



# AUTOMOTIVE PLASTICS News

A PUBLICATION OF THE AUTOMOTIVE DIVISION OF THE SOCIETY OF PLASTICS ENGINEERS



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## 2012: Best-Ever SPE AutoEPCON

by Terrence Cressy, AutoEPCON Conference Co-Chair

By any measure—attendance, keynote speakers, technical presentations and sponsorship support—the 2012 *SPE AutoEPCON* show ranks as an outstanding success in evaluations by participants and the organizing committee, led this year by Nippani Rao, conference chair. The sixth-annual conference was organized by both the Automotive Division and Detroit Section of SPE.

Attendance exceeded 230 people and the event drew the greatest number of automotive OEM participants to date.



Highlights included four top keynote addresses, 19 technical presentations, and a record 18 sponsors, including exhibitors.

### KEYNOTES



**Dr. David Cole**, chair emeritus of the Center for Automotive Research and chair of Auto Harvest, led off the conference with a riveting look at where the global auto industry has been and where it is going as more manufacturing returns to North America. His talk, *“The Auto Sun is Rising”* focused on ways to sustain the upward path. Cole said that the global industry must not lapse into old push methods of sales but concentrate on lean, agile methods and innovative thinking, including the use of lighter weight materials.



**Dr. Alan Taub**, recently retired vice president of General Motors R&D spoke about the need for multiple paths to environmental and economic sustainability in a talk entitled *“Advanced Automotive Materials: The New DNA of Personal Mobility.”* He discussed GM’s simultaneous engineering and R&D approaches into advance internal-combustion engines (ICEs), selective use of compressed-natural gas (CNG) fuel, hybrids, extended-range and pure electrics including fuel-cells vehicles that have greater utility. In all cases, the designs will require higher temperature-capable

7<sup>TH</sup>-ANNUAL  
**AUTO EPCON**  
MAY 1, 2012

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and lower weight engineering materials, including advanced phase-change materials that can replace thousands of sensors and actuators that currently require miles of wire harness throughout the vehicle.



**Maria Ciliberti**, Americas Business director, Ticona Engineering Polymers, likened what is possible today to the Age of Enlightenment during the Italian Renaissance. New thinking about materials and methods of processing and fabrication will allow greater function, more pleasing aesthetics, and connectivity for vehicle occupants. Her analogies were packed into an inspiring talk, ***“The Automotive Renaissance: Re-Inventing Transportation.”***



**Kathy Minnich**, manager, Materials Engineering & Testing at Ford Motor Co. spoke about the need for materials development to be focused less on plurality and more on world-wide supply consistency and cost-effectiveness, focused squarely on part and vehicle system function for global platforms. Her insights including needs for better predictive engineering test data and innovation were contained in her presentation, ***“Material and Supplier Selection: Global Challenges and Evolving Expectations.”***



The bulk of the one-day conference was devoted to three concurrent technical sessions with presentations on new materials, requirements and methods for predictive engineering data, and new application developments to address advanced vehicle-engineering functions. The presentations were organized by Technical Committee co-chairs, Norm Kakarala, Sandra McClelland and Laura Shereda. Materials suppliers, tier integrators, and OEMs gave presentations moderated by AutoEPCON committee members listed in the program. The agenda and committee leaders are posted on our SPE websites.

With this record-setting conference on auto industry trends and the expanding role of engineering plastics development in the books, sights are now set on the ***2013 AutoEPCON that will be held Tuesday, April 30, 2013*** at the MSU Management Education Center in Troy MI. Conference leadership for the 2013 event will be named soon.

## AUTOMOTIVE DIVISION MEETING SCHEDULE & SPECIAL EVENTS CALENDAR



**Automotive Division BOD Meeting** **All Invited**  
American Chemistry Council Troy, MI June 18

**2012 SPE Automotive Division - ACMA Automotive Composites Alliance Annual Golf Outing**  
Fieldstone Golf Club Auburn Hills, MI Sept 10, 2012  
1984 Taylor Road

**2012 Automotive Composites Conference & Exhibition (ACCE)**  
MSU Education Center Troy, MI Sept 11-13, 2012

**2012 SPE TPO Automotive Engineered Polyolefins Conference**  
Troy Marriott Sept 30 - Oct 3, 2012

**2012 Innovation Award Gala**  
Burton Manor Livonia, MI Nov 7, 2012

**2013 AutoEPCON**  
MSU Education Center Troy, MI April 30, 2013

Automotive Division Board of Directors meetings are open to all SPE members. All events are listed on our website at <http://speautomotive.com/ec>  
Call Anthony Gasbarro at 248.721.0276 for more information.

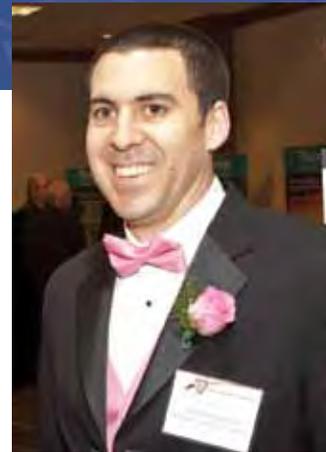
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# CHAIR'S MESSAGE

Anthony Gasbarro



*Hello Everyone,*

This will be my last "Chairs Message" as my term as chair of the SPE Automotive Division comes to an end. I have to say that the last year went quickly. Some days it was easier than I thought it would be; other days it was more difficult than I would have expected; but overall, it was a really good way to get to know how the division works – who does what, what needs to get done when...essentially *Trial by Fire* as they say – and that was kind of the way it was. I am very glad that I had the chance to do it. Crazy as it may sound, I think I'd do it again if the chance came up.

I would also encourage you to see where you think you might be a good fit for our division. We are always seeking willing and able people to help out on our board of directors as well in the planning and execution of our annual events.

I won't take up much more of your time here – but I did have two more points to make.

1. Thank you to everyone who helped me in the last year – people like Peggy Malnati, Dawn Stephens, Ed Garnham, Dave Reed, Tom Pickett, Monica Prokopyshen, Jeff Helms...the list could go on – but these folks really helped me a lot. Thank you.
2. GO TO OUR WEBSITE! [www.speautomotive.com](http://www.speautomotive.com) That is the place for all things SPE Automotive Division. Heck – make it a shortcut on your favorite browser to ensure it's easy to come back to and check something out. A couple of wonderful members have been working very hard to ensure the content on our site relevant and current. Check out what is on there and give us some feedback. You can also find links to join for our blog and to follow us on Twitter.

That's all for now – I thought I would keep it short and sweet – and thanks to all of you. I hope to see you around.

Feel free to drop me a line and hello at [anthonygasbarro@yahoo.com](mailto:anthonygasbarro@yahoo.com) if you have any questions or comments about our division.

Thank you and make it a great day.

*Anthony*

Anthony Gasbarro

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# SPE® to Hold New ANTEC® Mumbai Conference Dec. 6-7, 2012



## ANTEC® MUMBAI

SPE is the premier source of peer-reviewed technical information for plastics professionals and takes action every day to help companies in the plastics industry succeed by spreading knowledge, strengthening skills, and promoting polymeric materials.

As part of its educational outreach, a new two-day conference—called SPE-ANTEC® Mumbai 2012—has been organized for Dec. 6-7, 2012 to offer plastics professionals in India, South-east Asia, as well as Europe and the Americas multiple original peer-reviewed technical papers. Over 100 technical papers are currently scheduled to be presented in the following technical tracks:

- **New Technology Forum:** topics will focus on the areas associated with carbonaceous nanomaterials, including graphenes and carbon nanotubes (papers by invitation only)
- **Advances in Materials:** topics include polymers in medical devices, bioplastics, composites, aerospace, and automotive
- **Advances in Processing:** processes covered include extrusion, injection molding, blow molding, thermoforming, calendaring, and rotational molding
- **Advances in Materials Performance Forum:** topics covered include design innovation, engineering properties and structure, polymer modifiers and additives, polymer composites, failure analysis, polymer blends, and recycling
- **Advances in Machinery Forum:** topics covered include design of screws, barrels, mixing equipment, down-stream equipment, hydraulic, all-electric, control system, robotics, and other plastics processing machines
- **Advances in Rheology, Modeling and Simulation:** topics focus on flow behavior of polymers, rheological models, analysis of modeling of processes, theoretical models and co-relations

SPE's Annual Technical Conference (ANTEC®) is the world's largest plastics technical conference and ANTEC® Mumbai represents the first time that this prestigious conference will have been outside of North America.

