustion Systems  
**Andre Boehman**, Pennsylvania State Univ.

10:00 -10:30 a.m. Future of Internal Combustion Engine -  
**Dr. Dean Tomazic**, FEV Inc.

10:30 -11:00 a.m. Control of Engine for Hybrid Vehicle Emission -  
**Michael Duoba**, Argonne National Lab

11:00 -11:30 a.m. Future IC Engine Control Challenges -  
**Matti Vint**, Ricardo Inc.

11:30 a.m. – 1:00 p.m. Lunch – Exhibition Open

### Session: Engine Control & Aftertreatment

The complexities of aftertreatment increases on an annual basis. Regulations and mandates push engineering concepts to develop complex control systems for particulates in diesel and gas aftertreatment to never before seen levels. Presentations will focus on the current and future developments of this technology.

1:00 -1:30 p.m. Future of ICE Diesel (Fuel Injection, Turbo Charger)  
**Phil Dingle**, Delphi Corp.

1:30 – 2:00 p.m. GDI, Port Fuel and Diesel Particulate Comparison  
**Imad Khalek**, SwRI

2:00 -2:30 p.m. Aftertreatment for Gasoline and Diesel  
**Aleksey Yezerets**, Ph.D., Cummins, Inc.

2:30 -3:00 p.m. Complexity of Controls Systems for Aftertreatment  
**Yiqun Huang**, Houston Advanced Research Ctr.

3:00-3:30 p.m. Break – Exhibition Open

### Session: Development Method & Calibration

Vehicle propulsion targets are driving the automotive industry for more complex and safe systems. Development & validation of new solutions are challenged by total cost and time to market. Radical changes for methods, processes, and tools are needed to satisfy the requirements. In some cases standardization is an opportunity to improve reuse, interoperability, safety and quality. This session will explore the enabler for better propulsion systems.

3:30 -3:55 p.m. How Will Alternative Fuels Affect Powertrain Electronics?  
**Jon Van Gerpen**, University of Idaho

3:55 - 4:15 p.m. Software, Modeling and Simulation  
**Tom Morel**, Gamma Technology

4:15 - 4:40 p.m. Safety Integrity - **Simon Brewerton**, Infineon Technologies

4:40 -5:05 p.m. Hardware in the Loop  
**Giorgio Rizzoni**, Ohio State University

5:05 -5:30 p.m. Calibration - **Dr. Jayant Sarlashkar**, SwRI

5:30 – 7:00 p.m. Networking Reception on the Exhibit Floor

## Wednesday, November 9

### 8:00 – 9:00 a.m. Plenary Keynote: *ICE and Electrification, Maintaining Personal Mobility – Government Perspective* Speaker TBD

9:00 - 9:30 a.m. Break – Exhibition Open

### Session: Transmission Control

Transmission is the essential part to converter, adapt, merge or split torque/speed sources & destinations. Various solutions are developed. Beside regional specific requirements transmissions are selected by use cases, and driver habits. Different optimizations are realized to satisfy the fun to drive and the energy efficiency. The propulsion system electrification is opening new horizons for innovation. This session will explore different architectures from automatic to hybrid and electric vehicle transmission.

9:30 -10:00 a.m. Electronic Control of 7-Speed Dual-Clutch Trans for FWD Vehicles - **Hamid Vahabzadeh**, General Motors

10:00-10:30 a.m. 2-Speed Transmission System for Electric Vehicles - **Fabio Viotto**, Oerlikon Graziano, University of Surrey

10:30 -11:00 a.m. Volt Transmission  
**Pete Savagian**, General Motors Company

11:00 -11:30 a.m. Hybrid Transmission Development  
Speaker TBD, Nissan

11:30 a.m. – 1:00 p.m. Lunch – Exhibition Open

### 1:00 – 3:00 p.m. Panel Discussion: *How to Bridge Conventional Engine & Transmission to Electrified Propulsion System: A Technical and Economical View*

This panel will address the issues of complexity on bridging these two systems together and discuss the future of consumer response and its effect on development of technology.

