The 14th Asia Pacific Automotive Engineering Conference

“Impacts & Opportunities for the Global Automotive Industry”

August 5-8, 2007
Renaissance Hollywood Hotel
Hollywood, California USA

SAVE $100 (USD)
register by July 20!

www.sae.org/apac

The Technologies:
• Powertrain Technology
• Driver/Vehicle Interface, Information & Assistance Systems
• Vehicle Design & Manufacturing
• Transportation Challenges in Emerging Markets
• Vehicle Dynamics & Intelligent Control Systems

Technical Tours:
• The Mount Wilson Observatory
• NASA Jet Propulsion Laboratory
• California Institute of Technology Seismology Lab

Organized by
"Impacts & Opportunities for the Global Automotive Industry"

August 5 - 8, 2007
Renaissance Hollywood Hotel
Hollywood, California USA

It’s all about
Exchanging Scientific Knowledge
Building International Networks
Promoting Automotive Engineering Development Worldwide

Originally entitled the “International Pacific Conference on Automotive Engineering,” the first IPC was held in November of 1981 in Honolulu, Hawaii, joining all existing SAE member societies in countries surrounding the Pacific. Because of the event’s success, the FISITA Pacific member societies chose to organize this one-of-a-kind event every two years, increasing participation to 11 societies in the Asia Pacific region.

Changing the name to reflect a broader audience, the Asia Pacific Automotive Engineering Conference still embodies what the original IPC stood for. This year’s theme, “Impacts & Opportunities for the Global Automotive Industry,” represents the continued need for innovation and careful consideration while working in a global marketplace.

This significant event is a shared effort, bringing together experts in the industry to communicate ideas, share knowledge, and promote automotive technologies with other leading representatives, decision makers, and automotive colleagues around the world.

SAE is pleased to host this premier automotive engineering event with patronage by FISITA

International Federation of Automotive Engineering Societies (FISITA) is an independent world body representing over 145,000 automotive engineers belonging to national automotive societies in 37 countries. FISITA was founded in 1948 to provide a global forum for the exchange of technical knowledge on every aspect of vehicle design and manufacture. FISITA brings together engineers and decision-makers from industry, academia, and government to work towards the improvement of transportation systems, the conservation of energy, and the protection of the environment. www.fisita.com
What to Expect
The Technical Program

**Powertrain Technology**
Experts and researchers worldwide will meet to discuss the opportunities for changing the way vehicles could be powered in the future.

- Hybrid and Electric Power Systems
- Fuel Cell Systems
- Transmission Systems
- Engine Design

**Driver/Vehicle Interface, Information, and Assistance Systems**
The focus of this session will be driver and passenger comfort, including topics related to NVH, climate control, and security.

- Driver Assistance and Information
- Noise and Vibration
- Human Comfort/Ergonomics and Thermal Management
- Vehicle Security

**Vehicle Design and Manufacturing**
Explore the nature of new materials that are available and their benefits in vehicle design and manufacturing during this session.

- Aerodynamics
- Body Structures
- Advanced Materials
- Recycling
- Manufacturing Systems

**Transportation Challenges in Emerging Markets**
This session will discuss safety, environmental, socio-economic and other challenges facing transportation in emerging markets and will explore the role technology will play in overcoming these challenges.

- Safety
- Environment and Energy
- Legislation
- Socio-economic Issues
- Personal/Public/Freight Transportation
- Maintenance and After Market

**Vehicle Dynamics and Intelligent Control Systems**
Vehicles of the future and the “smart” advancements that are anticipated will be discussed during this session.

- Vehicle Ride and Handling
- Intelligent Safety Systems
- Tires/Braking Systems/Steering/Suspensions

The Special Events
- Opening and closing ceremonies
- Daily Keynote Speakers
- Panel discussions
- Three technical tours
- Six guest tours

The Networking Opportunities
- Petersen Automotive Museum Reception
- “Dancing like the Stars” reception and conference banquet
- Poster sessions
- Plus much, much more!

Who Should Attend
Engineers, researchers, technical and management professionals focusing on powertrain, driver assistance, vehicle design and manufacturing, and vehicle dynamics and control systems.
Event Overview

APAC-14 Conference General Chairman

Dr. James E. Smith
Director for Center for Industrial Research of Applied Mechanical and Aerospace Engineering
West Virginia University

“The Asia Pacific Automotive Engineering Conference is truly a unique international event, and I am honored to serve as General Chair. It is a collaboration of eleven societies with a single mission; to stimulate and foster the scientific exchange of technology ideas and to promote automotive engineering development worldwide. This is a must attend for anyone interested in building their international network of colleagues and industrial contacts.”

Organized by APAC Member Societies:

- SAE International
  2007 SAE President: Richard O. Schaum
  Executive Vice President and COO: Raymond Morris
  www.sae.org

- The Korean Society of Automotive Engineers (KSAE)
  President: Hyun Soon Lee
  General Secretary: Eun-Tae Kim
  www.ksae.org/eng

- Society of Automotive Engineers - Australasia (SAE-A)
  President: Max Gillard
  Executive Director: Manny Stamatopoulos
  www.sae-a.com.au

- Society of Automotive Engineers of China (SAE-C)
  President: Zhang Xiaoyu
  Executive Vice President and Secretary General: Fu Yuwu
  www.sae-china.org/English/index.htm

- SAE India (SAE India)
  President: Pawan Goenka
  Executive Director: V. Viswanath
  www.saeindia.org

- SAE Indonesia (IATO)
  President: Hasiholan Sidabutar
  Secretary: Djoko W. Karmiadji
  email: iato@centrin.net.id

- Iran Society of Automotive Engineering (ISAE)
  President: Mohammad H. Shojaeefard
  Manager: A. R. Noorpoor
  email: mhshf@iust.ac.ir

- Society of Automotive Engineers of Japan, Inc. (JSAE)
  President: Nobuo Okubo
  Executive Director: Sekio Higuchi
  www.jsae.or.jp/index_e.php

- The Institute of Automotive Engineers - Sri Lanka (IAE Sri Lanka)
  President: A. G. Samarasekera
  Secretary: Priyantha de Alwis
  email: agsam@eureka.lk

- Society of Automotive Engineers of Thailand (TSAE)
  President: Kaukeart Boonchukosol
  Secretary: Adisak Rohitasune
  www.tsae.or.th

- Vietnamese Society of Automotive Engineers (VSAE)
  President: Nguyen Xuan Chuan
  General Secretary: Du Quoc Thinh
  email: thinh_vsae@hn.vnn.vn
## Conference Schedule

### Sunday August 5
- **Welcome Reception**
  - “Hooray for Hollywood”
  - 7:00 p.m.

### Monday August 6
- **Opening Ceremony**
  - 8:30 a.m. - 8:45 a.m.
- **Keynote Address**
  - Ray A. Morris, SAE International
  - 8:45 a.m. - 9:15 a.m.
- **Keynote Address**
  - Richard O. Schaum, 2007 SAE President
  - 9:15 a.m. – 9:45 a.m.
- **Refreshment Break**
  - 9:45 a.m. – 10:15 a.m.
- **Keynote Address**
  - SAE India
  - 10:15 a.m. – 10:45 a.m.
- **Global Trade Management Panel**
  - 10:45 a.m. – 12:15 p.m.
- **Lunch in Exhibit Hall**
  - 12:15 p.m. – 1:30 p.m.
- **Technical Sessions**
  - 1:30 p.m. – 3:00 p.m.
- **Refreshment Break**
  - 3:00 p.m. – 3:30 p.m.
- **Technical Session**
  - 3:30 p.m. – 5:30 p.m.
- **Petersen Automotive Museum Reception**
  - 6:30 p.m. – 9:00 p.m.

### Tuesday August 7
- **Welcome**
  - 8:30 a.m. – 8:45 a.m.
- **Keynote Address**
  - Herb Fishel, Herb Fishel Company
  - 8:45 a.m. – 9:15 a.m.
- **Keynote Address**
  - Chris Borroni-Bird, General Motors Corporation
  - 9:15 a.m. – 9:45 a.m.
- **Refreshment Break**
  - 9:45 a.m. – 10:15 a.m.
- **Keynote Address**
  - André Metzner, DaimlerChrysler
  - 10:15 a.m. – 10:45 a.m.
- **Global Mobile Air Conditioning Panel**
  - 10:45 a.m. – 12:15 p.m.
- **Lunch in Exhibit Hall**
  - 12:15 p.m. – 1:30 p.m.
- **Technical Sessions**
  - 1:30 p.m. – 3:00 p.m.
- **Refreshment Break**
  - 3:00 p.m. – 3:30 p.m.
- **Technical Sessions**
  - 3:30 p.m. – 5:30 p.m.
- **Banquet**
  - “Dancing Like the Stars”
  - 6:30 p.m. – 8:30 p.m.

### Wednesday August 8
- **Technical Sessions**
  - 8:30 a.m. – 11:30 a.m.
- **Closing Ceremony**
  - 11:30 a.m. – 12:00 p.m.
- **Farewell Lunch**
  - 12:00 p.m. – 1:00 p.m.

---

**Note:** Program hours are subject to change. Meeting updates can be found at [www.sae.org/apac](http://www.sae.org/apac)
Keynote Speakers

Raymond A. Morris
SAE International Executive Vice President and COO
“Role of Engineering Societies in Serving the Mobility Industry in the Asia-Pacific Region”
Monday August 6, 8:45 a.m. – 9:15 a.m.

Mr. Ray Morris joined the SAE International staff in 1974 and has held several positions in the organization ever since. In January 2002, he was named Executive Vice President and also holds the position of President of the Performance Review Institute (PRI), a not-for-profit organization that exists to advance the interest of the mobility industry.

In 1990, he was selected as the Pittsburgh Society of Association Executives’ Outstanding Association Executive. Currently, Mr. Morris also holds board positions on the Automotive Hall of Fame, the American National Standards Institute (ANSI), is the Vice President of Americas for the FISITA (International Federation of Automobile Engineering Societies) Council, as well as being a Certified Association Executive (CAE) and Past President of the Pittsburgh Society of Association Executives.

Richard O. Schaum
2007 SAE President; Executive Vice President, Product Development & Quality, DaimlerChrysler (Retired)
“Powertrain Trends Past and the Outlook for the Future”
Monday August 6, 9:15 a.m. – 9:45 a.m.

A veteran of the automotive industry for 37 years, Mr. Richard Schaum is the Vice President and General Manager of Vehicle Systems for WaveCrest Laboratories.

Throughout his career at DaimlerChrysler, he rose through the ranks to the position of Executive Vice President, Product Development and Quality overseeing 9,000 employees and a $1.8 billion budget and was responsible for all matters pertaining to Platform Engineering, Engineering Technologies, Regulatory Affairs, Product Planning and Quality. In March 2003, he was elected to serve a three year term in the newly created position of Vice President, Automotive, for the Society of Automotive Engineers and served as General Chairman of the 2003 SAE World Congress. He was also member of the Board of Trustees of the Detroit Science Center, a panelist at the National Research Council Workshop on Fuel Economy in 1991, and a member of the Auto/Oil Air Quality Research Planning Task Force in 1990.
Special Events
and Networking Opportunities

Keynote Speakers

Herbert A. Fishel
CEO, Herb Fishel Company
“The Great Race of the 21st Century”
Tuesday August 7, 8:45 a.m. – 9:15 a.m.