SPE-ANTEC® Mumbai 2012 will be held at the Renaissance Mumbai Convention Centre Hotel, #2 & 3B, Near Chinmayanand Ashram, Powai, Mumbai 400087 India. Phone: +91.22.6692.8888. For more information, see <http://mumbai.antec.ws>.



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### The Matrixx Group, Inc.

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12TH-ANNUAL **AUTOMOTIVE  
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September 11-13 2012

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### ATTEND THE WORLD'S LEADING AUTOMOTIVE COMPOSITES FORUM

The Automotive and Composites Divisions of the Society of Plastics Engineers (SPE®) invite you to attend the 12<sup>th</sup>-annual **SPE Automotive Composites Conference and Exhibition (ACCE), September 11-13, 2012**. The show – which has become *the world's leading automotive composites forum* – will feature technical paper sessions, panel discussions, keynote speakers, networking receptions, & exhibits highlighting advances in materials, processes, and applications technologies for both thermoset and thermoplastic composites in a wide variety of ground-transportation applications.

### INTERACT WITH AN ENGAGED, GLOBAL AUDIENCE

The **SPE ACCE** typically draws almost 500 attendees from 14 countries on 5 continents who are interested in learning about the latest composites technologies. Fully a third of attendees work for an automotive, heavy truck, agricultural / off-road equipment, or aerospace OEM, and roughly a fifth work for a tier integrator. Few conferences of any size offer such an engaged, global audience vitally interested in hearing the latest composites advances.

### SHOWCASE YOUR PRODUCTS & SERVICES WITH EXHIBIT & SPONSORSHIP OPPORTUNITIES

Many sponsorship packages – including displays, conference giveaways, advertising and publicity, signage, tickets, and networking receptions – are available. Companies interested in showcasing their products and/or services at the **SPE ACCE** should contact Teri Chouinard of Intuit Group at [teri@intuitgroup.com](mailto:teri@intuitgroup.com).

### FOR MORE INFORMATION

[www.speautomotive.com](http://www.speautomotive.com)

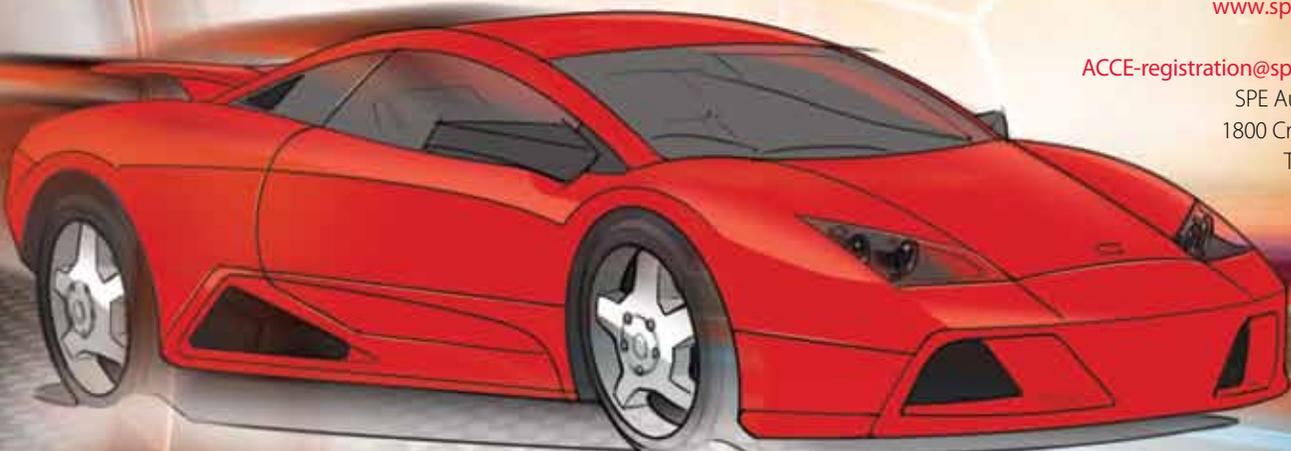
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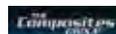
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### EARLY BIRD SPONSORS





# SPE® ACCE Issues Call for Graduate-Level Sponsorship Applications for Research in Automotive Composites

The organizing committee for the *SPE Automotive Composites Conference & Exhibition (SPE ACCE)* announced today that it will again bestow two \$2,000 USD scholarships for graduate-level research in polymer composites that has impact on ground transportation, particularly in the automotive industry. Students interested in applying will find a scholarship application form available for downloading at <http://speautomotive.com/comp.htm>; applications should be submitted electronically to [ACCEpapers@speautomotive.com](mailto:ACCEpapers@speautomotive.com) by **July 1, 2012** for awards to be announced in August. The scholarships are funded by proceeds from previous SPE ACCE conferences and donations made by the SPE Composites and Automotive Divisions, which jointly organize the conference.

Winners will be selected from the pool of qualified applicants by SPE ACCE committee members. Winning students will be required to report on the results of their findings during the thirteenth-annual SPE ACCE, which takes place September 10-12, 2013. This is the sixth year conference organizers have offered these graduate-level scholarships to fund transportation composites research.



Last year's SPE ACCE Scholarship Award winners were **David Inglefield**, a Ph.D. candidate pursuing a dual degree in Chemistry and Biomedical Engineering at *Virginia Polytechnic Institute & State University* for work involving the synthesis of functionalized carbon nanotubes for optimized properties in polymer composites; and **Thomas (Tom) G. Loken**, a doctoral candidate in Mechanical Engineering at *University of Wisconsin-Madison* as well as a project engineer at The Madison Group for a project analyzing the effects of processing conditions on fiber-length distribution in short-fiber composites. Both Inglefield and Loken will present the results of their work at this year's SPE ACCE, September 11-13, 2012.



The 2010 winners were **Benjamin Hangs**, then a doctoral candidate at the *Fraunhofer Institute of Chemical Technology* for work on Integration of Features into Parts made from Thermoplastic Unidirectional Tape—Overview & Case Study; and **Francesco Deleo**, then a doctoral student at the *University of Washington* on Crashworthiness Energy Absorption of Carbon Fiber Composites: Experiment & Simulation – a report that also won a conference *Best Paper Award*.

The 2009 awards were presented to **Gregorio Manuel Vélez-García**, then a Ph.D. candidate at *Virginia Polytechnic Institute and State University*, whose work focused on Development of

a New Method for Predicting Fiber Orientation in Fiber-Reinforced Injection-Molded Thermoplastics, and to **Zeba Farheen Abdul Samad Parkar**, then a doctoral candidate at the *University of Illinois-Urbana/Champaign* whose research topic was Novel Aromatic Thermosetting Copolyester (ATCP) / Carbon Fiber Composites.

In 2008, the winners were **Uday Sharma** of *University of Michigan-Dearborn*, whose topic was Analysis of Thermoplastic Woven Composites at High-Strain Rates, and **Tobias Potyra** of *Fraunhofer Institute of Chemical Technology*, who worked on New Direct Processing Technology for the Manufacture of SMC Parts (Direct-SMC).