**Moderator: Tom Reinhart**, SwRI

Panelists:

- **Pete Savagian**, General Motors Company
- **Joachim Wolschendorf**, FEV Inc.
- **Jay Iyengar**, Chrysler Group LLC
- **Bob Gruszczynski**, VW/Audi
- Speaker TBD, Nissan

A Question & Answer Session will follow the Panel.

3:00 – 3:30 p.m. Break – Exhibition Open

### 3:30 p.m. - 5:00 p.m. Panel Discussion: *Energizing the Future Mobility Enterprise*

*Panelists to be announced.*

### 3:30- 5:30 p.m. Panel Discussion: *Energizing the Future Mobility Enterprise*

A new chapter of the individual mobility is being written. Indeed, individual mobility could use, in the near future, a significant share of electric energy. The overall challenge of this issue is just beginning to touch our industry and it will only become larger as we move more towards vehicle electrification. This panel will address these issues as well as discuss opportunities to proactive approach energy usage.

**Moderator: Dr. Andrew Brown**, Delphi Corp.

A Question & Answer Session will follow the Panel.

\*Subject to change. Visit [www.sae.org/esvp](http://www.sae.org/esvp) for up-to-date information.

- ▶ **SAE Members** save year-round on most SAE conferences, seminars, publications and more PLUS exclusive access to **EngineerXchange™**...a new online professional network for Members Only.

# Registration, Hotel and Travel

## To Register:

[www.sae.org/esvp](http://www.sae.org/esvp)

SAE Customer Service

Telephone: 1-877-606-7323 (USA and Canada)

or 1-724-776-4970

Fax: 1-724-776-0790

E-mail: [CustomerService@sae.org](mailto:CustomerService@sae.org)

### Registration Bonus!

Receive **FREE** access to the co-located SAE Intelligent Vehicle Systems Symposium with your paid registration to this event!

### Maximum Savings!

Become an SAE Elite Member and pre-register by October 21, 2011!

Category	By October 21, 2011	After October 21, 2011
SAE Classic Member	\$795	\$895
SAE Premium Member	\$770	\$870
SAE Elite Member	\$745	\$845
Non-Member	\$1,195	\$1,295
Participant (includes moderator, organizer, panelist, or presenter, speaker)	FREE	FREE
Exhibitor Booth Personnel (Limit 1 per booth) Exhibitor ID# required	FREE	FREE

### Conditions of Sale:

Registrations received after October 21, 2011 will automatically be charged the on-site price. **NO CHILDREN UNDER THE AGE OF 16 PERMITTED.** All cancellations must be received by SAE prior to October 21, 2011. A \$50 processing fee will be assessed for each canceled registration that results in a refund. Refunds for special event/meal tickets will not be processed after October 21, 2011. Refunds will not be issued if cancellation occurs on or after October 21, 2011.

SAE will do what is feasible to make its events reasonably accessible to attendees. If you have special accommodation needs, please let us know in advance by calling 1-877-606-7323 (1-724-776-4970 outside U.S. and Canada). Accommodations requested on site will be provided only if possible for us to do so on short notice.

**Registration Includes:** access to the SAE 2011 Intelligent Vehicle Systems Symposium, Exhibit, Lunch, Refreshment Breaks, Networking Reception, Technical Sessions and Breakout sessions, one copy of the Electronic Systems for Vehicle Propulsion presentations.

## Hotel & Travel Information

SAE International has reserved a block of rooms for this event. All attendees are responsible for making their own lodging and travel arrangements. **Please help SAE keep the costs of this event as low as possible by booking your housing needs at the designated host hotel and through the reservation process created by SAE.**

### Troy Marriott

200 West Big Beaver, Troy, Michigan 48084

1-248-680-9797 or 1-877-757-7131

SAE's group rate is \$124.00 single or double occupancy, all inclusive, plus local, state and federal applicable taxes. Includes complimentary wireless internet. To make your reservations, please visit [www.sae.org/esvp](http://www.sae.org/esvp) and follow the hotel reservation link.

