Leadership Award
GM's Lutz to receive SAE Foundation's 2006 Manufacturing Leadership Award

Robert A. Lutz, Vice Chairman, Global Product Development, General Motors, is the recipient of the 2006 Manufacturing Leadership Award issued by the SAE Foundation. Lutz will receive the award at the Annual SAE Foundation Banquet on May 24 at the Detroit Marriott in the GM Renaissance Center.

The Manufacturing Leadership Award recognizes individuals who have made meaningful contributions to the development of the automobile or truck industries. Nominees must have achieved a significant level of success in their manufacturing careers, demonstrated innovation and risk taking, and established a new direction or developed a position that challenged their industry. Applicants must also have made contributions outside the automobile industry exemplified through community education, philanthropic, or government activities.

The banquet benefits educational programs for students in elementary, middle, and high school as well as college and university students—in the areas of regulation, safety, research, and high school as well as college and university programs for students in elementary, middle, and high school as well as college and university students—in the areas of regulation, safety, research, and education.

SAE International’s first industry sector Vice President wins Medal of Honor

Robert E. Spitzer, retired Vice President of Technical Relations at Boeing, has received the SAE International Medal of Honor. He was presented the award during the SAE 2006 World Congress, April 3-6 in Detroit.

Established in 1986, the Medal of Honor recognizes a member’s unique and significant contributions to the society. Unlike other SAE awards that honor technical achievements or outstanding accomplishments in the various fields of mobility, this award recognizes an individual’s contributions to SAE overall.

Spitzer is being honored with this award in recognition of his service as SAE’s first industry sector Vice President and the outstanding leadership he demonstrated in this role, both as a leader within the society and as an external advocate to the mobility community. He has been an SAE International member since 1995, and his contributions to the society are numerous. Spitzer’s involvement includes serving on the Board of Directors, Fellows Committee, Aerospace Program Office, Strategic Planning Committee, Annual Nominating Committee, Aerospace Council of the Technical Standards Board, AeroTech Executive Committee, Aerospace Congress & Exhibition General Committee, and Whitlock Board of Award. He is also involved with the Chicago and Northwest SAE sections.

Most recently, Spitzer served as SAE Vice President–Aerospace from 2002-2005. As the first industry sector Vice President, he set a high standard for demonstrating how industry Vice Presidents can benefit the society through greater focus on the sectors. His role was to serve the needs of a diverse group of organizations and individuals—commercial and military aircraft manufacturers, suppliers, government agencies, engineers, business leaders, and students—in the areas of regulation, safety, education, philanthropic, or government activities.

Vehicle Dynamics Conference shows future of automotive safety

Accelerating the rate of progress in vehicle safety was the focus of SAE’s 2006 Automotive Dynamics, Stability, and Controls Conference and Exposition, held February 14-16 in Novi, MI.

The conference presented valuable insight into next-generation safety system technologies and their implications for both the vehicle occupant and for automakers and suppliers. Panel discussions on collaborative R&D and advanced systems integration highlighted the importance of human-factor data in product development in this critical area of automotive engineering.

“The event was timely, meaningful, and included the most knowledgeable speakers on the subject,” observed Walt Frankie-wicz, Vice President of Special Projects at ArvinMeritor, who was one of the ranking executives in attendance.

Presentations from top safety engineers at General Motors, BMW, Honda R&D, Ford, DaimlerChrysler, and Nissan R&D, plus suppliers Bosch, Continental Teves, TRW, and Delphi, confirmed the increasing power of electronic controls and greater capability of sensors are moving automotive safety beyond passive systems and a focus on crash-worthiness.

Crash avoidance is the next paradigm, based on new technologies being developed with a growing understanding of driver-perception and behavior data.

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Continental Teves Vice President Joe Gaus delivered one of the three keynote speeches at the conference. (Image courtesy of Bob Kuzawinski.)

Presenters and panelists, included safety-research experts from the University of Michigan, Virginia Tech, National Highway Traffic Safety Administration, the U.S. Department of Transportation, and the Insurance Institute of Highway Safety, noted that huge strides have been made in making vehicles and driving safer worldwide—but the opportunities for improvement are equally large.

See MEDAL OF HONOR, p. 4

See VEHICLE DYNAMICS, p. 10
CDS in full swing this spring

As this issue prepares to go to print, student teams all across the world are making final changes to their entries for the 2006 Collegiate Design Series (CDS). Each year from March through June, engineering students set out to compete in challenges that take concepts learned in the classroom and apply them in a real-world setting.

What promises to be an exciting 2006 season officially began in March with the Clean Snowmobile Challenge (CSC), hosted by Michigan Technological University in Houghton, MI. In the CSC, students are tasked to cost-effectively re-engineer an existing snowmobile to meet 2012 standards for exhaust emissions and noise output.

In the seventh edition of the event, the University of Wisconsin–Madison effectively defended its title by claiming first place overall in the regular class. The school also captured Best Emissions honors with a score of 300. The University of Minnesota–Duluth and Kettering University shared second place overall honors.

Thorndike, and University of Wollongong. Surely not to be overlooked are the aerospace events, Aero Design East (April 21-23 in Marietta, GA) and Aero Design West (June 1-3 in Encino, CA), where radio-controlled aircraft will take over the skies.

To date, more than 25,000 engineering students have graduated with SAE Collegiate Design experience. As this year’s participants prepare to see the results of months of work, there is no doubt that no matter where they place in the final standings, the experience will be considered rewarding and pay dividends for years to come.

This year, the 140-plus teams registered for the Mini Baja events are looking to knock off Montréal’s École de Technologie Supérieure, which swept all three events last year. That was the first time a team achieved that feat since the competition began in 1976. Aside from Mini Baja East, teams will get their chances at Mini Baja West, May 11-13 in Portland, OR, and Mini Baja Midwest, May 24-27 in Milwaukee, WI.

At the Formula SAE competition, May 17-21 at the Ford proving grounds in Romeo, MI, 139 teams are trying to oust another repeat winner. Cornell University, which has won three of the last four years, is looking to capture a record 11th title. This will be the 20th year the team has entered the competition.

This year will also mark the first running of Formula SAE West, June 14-17 at California Speedway in Fontana, CA. Despite being in its infancy, the event is expected to be hotly contested, with more than 70 teams registered at press time including four past winners of the Formula SAE competition—Texas A&M, University of Akron, University of Texas–Austin, and University of Wollongong.

As this issue prepares to go to print, Auburn University was host to the Mini Baja East, for the second year in a row, as it prepared to host the Mini Baja East, May 21-23 in Marietta, GA and Aero Design West (June 1-3 in Encino, CA), where radio-controlled aircraft will take over the skies.

To date, more than 25,000 engineering students have graduated with SAE Collegiate Design experience. As this year’s participants prepare to see the results of months of work, there is no doubt that no matter where they place in the final standings, the experience will be considered rewarding and pay dividends for years to come.

Key ingredient for a successful SAE event—People

As you read this column the 2006 SAE World Congress will have taken place and SAE’s full complement of spring conferences and Collegiate Design Series competitions will be under way.

Reflecting on the World Congress has caused me to contemplate all of SAE’s events and conferences—throughout the aerospace, automotive, and commercial vehicle industries—and the value that they provide to mobility professionals like you and me.

As mentioned in March’s column, I have been active in SAE since my collegiate days. The reason was simple—there was always a return on investment for me as an engineer. Attending SAE events has always meant seeing and hearing the latest news and technology. In addition, the networking opportunities have been outstanding. That is more true today than ever.

As we all know, advances in mobility technology are highly pervasive and race at breakneck speed. Whether it is hybrid technology in automobiles, lightweight composite materials in aircraft, or emissions reductions in commercial and off-highway vehicles, knowing what the next few years will bring is crucial to success.

That type of knowledge is the template for creating an SAE event—whether it is a technical conference with an exhibition, a symposium focused on one specific technology, or an executive briefing. Technology is the driver; and that is reflected in the make-up of each event.