The first scholarships were given in 2007 in honor of journalist and composites-industry insider, Steve Loud who passed away in 2006. The recipients were **Roston Elwell** from *Texas A&M University* for research on the Use of Active-Core Composite Sandwich Panels for Improved Automotive Safety; and **Alejandro Londono-Hurtado** from *University of Wisconsin-Madison*, whose work involved Simulation and Numerical Modeling of Fiber Orientation and Density Distribution During Molding of Fiber-Reinforced Automotive Parts.

For more information, see <http://speautomotive.com/comp.htm> or <http://compositeshelp.com>.

RESERVE THE DATE

SEPTEMBER 11-13, 2012



13<sup>th</sup> ANNUAL AUTOMOTIVE COMPOSITES CONFERENCE & EXHIBITION

World's Leading Automotive Composites Event

SOCIETY OF PLASTICS ENGINEERS  
AUTOMOTIVE & COMPOSITES DIVISIONS





## SPE® ACCE Announces First Parts Competition at 2012 Show

For the first time in its twelve-year history, the *SPE Automotive Composites Conference & Exhibition (SPE ACCE)* will host a parts competition at this year's event. One innovative composites application will be selected by the committee and invited judges from entries submitted by sponsors/exhibitors or automakers. The winner will be announced on the last day of the show during closing ceremonies, with a follow-up announcement describing the application and why it was selected by the judges to be released after the event.

Creig Bowland, senior research associate at PPG Industries, and the 2011 and 2012 SPE ACCE conference chair said, "We've seen our large-parts display area grow considerably over the past few years, and this year it just seemed to make sense to capture some additional detail on all those parts that were at the show and provide some recognition for the innovation we were seeing – especially since our theme this year is Unleashing the Power of Design. What better way can we show OEMs just what composites can do?" Bowland adds that there is no cost to nominate parts for the competition. Materials suppliers, molders, or OEMs in any geography may nominate as long as the OEM gives permission. Parts may be on passenger cars or light trucks, original equipment or aftermarket, as long as they are already in commercial (series) production or will be in production by November 1, 2012.



"Nominations will be judged on the impact and trendsetting nature of the application," Bowland says, "including materials of construction, processing method, assembly methods, and other enabling technologies that made the application possible. Nominations should also emphasize benefits

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To nominate a part, companies should download a nomination instruction form from <http://speautomotive.com/comp.htm>. Preliminary descriptions and photos about the application's innovations are due August 15 and should be eMailed to [ACCEpapers@speautomotive.com](mailto:ACCEpapers@speautomotive.com). Physical parts must be brought to and displayed at the SPE ACCE for final review by judges during a formal walk-through at a date and time to be announced.

For more information, see <http://speautomotive.com/comp.htm> or <http://compositeshelp.com>.

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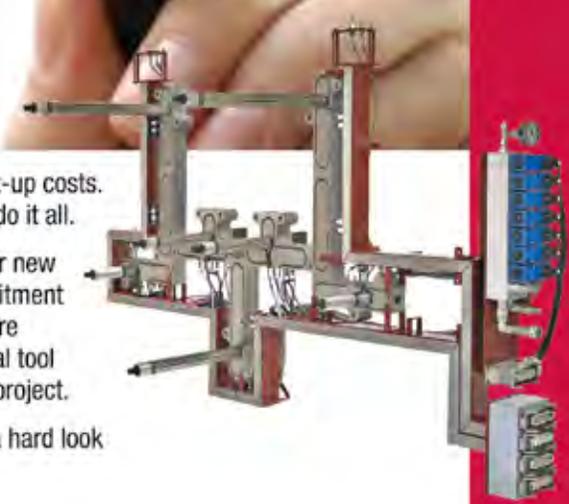


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14TH-ANNUAL



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C O N F E R E N C E

**TPO**  
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September 30-October 3, 2012

## Call for Papers

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2011 SPE Automotive TPO Global Conference Sponsors:



### Attend the World's Leading Automotive Engineered Polyolefins Forum

Now in its 14th year, the show is the world's leading automotive engineered polyolefins forum featuring 40+ technical presentations, panel discussions, keynote speakers, networking receptions, & exhibits that highlight advances in polyolefin materials, processes, and applications technologies as well as a growing range of thermoplastic elastomers (TPEs) and thermoplastic vulcanizates (TPVs). This year's show will be held **Sept. 30-Oct. 3, 2012** at the Troy-Mariott.

### Present to the Largest Group of Decision Makers in Automotive Engineered Polyolefins

The *SPE Automotive TPO Global Conference* typically draws over 500 attendees from 20 countries on 4 continents who are vitally interested in learning about the latest in rigid and elastomeric TPO as well as TPE and TPV technologies. Fully a third of conference attendees work for a transportation OEM, and roughly 20% work for a tier integrator. Few conferences of any size can provide this type of networking opportunity or put you before such an engaged, global audience vitally interested in hearing the latest olefin advances. Interested in presenting your latest research? **Abstracts** are due **April 27, 2012** and **Papers/Presentations** in **July 31, 2012**. E-mail abstracts/papers to [TPOpapers@auto-tpo.com](mailto:TPOpapers@auto-tpo.com).

### Showcase Your Products & Services at the World's Largest Automotive Engineered Polyolefins Forum

A variety of sponsorship packages are available. Companies interested in showcasing their products and/or services at the **SPE Auto TPO** should contact [TPOsponsor@auto-tpo.com](mailto:TPOsponsor@auto-tpo.com).

### For More Information

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SPE Detroit Section, 1800 Crooks Road, Suite A, Troy, MI 48084, USA



## Organizers for SPE® TPO Automotive Engineered Polyolefins Conference Announce 2012 Keynote Speakers

The fourteenth-annual *SPE® TPO Automotive Engineered Polyolefins Conference*, the world's leading automotive engineered-polyolefins forum, which is organized by the **Detroit Section** of the **Society of Plastics Engineers (SPE®)** and this year runs from **September 30-October 3, 2012**, will feature five keynote speakers who will highlight important trends that are reshaping the global automotive-plastics market. According to Bill Windscheif, conference chair and president, Advanced Innovative Solutions, "The 2008-2009 global automotive crash triggered major changes in the engineered polyolefins supply chain that are still impacting the industry three-and-a-half years later. That's why our committee intersperses keynote talks throughout the conference to help attendees better understand challenges and opportunities still facing the automotive-supply community."



The conference will open on Monday morning with a keynote by Exxon Mobil Corp. Energy Advisor **Vincent Yuskiewicz** who will give a talk entitled *The Outlook for Energy: A View to 2040*, which will address a long-term view of the world's energy future, including the more efficient use of energy through technologies such as hybrid vehicles.

Yuskiewicz will discuss global energy demand, which is expected to rise by about 30 percent from 2010 to 2040. "ExxonMobil expects that demand growth would be approximately four times that amount without projected gains in efficiency," he says. "Efficiency is the key reason why energy demand will rise by only about 1 percent a year on average even as global GDP rises by nearly 3 percent a year. It also is the reason why energy demand in the developed world will remain relatively unchanged through 2040 even as its economic output nearly doubles. In transportation, ExxonMobil sees advanced vehicles, including hybrids, accounting for 50 percent of the cars people will drive in 2040, compared to about 1 percent today. This, plus improved fuel economy in conventional vehicles, will cause demand for energy for personal vehicles to remain essentially flat through 2040 even as the number of personal vehicles in the world doubles."

Yuskiewicz is a principal contributor to ExxonMobil's long-term global-energy outlook, including the identification of potential implications for energy markets and the corporation's strategic plans. In this role, he is responsible for assessing economic and energy trends, emerging energy technologies, and related global market and public policy issues. He also is active in communicating Exxon Mobil's view of the energy future to a wide variety of audiences. Yuskiewicz has worked in the energy industry for over 15 years in a variety of technical and managerial assignments involving Exxon Mobil's activities in the U.S. and around the world. He holds a B.S. degree in Civil Engineering from Drexel University and resides in Texas with his wife and two sons.