# Marketing Solutions

## Maximize your exposure through shared exhibit and sponsorship opportunities!

Prime opportunities are available that include both the Electronic Systems for Vehicle Propulsion and the Intelligent Vehicle Systems Symposia! Two events at one location = maximized exposure for your organization!

### EXHIBIT. 2 Events – 1 Exhibit!

#### Table Top Exhibit \$5,000 (USD)

- 1 table top display space: 6' x 30" table, 2 chairs, 1 electrical outlet
- 1 complimentary Full Symposium Registration
- Inclusion in two Pre-Show and two Post-Show SAE International media opportunities:
  - ½ page Supplier Spotlight in AEI Print Magazine, October 4th Issue
  - ½ page Ad or Supplier Spotlight in Vehicle Electrification Digital Magazine, November 30th Issue
  - Featured in a Supplier Spotlight in one (1) Pre-Show AND one (1) Post-Show Email blast
- Company recognition and profile in Event Guide and listing on the ESVP and ISV Online Exhibitor Directories

#### Exhibitors As of 8/5/11

Allegro MicroSystems  
DG Technologies  
Hella

## JOINT EVENT NETWORKING SPONSORSHIPS

### Gold Sponsor \$17,500 USD *Exclusive Opportunity!*

- Exclusive host of the **Tuesday** Reception with company logo on napkins and recognition on Reception signage
- 3 complimentary Full Symposium Registrations
- Recognition in Event Guide, on signage and logo and hyperlink on the ESVP and IVS Sponsor webpages

### Silver Sponsor \$15,000 USD *Two Opportunities - Selection is first come, first served*

- Exclusive host of either the **Tuesday** or **Wednesday Lunch** with recognition on Lunch signage
- Opportunity to provide giveaway at Lunch (*item at sponsor's expense*)
- 2 total complimentary Full Symposium Registrations
- Recognition in Event Guide, on signage and company logo and hyperlink on the ESVP and IVS Sponsor webpages

### Bronze Sponsor \$10,000 USD *Four Opportunities - Selections are first come, first served*

- Exclusive host of one Refreshment Break with company logo on napkins and recognition on Refreshment Break signage
- 1 complimentary Full Symposium Registration
- Recognition as Bronze Sponsor in Event Guide, on signage and company logo and hyperlink on the ESVP and IVS Sponsor webpages

## ELECTRONIC SYSTEMS FOR VEHICLE PROPULSION (ESVP) SPONSORSHIPS

### Premier Sponsor \$25,000 USD *Exclusive Opportunity*

- 1 Table Top display space: 6'x 30" table, 2 chairs and inclusion in select Pre-Show and Post-Show media
- Company name and logo showcased at on-site Registration
- Opportunity to provide marketing materials at on-site Registration
- Company logo included on all registration confirmation emails for ESVP event
- Company name and logo will appear on the ESVP Registration webpage
- Exclusive sponsorship of ESVP Symposium Lanyards
- 5 complimentary Full Symposium Registrations
- Recognition as Premier Sponsor in Event Guide, on signage and company logo and hyperlink on the ESVP Sponsor webpage

**ESVP Symposium Event-At-A-Glance** \$5,000 USD *Exclusive Opportunity*

**ESVP Symposium Notepads** \$3,000 USD *Exclusive Opportunity*

**ESVP Symposium Pens** \$3,000 USD *Exclusive Opportunity*

**Friend of the Industry** \$1,500 USD

**For more information or to discuss a customized solution, contact:  
Vanessa Schaber at 1-724-772-7591 or email [vschaber@sae.org](mailto:vschaber@sae.org).**

An SAE Convergence Series Event

# SAE 2011 Intelligent Vehicle Systems Symposium

November 8-9, 2011  
Troy Marriott, Troy, Michigan, USA

Advancing the Connected Mobility Experience

This unique symposium will focus on vehicle electronics infrastructure connecting HEV, EV, ICE vehicles to their environment, including application to:

- Safety
- ITS
- Mobility Internet
- Power System Architectures
- Security for Vehicle Electronic Systems
- System and Component Level Architectures

**Bonus!**

Intelligent Vehicle Systems Symposium paid attendees receive **FREE** access to the co-located SAE Electronic Systems for Vehicle Propulsion Symposium!