Recognized repeatedly by RACER magazine as one of the dozen most influential people in racing, Mr. Fishel began his career at General Motors and in 1969 joined the Chevrolet Product Performance Group where he was responsible for the design of high-performance engines. In 1991 he was named the Executive Director of GM Racing.

His career has seen many accomplishments: Mr. Fishel helped form the Indy Racing league, Hot Rod magazine named him one of the 100 most influential people in hot rodding, he was bestowed the Spirit of Le Mans Award from the Automobile Club de l’Ouest, and inducted into the Specialty Equipment Market Association (SEMA) Hall of Fame.

Dr. Chris Borroni-Bird
Director of Advanced Technology Vehicle Concepts, General Motors Corporation
“Reinvention of the Automobile”
Tuesday August 7, 9:15 a.m. – 9:45 a.m.

Dr. Chris Borroni-Bird is one of the world’s leading fuel cell experts. He is the driving force behind GM’s AUTOtomy vision and is Director for this “Reinvention of the Automobile” program, which also includes the Hywire and Sequel vehicles. These are the first vehicles designed from the ground up around a hydrogen fuel cell propulsion system, embodying the skateboard philosophy and are the first to combine fuel cells with by-wire technology, which allows steering, braking and other vehicle systems to be controlled electronically rather than mechanically.

Prior to joining General Motors, Borroni-Bird was in technology management at Daimler-Chrysler and led an effort to develop fuel cells that run on gasoline. He was inducted into the Automotive Hall of Fame as a Young Leader in 2000.

Global concern for energy supplies and environmental climate changes is driving the automobile industry’s research engines at a record pace. The battle for sustained growth and profitability has moved from the showroom to the research laboratory. Can racing’s innovative culture and deadline driven results be a factor in winning the Great Race of the 21st Century?

This presentation describes GM’s thrust into reinventing the automobile around the emerging technologies of fuel cells, advanced batteries, electric drive and by-wire chassis systems. This initiative includes the range-extended electric Chevrolet Volt and Chevrolet Sequel fuel cell by wire concepts.

While electric drive helps solve energy and environmental concerns that confront the automotive industry, electrically driven vehicles can also have zero tailpipe emissions and lend themselves to energy diversity since the electricity can be generated from a wide variety of sources. For example, hydrogen fuel cell electric vehicles promise long-range, rapid refueling and zero emissions. They also provide energy diversity since hydrogen and electricity are interchangeable.

In addition to these profound societal benefits, electric drive also gives the consumer a more exciting driving experience because there is instant torque available at the wheels and an opportunity for electrifying other vehicle systems, such as braking and steering. When this potential is fully exploited from a performance and design perspective, the automobile will be reinvented.
Panel Discussions

Global Trade Management in the Driver’s Seat – OEMs are Creating New Business Models that will Resonate throughout the Value Chain

Graham R. F. Napier
TradeBeam President and Chief Executive Officer

Monday August 6, 10:45 a.m. – 12:15 p.m.

This panel discussion will explore experiences of automotive companies operating on a worldwide basis. Find out how Renault and TradeBeam created and brought to market a totally new business model that put GTM at the core of the entire sourcing, manufacturing, and distribution strategy. Renault used to meet its highly aggressive 5,000 Euro price point for the Logan. Plus, an automotive OEM and a supplier will contribute perspective to the challenges of development, manufacturing, and delivery of product on a global scale.

Technology Cooperation for Next-Generation Global Mobile Air Conditioning

Ward Atkinson
President, Sun Test Engineering

Stephen Andersen,
Director Strategic Projects, Environmental Protection Agency (invited)

Elvis Hoffpauir,
President and COO, Mobile Air Conditioning Society Worldwide

Tuesday August 7, 10:45 a.m. – 12:15 p.m.

This panel of international representatives will discuss the intense government and industry cooperation involved in developing the next generation of refrigerants, systems, standards, service tools and service procedures for mobile air conditioning systems. They will outline both the technological and policy developments from Japan, Europe and North America that surround the design and emergence of systems that further reduce and control Green House Gas emissions.

Graham Napier, CEO of TradeBeam, is a provider of on-demand Global Trade Management (GTM) software. Mr. Napier has nearly 20 years experience building organizations within the international business arena. His emphasis has been on using advanced technology to streamline operations worldwide and driving new market opportunities. Prior to joining TradeBeam, Mr. Napier served as president and chief operating officer of Fritz Companies, a $1.8 billion integrated logistics services provider. He managed operations and drove strategic initiatives for an organization consisting of 14,000 people worldwide. Fritz recruited Mr. Napier from AlliedSignal, a leading aerospace manufacturer, where Mr. Napier served as vice president of Strategic Business Development and New Ventures for AlliedSignal Aerospace.

Ward Atkinson worked for Chevrolet Engineering GM for 30 years, retiring in 1981. He was responsible for Test Development, passenger car and truck Heating and Air Conditioning Systems, Sun Test Engineering, and provided consulting services to the automotive industry. He has been a member of SAE International since 1954 and received the SAE 1998 Arch T. Colwell Cooperative Engineering Medal. Additionally, he was awarded the 1990 EPA “Stratospheric Ozone Protection Award,” the EPA “Stratospheric Ozone Protection Best of the Best Award” in 1997, is Chair of the SAE Interior Climate Control Standards Committee and also Chair of the SAE Alternate Refrigerant Cooperative Research Program.

Stephen O. Andersen is a Director of Strategic Projects in the US Environmental Protection Agency (EPA) Climate Protection Partnerships Division and a Co-Chair of the Montreal Protocol Technology and Economic Assessment Panel. He was formerly Deputy Director of the EPA Stratospheric Protection Division. Previously, he was a professor of environmental economics at the College of the Atlantic and the University of Hawaii and a visiting scholar at Kyoto University. He also worked for consumer, environmental and legal non-governmental organizations.

Elvis Hoffpauir has worked in the automotive air conditioning and cooling industry since 1979, and has been with MACS since it was founded in 1981, first serving as managing director, then vice president and president since July 2000. He has coordinated all of MACS programs and projects, including EPA-mandated certification in refrigerant recycling and service procedures offered by MACS as required by Section 609 of the Clean Air Act, and other technician training offered at annual conventions and service clinics held throughout the U.S. He is a member of the Society of Automotive Engineers and the American Society of Association Executives.
Welcome Reception
Sunday August 5, 7:00 p.m.
All attendees (delegates, speakers, exhibitors and accompanying persons) are invited to attend this welcome party to officially kick-off the conference. It’s a great way to get acquainted with fellow attendees and browse the technology on display in the exhibit hall…and you never know what celebrities might stop by for a visit!

Opening Ceremony
Monday August 6, 8:30 a.m. - 8:45 a.m.
The opening ceremony is presided over by Dr. James E. Smith, Director for Center for Industrial Research of Applied Mechanical and Aerospace Engineering West Virginia University, APAC-14 General Chair

Petersen Automotive Museum Reception
Monday August 6, 6:30 p.m.
You are invited to join us for a private reception at this internationally recognized museum housing three floors of automotive history. It encompasses more than 300,000 square feet and features more than 150 rare and classic cars, trucks and motorcycles, as well as a permanent exhibit of celebrity vehicles.

Note: Buses depart the hotel at 6:30 p.m.
“Dancing Like the Stars” Reception and Conference Banquet

Tuesday August 7, 6:00 p.m. – 8:30 p.m.

Long before recent shows like “Dancing with the Stars,” professional and ballroom dancing was the trend back in the 30s and 40s. In fact, some of the greatest figures of ballroom dancing originated in Hollywood at that time, including the famous dance team of Fred Astaire and Ginger Rogers. Tonight, guests will have the exciting opportunity to feel as if they were dancing like the Stars!

Following the reception, step back in time and enjoy an amazing array of beautifully costumed and well-choreographed professional dancers who will entertain you with stunning ballroom exhibitions such as the Tango, Fox Trot, Waltz, Paso Doble, Mambo and Cha Cha. Following this entertaining display, everyone is invited to get a first-hand lesson in the art of ballroom dancing – feel like a star as you are instructed on the intricate moves of the Tango, the graceful and elegant Waltz, and the alluring moves of the Mambo or Cha Cha – a gift definitely worth taking home to share with friends and family.

Important Note:

- Banquet attire is business suits
- Additional banquet tickets are $75.00
- Extra charge for accompanying persons and students

Passing of the APAC banner – Closing Ceremony

Wednesday August 8, 11:30 a.m. – 12:00 p.m.

Enjoy a brief recap of the week with a picture slideshow in addition to SAE International handing off the APAC banner to SAE Vietnam, the host of APAC-15.

Farewell Lunch

Wednesday August 8, 12:00 p.m. – 1:30 p.m.

All delegates and guests are invited to the Farewell Lunch – a great way to say goodbye to Hollywood by meeting with friends and colleagues to reflect on the week’s discussions and accomplishments.

Refreshment Breaks in Exhibition Hall –
spend time with colleagues discussing the events each morning and afternoon.
SESSIONS
TECHNICAL

Driver/Vehicle Interface, Information and Assistance Systems: Driver Assistance & Information

Self-configuration and Self-healing in AUTOSAR
Wolfgang Trumler, University of Augsburg

Improvement of Corner Side Impact Crash Compatibility by Energy-Absorbing Bumper End Treatments
Charles Y. Warner, Collision Safety Engineering LC

Blind Source Separation on Complicated Vibration Signal of Power Distribute Box According to Higher-Order Cumulant Method
Shunming Li, Nanjing University of Aeronautics

Design Concept and Solution to Heads Up Display
R. Muruganandam, Visteon India, Ltd.

Kaveh Nezamirad, Swinburne Univ. of Tech.

Issues in the Implementation of Millimeter Wave Short Range Radar on CMOS
E. Skafidis, Univ. of Melbourne

A Study on the Possibility of Applications of LED Headlamps in Korea
Byung do Kang, Korea Auto Testing & Research Institute

The Study on the Blind Spot Detector System with IR Sensors
Minhyuk Son, Inje Univ.

An Ergonomic Investigation for Control Types and Menu Design Types of In-Vehicle Information System (IVIS)
Sung-Hyun Lim, Hyundai Motor Co.

The Development of Biosensor to Detect Drowsiness and Quantity of Residual Alcohol in the Human Body by Electrodermography
Toshiaki Sakurai, Michiko Sato, Iwaki Meisei Univ.; Yasufumi Sekine, Mobility Institute for Education of Traffic Safety

Consideration on Appropriate Display Area for Head-Up Displays
Kazumoto Morita, Michiaki Sekine, Yuki Tsukada, Takeo Okada, Yoshinori Toyofuku, National Traffic Safety & Enviro Lab.

Classification of Driver Steering Intention Based on Brain-Computer Interface Using Electroencephalogram
Toshihito Ikenishi, Takayoshi Kamada, Masao Nagai, Tokyo Univ. of Agric & Tech.

Effect of Natural Voice Information and Warning: Evaluation in ASV-3 Verification Test and Driving Simulator
Noriyoshi Matsuo, Fuji Heavy Industries, Ltd.; Norimasa Kaneko, Fuji Heavy Industries Ltd.; Shinichi Satomi, Fuji Techno Service Co., Ltd.; Mamaru Sekiguchi, Fuji Heavy Industries Ltd.