After lunch on Monday, **Patrick (Pat) Stewart**, vice-president and executive director of Interior Systems at Inteva Products, LLC will speak on the topic of *Innovative Concepts for Automotive Interiors*.

About his topic, Stewart says, "The automotive interior continues to evolve into a home away from home. What the OEMs considered luxury 5 years ago is now being styled into entry-level and mid-level vehicles. In addition, the pressure on fuel economy continues to drive the need for lower mass materials and systems. The challenge for the supplier is to deliver innovative materials and solutions to enable the styling, manage total system cost to the price point of the vehicle, with no sacrifice in performance, durability, and safety."

Stewart leads the global Interior Systems product line team at Inteva Products, LLC where he is responsible for developing and executing global growth strategies, driving customer satisfaction, leading product and process engineering, advancing technology and innovation, and managing financial business decisions for Interior Systems. Prior to joining Inteva in 2008, Stewart held a wide variety of assignments at Delphi Corp. and other suppliers in material and process, equipment and tooling, product engineering, product design, and program management. In 1998 Stewart was appointed launch manager of the 2000 Mercedes W163 interior project and was promoted to manager for Global Product Engineering responsible for Interior Systems. He began his position as chief engineer of Interior Systems & Cockpits with Delphi in 2002. Stewart holds a Bachelor's degree in Chemical Engineering from the University of Dayton and a Master's degree in Engineering Science from Rensselaer Polytechnic Institute. He is a graduate of Delphi's Lean College and has attended leadership training at the Center for Creative Leadership. Stewart also is a Six Sigma Green Belt with extensive training in statistical quality and process control.





On Tuesday morning, **Mary-Beth Kellenberger**, director-Global Automotive Aftermarket Research, Frost & Sullivan, will speak on ***Throwing Light On the Future: Mega Trends and their Ability to Shape Personal Mobility.***

Kellenberger explains, "This presentation will examine a variety of mega trends currently at work in society at large and discuss how they will impact personal mobility and the vehicles we use for personal mobility. We'll cover topics like the evolution

of urbanization and *smart* cities, including implicit social changes, business-model evolution, and a look at the countries in 2020 that will be the next game changers beyond the BRIC (Brazil, Russia, India, China) nations. We'll also review the evolution of personal commuting and its effects on personal vehicles, and then explore future mobility innovations, including multi-modal commuting and alternative transportation plans already underway at various automakers. Since *smart* is the new *green*, we'll define what a *smart* connected car is and what that implies. We'll also look at the top 50 emerging vehicle technology trends, take a snapshot of a 'Zero-Concept' world in 2020, and then conclude with how to view from the macro level but implement from the micro level."

Kellenberger works out of the company's Toronto office, but has global responsibility in her area of functional expertise managing a team of expert analysts that produces over 20 aftermarket subscription studies annually. She has over 15 years of hands-on experience in aftermarket product management covering a broad range of aftermarket segments, including hard parts, collision, accessories, tools and equipment, and services. Kellenberger also has expertise in retail competitive intelligence and developing and maintaining continuity in research data to evaluate trends. She has strong forecasting and analytical skills, an ability to identify the impact of research data on the industry and translate it into opportunities and risk factors, as well as a comprehensive understanding of the aftermarket structure, market participants, and go-to market strategic thinking. A regular contributor to *Aftermarket Business* magazine, and is a regular speaker with Automotive Aftermarket Industry Association (AAIA) and Heavy Duty Aftermarket Week (HDAW) conferences, Kellenberger also was a featured speaker at the 2010 Midas Dealer Conference. She holds degrees in Sociology from the University of Western Ontario and Marketing from York University.



Tuesday afternoon will feature a keynote on ***Global Polyolefins Overview*** by **Howard Rappaport**, senior director-Global Plastics at IHS Chemical at this year's conference.

Rappaport notes, "The global polyolefin market is changing dramatically in response to the fast-advancing industrialization process in emerging markets, as well as improvements in global communications and trade liberalization. Investments are increasingly concentrated in feedstock cost-advan-

taged or high-demand growth areas, like the Middle East and the Asia/Pacific region. The same trend, particularly in West Europe, is driving industry consolidation, operations optimization, and moves toward the production of higher value, performance products. In North America, low-cost feedstock from shale gas is revitalizing the polyethylene (PE) business, making PE exports highly competitive globally. Growth in polyolefin consumption will be mainly driven by the rapid economic development of numerous transition coun-

tries in the Asia/Pacific region, Central Europe, the Middle East, and South America. Higher monomer prices have significantly reduced the cost advantage polypropylene previously enjoyed vs. other polymers and that is limiting growth prospects in lower-end packaging applications. Recent high volatility in polypropylene prices and tight feedstock supplies, particularly in North America, are also adversely affecting consumption. Yet, polypropylene's excellent properties and versatility will continue to open new and higher value markets. The future shows continued strong consumption growth."

At IHS (formerly Chemical Market Associates, Inc. (CMAI), which was purchased by IHS last May), Rappaport is responsible for the company's commodity and engineering plastics services worldwide. He joined CMAI as director-Polyolefins Division in 1999 and was instrumental in developing the company's Plastics Processors Conferences in 2004, which has since become a major annual event in the U.S. and Europe. He also led efforts in 2005 to publish the *World Plastics & Polymers Review* and spearheaded development of the *Global Plastics & Polymers Report -Asia / Middle East / India Weekly* plastics service in 2008. A sought-after industry speaker, Rappaport has been quoted in numerous business and plastics publications and media. With over 30 years' experience in plastics and polymers, he has held management positions in commercial development, business management, product management, sales / marketing, and customer service with companies like American Hoechst, Huntsman Chemical, Webster Industries, Cain Chemical, Occidental Chemical, Himont, Montell Polyolefins, and Westlake Chemical. He is active with SPE, the Flexible Packaging Association (FPA), the Society of the Plastics Industry (SPI), and the American Chemistry Council.

And Wednesday will start off with a keynote from **Alexander (Alex) Buechler**, owner and publisher of HB Media who will give a talk about **Less Polypropylene in Automotive Applications.**



"An average passenger car contains 130 pounds (60 kilograms) of polypropylene," says Buechler, "but each year that number drops by approximately 0.70 pounds (0.33 kilograms) due to better flowing materials, which allow wall stock to be reduced; use of foamed polypropylene that lowers mass; and reduction in heavy fillers like talc – all of which means less polypropylene in our cars. We will show which components are most affected, as well as the vehicle segments where polypropylene is making a particularly strong return. Contradictory trends in North America, Europe, and Asia are also covered."

Buechler, who holds a Master's degree in Mechanical Engineering with a specialty in laser technology, has held a number of positions of responsibility at various publishers, including editor of *Polymer Technology* magazine. In 1999, he formed his own publishing company to cover important plastics market segments. The company's first imprint was *PETplanet Insider*, whose focus is the polyethylene terephthalate (PET) bottling industry. In 2004, the title *Polyomotive* was added to cover plastics in the automotive sector. The latest magazine, *Plastruction*, was launched in 2010 to report on plastics applications in the construction industry. Since 2007, Buechler also has been a Blue Ribbon Judge with the SPE Automotive Innovation Awards Competition. He is married, has three children, and lives in Heidelberg, Germany.

For more information, please visit <http://auto-tpo.com/> or <http://speautomotive.com/tpo.htm>.