For event updates, visit [www.sae.org/ivs](http://www.sae.org/ivs). If you are involved with intelligent vehicle technology - this is the one event you need to attend!

## Event-at-a-Glance

Tuesday, November 8	Wednesday, November 9
<p><b>8:00 – 9:00 a.m.</b>  <b>Plenary Keynote:</b> <i>Safer, Greener, and More Connected: The Future of Vehicles and the Mobile Internet</i>  <b>Dr. Andrew Brown, Jr., PE, FESD, PhD, NAE, Delphi Corp.</b></p>	<p><b>8:00 – 9:30 a.m.</b>  <b>Session:</b> <i>Convergences in Connectivity from Other Mobility Electronics: Aerospace, Commercial Vehicle, or Military Mobility</i>  <b>Organizer:</b> Jean Botti, EADS</p>
<p><b>Networking Break 9:00 – 9:30 a.m.</b></p>	<p><b>Networking Break 9:30 – 10:00 a.m.</b></p>
<p><b>9:30 a.m. – 12:00 p.m.</b>  <b>Session:</b> <i>Convergence of Active and Passive Safety Systems to Create Intelligent Vehicles</i>  <b>Organizer:</b> Sukhi Bilkhu, Chrysler Group LLC  <b>Panel Discussion:</b> <i>Potential Pitfalls of Connectivity</i></p>	<p><b>10:00 a.m. – 12:00 p.m.</b>  <b>Panel Discussion:</b> <i>Hardware/Software Applications for Vehicle Connectivity</i>  <b>Organizer/Moderator:</b> Scott McCormick, CVTA</p>
<p><b>Lunch 12:00 – 1:30 p.m.</b></p>	<p><b>Lunch 12:00 p.m. – 1:30 p.m.</b></p>
<p><b>1:30 – 3:35 p.m.</b>  <b>Session:</b> <i>Autonomous Ground Vehicles Applications and Systems</i>  <b>Organizer:</b> Alex Kade, TARDEC</p>	<p><b>1:30 – 3:35 p.m.</b>  <b>Session:</b> <i>Enabling Technologies in Vehicle Electronics for the Connected Vehicles</i>  <b>Organizer:</b> Massimo Osella, General Motors Company</p>
<p><b>Networking Break 3:35 – 4:00 p.m.</b></p>	<p><b>Networking Break 3:35 – 4:00 p.m.</b></p>
<p><b>4:00 – 5:30 p.m.</b>  <b>Panel Discussion:</b> <i>Concerns Of “Privacy Issue and Ownership”, and Acquiring Data from Vehicle Electronic Systems</i>  <b>Organizer/Moderator:</b> Don Crawford, Harman Becker</p>	<p><b>4:00 – 5:30 p.m.</b>  <b>Panel Discussion:</b> <i>Ecosystem Evolution</i>  <b>Organizer/Moderator:</b> Heri Rakouth, Delphi Corp.</p>
<p><b>5:30 – 7:00 p.m.</b>  <b>Networking Reception on the Exhibit Floor</b></p>	

# Related Resources from SAE International

## Register Now!

### SAE 2011 Powertrain Electric Motors Symposium - for Electric and Hybrid Vehicles

November 16, 2011, Shanghai, China  
[www.sae.org/emotorshanghai](http://www.sae.org/emotorshanghai)

### The Hybrids and Plug-In Vehicles Report 2011 Edition

This report looks at current market drivers and includes detailed sections on incentives, hybrid technology, grid technology and charging infrastructures, key OEM strategies, battery technology and energy storage. This report also includes detailed profiles of 26 of the leading battery and motor suppliers. e-book only.

