

SAE 2009 Heavy Truck Handling, Dynamics & Control Symposium

May 5-7, 2009
Clemson University - ICAR
Greenville, South Carolina, USA

SAE Members SAVE \$400 off
the full-conference fee*

**requires pre-registration by April 17*

Preliminary Agenda

www.sae.org/truckhdc

Workshop May 4
Ride and Demonstration May 7
see page 2 for details





SAE 2009 Heavy Truck Handling, Dynamics & Control Symposium

May 5-7, 2009;

Clemson University - International Center for Automotive Research (CU-ICAR);
Greenville, South Carolina, USA

Heavy duty trucks must share the road with passenger cars and everyone's safety is a concern. Advances in vehicle dynamics technology are increasing the control and handling of heavy trucks making them safer to operate and affecting the safety of other vehicles on the road; but growing road congestion and possible government regulation are becoming the principal influences in future vehicle design.

Your knowledge of the solutions, tools and trends affecting heavy truck design is critical.

The SAE 2009 Heavy Truck Handling, Dynamics & Control Symposium will examine various technologies related to heavy truck ride and handling dynamics and control, and their impacts on the heavy truck industry. It will explore technologies in the R & D pipeline, particularly those designed to provide an extra measure of safety for truck operators and the motoring public, including some military applications.

This symposium provides you with the opportunity to review and discuss the technology and prepares you to meet future government requirements and supply safer vehicles to the market.

The symposium includes:

- Technical content featuring expert presentation
- Access to technology leaders with open and cooperative dialogue
- Networking opportunities that promote discussion, professional interaction and collaboration

Benefit from presentations of new strategies for vehicle handling, dynamics, safety and control; and interaction with colleagues from other OEMs and supplier companies, research facilities, government and academia.

Technology topics include:

- New Stability and Safety Control Technologies
- Electronic Stability Controls (ESC)
- Components
- Rollover Prevention
- Collision Avoidance
- Vehicle Dynamics Simulation
- Testing & Measurement
- Government Regulations Related to Trucks

Organizing Committee:

Beshah Ayalew, Assistant Professor, Clemson University - ICAR

James Davidson, Engineer, U.S. Army - TARDEC

Suzanne Dickerson, Manager, Marketing and Global Business Development, Clemson - ICAR

Dr. David Hall, Michelin

Stefan Jansson, Principal Engineer, Volvo Trucks North America

Dr. Ragnar Ledesma, Principal Engineer, ArvinMeritor Inc.

Skip Yeakel, Principal Engineer, Volvo

EVENT AGENDA

Monday, May 4, 2009

- 10:00 a.m. **Early Bird & K & C Rig Workshop Registration** –
(registration is at Michelin America's Research Corporation)
- 12:00 p.m. **K & C Rig Workshop** – Michelin America's Research Corporation

Tuesday, May 5, 2009

- 7:00 a.m. Registration
- 8:00 a.m. Opening Remarks – **John Miller, SAE International**
- 8:30 a.m. Keynote Address

Electronic Stability Control

- 9:15 a.m. *Development of Nash Optimal Strategy for Tractor-Trailer Stability Control System* – **Saied Taheri Ph.D., Virginia Polytechnic**
- 10:00 a.m. Networking Break – Tabletop Exhibits Open
- 10:30 a.m. *Tractor and ESC Co-Simulation and Investigation of Adaptive Stability Control Approaches* – **John Limroth, CU-ICAR – Clemson University, International Center for Automotive Research**
- 11:15 a.m. *High Speed Electronic Stability Control System Demonstration on a Urban Autonomous Ground Vehicle* – **Bapiraju Surampudi Ph.D., Southwest Research Institute**
- 12:00 p.m. Networking Lunch – Tabletop Exhibits Open

Components

- 1:30 p.m. *Articulated Dump Truck Independent Suspension* – **Eanna P. Timoney, Timoney Research Ltd.**
- 2:15 p.m. *Artificial Steering Feel on Commercial Vehicles* – **Daniel Williams, TRW Commercial Steering**
- 3:00 p.m. Networking Break – Tabletop Exhibits Open

Safety/Testing

- 3:30 p.m. *Steering Wheel Haptic Feedback System for Indication and Rollover Avoidance in a Heavy Commercial Vehicle* – **Peter Tkacik, University of North Carolina - Charlotte**
- 4:15 p.m. *Presentation of the Results from and Extended Pilot Study of an Integrated Vehicle-Based Safety System for Heavy Trucks* – **Scott E. Bogard, University of Michigan**
- 5:00 p.m. Networking Reception

Wednesday, May 6, 2009

- 7:00 a.m. Registration
- 8:00 a.m. Opening Remarks – **John Miller, SAE International**

Safety/Testing – continued

- 8:30 a.m. *Real-Time Heavy Truck Rollover Warning System* – **Peter Tkacik, University of North Carolina - Charlotte**
- 9:15 a.m. *Objective Handling Evaluation of Heavy Trucks by means of Model Based Parameter Identification* – **Dr. Klaus Prenninger, Magna Powertrain**
- 10:00 a.m. Networking Break – Tabletop Exhibits Open



EVENT AGENDA (CONT'D.)