An Investigation of Steering-Pull Reduction Method by Using Electric Power Steering System
Masahiro Kubota, Masahiko Yoshizawa, Hiroshi Mouri, Nissan Motor Co., Ltd.

The Research of Intelligent Vehicles Aided Navigation System Based on Machine Vision (Written Only -- No Oral Presentation)
Ying Yang, Northeastern Univ.

Functions and Technology of Digital Tachographs Systems with Contemporary Telematic Systems in Road Transport, on Board Informatics Net and GPS System
Marcin Rychter, Motor Transport Institute

Evaluation of In-vehicle Symbols for an Intersection Collision Avoidance System
John L. Campbell, Battelle Memorial Institute

Driver/Vehicle Interface, Information and Assistance Systems: Noise & Vibration

A Whole Transfer Matrix Method for the Vibration Analysis of Vehicle’s Gear Box
Shan Chai, Shandong Univ. of Technology

Statistical Response Prediction of Vehicle Based on Statistical Energy Analysis
Qingbin Liao, Shunming Li, Nanjing University of Aeronautics

Theoretical and Experimental Analysis of Neutral Gear Rattle in Manual Shift Synchromesh Transmission
Manoz Kumar T M, TVS Motor Co., Ltd.

Experimental and Analytical Investigation of Noise From Hypoid Gears with Low Transmission Error
Alexander Hespe, Univ. of New South Wales

The Coherent Analysis and Improvement of Sound Quality for an Automotive HVAC Using Multiple Dimensional Spectral Analysis
Jae Eung Oh, Sanggii Park, Haejin Lee, Hanyang Univ.; Jungyoun Lee, Kyonggi Univ.

Numerical Study on the Flow Noise Generation in an Automotive Muffler System
Ho Cheol Suh, Sejong Ind., Ltd.

Development Analyzing Noise and Vibration of Manual Transmission for Light Truck
Quang Nguyen, Vehicle Manufacture

The papers listed are under consideration for publication and presentation at the event.
The papers listed are under consideration for publication and presentation at the event.

### SESSIONS

#### TECHNICAL

**Optimal Design Strategy on Balance Shaft**  
ChanJung Kim, Dong-Won Lee, Bong-Hyun Lee, Hyun-Chul Kim, Korea Automotive Technology Institute

**A Prediction Method of Vehicle Vibration caused by the Drive Torque Fluctuation at Takeoff**  
Hiroyuli Kato, Katsuyuki Hibi, Aisin Seiki Co., Ltd.

**Experimental Analysis of the Stick-Slip Noise from the Crankshaft Oil Seal of the Diesel Engine**  
Jouji Kimura, Hideaki Shigyou, Isuzu Motors, Ltd.

**Mode Classification Analysis Using Mutual Relationship between Dynamics of Automobile Whole-Body and Components**  
Takayuki Koizumi, Shin Nakahara, Nobutaka Tsujiuchi, Doshisha Univ.

**A Study on Crankshaft Vibration Characteristics of Automotive High Speed Diesel Engine by FEM Analysis**  
Yasuhiro Honda, Tomaoki Kodama, Katsuhiko Wakabayashi, Toshio Takeuchi, Kokushikan Univ.

**Misfire Detection for Vehicles with Dual Mass Flywheel Based on Reconstructed Engine Torque**  
Andreas Walter, Universitat of Karlsruhe

### Driver/Vehicle Interface, Information and Assistance Systems: Vehicle Security and Occupant Safety

#### Optimal Design on Shape of Side Head-Thorax Airbag**  
Zhixinong Ma, Wuhan Univ.; Xi Chan Zhu, Tongji Univ.

**Instrument Panel Validation - Use of FE Approach for Impact Analysis**  
Rahul Pathare, A. A. Miraje, Sinhgad College of Engineering; Shrikanth Mallikarjun Haragapurkar, Abhay Vijay Mannikar, Shekhar Gopalkrishna Saraf, Automotive Research Association of India; R. Tiwari, International Car Motor, Ltd.

**On-the-spot Investigation of Negotiation Patterns of Passing Cars without Right of Way at a Non-signalized Intersection**  
Hiroaki Kosaka, Takuya Hashikawa, Nobuhisa Higashikaw, Masaru Noda, Hirokazu Nishitani, Nara Institute of Science & Technology; Masaaki Uechi, Kazuya Sasaki, Toyota Higashifuji Technical Center

---

**Poster Sessions**

An occasion with a rewarding purpose: to showcase innovative ideas through the posters you create. Network and discuss your handiwork with attendees in this intimate setting – the focus is on you – so take advantage of the spotlight!

Poster on the following topics will be displayed: Powertrain technology, Driver/Vehicle Interface, Information and Assistance Systems, Vehicle Design and Manufacturing, Transportation Challenges in Emerging Markets, Vehicle Dynamics and Intelligent Control Systems.

Posters under consideration:

- **Investigation of Wet Clutch Break-Away Behaviors**  
  Yuji Fujii, Ford Motor Co.

- **Development of ECU in the Loop for Vehicle Dynamics Control**  
  Boo, Kwangsuck, Inje Univ.

- **Quartz MEMS Gyroscope Technology Enables Life-Saving Electronic Stability Control (ESC)**  
  Appel, Lori, Custom Sensors & Technologies

- **BEI Duncan Electronics Custom Sensors & Technologies Transportation Products Overview**  
  Appel, Lori, Custom Sensors & Technologies

- **Kavlico Custom Sensors & Technologies Tire Pressure Monitoring System (TPMS)**  
  CalinMiclaus, Rob Hunter, Omar Abed, Kavlico Corp.

- **Engineered Sealing and Structural Solutions for the Worldwide Automotive Industry**  
  Kurt M. Lilley, L&L Products Inc.

- **Dynamically Re-configurable Internal Combustion Engine Air Hybrid Vehicle**  
  Walt Froloff, InspirEngine

- **A Study on Parameter Estimation for Integrated Chassis Control**  
  Minhyuk Son, Inje Univ.

- **Development of a Down Scaled Model for Studies of Reynolds Effects in Cooling Airflow**  
  Lasse Christoffersen, Chalmers Univ. of Technology

- **Software Architecture of Embedded Human-Machine Interface in Automotive Market**  
  Jerome Dento

- **Hydrogen Enrichment of Various Fuels through Thermochemical Recuperaion of Combustion Exhaust Gases**  
  Eddie A. Jordan

- **Full Toroidal Traction Drive Technology**  
  Peter M. O’Neill, Torotrak (Development), Ltd.

*Posters will be on free standing mounting surface for display. Authors will be available for discussion at lunch (12:30 - 1:30 p.m.) in the exhibit hall.*
**Powertrain Technology: Alternative Fuel Engines**

Performance and Emission Evaluation in Dual-fuel Diesel Engine Using Bio-fuels for Pilot Injection  
K D H Bob-Manuel, Rivers State Univ of Science and Technology, Nigeria; Roy J. Crookes, Univ. of London

Multi-objective Optimisation of Engine Controlled Combustion Parameters in a Compressed Natural Gas Direct Injection Engine using Coupled Code of Computational Fluid Dynamics and Multi-objective Genetic Algorithm (Written Only -- No Oral Presentation)  
Wendy Hardyono Kurniawan, National Univ. of Malaysia

Mini High Speed HCCI Engine Fueled with Ether: Load Range, Emission Characteristics and Optical Analysis  
Vittorio Manente, Lund Institute of Technology

Testing and Designing of an Arrangement to Gain Stratified Charged Through Port Injection (Written Only -- No Oral Presentation)  
Omid Samimi Abiane, IPCO

Study the Effect of Variable Compression Ratio on Performance of LPG Based Single Cylinder Engine  
Chetankumar Mistry, C K Pithawalla College of Engrg & Tech.

Experiment Study and Numerical Simulation on Coolant-flow For Heavy-duty Vehicle Diesel Engine  
Zhaowen Wang, Ronghua Huang, Xiaobei Cheng, Huazhong Univ.; Jun Qin, Guangxi Yuchai Machinery Co., Ltd.; Xiangjun Zhou, Guang Xi Yuchai Machinery Co., Ltd.

ALL Fuel [Solids, Liquids, Gas, Agro waste, Solids waste etc] Independent of Fuel Characteristics Employing Andy Engine will SAVE 80% FUEL to transport same weight at same speed on same Ruad  
(Written Only -- No Oral Presentation)  
Andy M. Appan, Adroit Engg

HC Reductions From Shifting the No NOx Lean Fuel Limit of Hydrogen Assisted Jet Ignition with EGR  
Elisa Toulson, Univ. of Melbourne

Weight Effect on Emissions and Fuel Consumption from Diesel and Lean-burn Natural Gas Transit Buses  
Nigel N. Clark, West Virginia Univ.

Development of a Turbo-charged Direct Injection E100 Combustion System  
Simon Brewster, Orbital Corp. Ltd.

Experiments in Dual Fuelling a Compression Ignition Engine by Injecting Dimethyl Ether as a Pilot Fuel to Ignite Varying Quantities of Natural Gas  
John F. Olsen, Univ. of New South Wales

Compression Ratio Variations in a Carbureted and PFI Normally Aspirated Small Engine  
William Attard, Univ. of Melbourne

The Combustion and Exhaust Gas Emission Test of a Direct Injection Compression Ignition Engine Using Physic Nut Oil (Jatropha Curcas L. Oil)  
Iman K. Reksowardojo, Bandung Institute of Technology; R. Sopheak, Institute of Technology of Cambodia; T. P. Brodjonegoro, W. Arismundar, Institute Teknologi Bandung; Hideyuki Ogawa, Hokkaido Univ.

Study on Combustion and Emission Characteristics of CNG Fueled RI-Engine  
Yong Dong, Jongsang Park, Jeongkuk Yeom, Jongyul Ha, Sung sik Chung, Dong-a Univ.

Emission Characteristics of GTL in Common Rail Direct Injection Diesel Engine  
Yonggyu Lee, Kyonam Choi, Dong-soo Jeong, Korea Institute of Machinery and Materials; Gunfeel Moon, Korea Univ. of Science and Technology; Byoungjun Kim, Myoungji Univ.

An Experimental Investigation on the Spray Characteristics of DME Blended Biodiesel  
Seung Hwan Bang, Bong Woo Ryu, Chang Sik Lee, Hanyang Univ.

Characteristics of Syngas Combustion Based on Methane for Various Reforming Rates  
S. K. Choi, M. K. Kim, Suk Ho Chung, Seoul National Univ.; M. S. Cha, Y. H. Song, Korea Institute of Machinery and Materials

Experimental Investigation on Flow Rate Performance and LPLi Engine Application of Turbine Pump with Various Composition Ratio of LPG Fuel  
Kangjoo Lee, Seong-Won Choi, Cha-Lee Myung, Simsoo Park, Korea Univ.

The Dual-Fueled Homogeneous Charge Compression Ignition Engine Using Liquefied Petroleum Gas and Di-methyl Ether  
Choongsik Bae, Korea Advanced Inst. of Science & Tech.

Flex-Fuel Vehicle Development to Expedite Alcohols as the Basis of a Viable Negative-CO2 Energy Economy  
James W G Turner, Lotus Engineering, Ltd.

Difference of Spray Mixture Formation between Gas Oil and Ethanol in the Constant Volume Electrical Heating Chamber  
Hironori Saitoh, Kouji Uchida, Sojo University

Development of Engine for Flex Fuel Vehicle  
Susumu Nakajima, Ryooi Saiki, Yoichi Goryozono, Honda R&D Co., Ltd.