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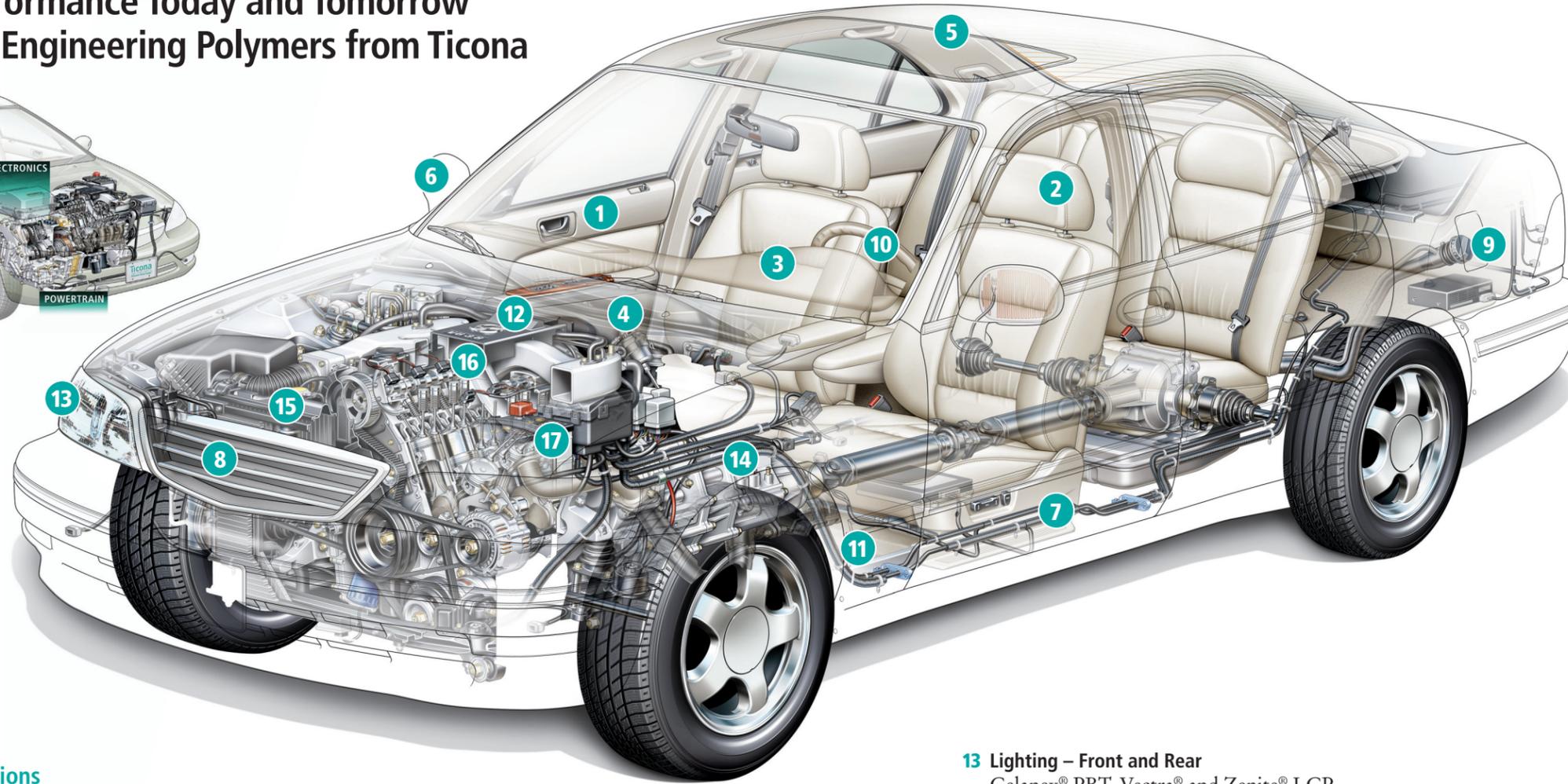
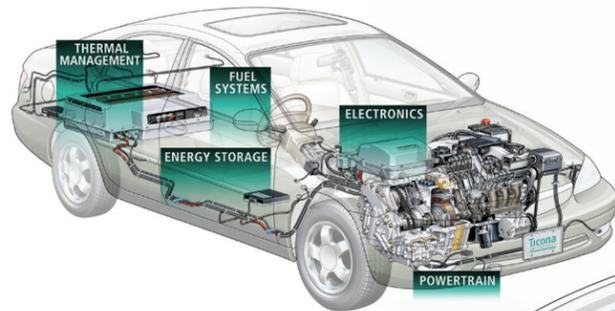
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## SPE® Calls for Parts, Vehicle Engineering, Team Nominations for the 42<sup>nd</sup> Automotive Innovation Awards Competition

*The* SPE Automotive Division has issued its annual call for parts and vehicle-engineering team nominations for the 42<sup>nd</sup>-annual **Automotive Innovation Awards Competition**, the oldest and largest recognition event in the automotive and plastics industries. Nomination forms for this year's competition are available at <http://speautomotive.com/inno> and are due **September 1, 2012** for applications and vehicles that must be available for commercial sale on or before November 1 of this year.

### SPE VEHICLE ENGINEERING TEAM AWARD (VETA)

**SPE's Vehicle Engineering Team Award** recognizes the technical achievements of teams made up of automotive designers and engineers, tier integrators, materials suppliers, toolmakers, and others whose work – in research, design, engineering, and/or manufacturing – has led to significant integration of polymeric materials on a notable vehicle. This is the sixth time in nine years that the award has been presented. Previous winners include Porsche AG for the 2004 model year (2004MY) Porsche® Carrera GT supercar, and Ford Motor Co. for three straight years with the 2008MY Ford® Flex™ cross-over utility vehicle, the 2009MY Ford Taurus® sedan, and the 2011MY Ford Explorer® mid-size sport-utility vehicle (SUV); and last year's winner, Chrysler Group LLC for the Chrysler® 200 & Dodge® Avenger® sedans. Any automaker may nominate its eligible vehicles (and their innovative plastics content).

### SPE AUTOMOTIVE INNOVATION AWARDS PARTS COMPETITION

Since 1970, the **SPE Automotive Innovation Awards Competition** has highlighted the positive changes that polymeric materials have brought to the automotive and ground-transportation industries, such as weight and cost reduction, parts consolidation, increased safety, and enhanced aesthetics and design freedom. At the time the competition started, many OEM designers and engineers thought of plastics as inexpensive replacements for more "traditional" materials. To help communicate that plastics were capable of far more functionality than their typical use as decorative knobs and ashtrays indicated, members of SPE's Automotive Division board of directors created the competition to recognize successful and innovative plastics applications and to communicate their benefits to OEMs, media, and the public. Over the years, the competition drew attention to plastics as an underutilized design tool and made industry aware of more progressive ways of designing, engineering, and manufacturing automotive components. From its humble beginnings, the competition has grown to be one of the most fiercely contested recognition events in the plastics and automotive industries. Today, polymeric materials are no longer substitutes for more expensive materials, but rather are the materials of choice in hundreds of different



applications throughout the vehicle. Without plastics, many of the auto industry's most common comfort, control, and safety applications would not be possible. Current competition categories include:

- Body Exterior,
- Body Interior,
- Chassis / Hardware,
- Environmental,
- Hall of Fame,
- Materials,
- Performance & Customization,
- Process / Assembly / Enabling Technologies,
- Powertrain, and
- Safety.

During the competition phase of the event, dozens of teams made up of OEMs, tier suppliers, consultants, and polymer producers work for months to hone submission forms and presentations describing their part, system, or complete vehicle module and why it merits the claim as the year's "**Most Innovative Use of Plastics.**" To win, teams must survive a pre-competition review and two rounds of presentations before industry and media judges.

There is no cost to nominate parts or vehicles. However, nominations that are accepted into the 2012 competition will need to be presented (in person or by webinar) by their nominating teams during the first round of **Automotive Innovation Awards Competition** judging, **September 27-28**. Part finalists from that round will advance to a second presentation before a panel of Blue Ribbon judges on **October 8**. Winners of each part category, the VETA winner, as well as a Hall of Fame winner will be announced during the **Automotive Innovation Awards Gala** on **November 7, 2012** at Burton Manor ([www.burtonmanor.net](http://www.burtonmanor.net)) in Livonia, Mich.