- 10:30 a.m. *Heavy Truck Measurement, Modeling and Evaluation* – **Michael Arant, Michelin**
11:15 a.m. *Verification of Heavy Truck Chassis Control Embedded Software* – **Josh Isser, ETAS**
12:00 p.m. Networking Lunch – Tabletop Exhibits Open

Simulation/Modeling

- 1:30 p.m. *Development and Validation of a Hardware in the Loop Simulation for Studying Heavy Truck Stability Control Effectiveness* – **Alrik L. Svenson, National Highway Traffic Safety Administration**
2:15 p.m. *Robust Vehicle Dynamics Simulation using Neural Network Response Surface Generation* – **Peter D. Schmitt, Frederic Jacquelin and David Martin, Ricardo, Inc.**
3:00 p.m. Networking Break – Tabletop Exhibits Open
3:30 p.m. *Simulation Applications in the Development and Testing of Heavy Vehicles* – **Dr. Thomas D. Gillespie, Mechanical Simulations Corporation**
4:15 p.m. *Tire Model Investigation in Longitudinal Direction using the Magic Formula* – **Dr-Ing Sameh Maher Metwalley, Helwan University**
5:00 p.m. Networking Reception

Thursday, May 7, 2009

- 7:00 a.m. Michelin Proving Grounds Ride and Demonstration Registration
9:00 a.m. **Michelin Proving Grounds Ride and Demonstration** – Michelin America's Research Corporation

ADDITIONAL EVENTS

Use of Kinematics and Compliance Measurement for Simulation of Heavy Truck Vehicle Dynamics (K & C Workshop)

Monday, May 4, 2009; 12:00 – 5:00 p.m.
Michelin Americas Research Corporation

This is a half-day workshop on kinematics and compliance testing, results and use of data for heavy truck vehicle dynamics analysis.

The Michelin Proving Grounds Ride & Demonstration and Facility Tour

Thursday, May 7, 2009; 9:00 a.m. – 4:00 p.m.
Michelin Americas Research Corporation

Attendees are invited to participate in a heavy truck vehicle dynamics Ride and Demonstration at the Michelin Americas Research Corporation Proving Grounds.

Additional fees are required to participate in these events. You must also be a registered attendee of the **SAE 2009 Heavy Truck Handling, Dynamics & Control Symposium** to participate.

Please visit www.sae.org/truckhdc for additional information.

REGISTRATION AND HOTEL INFORMATION

Category	By 4/17/09	After 4/17/09 and ON SITE
SAE Member	\$695	\$795
Non-Member*	\$995	\$1,095
Participant (includes organizers, presenter)	FREE	FREE
Exhibitor Booth Personnel (Limit 1 per booth)	FREE	FREE
K & C Rig Workshop – May 4, 2009; 12:00 – 4:00 p.m.	\$75	\$75
Ride & Demonstration Event – Thursday, May 7, 2009	\$125	\$125

Conditions of Sale - All cancellations must be in writing and received by SAE prior to April 17, 2009. A \$50 processing fee will be assessed for each cancelled registration that results in a refund. Refunds will not be issued if cancellation occurs on or after April 17, 2009. This policy includes special event and meal fees. For the SAE membership registration rates, member dues must be current at the start of the event. Children under 16 years of age are not permitted.



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.

* Includes one year of SAE membership.

Event Registration Includes: Breakfasts, a.m. Break, p.m. Break, Lunches, Technical Presentations & Exhibit

Registration Hours

K & C Workshop
Monday May 4, 2009 10:00 a.m. – 12:00 p.m.
(registration at Michelin Americas Research Corporation)

Early Bird
Monday May 4, 2009 10:00 a.m. – 12:00 p.m.
(registration at Michelin Americas Research Corporation)

Tuesday May 5, 2009 7:00 a.m. – 5:00 p.m.

Wednesday May 6, 2009 7:00 a.m. – 5:00 p.m.

Thursday May 7, 2009 7:00 a.m. – 1:00 p.m.

Exhibit Hours

Tuesday May 5, 2009
10:00 – 10:30 a.m.
12:30 – 1:30 p.m.

Wednesday May 6, 2009
10:00 – 10:30 a.m.
12:30 – 1:30 p.m.

Hotel Information

- All attendees are responsible for arranging their own lodging and travel.
- A block of rooms has been reserved at the following hotels.
- Please see listing for SAE's group rate; all rates are per room per night and are all inclusive plus applicable taxes.
- Reservations should be made through the hotel; please ask for the Clemson-ICAR rate.