Development of CNG Engine with Variable Valve Timing Electronic Control  
Osamu Watanabe, Susumu Nakajima, Hiroyuki Goto, Honda R&D Co., Ltd.

Expansion of Premixed Compression Ignition Combustion Region by Supercharging Operation and Lower Compression Ratio Piston  
Ryo Kitabatake, Naoki Shimazaki, Terukazu Nishimura, Isuzu Advanced Engineering Center, Ltd.
The papers listed are under consideration for publication and presentation at the event.
The papers listed are under consideration for publication and presentation at the event.
The papers listed are under consideration for publication and presentation at the event.
Investigation of Wet Clutch Break-Away Behaviors  
Yuji Fujii, Ford Motor Co.

Analysis of Mechanical Traction CVTs by Methods  
Used in Dynamics of Constrained Multi-body Systems  
Mart Mägi, Chalmers Univ. of Technology

Optimum Design of Front Cover Taper Angle in Torque  
Converter by Finite Element Method  
Choi Wan, Jae-Hoon Song, Hideaki Kosuge, Jae-Duk Jang, In-Sik Joo, Korea Powertrain Co., Ltd.

Dynamic Analysis of Damper System in Torque  
Converter  
Taejun Park, Euncheol Park, Jaehoon Song, Jaeduk Jang, Insik Joo, Korea Powertrain Co., Ltd.

Determination of Vehicle Clutch Slippage Using GPS  
Technology  
Joyanta Kumar Chakrabarty, Tata Technologies, Ltd.

Vehicle Implementation of A GM RWD Six-Speed  
Integrated-Friction-Launch Automatic Transmission  
Farzad Samie, Chunhao Joseph Lee, Kumaraswamy Hebbale, Chi-Kuan Kao, General Motors Corp.

Low-Cycle Failure Analysis of Automotive Clutch Disk under Unexpected Stopper Pins Vibration  
Heung-Shik Lee, Inha Univ.

Analysis of One-way Clutch Mechanism of Motorized  
Retractors and Evaluation of Motor Driving Scenarios  
JaeSoon Park, Kangwon National Univ.

A Fuzzy Gear Shifting Strategy Based on Fuel Economy (Written Only -- No Oral Presentation)  
Reza Baghaei

A Comprehensive Approach to Design of Embedded  
Real-time Software for Controlling Mechanical Systems  
Johan Eriksson, Lulea Univ. of Technology; Per Lindgren, Lulea University of Technology

Introducing SAE e-Seminars

Convenient and portable, SAE e-Seminars offer a new way to receive the same instruction as live classroom learning without the expense of travel and time away from the workplace. e-Seminars deliver classroom seminar content featuring full-motion video illustrated with synchronized presentation slides.

The seminar content is based on SAE’s classroom seminars and is presented in modular topics, allowing you to progress through the course at your own pace. The program interface offers linear progression through the video, with the flexibility to pause or review specific concepts and to jump to individual slides from the table of contents. Handout materials are included, making each e-Seminar a complete ready-reference package.

e-Seminars offered:

- Diesel Engine Technology
- The Basics of Internal Combustion Engines
- Catalytic Converters: Design and Durability
- A Familiarization of Drivetrain Components
- Fundamentals of Automotive All-Wheel Drive Systems
- Fundamentals of Modern Vehicle Transmissions
- Introduction to Brake Control Systems
- Commercial Vehicle Braking Systems
- Controller Area Network (CAN) for Vehicle Applications

For detailed product descriptions or to order, visit www.sae.org/e-seminars. Quantity discounts for six or more students and Site License options are available - contact SAE Customer Service or email corplearn@sae.org.
The papers listed are under consideration for publication and presentation at the event.
The papers listed are under consideration for publication and presentation at the event.

**SESSIONS TECHNICAL**

**Coupled Numerical Analysis of Fuel Injection System and Combustion in a Diesel Engine**  
Sukyoung Lee, Republic of Korea Naval Academy

**Heat Exchange Efficiency Characteristics of EGR Cooler with Stack-Type or Shell &Tube-Type**  
Sang-Ki Park, Hyung-Man Kim, Kap-Seung Choi, Hak-Min Wang, Inje Univ.

**Performance Characteristics of Motor-driven Cylinder Lubricator with Improved Electronic Control Quill in a Large Two-stroke Diesel Engine**  
Myung-Whan Bae, Hwa Jung, Yeun-hak Jung, In-deok Kim, Chang-ho Kang, Gyeongsang National Univ.

**Theoretical and Experimental Study on Flow Analysis of Exhaust Manifolds for PZEV**  
In Goo Hwang, Cha-Lee Myung, Simsoo Park, Korea Univ.; Chi-Bum In, Gwon koo Yeo, Hyundai Motor Co. & KIA Motors Corp.

**Optimization and Application of Catalytic Reaction Parameters on the Heavy-Duty Diesel Aftertreatment Systems**  
Man Young Kim, Chonbuk National Univ.

**The PM Reduction Performance and Regeneration Characteristics of Catalyzed Metal Foam Filters for a 3L Diesel Passenger Vehicle**  
Gyubaek Cho, Korea Institute of Machinery & Materials

**A Characteristics of Particle Number Distribution for the Urea Solution Injection to Urea SCR System of Commercial Diesel Engine for an Emission Regulation**  
Chun Hwan Lee, Korea Automotive Technology Institute

**Optical In-Cylinder Flame Temperature Measurement on Common Rail Diesel Engine Combustion**  
Deokjin Kim, Korea Automotive Technology Inst.

**Analysis of Transient Thermal and Conversion Characteristics of Dual-Monolith Catalytic Converter with Palladium and Palladium/Rhodium Catalysts**  
Young-Deuk Kim, Hanyang Univ.; Soo-Jin Jeong, Korea Automotive Technology Institute; Woo-Seung Kim, Hanyang Univ.

**Development of CFD-Analysis Technology on Cooling of a Marine Diesel Engine**  
Seong Gyu Heo, Dong-A Univ.

**Comparison of NOx Level and BSFC for HPL EGR and LPL EGR System of Heavy-Duty Diesel Engine**  
Jong Heun Jun, Yonsei Univ.

**Public-private Collaborative Research to Realization of Advanced Road Services**  
Setsuo Hirai, National Institute for Materials Science; Hideto Hatakenaka, Yasuyuki Manabe, National Institute for Land and Infrastructure Management

**Possibilities of NOx Reduction In the Emissions of Compression Ignition Engines Through Ceramic Oxygen Conductors and Thermoelectric Materials**  
Jerzy Merkisz, Poznan Univ. of Technology

**Transportation Challenges in Emerging Markets: Socio-economic Issues**  
Motorcycle Speed Determination Based on Crush Of The Bullet Vehicle In A Motorcycle-Automobile Collision  
Alan B. Moore, HSA Engineering

---

**Your comprehensive and trusted resource for the latest ground vehicle standards.**

**2007 SAE Handbook**

The SAE Handbook is used worldwide for design, procurement and technical guidance. This product gives you access to over 1,600 J-Reports in PDF format and a complete database of over 2,200 current and cancelled documents. Over 160 of these standards are newly issued revised, or reaffirmed.

**Topics include:**

- Brakes
- Bumpers
- Electronics
- Emissions
- Fasteners
- Fuels and lubricants
- Hose and fittings
- Lighting
- Noise and vibration
- Powerplant
- Restraint systems
- Tires
- Transmissions
- Wheels
- And many more!

**$595 list, $450 SAE member**

Visit [www.sae.org/handbook](http://www.sae.org/handbook) for a free demo.

Please note that the J1939 family of standards and J2008 are not included in the 2007 SAE Handbook, but are available individually or as a part of other SAE products.

Online: store.sae.org • E-mail: CustomerService@sae.org • Phone: 1-877-606-7323 (U.S. & Canada) or 1-724-776-4970

The papers listed are under consideration for publication and presentation at the event.
The papers listed are under consideration for publication and presentation at the event.
The Study of Roller Hemming Process via Finite Element Analysis and Experimental Investigations
Dongok Kim, Korea Automotive Technology Institute; Hyungjoon Yoon, Dongwoo Shin, Konyang Univ.; Jinpyung Kim, Korea Automotive Technology Institute; Youngsik Yoon, Konyang Univ.; Yongmin Ryu, Beomsuck Han, Korea Automotive Technology Institute

Fatigue Life Analysis of Automotive V Belt Pulley
Beomkeun Kim, Youngsuk Kim, Inje Univ.; Doo-Man Chun, Sung-Hoon Ahn, Seoul National Univ.

Wear Evaluation of Thermal Sprayed Al-based Metal Matrix Composite Coatings for Automotive Components
Yeong Sun Kim, Kyun Tak Kim, Pukyong National Univ.

Nano Surface Modification of Hub Bearing Race Ways for Increasing the Dynamic Load Rating and Decreasing the Friction Loss
Inho Cho, DesignMecha; S.G. Jin, Iljin Global; Y.S. Pyoun, Sun Moon Univ.; D. H. Jeong, K. B. lee, Korea Automotive Technology Institute; C. S. Kim, DesignMecha

The Effects of Compressive Residual Stress and Roughness on Anti-Abrasion Characteristics in Gas-Carburized SCr420 Gear Steel
Yang-Jin Sim, Hyundai Motor Co.

Development of High-performance PP Masterbatch for Interior Parts
Shinji Kondo, Tsutomu Tanaka, Ryo Ashikawa, Yoshinori Yamamori, Mitsubishi Motors Corp.; Ryuzyo Tomomatsu, Calp Corp.

The Effects of New Shape Support Material for the Lean NOx Trap Catalyst on its Catalytic Characteristics
Seiji Miyoshi, Koichiro Harada, Hideharu Iwakuni, Hiroshi Yamada, Yoshinori Tsushio, Akhide Takami, Mazda Motor Corp.

Investigations on Aluminum Assembly Distortions from Resistance Spot Weld and Self Piercing Riveting
Xinmin Fan, Warwick Manufacturing Group

Prediction of Bearing Capacity of the Soil Using Artificial Neural Networks
Mohamed Ali Emam, Helwan Univ.

Innovative and Cost Effective approaches for Evaluating Material Emissions and the Permeability of Materials Using a Micro-Chamber Thermal Extractor
Peter G. Hughes, Markes International, Ltd.

Latest Developments in Automotive Bulb Shield Design and Manufacture
Zi Qiang Sheng, Michael A. Strazzanti, Isatec Technical Center

Vehicle Design and Manufacturing: Sustainable Development and Recycling

Environmental License in Vehicle Dealers
Luiz Henrique Vilas, UNEC

New CNC-brushing technology for Automotive Parts Remanufacturing
Daniel Landenberger, Bayreuth Univ.

Vehicle Design and Manufacturing: Manufacturing Systems

Integrated Vision Advancements for Day and Night Laser Marking
Faycal Benayad-Cherif, Virtek Vision International Inc.

Quantitatively Augmented QFD -HOQ
Vivek K. Jikar, Univ. of Missouri - Rolla

A DFM Intelligent for Automotive Body Panel Design
Dani Harmanto, Univ. of Derby

Mechanisms and Application of Laser Forming Technology
Hua Ding, Jiangsu Univ.