Product Code: MR-SB-080  
List \$2110.00

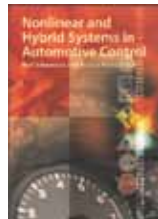


ebook  
only

### Nonlinear and Hybrid Systems in Automotive Control

By Rolf Johansson, Anders Rantzer  
This book presents an overview of research in this rapidly-expanding area. New approaches to solving theoretical problems, as well as numerous systems and control research issues, are covered.

Product Code: R-348  
List \$89.99



ebook  
only

## Save the Dates for these Upcoming Events!

### SAE 2012 Hybrid Vehicle Technologies Symposium

February 21-22, 2012, San Diego, California. [www.sae.org/hybrid](http://www.sae.org/hybrid)

### SAE 2012 Electric Vehicle Technologies Symposium

February 23, 2012, San Diego, California  
[www.sae.org/events/training/symposia/evt/](http://www.sae.org/events/training/symposia/evt/)

### SAE Convergence

October 16-17, 2012, Detroit, Michigan, [www.sae.org/convergence](http://www.sae.org/convergence)

### Emission Control and Fuel Economy for Port and Direct Injected SI Engines

By: John H. Johnson

This book is a collection of SAE technical papers that covers the fundamentals of gasoline direct injection (DI) engine emissions and fuel economy, design variable effects on HC emissions, and advanced emission control technology and modeling approaches.

Product Code: PT-91  
List: \$29.99



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Phone: 1-877-606-7323 (U.S. & Canada)  
or 1-724-776-4970

*Note: Prices subject to change.  
Actual shipping charges will be added.*

## Alternative Powertrains Subscription

The standards in this subscription include terminology, testing and recommended practices used in the design and development of alternative power trains.

Product Code: SUB-STD-00009

For more information visit [subscriptions.sae.org](http://subscriptions.sae.org)

SAE International

## Professional Development Courses *Check website for upcoming open enrollment dates.*

### A Holistic Introduction to Commercial Telematics Seminar

This seminar provides participants a comprehensive overview of the various technologies that make up a telematics system as a whole and provides the information necessary to help drive intelligent decisions that have long-term benefits.

Instructor: Emad Isaac; Course I.D. #: C0947;  
visit [www.sae.org/pdevent/C0947](http://www.sae.org/pdevent/C0947)

### Introduction to Design Review Based on Failure Modes (DRBFM) Webinar

This Webinar will explain all phases of the DRBFM methodology and provides details on how to accomplish the specific steps. A DRBFM Process Guidebook will provide specific information on each step with formats, examples, notes and homework slides.

Instructor: Bill Haughey; Course I.D.#: WB1047;  
visit [www.sae.org/pdevent/WB1047](http://www.sae.org/pdevent/WB1047)

### Embedded Control Systems Design Workshop

This highly interactive seminar - featuring microcontroller hands-on lab projects - will help you learn fundamental concepts needed to design, implement, and calibrate control functions for an embedded microcontroller system.

Instructor: Dennis Bogden; Course I.D.#: C0922;  
visit [www.sae.org/pdevent/C0922](http://www.sae.org/pdevent/C0922)

### Controller Area Network (CAN) for Vehicle Applications Seminar

The Controller Area Network has become the standard of choice for most automotive manufacturers. Approved for use as an ISO and EPA diagnostic network, its usage continues to grow. This seminar covers the theory and use of the CAN protocol, and its applications in the automotive industry.

Instructor: Mark Zachos; Course I.D.#: C0120;  
visit [www.sae.org/pdevent/C0120](http://www.sae.org/pdevent/C0120)

### In-Vehicle Networking with LIN and FlexRay Applications Seminar

This two-day seminar covers the theory and practices of in-vehicle multiplex networking. Attendees learn about FlexRay and LIN SubBus, and other network standards. Attendees explore the latest OBD II regulations and implementation requirements, along with device hardware and software interfaces.

Instructor: Mark Zachos; Course I.D.#: C0136;  
visit [www.sae.org/pdevent/C0136](http://www.sae.org/pdevent/C0136)

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SCAN FOR MORE INFO

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