However, what drives the technology is even more important—and that is people; people like you. SAE’s members have always been some of the most innovative and dynamic thinkers in the mobility industry, ever since its beginning in 1905. SAE’s events work well because of the knowledge and support that you provide.

Technical papers presented at SAE events are written by the men and women who actually developed the technology. Panel discussions include the top leaders in the mobility industry because SAE committee members work hard to get them involved. Those industry leaders know that they will be speaking at a venue that is highly respected in the aerospace, automotive, and commercial vehicle industries.

I have had the distinct pleasure of attending SAE events as a professional member, as a member of the Board of Directors, and now as President of this great organization. Over and over, I am struck by the level of commitment of SAE members. These are busy professionals who take it upon themselves to ensure that an event is as successful as possible. Achieving success takes many long hours and hard work, and I would like to thank them for their efforts. I would also like to thank the employees of SAE for their efforts and hard work in the development and facilitation of the more than 30 conferences and symposia held annually throughout the United States and around the world.

SAE’s membership is a diverse mix of engineering talent from all across the globe. I believe that our meetings and events reflect that mix; and I urge all of you to attend those events that are relevant to your industry!
FROM THE PAMA PRESIDENT

Our aging fleet…and workforce gaining scrutiny

The Federal Aviation Administration (FAA) kicked off an effort in February to bring industry, schools, and government together on ensuring the proper growth of our aviation maintenance workforce. To meet the demands of ever more complex aircraft and the looming shortage of maintenance technicians before and we look a little like the boy who cried wolf. Given that, there is concern that the industry may not make the necessary investment in its technical brain trust until it is too late.

Now, the FAA has also called several aging aircraft conferences because so many of today’s aircraft are as old (or older) as the infrastructure we are repairing unessential systems with so many of our future retirees being the very people that know so much about these aircraft, our maintenance workforce challenges are further compounded.

We not only need energetic and bright young people with the education and skill to work on highly sophisticated modern aircraft, but to service by Thunderbird. Suspect parts should be inspected for conformity to type design. The future of radionavigation

Mechanics who work extensively with avionics will want to read the 2005 Federal Radionavigation Plan. This document lays out the government’s strategic plan for the future of radionavigation in the United States. It should come as no surprise that there is a heavy emphasis on GPS technologies.

The government plans to enhance GPS signals over the next 15 years. The government has began the process of establishing a second civil GPS signal (known as L2C) and hopes to have a full complement of 24 satellites orbiting by 2013, a third civil GPS signal (known as L5) is slated to be completed by 2015. The plan recognizes the need to maintain backup navigation aids and provide redundant radionavigation service where required, but it also lays out an intent to phase out unnecessary systems. The plan decrees that the LORAN system is not necessary. A final decision whether to discontinue it is expected to be made later in 2006. Phase-down of VHF Omnis-directional Range (VOR) transmitter equipment is scheduled to begin in 2010, and phase-down of Category I Instrument Landing Systems is scheduled to begin 2015.

Many are quick to point to poor wages as the root of our difficulty in attracting young people to our industry, but it is not that simple. Clearly, our industry must compete with other industries in the global marketplace for highly skilled professionals; accordingly, supply and demand has always driven wages and when demand outstrips supply, wages will increase.

In truth, however, very few industries offer the earning potential that aviation maintenance does—and that message is not getting out to young people considering lucrative technical career paths. Aviation maintenance and the ability to guarantee airworthiness with confidence, within budget, and on a rigorous time schedule is a valuable skill, and those that master it are quite valuable, and quite well compensated.

As an industry, we must make this case to talented young people evaluating their career options. The talent to succeed will be richly rewarded in aviation maintenance—and that is our ace in the hole, as well as our challenge.

By encouraging continuous education and professional development, and then smartly and consistently marketing our profession, we will make the case for a diverse and fulfilling career. Only then will we have the many people with the critical skills we need to address both the growing aging aircraft and looming aging technician issues we face.

Brian F. Finnegan, President, Professional Aviation Maintenance Association

PAMA DIRECT

National Maintenance Technician Day becomes House Resolution

The efforts in support of PAMA’s initiative to create National Aviation Maintenance Technician Day are paying off. The resolution was introduced to the U.S. House of Representatives by Congressmen Dan Lungren (R-CA) and James Oberstar (D-MN), along with 20 co-sponsors, on March 14. Designated House Resolution (H. Res.) 726, the bill was referred to the Transportation and Infrastructure subcommittee and the Armed Services sub-committee for review and recommendation.

Members are still being asked to grow support within the rest of Congress in an effort to get the endorsement of a presidential signature on this resolution in this congressional session. To identify local members of the Senate and U.S. House of Representatives, including address, phone, fax and e-mail information, supporters can go to www.house.gov and www.senate.gov and insert their ZIP code or click in the “Find Your Representative” or “Find you Senator” box at the top of the page.

When contacting representatives, supporters are asked to, of course, speak from their heart, but as a starting point, they can consider modifying and inserting the following comment in their e-mail:

“America’s enviable aviation safety record was created by the technical excellence and personal pride of the women and men who make their careers as aviation maintenance professionals. Please co-sponsor H. Res. 726 declaring May 24 National Aviation Maintenance Technician Day. Please contact Congressmen Dan Lungren or James Oberstar to pledge your support.”

Unapproved parts notice

Mechanics working with Thompson fuel pumps, part No. TF-1900, should be careful of those that have been maintained by Thunderbird Aircraft Parts of Bethany, OK. The Federal Aviation Administration (FAA) has accused Thunderbird of improperly maintaining and approving for return to service Thompson fuel pumps applicable to various types of aircraft. Thunderbird holds Air Agency Certificate No. IC82893K, with limited accessory ratings. The FAA accuses Thunderbird of a variety of discrepancies, including:

• Approving for return to service fuel pumps that were not properly tested using methods, techniques, and practices acceptable to the FAA
• Approving for return to service fuel pumps that were not maintained in accordance with the current manufacturer’s maintenance manual or methods otherwise acceptable to the FAA
• Approving for return to service fuel pumps that were not properly tested using methods, techniques, and practices acceptable to the FAA
• Approving return to service fuel pumps that were not properly tested using methods, techniques, and practices acceptable to the FAA

The FAA has recommended that mechanics inspect their Thompson fuel pumps to see if they were approved for return to service by Thunderbird. Suspect parts should be inspected for conformity to type design.

The minimum civil penalty has reverted to $255 to $259; however, a minimum civil penalty of $450 applies to a violation related to training. Criminal penalties now apply to both reckless and willful violations (as well as to a knowing violation of the prohibition in 49 U.S.C. 5104(b) against tampering with a marking, label, placard, or description on a hazardous material transportation law or the regulations, orders, special permits, and approvals issued thereunder. The maximum normal criminal penalty (per criminal violation) is five years’ imprisonment and a fine of $250,000 for an individual, $500,000 for a corporation. The prison time can be doubled to up to 10 years in any case in which the violation involves the release of a hazardous material which results in death or bodily injury to a person.

Stiffer rules for hexavalent chromium OSHA is establishing new permissible exposure levels (PELs) for hexavalent chromium, Cr(VI). Mechanics may come into contact with this, and breathe it in, in a number of circumstances, such as:

• chrome-containing paints and coatings
• chrome plating baths
• chromium-containing metals such as stainless steel (e.g., when welding or cutting).

When examining the new rules, pay careful attention to the special exceptions for aerospace industry. They permit the use of respirators in lieu of certain other controls, but do not replace the new limitations.

Based upon the best evidence currently available, OSHA determined that at the current PEL for Cr(VI), workers face a significant health risk, particularly for lung cancer, asthma, and damage to the nasal passages and skin.

The new rule, which is effective May 30, 2006, establishes an eight-hour time-weighted average exposure limit, and the PEL has been reduced by a factor of 10. This means that previously compliant workplaces using Cr(VI) will have to carefully assess their exposure levels to be sure to maintain compliance—it also means that work involving Cr(VI) should be a lot safer.