Prediction of the Engine Piston Pin Boss Hole’s Life Considering the Material Plastics Deformation
Shiying Liu, Fenghua Lin, Shandong Univ. of Technology; Zhiming Wang, Shandong Polytechnic Univ.

Research and Evaluation of the Gasoline Engine Piston Pin Boss Hole’s Durability
Shiying Liu, Fenghua Lin, Shandong Univ. of Technology; Zhiming Wang, Shandong Polytechnic Univ.

Solution of the Failure of the Bearings in a Planetary Gear Train
Yanfang Liu, Xiangyang Xu, Beihang Univ.

Design and Research of Vehicle Circuit Semiconductor Protection System
Haoyi Lu, Haikou Sedan Vehicles Industrial Co., Ltd.

A New Method for Automotive Software Development and Its Application in Diesel ECU
Lining Sun, Chunyang Mu, Harbin Institute of Technology; Yanchun Chen, Jun Li, China FAW Group Corp.

Application of Air Bbearing, Jet to DRIVEN Wheel of Automotive Push Up Speed to 125 % (Written Only -- No Oral Presentation)
Andy M. Appan, Adroit Engg
The Application Research on Laser Welding Cab-Roof of Nonstandard Truck
Yuan Yao, Bo Chen, Pei-he Zheng, Hong-zhi Shi, Hao-chun Yu, Mei Shi, Wei Wei, Ming Cheng, Wei-yan Chao, Bing Ye, Hao Song, Deju Kong, China FAW Group Corp.

The Influence of Joint Geometry and Fit-up Gaps on Hybrid Laser-MIG Welding
Yuan Yao, China FAW Group Corp.; M. Wouters, Lulea Univ. of Technology; J. Powell, Laser Expertise Ltd.; K. Nilsson, A. Kaplan, Lulea Univ. of Technology

The Design and Realization of Virtual Vehicle Experiment System
Junyou Zhang, Shufeng Wang, Shandong Univ. of Technology

Cooling System Design - APC (CRDI Engine) Using Simulation Software
Vinod Mathews, Pune Institute of Engineering & Tech.; Dr. Shyam Ramchandara Kajale, Government College of Engineering Pune; Milankumar Nandgaonkar, Government College of Engineering

Application of CFD Methodology to Air Intake System of CRDI Engine
Shreyas S. Joshi, Pune Institute of Engineering & Tech.; Dr. Shyam Ramchandara Kajale, Government College of Engineering Pune; Milankumar Nandgaonkar, Government College of Engineering

The ICEM Shape Design Software Suite and Its Place in the CATIA V5 PLM Landscape
Mike Check, ICEM Ltd.

Fatigue Life Comparison of Front Axle Beams Manufactured by Two Different Forging Routes
Venkateswaran Perumal, Automotive Mfgs Pvt, Ltd.; Jayant Dattatray Hanidas, Tata Motors, Ltd.

Towards Driveline Optimisation of a Heavy Duty Truck Using Microsoft Excel
Mukul Mitra, Ashok Leyland

Simulation As a Manufacturing Process Planning Tool
Shankar Venkatachalam, Ashok Leyland

Bond Graph Modeling of Hydraulic Damper for Estimating Damping Value
Indra Nurhadi, Institute of Technology Bandung

Manufacturing Effects on the Fatigue Life Assessment by Finite Element Methods
Woojong Kang, Katech Inc.

Residual Stresses and Viscoelastic Deformation of an Injection Molded Automotive Part through 3D Analysis for Application to Changeable Environment
Sungho Kim, Seoul National Univ.

Development of Welding Process for Joining ff Steel to Cast Iron for an Automotive Axle Assembly
Venkateswaran Perumal, Automotive Mfgs Pvt, Ltd.

Virtual Simulation of Engine Test Cell For Capacity And Resource Planning
Shankar Venkatachalam, Ashok Leyland

Emulation As A Tool To Help Save Time & Money During Control Systems Commissioning
Joseph C. Hugan, Robert David Budlong, V-Sim

Analyses of Temperature and Pressure Condition in CI Engine's Exhaust Pipe in Light of Application NOx Sensor to Determine of Catalytic Converter Efficiency
Marcin Rychter, Motor Transport Inst.

A Laboratory Vehicle Mock-up Research Work on Truck Driver's Selected Seat Position and Posture - A Mathematical Model Approach
Kianoush Fatollahzadeh, Scania AB
Vehicle Dynamics and Intelligent Control Systems: Vehicle Ride and Handling
Variable Stiffness Magneto-rheological Stabilizer Bar
Stuart WJ Hamilton, Timken Technology Center

Effect of Weight Number of Object Function on Control Force and Performance of Vehicle Active Suspension
Youqiang Cao, Chongqing Univ.

Analysis of Kinetic Characteristic and Structural Parameter Optimization of Multi-link Suspension
Changgao Xia, Jiangsu University

Dynamic Analysis of Non-linear Suspension Based on Precise Integration Method
Chuanbo Ren, Xiangtao Tian, Shandong Univ. of Technology

Parameters Sensitivity Analysis and Optimization for the Performance of Vehicle Handling
Mai Li, Changfu Zong, Tianjun Zhu, Hongyu Zheng, Chengwei Tian, Jilin Univ.

Simulation and Study of SUV Active Roll Control Based on Fuzzy PID
Tang Xinpeng, Xiaocheng Duan, Huazhong University of Science and Tech.

Robust Controller Design and Analysis for Four-wheel Steering Vehicle
Guo-Dong Yin, Nan Chen, Southeast University

Yaw/Roll Stability Modeling Analyses and Control of Heavy Tractor- SemiTrailer
Tianjun Zhu, Jilin Univ.

Study on Steering Effort Preference of Drivers Basing on Driving Simulator
Changfu Zong, Jilin Univ.

Parameter Influence Analysis on Suspended Vehicle Rollover Model
Jian Pang, Ford Motor Co.

A Control and Analysis of Vehicle Rollover Based on Electronic Stability Control
Youngjoo Cho, Byung Hak Kwak, Mando Corp.

The Roof Loading Effect on Vehicle Dynamic Characteristics
Youngwoo Kim, GM Daewoo Auto & Technology

An Investigation into Unified Chassis Control Strategies for Rollover Mitigation
Kyongsu Yi, Seoul National Univ.

A Study on Optimal Yaw Moment Distribution Control Based on Tire Model
Byung Hak Kwak, Mando Corp.

Dynamic Testing for Accuracy Evaluation of Critical Speed Yaw Formula
Murat Okcuoglu, Friedman Research Corporation

Virtual Development of Optimum Twist Beam Design Configuration and Correlation with Test Results
Balamurugan Janarthanam, Tata Motors, Ltd.

Using Multi-body Simulation to Design Reliable Embedded Software: Evaluation and Discussion of Work Methods
Johan Eriksson, Mikael Nybacka, Tobias Larsson, Per Lindgren, Lulea University of Technology

MATLAB Model Development From Embedded C Programs
Nitin Skandan, Embedded Software

Quantification of the Combined Damping Characteristics of Damper and Top Mount Systems, to Aid the Optimisation of Ride Performance for Road Vehicles
Paul E. Brandon, Kingston University

Vehicle Dynamics and Intelligent Control Systems: Intelligent Safety Systems

Wire the BRAIN: a High-Integrity Low-Cost Triple Modular Redundant Computing Platform for an Integrated X-by-Wire Application on Top of a Braided Ring Network
Brendan Hall, Michael Paulitsch, Honeywell International Inc.

Crashworthiness Optimization of a Light Truck
Xianyue Gang, Shandong Univ. of Technology

Comparative Study on Two Soft-sensing Methods of Measuring Vehicle Side Slip Angle
Fen Lin, Youqun Zhao, Nanjing Univ. of Aeronautics

Study on Drowse Driver Detection System DDDS Design
Zhiqiang Liu, Hong-mao Qin, Yang Wang, Yan-bo Chen, Jiangsu Univ.

Simulate the Injury Severity of the Pedestrian Impacted by Improving Vehicle Front Structure
Weigao Qiao, Xicheng Wang, Wuhan Univ.

An xPC-based Hardware-In-the-Loop Simulator for Vehicle Adaptive Cruise Control Systems
Li-jun Wu, Sheng-bo Li, Jian-qiang Wang, Keqiang Li, Tsinghua Univ.

Application of Fuzzy Neural Networks in the Intelligent Mobile Vehicle's Steering Control
Jianghui Xin, Shunming Li, Nanjing Univ. of Aeronautics

Bumper as the Impact-safety-device for the Car and Pedestrians
Igor Balabin, Moscow State Technical Univ.

Worst Case Scenario Generation and its Application
Daeyei Jung, Dohyun Jung, Korea Automotive Technology Institute; Yousseok Kou, Univ. of Michigan-Ann Arbor; Huei Peng, Univ. of Michigan

Development of Ergonomic Driver Model Considering Human Factors
Ki Han Noh, Katech Inc.
**Vehicle Dynamics and Intelligent Control Systems**

- Design, Tuning and Evaluation of a Full-range Adaptive Cruise Control with Collision Avoidance  
  Kyongsu Yi, Seoul National Univ.

- A Study of Vehicle Safety System -Integration of Chassis Control and Communication  
  Tae-Kyung Moon, Mando Corp.

- QFT (Quantitative Feedback-control Technology) Application to the Hydraulic Driven Road Simulator  
  Young Bae Kim, Chonnam National Univ.

- A Development of Road Safety Information System for Active Accelerator Pedal on Curve  
  Daesik Kim, Hyundai Motor Co.

- Experimental Study on DGPS/RTK Based Path Following System Using Backstepping Control Methodology  
  Dongho Shin, Hyundai Motor Co.

- Development of a MEMS-based Acceleration Sensing Module for Electronic Stability Program  
  Kwangho Yoo, SML Electronics Inc.

- Effects of Structural Weight Increase on Electronic Stability Control Performance  
  Murat Okcuoglu, Automotive Safety Research Inc.

- Battery-Line Communication for X-by-Wire Systems in Automobiles  
  Nao Saito, Setsuo Arita, Daisuke Shimma, Hitachi, Ltd.

- Kinematic Synthesis of a Modified Ackermann Steering Mechanism for Automobiles  
  Neeraj Singh Gautam

- Autonomous Determination of Toe-Adjustment and Tire Pressure Differences in Vehicles with EPAS System  
  Emre Cetin, Ford Otomotiv Sanayi AS

- Highly Integrated Solutions for Tire Pressure Monitoring Systems  
  Mark L. Shaw, Freescale Semiconductor

- Simulation Analysis of Performance of the United Brake System of Bus  
  Ren He, Jiangsu Univ.

- The Co-simulation of Steering and Suspension System with ADAMS&Matlab/Simulink  
  Fei Lai, Chongqing Univ.

- Influence of the Length of Rotary Valve Slots on ECHPS Performance  
  Yahui Liu, BeiHang Univ.; Xuewu Ji, Tsinghua Univ.; Feng Gao, BeiHang Univ.

- The Preview Model of Automobile Traveling Path Based on Driver Heading Angle  
  Zhiqiang Liu, Peng Wang, Guang-juan Wang, Hong-xin Chen, Jiangsu Univ.

- The Preliminary Study of Side Leans Steering the Characteristic to Passenger Vehicle Compliance Suspension  
  Xiangdong Mou, Shandong Univ. of Technology

- The Integrated Control of Steer-by-Wire System and 4WS  
  Chengwei Tian, Changfu Zong, Hongyu Zheng, Tianjun Zhu, Jilin Univ.