Recommended Hotels

Embassy Suites Greenville Golf Resort & Conference Center
670 Verdae Boulevard
Greenville, SC 29607
Phone: (864) 676-9090
<http://www.embassysuitesgreenville.com/>
2009 CU-ICAR rate - \$109/night

Staybridge Suites
31 Market Point Drive
Greenville, SC 29607
Phone: (864) 288-4448
<http://ichotelsgroup.com/h/d/sb/1/en/hotel/GSPSC/welcome>
2009 CU-ICAR rate - \$85/night

Please see the Hotel and Travel link at the Symposium main page for additional information on travel www.sae.org/truckhdc



MARKETING SOLUTIONS

Tabletop Display Information: \$2,200 (USD)

Includes:

- One table top display space – 6' x 30" table with two chairs
- One complimentary Symposium Registration – includes lunch, refreshment breaks, evening reception and materials
- Recognition in the Event Program

Symposium Partner – Collaborate with SAE to distinguish your company at this symposium. Choose one of the partner programs, an exclusive sponsorship or get creative with a customized package! Promote your company to top industry professionals and other attendees.

GOLD Partner - \$10,000 (USD)

(limited to one company)

Includes:

- Table top display space
- Recognition as the EXCLUSIVE host of the Welcome Reception
- Complimentary registration for three (3) symposium participants
- Display of logo on sponsor signage at the event
- Recognition in symposium Event Guide
- Recognition on the event sponsors page of the SAE website

SILVER Partner - \$6,500 (USD)

(limited to 3 companies)

Includes:

- Recognition as exclusive host of one of the daily lunches
- Complimentary registration for two (2) symposium participants
- Display of logo on sponsor signage at the event
- Recognition in the symposium Event Guide
- Recognition on the event sponsor page of the SAE website

BRONZE Partner - \$4,500 (USD)

(limited to 6 companies)

Includes:

- Recognition as exclusive host of one of the daily breaks (refreshments provided)
- Complimentary registration for one (1) symposium participant
- Company logo on sponsor signage at the event
- Recognition in the symposium Event Guide
- Recognition on the event sponsors page of the SAE website

FRIEND OF THE INDUSTRY - \$1,500 (USD)

Includes:

- Company logo on sponsor signage
- Recognition in the symposium Event Guide
- Recognition on the event sponsors page of the SAE website

FOR MORE INFORMATION CONTACT:

Gretchen Chamberlain

Toll free: 1-888-875-3976 (US and Canada)
1-724-772-7591 (outside US and Canada)

Email: gchamberlain@sae.org

RELATED RESOURCES FROM SAE

Ground Vehicle Standards on CD-ROM

Locate the ground vehicle standards you need with *SAE Ground Vehicle Standards* on CD-ROM, which contains over 1,800 individual standards, recommended practices, and information reports pertaining to passenger cars, trucks, motorcycles, trailers, snowmobiles, agricultural tractors, and more. Includes **J-1939** and related documents. Plus, this CD is updated quarterly for one year so you will receive new, revised and cancelled standards regularly.

Member & Non-Member Price: \$2,040, Product ID: CDGV-2009

Advancements in Steering Systems; Braking Systems; and Advanced Chassis Control and Rollover Stability

This publication contains 12 papers that address new developments in commercial vehicle steering such as auxiliary axle and computer controlled systems, as well as studies on regenerative brake systems and a new modeling technique that examines brake configuration packages for reducing stopping distances. It also includes new information on advanced control systems for enhancing stability and safety in road vehicles, and its effect on suspension kinematic characteristics.

Member Price: \$59.96; Non-Member Price: \$74.95, Product Code: SP-2216

Individual Papers

SAE technical papers contain a wealth of vehicle information presented by your peers at SAE Conferences. For a complete listing of Heavy Truck Handling, Dynamics & Control papers visit www.sae.org/technical/papers

SAE Seminars and e-Seminars

NEW! Fundamentals of Heavy Truck Dynamics – also available as an on-site seminar
Product #: C0837; SAE Members: \$1,225; Non-members: \$1,355

Applied Brake Controls: ABS, TCS, and ESC

Product #: C0610; SAE Members: \$1,725; Non-members: \$1,850

Commercial Vehicle Braking Systems – also available as an e-Seminar (product #PD130611)

Product #: C0233; SAE Members: \$1,265; Non-members: \$1,395

Order today!

Online: www.sae.org

E-mail: CustomerService@sae.org

Phone: 1-877-606-7323 (U.S. & Canada)

or 1-724-776-4970

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

SAE Members SAVE 20% on most SAE publications, products and meetings. Visit www.sae.org/membership

P90413

SAE International™

400 Commonwealth Drive
Warrendale, PA 15096-0001

Non-Profit Org.
U.S. POSTAGE
PAID
Pittsburgh, Pa.
Permit No. 1731

SAE 2009 Heavy Truck Handling, Dynamics & Control Symposium

May 5-7, 2009
Clemson University - ICAR
Greenville, South Carolina, USA

SAE Members SAVE \$400 off
the full-conference fee*

*requires pre-registration by April 17

www.sae.org/truckhdc