Treaty implementation

Mechanics who are in the practice of obtaining security interests against aircraft or other assets should be aware of some new standards that apply to the filing of security interests against aircraft.
Students from elementary through high school often wonder what is the purpose of learning math and science. Many just do not understand the practical application of these subjects, and constantly question when they will use them in the “real world.” But students from a middle school in Gainesville, FL, experienced firsthand the answer to that question during a field trip to the University of Florida (UF).

Nine students from Westwood Middle School were introduced to engineering through the university’s SAE chapter, called Gator Motorsports. Team members guided students through a tour of a research facility lab and showed them the Formula SAE and Mini Baja vehicles they have been working on for competition. Team members explained to the students how math and science were used in the construction of these vehicles.

The Gator Motorsports team has been actively looking for opportunities to educate others on the importance of engineering. Team members established a community outreach committee and rewrote the team’s mission statement to ensure that community outreach will continue. Unsure of where to start with its outreach program, the team turned to SAE’s A World In Motion program. Kathleen O’Connor, Manager of K-12 Education Programs at SAE International, provided the team with boxes of materials and instructions to use with the students.

After touring the lab, students were divided into two teams and given a challenge and a set of materials. Each team was instructed to design and build a car that would travel farther than the other team’s car. They had to plan their design based on things like which tube size would be most efficient. In a race of the two designs, Team 2’s car ran off course, leaving Team 1 to claim first place. After the competition, the teams were quizzed to see what they did right or what they should have done differently. Team 2 said it had positioned its tube a little to one side, causing the car to swerve.

After the race, students enjoyed snacks and talked about career aspirations. Each student also received a bag to take home with goodies and information about UF Engineering summer camps.

The Gator Motorsports team is hosting another group of students in April, and is looking into volunteering at local schools that are already involved in A World In Motion.

SAE WORLD CONGRESS

Abstracts being accepted for SAE 2007 World Congress

The SAE World Congress provides a unique opportunity to showcase technical developments to the largest assembled audience of mobility engineers. The numerous activities and committees of the SAE Land & Sea Concepts have begun planning the technical program for the SAE 2007 World Congress, scheduled for April 16-19 at Detroit’s Cobo Center. Abstracts are being invited in the following areas:

• Electronics
• Environment/Emissions
• Materials
• Propulsion
• Safety/Testing

Abstracts should be submitted online at www.sae.org/congress. The deadline for submitting abstracts is June 1, 2006.

Volunteers offer their support to AWIM

The first A World In Motion (AWIM) Master Teacher workshop was recently held at Focus Hope in Detroit for participants nominated by industry volunteers. The Master Teachers will present AWIM workshops throughout southeastern Michigan.

Bosch hosted a volunteer workshop in January at its headquarters in Farmington Hills. Approximately 25 volunteers and 10 teachers were in attendance with the focus on the Challenge 1 JetToy and Skinner.

Also in January, a collaboration between SAE International and General Motors produced three workshops for AWIM volunteers in Warren, Flint, and Pontiac, MI. Approximately 150 industry representatives from the various GM locations participated in the training, which included a hands-on introduction to Challenge 1. Some workshops also included Challenges 2 and 3 curricula.

On February 7, more than 50 additional volunteers from GM, Quantum Signal, and 3M Automotive Innovation Center participated in volunteer training in Warren.

As part of a six-week AWIM project in Clarkston, MI, volunteer engineers from GM have been visiting fourth-grade classrooms at Pine Knob Elementary. Students were separated into teams of three, with each student being made the project, facility, or test engineer, and the GM engineers visited once a week to help oversee the project.

After learning some of the basic ideas of engineering, students were tasked to design a skimmer out of a skimmer hull pattern, paper for the sail, drinking straws, and paper clips. Student teams tested the effect of different sail shapes and surface areas.

Highlights of other AWIM activities around the country include:

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and the environment. His leadership vision and the actions that he initiated have been emulated by subsequent sector Vice Presidents.

The long list of activities that Spitzer undertook as Vice President–Aerospace includes:

• Forming the Aerospace Executive Committee, a broad collection of individuals representing the various sub-segments of the industry
• Meeting with numerous industry executives to promote the value of SAE International
• Encouraging student participation in SAE International
• Speaking at many aerospace conferences, including the World Aviation Congress and Aerospace in the News
• Supporting efforts of groups such as the Aerospace Council and the Air & Space Group by encouraging the development of strategic plans and global activities

Spitzer was also involved in the successful efforts of the Boeing portion of the Challenge 1 JetToys. Two sets of materials were introduced to AWIM through the workshop.

Fourth-grade students at Pine Knob Elementary in Clarkston, MI, were separated into teams of three as part of the AWIM project, with each student being either the project, facility, or test engineer.

South Carolina

SAE provided Challenge 1 JetToy materials to educators who attended a teacher inservice training. Twenty-five fifth-grade teachers were introduced to AWIM in the workshop.

Virginia

In February, SAE presented AWIM to more than 20 pre-service teachers and faculty during the annual NASA Conference. The conference works with underserved populations from across the country. Those attending had the opportunity to enhance their knowledge and skill in teaching mathematics and science using technology at the elementary and middle school levels during a presentation of the JetToy.
CALLS FOR AWARD NOMINATIONS

Bruce R. Aubin Aerospace Customer Support Award for Excellence
Open to: Air transport individuals
Description: This award recognizes an individual in the air-transport industry working for an aerospace supplier (Tier 2 or 3) whose efforts contribute to the excellence of the prime manufacturers and the viability of airline operations. In the assessment of his/her peers, the individual should have contributed to the advancement in safety, reliability, and product worthiness in the air-transport industry through initiative, dedication, and excellence in personal interfaces in working with customers to achieve operational efficiency for customers and users.
Nomination deadline: May 1, 2006
Submission: Visit www.sae.org/news/awards/list/customersupport/

Clarence L. (Kelly) Johnson Aerospace Vehicle Design and Development Award
Open to: Aerospace design & development engineers
Description: This award recognizes an individual or team that has had a distinguished career involving significant contributions in the field of advanced development of aircraft and/or spacecraft. Nominations will be judged primarily for the technical value and originality of the contributions that have expanded the knowledge of aerospace engineering.
Nomination deadline: May 1, 2006
Submission: Visit www.sae.org/news/awards/list/kellyjohnson/

Franklin W. Kolk Air Transportation Progress Award
Open to: Air transportation professionals
Description: This award recognizes an individual or team for unique and outstanding contributions to air transportation and/or contributions to the work of the aerospace technical committees in developing aerospace standards, specifications, technical reports, and data through cooperative research. Selection is based on originality and value of the contribution, the impact and influence on the progress and development of air transportation, and peer recognition.
Nomination deadline: May 1, 2006
Submission: Visit www.sae.org/news/awards/list/kolk/

Marvin Whitlock Award
Open to: Aerospace professionals
Description: This award recognizes an individual or team for significant technical contributions and/or innovation related to the operational availability of aircraft. Operational availability includes areas such as repair, design, testing, maintenance practices, logistics, inspection, modification, and safety.
Nomination deadline: May 1, 2006
Submission: Visit www.sae.org/news/awards/list/whitlock/

SAE Aerospace Engineering Leadership Award
Open to: Corporate-level aerospace leaders
Description: This award honors an individual at the corporate official level for outstanding contributions to the field of aerospace engineering. It recognizes an individual who has applied leadership skills in aerospace engineering to make contributions leading to positive impact on the aerospace community. Recognition may be for a singular accomplishment or lifetime achievement.
Nomination deadline: May 1, 2006
Submission: Visit www.sae.org/news/awards/list/aer_leadership/

Sid Olsen Engineering Manager Award
Open to: Off-highway professionals
Description: This award recognizes an outstanding engineering manager in the off-highway industry who demonstrates capabilities in field-proven products and/or services, successful protégés, development of outstanding teams, unquested integrity, charismatic leadership, and creation of a supportive environment allowing a customer/product focus.
Nomination deadline: May 1, 2006
Submission: Visit www.sae.org/news/awards/list/olsen/