For more information, <http://speautomotive.com/inno> and <http://speautomotive.com/awa>.



# Analysis of Polypropylene Odor Based on Electronic Olfactory System

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## ABSTRACT

In this paper, the undesirable odor from virgin PP resin was studied using an electronic olfactory system equipped with a set of metal oxide semi-conductor sensors. Odor of PP resin and the effects of heating temperature and heating time on the odor from different grades of PP resin were studied. It was found that the odor of PP resin was detected by the electronic olfactory system. Effects of heating temperature above 50°C and heating time on the release of the odor were obviously observed, and the odor intensity increased with the increase of heating-temperature and the extension of heating time.

## BACKGROUND

Undoubtedly, the largest single application for polypropylene (PP) worldwide is the automotive market. In comparison with other materials, PP has been proved highly useful and competitive as automotive materials because of its excellent mechanical properties, thermal properties, light weight, chemical resistance, low cost, easy processing and good recycling properties. However, in melt-mixing processing of PP with a twin-screw extruder, undesirable or pungent odor is emitted from PP due to the random chain scission of PP main chain and oxidation resulted from the high manufacturing temperature<sup>1-2</sup>. In addition, undesirable odor is also emitted from the formation of carbonyl groups of overheated PP, residual catalysts and antioxidant additives in the resins<sup>3</sup>. These odors are a concern to both the automotive industry and consumers, since it may have a long-term influence on human health. Therefore, odor emissions become widely recognized as an important index to the interior materials used as automotive parts, due to increasing concerns about indoor air quality,<sup>4,5</sup>. In recent years, several groups had focused on the study of odor emissions from PP composites by means of Gas Chromatography/Mass Spectroscopy (GC/MS)<sup>6-9</sup>.

Odor can be produced either by a single chemical compound or by a mixture of different compounds, which always depends on the threshold odor concentration of each compound. The GC/MS response could be ambiguous, since strong odor might be generated by chemical compounds even at very low concentrations (below the detection limits of the instrument). Moreover, it is usually difficult to correlate such data with human sensory analysis<sup>10</sup>. Thus, the electronic olfactory system, commonly called the electronic nose system (E-nose), has been considered an ideal method for assessing the odor extensively in applications such as food and beverage, environmental monitoring and disease diagnosis, etc. Until now, rare work has focused on the undesirable odor emissions of PP resin. In this paper, the undesirable odor from virgin PP resin was developed using an electronic olfactory system equipped with a set of metal oxide semi-conductor sensors. Odor of PP and the effects of heating temperature, heating time on the odor from different grades of PP resin were studied to provide experimental method and data for low-odor PP resin.<sup>1</sup>

## EXPERIMENTAL

### Sample Preparation and Test

The PP resins (PPO and PP1) used were obtained from two different commercial PP grades. After oven-dried at 90°C for 2 h, the samples (1.5g) was placed into the 20 ml headspace glass sealed vials for the E-nose analysis. The headspace volatiles from the PP resins were generated by heating samples, and then detected by E-nose analyses. The heating was performed for 30min at Six different heating temperatures, at room temperature, 50°C, 80°C, 100°C, 120°C and 140°C. Heating was also performed at 120°C for five different heating time, respectively for 5min, 10min, 15min, 20min and 30min.

### Sample Statistical Analysis

Multivariate statistical techniques were used for analysis of the E-nose olfactory response data. The degree of discrimination between different resin grades was studied using principle component analysis (PCA). It was performed on the dataset to study the similarity or dissimilarity between the resin samples as well as to understand the relationship between the variables (E-nose sensor responses).

## RESULTS AND DISCUSSION

### Sensor Responses Analysis of PP Resins Using the E-nose System

The E-nose is defined as an instrument comprised of electronic chemical sensors with partial specificity and an appropriate pattern recognition system, capable of recognizing simple or complex odors<sup>11</sup>. The basic mechanism of an E-nose is to generate headspace over the samples being tested, present the headspace gas to the sensors, record the sensors' response, and analyze the data<sup>12</sup>. Each of the sensors arrays responds specifically to each headspace sample. In order to further analyze the different sensors responses, A simpler representation is the radar plot (Figure 1) or the bar graph (Figure 2), which shows only the extreme signal reach of each sensor. The plots shown in Figure 1 are the sensors responses plots between maximize resistance and types of sensors. It can be seen that the sensor responses of PP1 resin were higher than those generated by PPO resin. Moreover, these characteristic values were also used in the statistical analysis of the various assays. The analysis information of two PP resins grades showed a difference on the intensity of several sensors responses, which probably indicated the discrimination of the PP resins. It could be found that the degrees of discrimination of the sensor responses from two different PP changed obviously. Besides, the relative standard deviation of sensors responses of PPO sample was shown in Table 1. It indicated that the sensors responses of samples had a good reproducibility (RSD<5%).

Table 1: The relative standard deviation of sensors responds of PPO sample

Serial Number	Sensors	RSD(%)	Serial Number	Sensors	RSD(%)
1	LY2/LG	0.6757	10	P40/1	2.015
2	LY2/G	-2.216	11	T70/2	0.008182
3	LY2/AA	-1.613	12	PA/2	2.097
4	LY2/GH	-1.727	13	P30/1	0.7508
5	LY2/gCTL	-2.352	14	P40/2	2.397
6	LY2/gCT	-3.453	15	P30/2	4.316
7	T30/1	0.379	16	T40/2	2.459
8	P10/1	2.28	17	T40/1	2.485
9	P10/2	2.506	18	TA/2	2.15

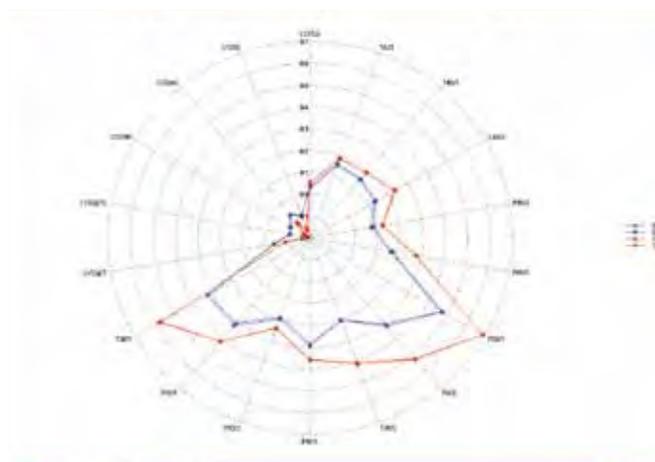


Figure 1: Radar plot of 18 E-nose sensor obtained on 2 PP samples (blue dots represent PPO, red dots represent PP1)

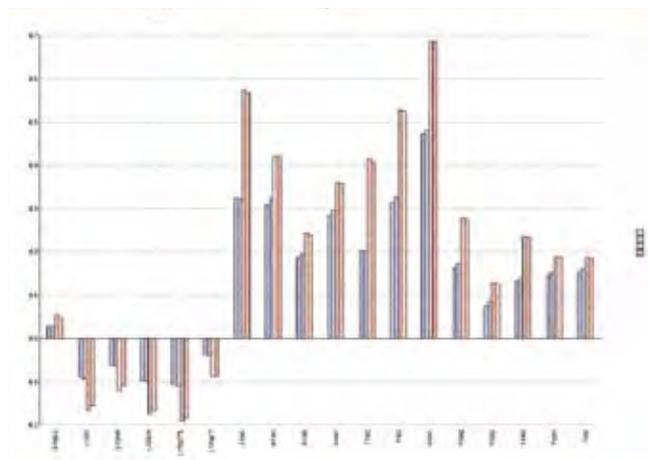


Figure 2: Bar graph of 18 E-nose sensor obtained on 2 PP samples (blue dots represent PPO, red dots represent PP1)

### Statistical Analysis of PP Resin

A set of sensor responses generated from each sample are multidimensional data. And PCA is an unsupervised learning technique that allows reduction of multidimensional data to a lowerdimensional approximation, while simplifying the interpretation of the data. The location of PP resins in a two-dimensional PCA plot would tell us the difference or similarity among different samples

In such a plot, the x axis plots the combination of responses (C1) that gives the largest amount of Information about the differences between the samples, and the y axis plots the combination of responses (C2) that gives the next-greatest amount of information. The percentage listed on each axis is the percentage of variance that is explained by that combination of sensor responses. As is shown in Figure 3, with the PCA results for two different PP resin, the combination of responses plotted on the x axis explains 99.803% of the variance, and the combination of responses plotted on the y axis shows 0.126% of the variance. Therefore, 99.929% of the total variance is indicated by C1 and C2 combined. The high discrimination percentages in PCA graph of the sensor responses indicated that the E-nose was successful in distinguishing the constituent volatile components present in the various grades of PP resin. The discrimination of odor was significant, possibly due to thermo-oxidative degradation of PP resin and additives during extrusion pelletization<sup>13</sup>.