- Single Axle Drive Steer System for Car, Bus, Truck and Supporting Third Point by Air Bearing .Log Braking (Written only -- No Oral Presentation)  
  Andy M. Appan, Adroit Engg

- Simulation of Dynamic Characteristics of Hydraulic Power Steering System of Vehicles  
  Ruo-ping Wang, Xin-gang Yang, Jiangsu Univ.

- The Steering Performance Optimum Design of Multi-axle Steering Vehicle  
  Shufeng Wang, Shan Chai, Xianyue Gang, Shandong Univ. of Technology

- Research on Dynamics Performance of Drum Brake  
  Xuan-feng Wang, Ying-chun Liang, Harbin Institute of Technology

- Design of Reactive Torque Estimator in Steer-by-Wire  
  Shengbing Yang, Wuhan Univ. of Technology; Xuewu Ji, Tsinghua Univ.; Chunan Deng, Wuhan Univ. of Technology

- Research on Road Feeling Control Strategy of Steer-by-Wire  
  Shengbing Yang, Wuhan Univ. of Technology; Xuewu Ji, Tsinghua Univ.; Chunan Deng, Wuhan Univ. of Technology

---

**Vehicle Dynamics and Intelligent Control Systems: Tires/Braking Systems/Steering/Suspensions**

- Kinematic Synthesis of a Modified Ackermann Steering Mechanism for Automobiles  
  Neeraj Singh Gautam

- Autonomous Determination of Toe-Adjustment and Tire Pressure Differences in Vehicles with EPAS System  
  Emre Cetin, Ford Otomotiv Sanayi AS

- Highly Integrated Solutions for Tire Pressure Monitoring Systems  
  Mark L. Shaw, Freescale Semiconductor

- Simulation Analysis of Performance of the United Brake System of Bus  
  Ren He, Jiangsu Univ.

- The Co-simulation of Steering and Suspension System with ADAMS&Matlab/Simulink  
  Fei Lai, Chongqing Univ.

- Influence of the Length of Rotary Valve Slots on ECHPS Performance  
  Yahui Liu, BeiHang Univ.; Xuewu Ji, Tsinghua Univ.; Feng Gao, BeiHang Univ.

- The Preview Model of Automobile Traveling Path Based on Driver Heading Angle  
  Zhiqiang Liu, Peng Wang, Guang-juan Wang, Hong-xin Chen, Jiangsu Univ.

- The Preliminary Study of Side Leans Steering the Characteristic to Passenger Vehicle Compliance Suspension  
  Xiangdong Mou, Shandong Univ. of Technology

- The Integrated Control of Steer-by-Wire System and 4WS  
  Chengwei Tian, Changfu Zong, Hongyu Zheng, Tianjun Zhu, Jilin Univ.

- Single Axle Drive Steer System for Car, Bus, Truck and Supporting Third Point by Air Bearing .Log Braking (Written only -- No Oral Presentation)  
  Andy M. Appan, Adroit Engg

- Simulation of Dynamic Characteristics of Hydraulic Power Steering System of Vehicles  
  Ruo-ping Wang, Xin-gang Yang, Jiangsu Univ.

- The Steering Performance Optimum Design of Multi-axle Steering Vehicle  
  Shufeng Wang, Shan Chai, Xianyue Gang, Shandong Univ. of Technology

- Research on Dynamics Performance of Drum Brake  
  Xuan-feng Wang, Ying-chun Liang, Harbin Institute of Technology

- Design of Reactive Torque Estimator in Steer-by-Wire  
  Shengbing Yang, Wuhan Univ. of Technology; Xuewu Ji, Tsinghua Univ.; Chunan Deng, Wuhan Univ. of Technology

- Research on Road Feeling Control Strategy of Steer-by-Wire  
  Shengbing Yang, Wuhan Univ. of Technology; Xuewu Ji, Tsinghua Univ.; Chunan Deng, Wuhan Univ. of Technology
Model Reference Sliding Mode Control of Vehicle Semi-active Suspension System
Jia-ling Yao, Jia-qiang Zheng, Wei-yi Cai, Nanjing University of Aeronautics

Steering Feel Study on the Performance of EPS
Xin Zhang, Beijing Jiaotong University

Research on the Control of ABS and ESP Based on Electro-Hydraulic Brake System
Hongyu Zheng, Jilin Univ.

Research Progress on Turning Mechanism and Turning Performance of Tracked Vehicle
Zhili Zhou, Henan Univ. of Science and Tech.

Analysis of Impact Test of Aluminum Disc Wheels Based on FEM
Maotao Zhu, Jiangsu University

Automated Steering Control for Vehicle Testing
David Mikesell, Ohio State Univ.

Development of Portable Integrated Brake and Throttle Controller for Vehicle Dynamics Testing
David Mikesell, Ohio State Univ.

Accelerated Fatigue Life Test of Domestic Midi Bus’s Front Suspension Springs
Kubilay Yay, Murat Ereke, Istanbul Technical Univ.

Improving Braking Performance by Control of Semi-active Suspension
Tobias Niemz, TU Darmstadt; Hermann Winner, Technische Universität Darmstadt

Pressure Change and Variation of Vibration in an Automotive Disk Brake System Due to Hot Spot
Myoung Gu Kim, Chongdu Cho, Inha Univ.

Preview Suspension Control for a Full Tracked Vehicle
Iljoong Youn, Nur Uddin, Gyeongsang National Univ.; Masayoshi Tomizuka, Univ. of California

The Role of Disk Stiffness Changes in Automotive Disk Brake
Hojoon Cho, Chongdu Cho, Inha Univ.

A Fault Detection Method for Electric Parking Brake (EPB) Systems with Sensorless Estimation Using Current Ripples
Han Byul Chung, Choong Woo Lee, Doo Ho Lee, Young Ok Lee, Chung Choo Chung, Hanyang Univ.; Youngsup Son, Paljoo Yoon, Mando Corp.

A Control Strategy to Compensate the Reaction Torque of Active Front Steering System
Taebong Noh, Jaegoo Kim, Jungrak Choi, Seongjoo Kim, Mando Corp.

An EPS Control Strategy for Kickback Reduction using Electric Power Steering and Combined Chassis Control
Seongjoo Kim, Mando Corp.

A Nonlinear Proportional Controller for Electric Parking Brake (EPB) Systems
Chung Choo Chung, Hanyang Univ.

Solution for Torque Steer Problem of a Front-Wheel Drive Car with High Torque Engine in Vehicle Development Stages
Seung-hoon Woo, Hyundai Motor Co.

Thermal-Structural Coupled Field Analysis of the Circumferential-Pressing Type Automotive Disc Brake
Geun-Jo Han, Dong-A Univ.

Effect of the Right-and-left Torque Vectoring System in Various Types of Drivetrain
Kaoru Sawase, Yuichi Ushiroda, Mitsubishi Motors Corp.; Katsumi Inoue, Tohoku Univ.

A Hypothetical Tyre Size to improve Tyre Flotation on Sandy Soil Using Artificial Neural Networks Technique
Mohamed Ali Emam, Helwan Univ.

Performance Evaluation of Vehicle Active and Slow Active Suspension in Comparison with Optimized Passive Suspension
Mahdi Kashani Azad, Vehicle Dynamics Control

Design and Shape Optimization of Hybrid Micro-Composite E-springs for Vehicle Suspension Systems
(Written Only -- No Oral Presentation)
Sahla A. Elmoselhy, B. S N Azzam, Seyed M. Metwalli, Cairo Univ.; Hasan H. Dadoura, Helwan Univ.

CAN Bus Design of Electric Brake System for Commercial Vehicle
Liang Chu, Texas A & M Univ.

The Effect of Dynamic Parameters of an Electric Steering System on Car Riding (Written Only -- No Oral Presentation)
Saeed Bostan Manesh Moghaddam

A Novel Integrated Vehicle Chassis Controller Coordinating Direct Yaw Moment Control and Active Steering
Daofei Li

Temperature and Coning Analysis of Ventilated Brake Disc in a Axisymmetric Model (Written Only -- No Oral Presentation)
Xuan Wu

Active Steering of a Light Commercial Vehicle
Seref Server Ersolmaz

Transient Active Body Control of a Ford Transit Connect using Semi-active Suspensions
Seref Server Ersolmaz

Evaluation and Experimental Validation of Steering Efforts Considering tire Static Friction Torque and Suspension and Steering Systems Characteristics
Dahee Kim
Tour Overview

<table>
<thead>
<tr>
<th>Monday, August 6</th>
<th>Tuesday, August 7</th>
<th>Wednesday, August 8</th>
<th>Thursday, August 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lights, Camera, Los Angeles! 9:45 a.m. – 3:30 p.m.</td>
<td>City of Roses 11:30 a.m. – 4:30 p.m.</td>
<td>Lifestyles of the Rich and Famous 9:00 a.m. – 11:00 a.m.</td>
<td>NASA Jet Propulsion Laboratory 8:00 a.m. – 12:00 p.m. (Reservations must be received by July 1)</td>
</tr>
<tr>
<td>Treasures by the Sea 12:00 p.m. – 4:30 p.m.</td>
<td>Exploring Santa Monica 11:00 a.m. – 3:30 p.m.</td>
<td>City of Roses 2:00 p.m. – 6:00 p.m.</td>
<td></td>
</tr>
</tbody>
</table>

Cal Tech Seismo Lab 2:00 p.m. – 5:00 p.m.

| Treasures by the Sea 12:00 p.m. – 4:30 p.m. | Exploring Santa Monica 11:00 a.m. – 3:30 p.m. | City of Roses 2:00 p.m. – 6:00 p.m. | |

Warner Bros. Studio 1:30 p.m. – 4:30 p.m. or 2:00 p.m. – 5:00 p.m.

Mount Wilson 7:00 p.m. – 1:00 a.m. (Reservations must be received by August 1)

Important Note: Attendees and Guests may register for any one or more of these tours. All tours are on a first-come, first-served basis, and space is limited so register early!

Guest Tours

**Lights, Camera, Los Angeles!**

Monday August 6, 9:45 a.m. – 3:30 p.m.

$65.00 per ticket

Embark on a comprehensive tour that focuses on this great city and how Angelino’s have shaped it with experienced tour guides. The area around Hollywood and Highland is saturated with the history and nostalgia of Hollywood, so it’s the perfect place to take a walking tour. Our high-tech tour will fit you with a headset that allows you to hear the “miked” guide over the noises of the city. You will relive the past and feel the experiences of the stars as you walk the path of the “Greats in Show Business” in a three block radius of downtown Hollywood. Continue your expedition to Los Angeles’ downtown business district and the birthplace of the city by boarding special chartered transportation.

**Treasures by the Sea**

Monday August 6, 12:00 p.m. – 4:30 p.m.

$45.00 per ticket

The Getty Villa is an educational center and museum. Dedicated to the study of the arts and cultures of ancient Greece, Rome and Etruria, the vast array of antiquities is arranged by themes including Gods and Goddesses, Dionysos and the Theater, and Stories of the Trojan War.
City of Roses
Tuesday August 7, 11:30 a.m. – 4:30 p.m.
or Wednesday August 8, 2:00 p.m. – 6:00 p.m.
$55.00 per ticket

Driving along the streets of Pasadena, you will experience the magnificence of the “pride of California,” enjoying a narrated tour on the shaded streets of what was once an Indian settlement now filled with palatial mansions. Your destination will be the beautiful Huntington Library, Gallery and Gardens. This 207-acre estate was formerly the home of Henry E. Huntington, pioneer railroad tycoon and philanthropist.