AEM Outstanding Young Engineer Award for the Off-Highway Industry
Open to: Off-highway or powerplant industry engineers
Description: This award recognizes a young engineer who demonstrates outstanding leadership skills, teamwork, integrity, innovation, community involvement, and participation in SAE activities. Candidates should be nominated by their managers or supervisors.
Nomination deadline: May 15, 2006
Submission: Visit www.sae.org/news/awards/list/outstanding/youngoh.htm

Rumbough Outstanding Student Leader Award
Open to: Graduating SAE student members
Description: This award identifies and recognizes an SAE student member who has demonstrated outstanding leadership skills in one or more SAE activities during his/her final year of undergraduate or graduate studies. The purpose of the award is to encourage a vision within the student to become an SAE leader during his/her adult career. Faculty advisors or SAE Section Officers should submit nominations.
Nomination deadline: June 15, 2006
Submission: Visit http://students.sae.org/awdscholar/awards/rumbough/

Gary Dickinson Award for Teaching Excellence
Open to: Middle school teachers using the AWIM program
Description: This award recognizes an outstanding middle school teacher or a team of teachers who have made creative and exemplary use of AWIM to further develop students’ understanding and experience in math, science, and engineering. The AWIM curriculum must have been implemented between September and May of the current academic school year.
Nomination deadline: June 30, 2006
Submission: Visit www.sae.org/news/awards/list/dickinson/

SAE FOUNDATION BANQUET
Wednesday, May 24, 2006
7:30 Dinner • Black Tie
Detroit Marriott at the GM Renaissance Center - Detroit, Michigan

Please join Detroit’s most distinguished leaders in industry as we present the 2006 Manufacturing Leadership Award to Robert A. Lutz, Vice Chairman, Global Product Development, General Motors Corporation.

Since 2001, Lutz has led a renaissance in the development of GM cars and trucks. He’s been the guiding force behind the Pontiac Solstice, HUMMER H3, Buick Lucerne, Chevy HHR, and the Chevy Camaro concept.

He’s held leadership positions at Ford, BMW and the former Chrysler Corporation. Among his many achievements is the development of the Dodge Viper and the Chrysler PT Cruiser.

Proceeds from the event will benefit math and science educational programs supported by the SAE Foundation.

For more information, please contact the SAE foundation at:
Phone: 248-273-2480
Fax: 248-273-2494
email: ginny@sae.org

SAE magazines go digital

As a new benefit, members now have exclusive access to the digital magazines of SAE International.

Beginning with the April 2006 issue of Automotive Engineering International (AEI), members now have the option to access the digital format—the full print edition. Aerospace Engineering will go digital with its May issue, and SAE Off-Highway Engineering will follow in June. Print subscriptions will remain unchanged for members and other subscribers, but the digital edition will be available exclusively to members.

With the digital edition, members can electronically page through an issue or go straight to a favorite department or interesting feature. The “search” feature enables keyword browsing of the entire issue.

The product’s screen resolution and speed are well above the industry benchmark. Readability is further enhanced by zoom, pan, and paging features. Hotlinks are included for all issue advertisers, giving members immediate access to detailed product information.

When an issue is digitally available, members will receive an editorial alert via e-mail from SAE providing a link to the digital magazine.

As at any time, logged-in SAE members may access the digital magazines from the homepages of any SAE magazine or through the membership area of the SAE Web site. Issues will also be archived for members-only access from the same central location where current editions are featured.
Thirty-two mobility professionals have received the prestigious status of Fellow by SAE International. Fellow is the highest grade of membership that SAE can bestow on a member. Fellow grade honorees members who have made a significant impact on mobility technology through research, innovation, and creative leadership.

The 32 members elected this year have made notable achievements and personal contributions in engineering, science or technology, engineering leadership, or engineering education. This class of SAE Fellows received public recognition among its peers in ceremonies at the 2006 SAE World Congress, April 3-6, in Detroit, MI.

Those members named as SAE Fellow for 2005-06 are:

- Hari N. Agrawal, Senior Technical Specialist, Ford, is being honored for supervising the development of several CAE tools and processes that are used to predict fatigue life of automotive sheet metals and discrete joints under complex proving ground loads. Agrawal has received many awards during his career including Ford’s highest technical award, the Henry Ford Technology Award. He has also received SAE’s Henry Ford II Distinguished Award for Excellence in Automotive Engineering twice. He has more than 100 internal and external technical papers and articles to his credit.

- Alex C. Alkidas, Senior Staff Research Engineer, General Motors Research & Development and Planning, is being honored for his sustained contribution to the integration of all of GM Europe powertrain requirements into a cohesive strategy. Alkidas’ department has served the powertrain engineering needs of GM Europe for the last 30 years; for his contributions to the application of many advanced emissions control devices. Alkidas has written many publications on topics related to combustion with emphasis on heat transfer.

- Steven D. Arnold, Director, Innovation and New Concepts, Honeywell Turbochargers Systems, is being recognized for his innovative designs of turbo machinery for internal-combustion engines, intake charge handling and control systems, including variable geometry turbines, electrically assisted turbochargers, and other innovative configurations for compact two-stage compression with wide flow range, exhaust gas recirculation, and mixing. Arnold has authored numerous papers and publications and holds more than 20 patents relating to turbocharger technologies.

- M. K. Gajendra Babu, Professor and Chairman, Centre for Energy Studies, Indian Institute of Technology, Delhi, is being recognized for his contributions in developing unique computer simulation models for combustion and gas exchange processes in both conventional and alternatively fueled gasoline and diesel engines. He is considered a pioneer in India as one of the first designers of the gasoline injection system for SI engines to operate on gasoline and methanol. Babu has authored numerous technical papers and articles, which have been published internationally.

- Don B. Chaffin, Professor, Industrial and Operations Engineering, Biomedical Engineering, Occupational Health, University of Michigan, is recognized as an educator in the field of ergonomics and occupational biomechanics. His research has contributed to improvements in workplace safety, vehicle interior ergonomics, and digital human modeling technology. More than 30 years at the University of Michigan, he has introduced hundreds of students to SAE and the automotive industry. Chaffin has authored more than 25 SAE papers with colleagues and students on computerized human representations.

- Stephen J. Charlton, Executive Director, Heavy Duty Engineering, Cummins, is being recognized for his work in the development of diesel engine emissions control technologies. Specifically, he is being honored for his work in the development of exhaust gas recirculation (EGR) and electronic control technologies for heavy-duty diesel engines to meet 2002 emissions regulations; and for his work in the development of the technical foundation of the world’s first diesel engine to meet U.S. EPA Tier II Bin 5 emissions standards with demonstrated durability and fuel economy improvement. Charlton has co-authored and authored numerous publications and journal articles and holds seven patents relating to EGR technology.

- Subir Chowdhury, Chairman & Co-CEO Co用户体验, is being recognized for his leadership in the automotive quality movement, from QS-9000 to Six Sigma, and his extensive writings on quality-related principles. Additionally, he is being recognized for his commitment and drive to ensure that precision and quality become a way of life in the mobility and manufacturing industries. Chowdhury is author of 12 books on Six Sigma and QS-9000, which have been used by both engineering and business schools, as well as by automotive OEMs and suppliers.

- Galen B. Fisher, Principal Research Scientist, Delphi Research Laboratories, Delphi, is known for his contributions to understanding the surface chemistry of automotive exhaust catalysts by using both surface science and bench reactor studies. Fisher has authored more than 70 publications, presented over 100 external presentations to scientific institutions and societies, is co-editor of a book on catalytic reaction mechanisms, and holds 10 patents. His work is cited in other publications more than 3700 times.

- Harendra S. Gandhi, Manager, Ford Technical Fellow, Ford Scientific Research Laboratories, is being recognized for his sustained contributions to the development of automotive catalysts and catalytic exhaust treatment systems that have served as the foundation of emissions-control technology for the last 30 years; for his contributions to environmental policy initiatives and cleaner air worldwide; for his contributions to the broad technical community in the fields of chemistry, chemical engineering, and catalysis; and for his contributions and leadership to the mobility community. Gandhi has authored more than 70 technical papers and has been awarded more than 40 U.S. patents.