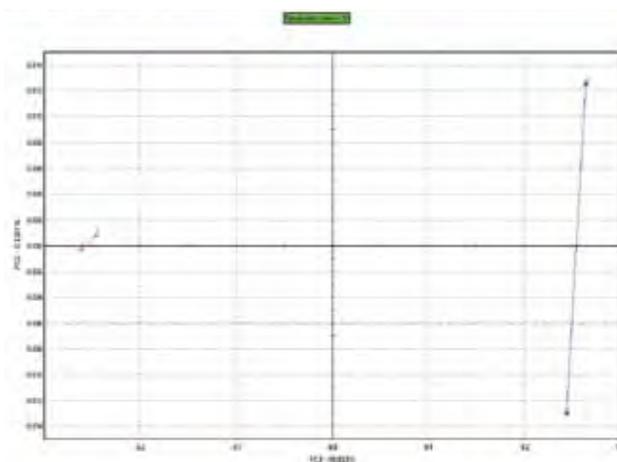


Figure 3: PCA of different PP samples (blue dots represent PPO, red represent PP1)

### Effect of Heating Temperature on Intensity of Odor from PP Resin

The fingerprint chart (commonly called radar plot) and PCA graph of PP resin under different heating temperature (room temperature, 50°C, 80°C, 100°C, 120°C and 140°C) are shown in Figure 4 and Figure 5, respectively. Compared Figure 4 with Figure 5, it indicated that fingerprint chart of samples, under different heating temperature, room temperature and 50°C, nearly overlapped. Besides, the locations of PP resins in PCA graph were too close to be distinguished distinctly, indicating the characteristic information of these odors were not

apparently different. It was possibly attributed to the procedure of diffusion mass transfer of volatile compounds<sup>14</sup>. At a relative low temperature, the movement of PP chain was restricted so that there was no enough free volume for the migration and diffusion of the small molecules in PP resin. Therefore, the heating treatments between room temperature and 50°C had no apparent influence on the odor of PP resin and the intensity of odor from PP resin did not change a lot at different temperatures below 50°C.

When the heating temperature was in a range of 50°C to 100°C the intensity of sensors responses ascribed to the odor of PP resin increased a lot following the increase of temperature. Furthermore, the odor of PP resins was in a linear increase with heating temperature, which was resulted from the movement of PP chain. As increasing the heating temperature, the kinetic energy of PP chain increased, leading to the expansion of material and enlargement of free volume. Thus the molecules in polymer materials would tend to renew orientation movement and migration, which reduced the friction, occurred during the flow of the chain movement. It eventually resulted in the increase of diffusion index of volatile compounds. In addition, elevating temperature even both decreased the melt viscosity and increased the vapor pressure of the volatile compounds, which would make the release of volatile small molecular easier and then increase the odor emission of PP resins.

From figure 4, it could also be found that once the heating temperature was higher than 100°C, the rate of increase of sensors responses decreased. It meant that in such a temperature range, the differences of odor from various PP samples were no obvious. Since the release of most part of volatile compounds in PP resins above 100°C had been almost finished. And there was only a very small part of volatile compounds left in PP resin which would release under further heating condition. Besides, Figure 5 showed that the locations of PP resins in PCA graph were obviously various at different temperatures (50°C, 80°C, 100°C, 120°C, and 140°C). These meant that once the heating temperature was above 50°C, the odor intensity of PP resin strengthened and the effect decreased with the heating temperature rising from 50°C to 140°C.