Exploring Santa Monica
Tuesday August 7, 11:00 a.m. – 3:30 p.m.
• Pacific Park adventure: $50.00 per ticket
• Biking or Blading: $60.00 per ticket
• Shopping on Third Street Promenade: $35.00 per ticket

Seize the opportunity to explore what makes California exciting! Cruising the coast or pier or relaxing and recreating in the sand and surf is what brings tourists and Angelinos alike to beautiful Santa Monica. Our knowledgeable tour guides will direct you to whatever “tickles your fancy” in this city by the shore.

Lifestyles of the Rich and Famous
Wednesday August 8, 9:00 p.m. – 11:00 a.m.
$85.00 per ticket

You will be treated to a narrated excursion throughout Bel-Air and Beverly Hills that includes one of the mansions Beverly Hills is known for, the Greystone Mansion. The 18-acre gardens around it serve as a beautiful, quiet respite for visitors. Today you will have the opportunity to explore this hilltop location that offers a magnificent panoramic view of the city below. Finish the tour with a stroll around one of Los Angeles’ most popular shopping venues, Rodeo Drive & Two Rodeo, in the heart of the Beverly Hills shopping district.

Warner Bros. Studio Tour
Wednesday August 8, 1:30 p.m. – 4:30 p.m. or 2:00 p.m. – 5:00 p.m.
$80.00 per ticket

Spend the day touring the Warner Bros. Back Lot. You’ll enjoy a personalized, behind-the-scenes look at the workings of one of the world’s most famous movie and television studios. After this tour, you will leave with a better understanding of the film industry.
Tour Overview

Technical Tours

California Institute of Technology Seismology Lab Tour
Wednesday August 8, 2:00 p.m. – 5:00 p.m.
$25.00 per ticket
(Ages 18 and older)

The Seismological Laboratory is the working environment of the people that study earthquakes. The tour will visit the Exhibit Center and the Media Room. You’ll learn how scientists gather information, study earthquakes and use this information to understand the earth.

Viewing through Mount Wilson’s 60-inch Telescope
Wednesday August 8, 7:00 p.m. – 1:00 a.m.
$75.00 per ticket; Maximum 25; Includes dinner; Ages 12 and older
Reservations must be received by August 1

Enjoy a relaxing dinner followed by a visit to Mount Wilson’s Observatory’s 60-inch telescope. Built in 1908 by Observatory founder George Ellery Hale, it was the world's largest operational telescope until Hale went on to complete the 100-inch telescope in 1918. Among the many important discoveries from the 60-inch telescope was Harlow Shapley's revelation in 1918 that, contrary to the then-accepted view, the sun is very far away from the center of our Milky Way Galaxy. The telescope offers an exceptional night-sky viewing experience as the telescope operator will have a list of interesting objects to observe and groups are welcome to bring their own lists.

Mt. Wilson’s elevation is 5,700 feet and temperatures can be considerably lower than in Hollywood. Even in the summer, nighttime temperatures can be as low at 50F/10C (This tour is weather dependent, i.e. cloud cover, high winds, excessive airborne dust)

NASA Jet Propulsion Laboratory Tour
Thursday, August 9, 8:00 a.m. – 12:00 p.m.
$25.00 per ticket; Maximum 40; Ages 18 and older
Reservations must be received by July 1

Enjoy a multi-media presentation on JPL entitled “Spirit of Exploration,” which provides an overview of the Laboratory’s activities and accomplishments. Guests may also visit the von Karman Visitor Center, the Space Flight Operations Facility, and the In-Situ Instruments Laboratory.

Important Notes about NASA Jet Propulsion Laboratory Tour:
JPL requires that all U.S. citizens, 18 years of age or older, present official, government issued photo identification (driver’s license or passport) before being allowed entry. All non-U.S. Citizens 18 years of age or older must present a passport or resident visa (green card) before being allowed entry. Individuals without proper identification will not be admitted to the Laboratory.
Please be advised that tours involve a considerable amount of walking and stair climbing. Wheelchair access can be accommodated with advance notice, however wheelchairs cannot be provided. Don’t forget to dress for the weather as the tour will proceed rain or shine!
Whether used in combination or alone, exhibit, sponsorship, and advertising opportunities ensure optimal exposure to a highly targeted audience of leading representatives and decision-makers in the ground vehicle industry, including engineers, designers, and technical management personnel.

Who should exhibit, sponsor, and advertise:

Exhibit Hours:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday August 5</td>
<td>7:00 p.m. – 9:00 p.m.</td>
<td>Welcome Reception</td>
</tr>
<tr>
<td>Monday August 6</td>
<td>12:00 p.m. – 1:30 p.m.</td>
<td>Lunch in Exhibit Area</td>
</tr>
<tr>
<td></td>
<td>3:00 p.m. – 3:30 p.m.</td>
<td>Break in Exhibit Area</td>
</tr>
<tr>
<td>Tuesday August 7</td>
<td>12:00 p.m. – 1:30 p.m.</td>
<td>Lunch in Exhibit Area</td>
</tr>
<tr>
<td></td>
<td>3:00 p.m. – 3:30 p.m.</td>
<td>Break in Exhibit Area</td>
</tr>
<tr>
<td></td>
<td>5:30 p.m. – 6:30 p.m.</td>
<td>Reception in Exhibit Area</td>
</tr>
</tbody>
</table>

SPONSORSHIP OPPORTUNITIES
All sponsorships include a booth in the APAC Exhibition
- Sponsorships of $5,000 or less, include a 10’ x 10’ booth
- Sponsorship greater than $5,000 include a 10’ x 20’ booth

All sponsorships also include:
- Recognition as a sponsor on the APAC sponsor page, with a hyperlink to your website
- Posting on the APAC exhibitor online directory with hyperlink to your website
- Recognition as a sponsor with product listing in the Event Guide
- Recognition on sponsor appreciation signs at the event

Welcoming Reception
(Opportunity for multiple sponsor)
$5,000 each
This Sunday evening event is the opening networking activity of the Conference and an excellent way to get your company name in front of attendees at the earliest possible time. Appropriate signage and recognition by the Conference Chair is included in the sponsorship.

APAC Pre-Banquet Reception
(Opportunity for multiple sponsors)
$5,000 each
Sponsor this key Tuesday evening networking event and receive recognition by the Conference Chair as well as through appropriate signage. The banquet and its reception are two of the more high-profile events of APAC; being a host of this event will bring valuable exposure.
APAC Banquet and Entertainment
(Opportunity for multiple sponsors)
$5,000 each
Recognition from the podium and signage will identify your company as a host. Entertainment includes a “Dancing Like the Stars” review, and photo ops with the stars. Be one of the hosts of this banquet that attendees will always remember.

Reception/Tour: Peterson Automotive Museum
(Opportunity for multiple sponsors)
$7,500 each
Your sponsorship of this Monday evening, red carpet event includes the guided tour of the Museum plus, hors d’oeuvres, desserts, coffee and cocktails for attendees. Sponsorship also includes the opportunity to welcome guests to the reception and provide a small gift if desired. Appropriate signage will identify you as a host.

Keynote Sessions
(Exclusive Opportunity for all Keynotes)
$5,000
Sponsorship includes introduction of Keynote Speakers and will receive signage recognizing you as the sponsor.

Panel Sessions
(Exclusive Opportunity for all Panels)
$5,000
Sponsorship includes introduction of the Panels and will receive signage recognizing you as the sponsor.

Daily Lunches
(Opportunity for two companies)
$5,000 each or both for $7500
Lunches will be served to all attendees on Monday and Tuesday of the Conference in the exhibit area, and you can serve as the exclusive host of one or both of these lunches. Sponsorship includes a thank you from the Conference Chair at the lunch and signage recognizing you as the host.

Registration Tote Bags
(Exclusive opportunity)
$7,500

Lanyards
(Exclusive opportunity)
$5,000

Week-at-a-Glance Badge Inserts
(Exclusive opportunity)
$2,500

APAC Pens & Notepads
(Exclusive opportunity)
$2,000 each or both for $3,500

EXHIBIT ONLY
$20 per square foot or $2,000 per 10’ x 10’ booth with an addition $250 charge for each exposed corner. Limited exhibit space available.

Custom Sponsorships also available

ADVERTISING OPPORTUNITIES

Event Guide Advertising:
Price includes 4-color charge. All rates gross are gross; 15% standard agency commission applies.

- Back Cover ......................... $3,600
- Inside Front Cover .................. $3,100
- Inside Back Cover ................... $2,800
- Full page ad ......................... $2,500
- Half page ad ....................... $1,750

To exhibit, sponsor, or advertise
SAE Customer Sales and Support
Toll-free: 1-888-875-3976 (U.S. and Canada)
Telephone: 1-724-772-4086
Fax: 1-724-776-3087
Email: CustomerSales@sae.org
Visit: www.sae.org/apac

Outside North America Sales Contact:
Melissa R. Mishler
General Manager, Global Sales
SAE International
Telephone: 1-281-374-7135
Fax: 1-281-251-7101
Email: meliss@sae.org
## Registration and Fees

**Save $100 (USD) Register by July 20!**

---

### Event Contacts:
- **Patti Kreh**
  - APAC Conference Director
  - SAE Automotive Headquarters
  - 755 W. Big Beaver, Suite 1600
  - Troy, MI 48084 USA
  - Telephone: 1-248-273-2474
  - Email: pkreh@sae.org

### General Conference Information
- **Angela Roberts**
  - Conference Service Representative
  - SAE Automotive Headquarters
  - 755 W. Big Beaver, Suite 1600
  - Troy, MI 48084 USA
  - Telephone: 1-248-273-4098
  - Email: angelaroberts@sae.org

### Poster Session
- **John Miller**
  - SAE Automotive Headquarters
  - 755 W. Big Beaver, Suite 1600
  - Troy, MI 48084 USA
  - Telephone: 248-273-2464
  - Email: jrmiller@sae.org