- V. Ganesan, Professor of Mechanical Engineering, Internal Combustion Engines Lab, Indian Institute of Technology-Madras, is being recognized for his contributions to the development of software and hardware that considerably reduces tailpipe emissions from two- and three-wheeled vehicles, the predominant mode of transportation in developing countries. His contribution on the use of hydrogen in internal combustion engines has also been noteworthy. Ganesan has authored four engineering textbooks related to mobility engineering. Additionally, his research findings have been published in more than 250 technical papers.

- Zhiyu Han, Vice President of Product Development, Great Wall Motor Co., is an undisputed technical innovator in the development of physics-based spray and flow models for direct-injection spark-ignited (DISI) gasoline engines. His work has improved the understanding of the mixing processes and the mechanisms for smoke and hydrocarbon emissions in DISI engines. Further, Han developed practical engineering methods that enable combustion system optimization at the pre-prototype stage, making pioneering contributions in the use of advanced modeling techniques for rapid and cost-effective engine design and development. Han has authored more than 150 papers, served as editor of two SAE special publications, and holds six U.S. patents related to DISI.

- Daniel M. Hancock, Vice President, GM Powertrain Engineering Operations, is being honored for his leadership and technical competence as a manager in the development and application of many new and unique automotive technologies. His 37-year career, progressing from Project Engineer to the highest levels of technical and general management, included the early development and implementation of automotive electronics, major strides in engine reliability, and pioneering work in hybrid powertrain systems. Before becoming Vice President of Powertrain Engineering Operations, he showed outstanding leadership in organizing and implementing the integration of all of GM Europe powerplant and powertrain manufacturing and engineering.

- Kozo Ishida, Executive Vice President, Horiba, is recognized as a leader in the development of emissions measurement instrumentation and automation systems for engine R&D. His achievements include development of a vast array of instruments such as high-sensitivity non-dispersive IR gas analyzers widely used by industry to certify vehicles to emissions regulations, laser diagnostics for particulate measurement, spectroscopic multi-component gas analysis, and automated vehicle driving systems. Many of his accomplishments have evolved into standard emissions measurement techniques that are widely used in the automotive industry. Ishida has co-authored and authored numerous publications and holds patents in the U.S., UK, Korea, and Japan related to emissions measurement technology.

- Yung-Li Lee, Senior Technical Specialist, DaimlerChrysler, is being recognized for his organization of numerous technical sessions for SAE and his technical accomplishments in continued on p. 7
continued from p. 6

electronic sensors and systems, including the
Quartz MEMS GyroChip. This chip is used worldwide for automotive electronic
stability control and rollover prevention, air-
craft attitude heading and missile guidance, navigation and control. His scientific
and technical innovations have significantly
enhanced the defense and security of the
United States and its allies, improved the
capabilities and readiness of the U.S. Depart-
ment of Defense, the tri-services, and NASA;
and enhanced the capabilities of many
automotive, commercial, and industrial
organizations.

• Gursaran D. Mathur, Technical
Specialist, Thermal Systems, Calsonic Kansei
North America, Inc., is being recognized for his
pioneering work in the area of two-phase
fluids flow and heat transfer in the design of heat
exchangers for mobile air conditioning (AC) systems. His thorough experimental testing,
including the development of simulation models for R-134a and alternative refrigerants,
has provided detailed insights into the operation of heat exchangers and AC systems. Mathur has published more than 72
technical papers, edited seven technical books, and written more than 150
confidential corporate reports and external technical reports.

• Paul C. Miles, Principal Member of the
Technical Staff, Sandia National Laboratories, is
recognized for his work in the area of fluid dy-
namics and mixing processes inside engine
 cylinders. He has contributed to the under-
standing of scavenging flows in two-stroke engines, residual gas mixing in SI engines,
and spray swirl interaction and turbulence
generation in CI engines. The application of
this understanding has led to improved,
low-emission engine designs. Miles has authored or co-authored over 35 technical
papers, a book chapter, and has been invited
to speak at numerous keynote or invited
lectures.

• Jwo Pan, Professor, Mechani-
cal Engineering, University of Michigan–Ann
Arbor, has made fundamental contributions to
fracture mechanics, fatigue and plasticity theo-
ries of significant importance to automotive
design and manufacturing of sheet stampings, durability prediction, crash simulation, spot-weld fatigue
and separation. He has a history of collaboration
with industry practitioners with the aim of
improving automotive products. Pan has authored or co-authored more than 100
journal papers and has given more than 120
conference presentations.

• Gordon R. Pennock, Associate Professor,
Mechanical Engineering, Purdue University–
West Lafayette, is being recognized for his contribu-
tions in the areas of kinematics and dynamics of
machine design. Additionally, he has developed
curriculum for several courses at the school. Pen-
nock has published more than 100 technical
papers, co-author of a textbook on mecha-
nism and machine theory, and is contributing
author for three other books. Pennock serves as an Associate Editor for the American So-
ic Society of Mechanical Engineer’s publication,
ASME Journal of Mechanical Design.

• Mohan D. Rao, Associate Professor, Me-
chanical Engineering, Michigan Technologi-
ical University, is being recognized for his contribu-
tions in the areas of vibration damping, modeling of elastomers, mounts and shock
absorbers, and development and teaching
of NVH short courses to the automotive
industry. Additionally, he is recognized for
being an outstanding teacher and mentor to
graduate students. Rao has more than 80
technical papers published in various jour-
nals, conference proceedings, and the SAE
Transactions.

• Rodney B. Rask, Combustion
Systems Group Manager, General Motors
Research and Development, is being recog-
nized for his pioneering work in the application of Laser Doppler Anemometry to
flows inside operating engines, thus helping decrease fuel consumption and pollutant
emissions. With his profound understanding of combustion, optical diagnostics, and modeling/
simulation, he provided exceptional team
leadership to develop practical combus-
tion systems for direct-injection engines
incorporating both homogeneous and stratified combustion. Rask has authored or
co-authored 11 papers, and has nine patents
relating to engine combustion.

• Stephen W. Rouhana, Senior
Technical Leader, Safety Research &
Development, Ford, is being recog-
nized for contributions to the field of automo-
tive biomechanics, occupant safety, and occupant protection in the areas of injury mechanics and restraint
systems. He defined the “Abdominal Injury
Criterion,” a form of the Viscous
Criterion, and performed pioneering work
on dummy belt absorbers. Rouhana is also be-
ing recognized for developments in injury
assessment technologies and methods, such
as the Frangible Abdomen for abdominal
injury, the BI-RAC criterion for head injury, and for research on methods to assess the risk
of noise-induced hearing loss from airbags.
Rouhana has authored or co-authored 45
journal and proceedings articles relating to
automotive safety.

• Richard O. Schaum, Ex-
cutive Vice President, Daim-
lerChrysler, is being recog-
nized for playing a key role in the development of Chrysler’s emission
control systems, which met regulatory requirements at benchmark levels of cost
efficiency. As the top Chrysler product de-
development executive, he led seven platform
teams to develop many innovative prod-
ucts and vehicles. While under his leadership, these platform teams achieved double-digit percentage improvements in
cost and quality, five-star crash ratings, and
reductions in time-to-market of more than
one year. Schaum served as the Project Leader
for New Generation of Vehicles and was a
panelist at the National Research Council
Workshop on Fuel Economy.

• Rajendra Singh, Professor,
Mechanical Engineering, The
Center for Automotive
Research, Ohio State Uni-
versity, is being recognized
for excellence in veh-
icle noise and vibration
control research and education. He pioneered new mathematical models of powetrain
and driveline systems and components, while
proposing improved dynamic design proce-
dures. Additionally, he is being recognized
for developing innovative graduate courses in
NVH Singh has published more than 300 papers including 139 journal articles
and holds one patent.

• Robert E. Spitzer, Vice
President, External
Affiliations, Boeing, is being
recognized for his leadership in
advocating technical excel-
lence in aerospace engineering.
He played a pivotal role in
leading the development of innova-
tive engineering solutions for such aircraft
as the 737, YC-14, B-2, UAVs, and 777.
Spitzer’s dedication to engineering and
commitment to technological advancements have earned him international recognition and
helped to make flying more efficient,
safer, and customer friendly. He is actively
involved in various technical societies and
organizations, including SAE and AIAA.

• V. Sumantran, Executive Director, Engi-
neering Research Center and Passenger Car
Business, Tata Motors, is being recognized
for his work in the aerodynamic develop-
ment of high-efficiency Partnership for
New Generation of Vehicles while leading a
General Motors Research team. While at
GM, he also contributed to the next-
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generation math-based vehicle development process, which reduced vehicle development process lead time. As Director of Advanced Engineering at Saab Automobile AB, Sweden, Sumantran helped launch the CM-FIAT Premium Platform, which enabled new technology development with special consideration to the European requirements.

- **James K. Thompson**, Executive Director, Link Engineering, is being honored for his major contributions to automotive noise and vibration control. His Ph.D. dissertation pioneered sound-intensity measurement for engines, and his tire noise work is industry-leading in brake NVH. He has also contributed significantly to ISO and SAE standards committees, which, through his participation and contribution as the technical lead for the U.S. delegation, facilitated the development of the first brake-noise measurement standard. Thompson has authored many publications and recently drafted a book chapter on brake noise dynamometer.

- **Martyn V. Twigg**, Technologist, Director, Johnson Matthey, is a leader in the development of vehicle emissions control systems. He is responsible for major technological improvements that were commercialized and are now in series production, including thermally stable three-way catalysts mounted directly on exhaust manifolds. These catalysts, along with engine control, enabled ultra-low emissions levels to be achieved economically. Twigg’s work has markedly improved the diesel oxidation catalyst technology that is used on most European diesel cars, and he recently pioneered third-generation catalysed diesel particulate filters that have just entered production in Germany.

- **Narayan Yoganandan**, Professor and Chair, Biomedical Engineering, Department of Neurosurgery, Medical College of Wisconsin, is an internationally recognized expert in the field of impact and injury-related biomechanics research, with specific applications to motor vehicle crashworthiness and occupant safety. His adult and pediatric research from head to toe has led to identifications of injury mechanisms and human tolerance, and these data were used in the development and promulgation of Federal Motor Vehicle Safety Standards for frontal impacts. Yoganandan’s research on rear impact-induced trauma led to the understanding of the mechanism of headache and neck pain, and the susceptibility of females to long-term whiplash injury.

- **Frank (Fuquan) Zhao**, Vice President of Product Engineering/General Manager, Research & Development Center, Brilliance Jinbei Automobile, is being recognized for his leadership role in engine development in China and the U.S., and for his work in advanced automotive powerplant research. He has made important contributions to the understanding of combustion and emissions issues in port-fuel-injection spark-ignition (DISI) engines. Zhao has published more than 100 journal and conference papers. He is the lead author of the book “Automotive Gasoline Direct-Injection Engines” and the editor of five other books published by SAE.

To nominate a member for SAE Fellow, review the qualifications and instructions located on the SAE’s Web site www.sae.org/news/awards/list/fellow or contact Janiece Lang, SAE Membership & Sections, at 724-772-7137 or jlang@sae.org. Nominations are due to SAE by July 1, 2006.

**Members on the move**

- **Steven Armstrong** (Aff’05), former Senior Vice President of Purchasing at Volvo Car Corp., has been named Chief Operating Officer of Volvo Car Corp. Armstrong will be in charge of the daily operations of Volvo’s R&D, manufacturing, purchasing, and quality departments.

- **Patrick Letenturier** (Aff’98), Automotive System Senior Principal at Infineon Technologies, has been named Chairman of the Embedded Microprocessor Benchmark Consortium’s automotive and industrial subcommittee. Letenturier will lead the consortium’s development of its next-generation automotive benchmarks.

- **Mohammad Vakili** (Mbr’83), Manager of Friction Material Selection at Continental Teves in Auburn Hills, MI, was elected Secretary/Treasurer of the Brake Manufacturers Council.

- **Ray Arbesman** (Aff’98), Chairman of N-CAPI Industries of Toronto, Ontario, Canada, was elected Vice Chairman of the Brake Manufacturers Council.

- **William L. Kozyna** (Asc’81), President and CEO of Continental Teves, has been named to the Executive Board of Continental AG. Kozyna is responsible for the Automotive Systems division’s NAFTA business.

- **V. Sumantran**

- **Narayan Yoganandan**

- **Martyn V. Twigg**

- **Frank (Fuquan) Zhao**

**SAE members compete in Daytona AHRMA event**

**Bradley Van Riper** (Mbr’85), Vice President of Research and Development at Truck-Lite in Falconer, NY, was elected Director of the Transportation Safety Equipment Institute.

**Scott Berens** (Aff’06) has been appointed Engineering Manager at Phillips Industries in Santa Fe Springs, CA, where he will lead the development of advanced electrical equipment to meet the current and future demands of the commercial vehicle industry.

**Thomas R. Kurfess** (Mbr’05), the BMW Endowed Chair in Manufacturing Integration, was presented Clemson University’s first Endowed Chair Medalion. Kurfess is a professor of mechanical engineering at Clemson.

**Dan Bassford** (Asc’84), President and owner of Sanford Rose Associates in Greensboro, NC, was recognized as Sanford Rose’s Consultant of the Month for January.

**Tom Larson** (Aff’05), Sales Engineer at Trek, has been designated ISD Certified Professional—Program Manager by the Electrostatic Discharge Association.

**Theodore A. Malott** (Mbr’02), Christopher J. Kowalsky (Asc’00), Brian B. Ginther (Asc’02), Feng Dong (Mbr’96), Karl-Heinz Bauer (Aff’03), James A. Muenzenberger (Mbr’88), Brian Handlon (Mbr’03) have been recognized with the 2005 BorgWarner Product Leadership Award for exceptional contributions in the areas of product development, customer excellence, and collaboration.

**Peer recognition… perhaps the most satisfying recognition that an individual can achieve!**

SAE administers more than 50 awards and recognition programs that recognize individuals for outstanding achievements in engineering. Information and nomination forms for SAE awards can be found at www.sae.org/awards.
'Reinvention' is theme of 2006 Convergence Conference

The technology of automotive electronics, and its potential to revolutionize the automotive industry of the future, will be the focus at the 2006 Convergence Conference and Exhibition, October 16-18, 2006, at Cobo Center in Detroit, MI.

The event, expected to attract more than 8000 leading executives, engineers, and technologists from around the globe, will feature speakers and panel discussions on cutting-edge topics, 13 technical sessions, and an exhibition showcasing advanced products and technologies.

With the theme “Convergence Reinvents the Automobile,” the conference will delve into the fusion of advanced electronics, advanced propulsion, materials, and telecommunications.

“The synergy realized from these key technologies will be paradigm-shifting for our industry, enabling the reinvention of the automobile and setting the stage for truly sustainable mobility and significant industry growth,” said Convergence 2006 General Chair Larry Burns, Vice President, Research & Development and Strategic Planning, General Motors.

International experts to gather for Digital Human Modeling Conference in France

The 2006 Digital Human Modeling for Design and Engineering Conference and Exhibition, to be held July 4-6 at ENS a Gerland in Lyon, France, will be an international forum for the exchange of new and significant technical information about developments and applications of digital human models.

The event, which includes technical presentations and an exhibition of cutting-edge products and services, brings together leading international digital human modeling experts, biomechanics engineers, software developers, ergonomics specialists, researchers, and experts from government and academia.

Technical sessions will cover the following topics:
- Modeling of Vision for Design
- Physics Based Modeling, Safety Engineering
- Verification and Validation

Additionally, a small group session will enable authors to speak to the audience and demonstrate their presentations in an intimate setting.

The interactive Hand Modeling and Performance session, new to this year’s event, will focus on progress in new measuring techniques, data, and modeling of the hand’s interaction with objects.