---

### Category (Early Registration Rates apply through July 20)

<table>
<thead>
<tr>
<th>Category</th>
<th>Registration Fee Includes</th>
<th>Extra Charge (TBD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delegate</td>
<td>Opening and Closing Ceremonies, Plenary and Technical Sessions, Exhibition, Proceedings (CD-ROM), Refreshments, Banquet, Receptions</td>
<td>Optional Tour(s) Technical Tour(s)</td>
</tr>
<tr>
<td></td>
<td>$595 OECD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$295 non-OECD</td>
<td></td>
</tr>
<tr>
<td>Participant</td>
<td>Opening and Closing Ceremonies, Plenary and Technical Sessions, Exhibition, Proceedings (CD-ROM), Refreshments, Banquet, Receptions</td>
<td>Optional Tour(s) Technical Tour(s)</td>
</tr>
<tr>
<td></td>
<td>$395 OECD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$195 non-OECD</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>Opening and Closing Ceremonies, Plenary and Technical Sessions, Exhibition, Proceedings (CD-ROM), Refreshments, Receptions</td>
<td>Optional Tour(s) Technical Tour(s)</td>
</tr>
<tr>
<td></td>
<td>$50 OECD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$50 non-OECD</td>
<td></td>
</tr>
<tr>
<td>Exhibitor</td>
<td>Opening &amp; Closing Ceremonies, Plenary and Technical Sessions, Exhibition, Refreshments, Receptions, Proceedings (CD-ROM), Banquet</td>
<td>Additional personnel (above 2 per booth) at participant rate Optional Tour(s) Technical Tour(s)</td>
</tr>
<tr>
<td></td>
<td>2 personnel included in booth package</td>
<td></td>
</tr>
<tr>
<td>Accompanying Person</td>
<td>Opening and Closing Ceremonies, Exhibition, Receptions</td>
<td>Optional Tour(s) Technical Tour(s) Banquet - $75</td>
</tr>
<tr>
<td></td>
<td>$100 (may not include employees of your organization, sponsors or exhibitors)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhibitor</td>
<td>2 personnel included in booth package</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opening &amp; Closing Ceremonies, Plenary and Technical Sessions, Exhibition, Refreshments, Receptions, Proceedings (CD-ROM), Banquet</td>
<td>Additional personnel (above 2 per booth) at participant rate Optional Tour(s) Technical Tour(s)</td>
</tr>
<tr>
<td></td>
<td>$100 (may not include employees of your organization, sponsors or exhibitors)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accompnying Person</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Note: OECD Countries (Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States)

---

## IMPORTANT NOTES:
- Conference attire is business casual/banquet attire is business suits
- Official language of the conference is English
- Registration prices increase after July 20, 2007

### On-site Registration Hours
- **Sunday, Aug. 5**.........: 3:00 p.m. - 6:00 p.m.
- **Monday, Aug. 6** .......: 7:00 a.m. - 5:00 p.m.
- **Tuesday, Aug. 7** ......: 7:00 a.m. - 6:00 p.m.
- **Wednesday, Aug. 8** ...: 7:00 a.m. - 10:00 a.m.

### To Register:
- **SAE Customer Service**
  - **Online:** www.sae.org/apac
  - **Toll-free:** 1-877-606-7323 (U.S. and Canada)
  - **Telephone:** 1-724-772-4970
  - **Fax:** 1-724-776-0790
  - **Email:** CustomerService@sae.org

---

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. Conditions of Sale – All cancellations must be in writing and received by SAE prior to July 20, 2007. 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 July 20, 2007. 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.
Hollywood, California

Hollywood is the home to recording studios, movies, television, theatre and many other forms of entertainment! A district in Los Angeles, California, it is situated west-northwest of Downtown. Many new developments have been completed in the area recently, and several are centered on Hollywood Boulevard itself, in particular, the Hollywood and Highland complex, which is also the site of the Renaissance Hollywood Hotel, where APAC-14 is being held.

California is often called the Golden State because of its bright climate. Skies are sunny 96% of the time, with high temperatures reaching 84F/29C and evening temperatures dipping to just 64F/18C in August.

Local Attractions:
Universal Studios
Disney Studios
Hollywood Walk of Fame
Grauman’s Chinese Theatre
Hollywood Entertainment Museum
Hollywood Bowl
Farmers Market
Griffith Observatory
Hollywood Wax Museum
La Brea Tar Pits
Santa Monica Beach and Pier
Sunset Strip
Rodeo Drive
Fisherman’s Village

Hotel Information:
This year’s Conference will be held at the Renaissance Hollywood Hotel in Los Angeles, California, situated at Hollywood and Highland, an entertainment/retail destination. The hotel captures the legendary glamour of Hollywood’s illustrious past and is located among many trendy shops, world-class restaurants, and famous Hollywood landmarks. A beautiful pool terrace adorns 640 elegant rooms including 33 suites, with breathtaking views of Los Angeles and the Hollywood Hills.

Easy Access to:
• The Los Angeles Airport (only 13 miles from the hotel)
• A Metrorail subway station connecting Hollywood to downtown L.A.

Note:
All attendees are responsible for their own lodging and travel arrangements.
• A block of sleeping rooms has been reserved at the Renaissance Hollywood Hotel.
• SAE’s group rate is $189 single/double occupancy, plus applicable taxes.
• Complete the Hotel Reservation Form at http://www.sae.org/events/apac/hotel.htm or contact The Housing Connection at 1-888-221-9425 or 801-534-9025.
• Reservations must be made directly with The Housing Connection by Sunday, July 22, 2007.

Rates:
$189/night - Regular
$174/night – Government (limited availability)
$139/night - Non-OECD (limited availability)

For more information visit: www.renaissancehollywood.com

Renaissance Hollywood Hotel
1755 North Highland Avenue
Hollywood, CA 90028
Telephone: 1-323-856-1200
Fax: 1-323-856-1205
Toll Free: 1-800-769-4774
Hotel Reservation Deadline: July 22, 2007
Related Resources from SAE International

**Technologies for Near-Zero-Emission Gasoline-Powered Vehicles**
*By Fuquan Zhao*
Dr. Fuquan (Frank) Zhao and experts in the field address a broad spectrum of key research and development issues in the rapidly progressing area of near-zero-emission gasoline-powered vehicles. Written in response to the increasingly stringent emissions legislation, this book provides the reader with a concise introduction to state-of-the-art technology developments in near-zero-emission gasoline-powered vehicles. The material reflects the latest global technical initiatives that are being incorporated or investigated within the automotive and research communities.

**SAE Member Price: $95.96**
**Product Code: R-359**

**Diesel Emissions and Their Control**
*By Magdi K. Khair and W. Addy Majewski*
This book will assist readers in meeting today’s tough challenges of improving diesel engine emissions, diesel efficiency, and public perception of the diesel engine. It can be used as an introductory text, while at the same time providing practical information that will be useful for experienced readers.

This comprehensive book contains more than 600 pages and is well illustrated with more than 560 figures and 80 tables. The 23 chapters are separated into the following main sections:
- Diesel Engine Basics
- Diesel Emissions
- Diesel Fuels
- Emission Control through Engine Design
- Exhaust Gas Aftertreatment

Each main section is broken down into chapters that offer more specific and extensive information on current issues, as well as answers to technical questions.

**SAE Member Price: $119.96**
**Product Code: R-303**

**Vehicular Engine Design**
*By Kevin L Hoag*
This book provides an introduction to the design and mechanical development of reciprocating piston engines for vehicular applications. Beginning from the determination of required displacement, coverage moves into engine configuration and architecture. Critical layout dimensions and design trade-offs are then presented. Coverage continues with material and casting processes selection for the cylinder blocks and heads. Each major engine component and subsystem is then taken up in turn.

**SAE Member Price: $103.96**
**Product Code: R-369**

**Internal Combustion Engine Handbook Basics, Components, Systems, and Perspectives**
*By Richard Van Basshuysen and Fred Schaefer*
Thorough in its presentation, this essential resource illustrates the latest level of knowledge in engine development, paying particular attention to the presentation of theory and practice in a balanced ratio. Almost 950 pages in length - with 1,250 illustrations and nearly 700 bibliographical references - the Internal Combustion Engine Handbook covers all of this component’s complexities, including an insightful look into the internal combustion engine’s future viability.

An ideal publication for specialists in the automotive, engine, mineral oil, and accessories industries, this book will also prove to be useful for students, patent lawyers, the motor vehicle trade, government offices, journalists, and interested members of the public.

Chapter topics include:
- a historical review
- thermodynamic fundamentals
- engine components
- lubrication
- friction
- supercharging of internal combustion engines
- combustion and combustion systems
- the powertrain
- sensors

**SAE Member Price: $119.96**
**Product Code: R-345**
Modern Engine Technology from A-Z
By Richard Van Basshuysen and Fred Schaefer
Part dictionary, part encyclopedia, Modern Engine Technology from A-Z will serve as your comprehensive reference guide for many years to come. Keywords throughout the text are in alphabetical order and highlighted in blue to make them easier to find, followed, where relevant, by subentries extending to as many as four sublevels. Full-color illustrations provide additional visual explanation to the reader.

SAE Member Price: $103.96
Product Code: R-373

Tire and Vehicle Dynamics 2nd Edition
By Hans B Pacejka
Tire and Vehicle Dynamics provides a complete reference on the mechanical behavior of pneumatic tires and their impact on vehicle performance. The comprehensive scope of the book includes developing an understanding of mathematical models of tire behavior, the incorporation of these models into vehicle models, and presenting an applied understanding of how the tire influences vehicle behavior.

Chapters Include:
• Tyre characteristics and vehicle handling and stability
• Basic tyre modelling considerations
• Semi-empirical steady-state tyre models
• Theory of the wheel-shimmy phenomenon
• Single contact point transient tyre models
• Applications of transient tyre models
• And more

SAE Member Price $63.96
Product Code: R-372

Automotive Engineering Fundamentals
By Richard Stone and Jeffrey K. Ball
In the introduction of Automotive Engineering Fundamentals, Richard Stone and Jeffrey K. Ball provide a fascinating and often amusing history of the passenger vehicle, showcasing the various highs and lows of this now-indispensable component of civilized societies. The authors then provide an overview of the publication, which is designed to give the student of automotive engineering a basic understanding of the principles involved with designing a vehicle.

SAE Member Price: $79.96
Product Code: R-199

SAE Vehicle Aerodynamics Packet - 2006 Edition
Containing six full text SAE Standards and five SAE Special Reports this unique product offers in depth findings compiled by the experts who served on SAE Technical Committees relating to Vehicle Aerodynamics dating from 1978 through 1999.

SAE Member Price $239.00
Product Code: VAP-2006

Visit store.sae.org for complete schedules, product information, pricing, and shipping charges for these related resources.
The Shock Absorber Handbook
By John C. Dixon
This book provides comprehensive coverage of the design, installation, and use of the shock absorber.
SAE Member Price $55.96
Product Code: R-176

Automotive Safety Handbook
Second Edition
Ulrich Seiffert and Lothar Wech
The first and only book with extensive coverage of both active and passive safety systems, this second edition of the Automotive Safety Handbook describes basic relationships and new developments related to accident avoidance (including the man/machine interface) and mitigation of injuries.

Examining the state-of-the-art in passenger car vehicle safety, the book features thorough discussion of the interrelationships among the occupant, the vehicle, and the restraint system (in frontal, lateral, and rear impacts and rollover).

Reflecting the latest changes in technology and legislation, the second edition provides updated information on many topics, including:
- Accident avoidance
- Pedestrian protection
- Compatibility

SAE Member Price $79.96
Product Code: R-377

ONLINE PAPERS

Get immediate access to the technical papers you need at store.sae.org. Now you can download most individual papers for $14 each.

Do you order papers frequently? Consider TechSelect a cost-effective, customized, and convenient way in which to purchase SAE technical papers. This yearly subscription plan offers you significant savings over buying papers individually – and the more you buy the more you save!

Members receive an additional discount.

For more information contact SAE at:
1-888-875-3976 (Toll-free, U.S. and Canada)
1-724-772-4086 (Telephone)
1-724-776-3087 (Fax)
CustomerService@sae.org
store.sae.org
The 14th Asia Pacific Automotive Engineering Conference
“Impacts & Opportunities for the Global Automotive Industry”

August 5-8, 2007
Renaissance Hollywood Hotel
Hollywood, California USA

SAVE $100 (USD)
register by July 20!

www.sae.org/apac