The event’s attendees represent a wide range of industries, including automotive, aerospace, defense, off-highway, heavy-duty truck, farm equipment, ergonomics, service, manufacturing, human factors, medical, fashion, and others.

To register for the 2006 Digital Human Modeling for Design and Engineering Conference and Exhibition, or for more information, visit www.sae.org/convergence, phone 877-606-7323 (in the U.S. and Canada) or 724-776-4970, or e-mail customerservice@sae.org.

Meetings and symposia schedule

For more information about meetings and symposia, call SAE Customer Service toll-free at 877-606-7323 (or 724-776-4970 outside the U.S. and Canada). Additional meeting details can be found on SAE’s Web site at www.sae.org/calendar/meetings.htm; symposia details at www.sae.org/calendar/tpcets.htm.

SAE-published book on U.S. auto history wins second award

The Antique Automobile Club of America (AACA) has presented “Pioneers, Engineers, and Scoundrels” by Beverly Rae Kimes with its Thomas McKean Memorial Cup. This marks the second award received by the SAE publication since it was published for the organization’s 100th anniversary in 2005.

“Pioneers, Engineers, and Scoundrels” is a portrait of the American automobile industry’s early years, focusing on individuals who dreamed, schemed, innovated, succeeded, and failed in their quests for fame, fortune, glory, and knowledge.

The award was presented in February during the AACA Annual Banquet at the Wyndham Plaza Hotel in Philadelphia, PA. The trophy honors the book that represents the year’s most important original research in automobile history. It is named for Thomas McKean, AACA President from 1946-47, whose extensive collection of books, catalogues, and other automotive materials formed the basis for the Automobile Reference Collection of the Free Library of Philadelphia.

In addition, the publication was named “Best of Books” at the International Automotive Media Awards in November 2005, where Kimes was selected to receive the Recognition of Lifetime Achievement.

Kimes, an automotive editor and author of hundreds of articles and numerous books, began her career in 1963 at “Automobile Quarterly” and is considered by many to be the most honored automobile historian in America. She is a past president of the Society of Automotive Historians, and has served as Executive Editor of the Classic Car Club of America since 1981. Five of her books have won the Cugnot Award of the Society of Automotive Historians for best book of the year, and she has received the society’s Berz Award for best article of the year four times.
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New book looks at latest in accelerated testing

The latest and most practical knowledge in accelerated testing theory is covered in “Accelerated Testing: A Practitioner’s Guide to Accelerated and Reliability Testing,” a new book published by SAE.

New book focuses on multiplexing and networking research


PROFESSIONAL DEVELOPMENT

New seminar teaches leadership skills

Managing Engineering and Technical Professionals, a new SAE seminar, provides engineering supervisors and managers with practical techniques for coaching, guiding, and motivating engineers, technicians, and designers. The seminar will be held June 5-7, 2006 at SAE Automotive Headquarters in Troy, MI.

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Tea

'Tailor the force constraints on each component of the vehicle. An online systems, such as those based on video and radar, with other technologies to assist the driver.

“We believe the foundation for future safety technologies is a system that automatically detects unstable driving situations and corrects to help the driver maintain control,” said Gaus.

Current systems such as electronic stability controls that take their inputs from an array of onboard sensors, will be the foundation of what experts at the conference see as even more intelligent and integrated safety features.

According to the conference speakers, these systems will be increasingly holistic in function, integrating active and passive features. They will sense the environment outside the vehicle and within (driver attention levels and potential distractions) and offer various types of warnings to the driver (visual, audible, vibratory). They will take action to prevent collision and protect the occupants, as some systems on high-end luxury vehicles are doing today.

“Some sort of artificial intelligence may need in vehicles to manage all of these active-safety systems we’re installing,” said Peter Sweatman, Director of the University of Michigan’s Transportation Research Institute.

He added that much research in the human-factors area still needs to be done.

“Driver science is not sufficiently developed to support the technology,” Sweatman said.

Bob Lange, Executive Director, Vehicle Structure and Safety Integration at GM, whose inspired keynote speech kicked off the conference, hammered home the need for more human-interface research.

Lange stressed that the challenge for engineers and vehicle developers is the intersection between technology as it is applied to the vehicle and how it interacts with those in the vehicle.

Lange predicted that future safety systems will “tailor the force constraints on each individual occupant.”

it was not filed, that would be enough to make it ‘first’ in the order of precedence above a lien.

Under the new standards, international liens will be decided purely on the basis of having been filed with one of the international repositories (including the FAA Registry). The effective date for the new standards was March 1, 2006.
PROFESSIONAL DEVELOPMENT

Courses from SAE

Detailed course descriptions are available online at www.sae.org/conted. To register, complete the online registration form, e-mail profdev@sae.org, or call SAE Customer Service toll-free at 877-606-7323 (or 724-776-4970 outside the U.S. and Canada).

May 2006

Troy, MI, USA - SAE Automotive Headquarters

May 1  Current Issues in Using Crash Injury Data
May 1  Designing with Glass
May 3-5  Automotive Glazing Materials
May 4  Basic Noise Control
May 4-5  In-Vehicle Multiplex Networking Applications
May 5  Noise and Vibration Measurement: Instruments and Facilities
May 8-9  Ignition Issues and Their Impact on Engine Performance, Efficiency, and Emission

May 8-9  New! Fundamentals of Statistical Process Control

As competition for market share increases, so does the need to monitor processes and quality to ensure top-notch products. This hands-on seminar will provide you with the skills to apply and maintain statistical process control to assist your organization in the improvement of various processes to achieve higher percentage yields or higher-quality products or services. Quality characteristics (process outputs to track), measurement systems, sampling strategies, types of control charts, construction of control charts, and control chart analysis will be covered. The determination of the key process parameters and controlling them to provide consistent results will improve quality and lower costs, in particular, scrap and rework costs. Statistical theory and depth are kept to a minimum while you learn how to utilize the tools.

May 8-9  Forensic Analysis of Medical Records in Injury Biomechanics and Accident Reconstruction Studies

May 10-12  Statistical Methods for Quality Engineering

This seminar will help individuals responsible for product or process development and testing to statistically assess the variation of the product or process performance and make effective decisions with confidence. Technical personnel are consistently making changes to product and process designs, and the resultant performance changes need a statistical basis for moving ahead to the cost assessment and release phases. Various continuous and discrete probability functions will be covered with the normal distribution receiving the most emphasis. Other distributions including Weibull, Exponential, Binomial, Poisson, Hypergeometric, and nonparametric comparisons will be covered. Various confidence intervals and tests of comparison, including Z test, Student’s t tests, Chi-Square test, F test, and ANOVA for the normal distribution for these probability functions are covered.

May 15-16  Powertrain Selection for Fuel Economy and Acceleration Performance
May 15-17  Geometric Dimensioning & Tolerancing—Level II
May 18-19  Simplified Taguchi/DOE Methods
May 22  New! Race Engine Calibration for Optimal Performance

The engine control module (ECM), or onboard computer, is the tool used to control the fuel injection rate, fuel injection timing, ignition timing, rate of exhaust gas recirculation, and other functions. This course provides a practical introduction to ECMS, including the uses for the various sensors. It also covers the specific methods used to incorporate the various sensor signals into the ECM’s control systems for the fuel injection rate, fuel injection timing, and ignition timing. Background information will include an understanding of the desired air/fuel ratio and optimum ignition timing. While examples are tailored around the application of the ECM to Formula SAE race engines, this course is useful for improving any race engines as well as production engines.

May 22  New! Fundamentals of Aerodynamics Applied to Race Cars

For racers and enthusiasts seeking to refine their competitive edge, understanding the powers of airflow can provide tremendous styling, performance and safety advantages. This seminar provides a basic foundation in vehicle aerodynamics as it applies to racing or performance vehicles. The powers of lift and drag are emphasized, particularly the drag coefficient. These are illustrated through wing lift and drag curves, basic equations and principles, various forms of drag making up overall drag, and atmospheric charts. Also covered are wind tunnel designs, mass flow rates and Reynolds number for wind tunnel model testing, inlet/radiator/cooling design insight, CFD, coast-down testing, and many “do’s and don’ts” of automotive design.

May 22-23  Distributed Automotive Embedded Systems
May 24-26  Automotive Coatings: Materials & Applications
May 25-26  Metal Forming
May 25-26  The Role of the Seat in Rear Crash Safety

Big Beaver Borough, PA, USA – BeaveRun Motorsports Complex
May 8-10  Applied Vehicle Dynamics

June 2006

Troy, MI, USA - SAE Automotive Headquarters

June 5-7  Concurrent Engineering Practices Applied to the Design of Chassis Systems
June 5-7  Motor Fuel: Technology, Performance, Testing, and Specifications
June 5-7  New! Managing Engineering & Technical Professionals

In the fast-paced and competitive environment of today’s global economy, the work of technical professionals is often the difference between success and failure in an organization. Providing leadership for engineers is uniquely challenging, and the transition from working engineer to first-line technical supervisor is one of the most difficult career challenges that an engineer may face. First-time engineering supervisors and mid-level managers who wish to sharpen their skills and learn new techniques for guiding, coaching, and motivating working engineers, technicians, and designers will find this seminar valuable. A mix of lecture and attention-grabbing exercises are used to develop intense and lasting learning results.

June 12  Statistical Tolerance Design
June 15-16  Program and Risk Management
June 15-16  Automotive Lighting
June 15-16  New! Acquiring and Analyzing Data from Sensors and In-Vehicle Networks

The evolution of personal computers, data acquisition hardware, and analysis software has provided engineers with the ability to measure and interpret data quickly, make design enhancements, and ultimately move a product to market faster. As in-vehicle networks become increasingly more sophisticated, both in terms of the number of controllers and the speed at which they communicate, they are becoming a virtual gold mine for the test engineer. If the data is already available on the vehicle and can be accessed from the standard onboard diagnostic connector under the dashboard, the user only needs to add the missing sensors, if needed. This course will provide you with information on current trends and applications in PC-based data acquisition and analysis. Hardware and software possibilities, as well as relevant technical standards to determine what can practically be acquired from the in-vehicle network and how to combine this with sensor data, will be covered. In addition, a practical guide for analysis and presentation techniques will be covered along with practical, hands-on examples. Students will have the opportunity to utilize a classroom PC with data-acquisition hardware and software to acquire and analyze test data.

June 16  Exhaust Flow Performance and Pressure Drop of Exhaust Components and Systems
June 19-20  Piston Ring Design/Materials
June 26-27  Introduction to Brake Control Systems: ABS, TCS, and ESC
June 28-30  Advanced Vehicle Dynamics for Passenger Cars and Light Trucks
June 30  A Familiarization of Drivetrain Components

Ontario, CA, USA - Acros Hotel & Suites

June 18  New! Fundamentals of Aerodynamics Applied to Race Cars

For racers and enthusiasts seeking to refine their competitive edge, understanding the powers of airflow can provide tremendous styling, performance and safety advantages. This seminar provides a basic foundation in vehicle aerodynamics as it applies to racing or performance vehicles. The powers of lift and drag are emphasized, particularly the drag coefficient. These are illustrated through wing lift and drag curves, basic equations and principles, various forms of drag making up overall drag, and atmospheric charts. Also covered are wind tunnel designs, mass flow rates, and Reynolds number (Re) for wind-tunnel model testing, inlet/radiator/cooling design insight, computational fluid dynamics (CFD), coast-down testing, and many “do’s and don’ts” of automotive design. Concepts are accentuated by several math examples along with numerous pictorial and verbal examples. In addition to a detailed set of learning materials, attendees will receive a copy of the acclaimed textbook, “New Directions in Race Car Aerodynamics, Designing for Speed” by Joseph Katz.

June 18  New! Tires and Handling for Racing and High Performance Vehicles

The pneumatic tire is extremely complex and not well understood. Automotive and race engineers are forced to rely on experience as well as trial and error methods when trying to get the most from their vehicles. Capitalizing on the instructor’s 20-year struggle to understand how tires work on a car, this seminar provides a practical applied approach to understanding how a car gets around a corner, rubber friction, tire behavior, and basic vehicle dynamics. While the information presented explains tire technology and vehicle dynamics in general, the seminar uses racing and high performance settings to illustrate the major points.
Siemens VDO Automotive Electronics Corporation, supplier of automotive electronics systems and components, seeks the following for our Huntsville, AL facility. Hardware Engineers: design and development of Audio/Telematics system architecture according to customers’ system requirements; work on hardware integration solutions; among other duties. Min. B.S. to M.S. or foreign equivalent in Electrical or Electronics Engineering, varying levels of experience. Ref. #2200627. Design Engineers: design of ECU Electronics for automotive powertrain applications; reuse and integrate modules; design specific circuits; apply design/development tools as required (FMEA, 8D Methodology, etc.); among other duties. Min. B.S. to M.S. or foreign equivalent in Electrical or Electronics Engineering, varying levels of experience. Ref. #2200628. Please send resumes to: N.V., Human Resources, Siemens VDO, 2400 Executive Hills Dr., Auburn Hills, MI 48326, or reply by fax to: (248) 253-2991.

General Motors Corporation has an opening for an available position of Senior Research Engineer in Warren, Michigan. Position requires an individual with a Ph.D degree in Mechanical Engineering. Successful candidate should also have Ph.D. dissertation in automotive chassis dynamics control & vehicle behavior. Job duties: Conduct research & development in automotive chassis dynamics control & vehicle implementation using Mechanics. Apply & develop modern control theories for automotive applications. Perform analysis & design of control & signal processing algorithms for vehicle testing. Perform modeling, algorithm design & simulation using Simulink, Mathlab, C, C++ programming language on both workstation & personal computer (PC). Conduct software coding, debugging, & evaluation of real-time chassis control algorithms. Perform at-the-limit vehicle testing, evaluation, & data reduction. Publish papers/reports based on research. Qualified applicants should send resume & verification of reqs to GMC, Resume Processing-CKL-60007, Mail Code 482-C31-B36, 300 Renaissance Center, Detroit, MI 48265-3000. General Motors Corporation is an Equal Opportunity Employer.

Siemens VDO Automotive Corporation, which specializes in automotive electronic and supply manufacture, seeks Quality Engineers for our Newport News, VA facility to implement quality procedures and practices and provide product launch and line quality support. Min. BSME, including emphasis in project management methodology, decision techniques and economic analysis. Experience in CAD/CAE (Pro/E,Pro/Mechanica, Nastran/ Patran); maintain and operate a Class IV Neodymium-Yttrium Aluminum Garnet (Nd:YAG) laser in material property and relationship analysis; use of AutoCad to develop operating procedures for a three-dimensional free-space motorized stage. Please send resumes to: FMNPRecruiter@siemensvdo.com. Ref. #2200659.

Tool Engineer. Detroit, MI. Investigate, design & engg high speed flexible tooling systems (including robots, fixtures & special machines) & production processes for automotive stamped parts & assemblies production; develop & control tool quality, increased manufacturing line speed & enhanced worker safety during production. DVlp & improve software for continuous improvement indicator audits to enhance daily based production data analysis & welding processes. Apply DOE, critical path method, GD&T, SPC, failure mode & effect cause analyses to troubleshoot product & process problems & diagnose tooling systems for process variation reduction in production. Identify geometric dimensioning & tolerancing criteria using CATIA from mgf perspective to determine manufacturability of parts & lower-cost design alternatives. Master, Mechanical or Manufacturing Systems Engng. 2 yrs exp in job or in Related Occupation of Engineer. 2 yrs Related Exp, exp must include dimensional variation reduction through data-driven case studies using SPC/DOE, 4k or practice engg analysis using CATIA system, to improve dimensional quality of stamped vehicle parts & body builds, which may be concurrent with Related Occ. exp. Mail resume to V. Richter, DaimlerChrysler Corporation, CIMS: 485-08-44, 1000 Chrysler Dr., Auburn Hills, MI 48326.

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