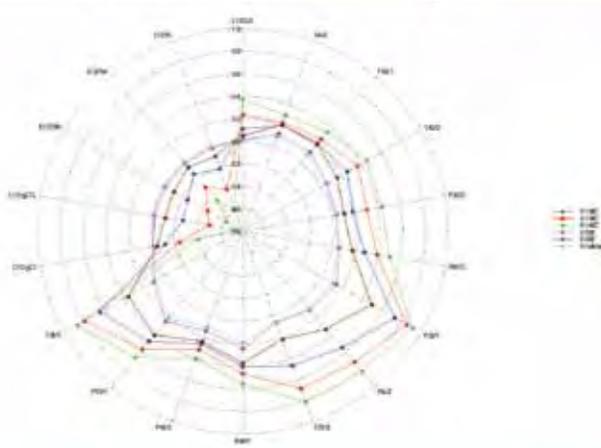


Figure 4: Fingerprint chart of PP in different temperature

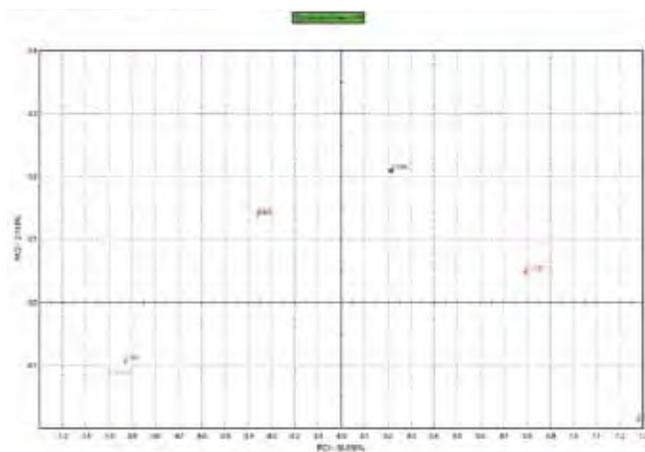


Figure 5: PCA of PPO sample in different temperature

### Effect of Heating Time on Intensity of Odor from PP Resin

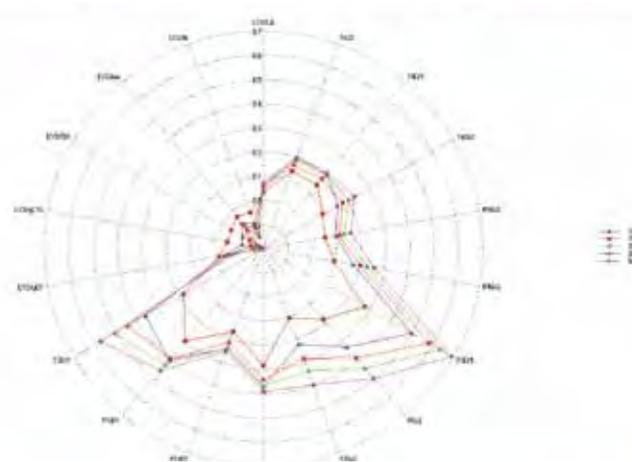


Figure 6: Fingerprint chart of PP in different heating time

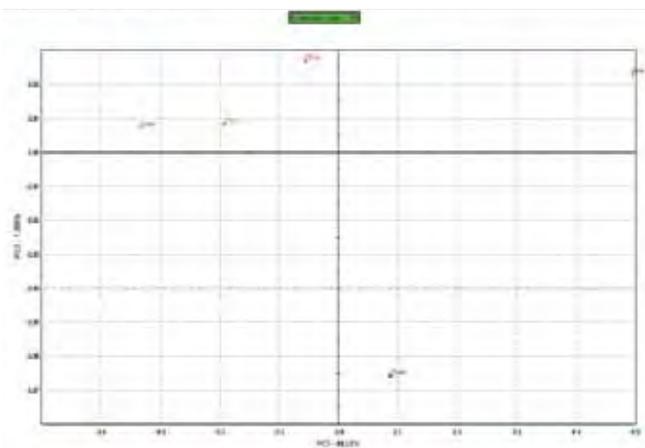


Figure 7: PCA of PPO samples in different heating time

The Fingerprint chart and PCA graph of PP resins under heating treatment of 120°C for different time (5 min, 10 min, 15 min, 20 min, and 30 min) are shown in Figure 6 and Figure 7, respectively. As shown in Figure 6, the odor intensity of PP resin displayed apparently varied with different heating time. Besides, odor intensity of PP resin increased gradually with the extension of heating time. It would possibly result from the fact that the release of volatile compounds from PP resin was a procedure of diffusion mass transfer. Thus, with the extension of heating time, the odor of PP resin would enhance. Furthermore, as displayed in Figure 7, the odor of PP resins at different heating time could be pointed out obviously in PCA graph. Therefore, it could be concluded that the heating time had an obvious effect on the odor of PP resin.

### CONCLUSIONS

1. The electronic olfactory system could be sensitively discriminating the odor of PP resins.
2. Heating temperature influenced the intensity of PP resin odor. Under different heating temperatures, the intensity of PP resins odor was different. When the heating temperature was higher than 50°C, the intensity of PP odor increased with the increase of heating temperature. While the intensity of odor from PP resin did not change a lot at a heating temperature below 50°C.
3. Heating time also had an effect on the intensity of PP resin odor. Odor intensity of PP resin increased gradually with the extension of heating time.

### REFERENCES

1. Andersson, T.; Wessle, B.; Sandstro, J. J Appl Polym Sci 2002, 86:1580-1586.
2. Andersson, T.; Nielsen, T.; Wesslen, B. J Appl Polym Sci 2005, 95:847-858.
3. Kang Peng, Jin Yan, Cai Tao. China Synthetic Resin and Plastics, 2010, 27(1):60-63.
4. Yu, C. W. F.; Crump, D. R. Indoor Built Environ 2003, 12:299-310.
5. Bledzki, A. K.; Faruk, O.; Sperber, V. E. Macromol Mater Eng 2006, 291:449-457.
6. Kim, H.S.; Kim, H.J. J. Appl. Polym. Sci. 2008, 110: 3247-3255.
7. Patel, S.H.; Xanthos, M. Adv Polym. Technol. 1995, 14(1), 67-77.
8. Ballice, L.; Reimert, R. Chem. Eng. Prog. 2002, 41: 289-296.
9. Bernstein, R.; Thornberg, S. M. Polym. Degrad. Stab. 2007, 92: 2076-2094.
10. Hansen WG, Wiedemann SCC. Evaluation and optimization of an electronic nose. In Electronic Noses and Sensor Array Based Systems, Hurst WJ (ed.). Technomic: Lancaster, PA, 1999:131-143.

11. Gardner JW, Bartlett PN. Sensors Actuators 1994; 18: 211-220.
12. Deisingh AK, Stone DC, Thompson M. Food Sci. Technol. 2004; 39: 587-604.
13. Xiang Q, Xanthos M, Mitra S, et al. Polym Degrad and Stab, 2002, 77: 93-102.
14. Huang Hongyu, Fariborz Haghghat. Build and Environ, 2002, 37(11):1127-1138.



Visit the main Society of Plastics Engineers' website for up-to-date information on training, seminars, and other career enhancing information.

[www.4spe.org](http://www.4spe.org)

## College Scholarships for Sons & Daughters of SPE Members

SPE Detroit Section is now accepting scholarship applications from qualified applicants pursuing undergraduate degrees in engineering science.

Children of Detroit Section and Automotive Division members who are pursuing a degree course are eligible. More details and requirements are provided in the application.

Last date to submit an application is **September 30, 2012.**

For more information, please contact [nippanirao@aol.com](mailto:nippanirao@aol.com) or see the Detroit Section website, [www.spedetroit.com](http://www.spedetroit.com).

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General Motors



**Steven Logan**  
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Lightweight Programs  
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**Ari Caliskan**  
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# COUNCILOR'S REPORT

## February 24, 2012 Council Meeting

Tom Pickett



The following summarizes the highlights of the SPE Council Meeting on February 24, 2012. The meeting was a virtual meeting. SPE National indicated that the detailed meeting minutes and supporting reports will be posted on the SPE website.

The meeting began with roll call. The meeting minutes of the November 12, 2011 Council Meeting were approved. SPE President, Russell Broome reviewed the agenda. He indicated that ANTEC Boston and Eurotech were both successful conferences in terms of attendance and financial results. He introduced Wim de Vos as the new CEO of SPE. De Vos spoke to the group on how excited he is to be part of SPE and looks forward to personally meeting the Councilors at the next meeting in Orlando.

Vijay Boolami, SPE treasurer, provided a financial update. He indicated that we are on track for our 2012 budget. He indicated that our current cash flow is not good and explained that this is typical due to seasonal differences. This time of year SPE is paying for ANTEC and typically does not see revenue from that event until the later quarters. He had to borrow \$75,000 to help with cash flow.

Len Czuba presented a number of bylaws and policies proposed changes. A Section, a Division and a Special Interest

Group (SIG) can voluntary deactivate. SPE eliminated Affiliate Membership status and replaced it by a Professional Member. Also SPE will have the start of a new membership called Young Professional Member.

The Section and Division Committee Reports were presented. Steve McCarthy presented the Section's report. He updated the councilors on the status of student chapters and presented a list of schools where the student chapters are inactive. Barbara Arnold-Feret presented the Division's report. A motion was approved for the deactivation of the Marketing & Management Division.

An update on ANTEC 2012 was presented. At this time there are 700 attendees registered for ANTEC. ANTEC 2012 is joined with NPE in Orlando. ANTEC has fewer papers than ANTEC 2011. ANTEC 2013 will be in Cincinnati. ANTEC 2014 will be in Las Vegas. ANTEC Mumbai is planned for December 6 and 7, 2012 at the Renaissance Mumbai Convention Center Hotel in Mumbai, India.

Tom Conklin reported a modest increase of 2% in membership. SPE retained 81% of members. Gail Bristol reported on the Foundation and Corporate Outreach update. SPE Detroit Section made a generous donation to the Foundation. Also John Haas and family made a generous donation to the Foundation.

The next Council Meeting is at ANTEC on April 1, 2012 in Orlando, FL.

Tom Pickett  
SPE Automotive Division Councilor



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# TREASURER'S REPORT

Jackie Rehkopf



The SPE Automotive Division bank account balance is in very good standing with \$156.8K in checking and \$27.4K in savings for a total of \$184.2K, as of May 23, 2012.



# COUNCILOR'S REPORT

## April 1, 2012 Council Meeting

Tom Pickett



The following summarizes the highlights of the SPE Council Meeting on April 1, 2012. The Council Meeting was held in Orlando, Fla. in conjunction with ANTEC and NPE. SPE National is to post detail meeting minutes and supporting reports on the SPE website.

### PART I

SPE President, Russell Broome opened the meeting, which began with roll call by the secretary. Sections and Divisions that had no councilor present or proxy were noted. Broome recognized special guests comprised of past SPE presidents, executive committee, and SPE staff. The minutes of the February 24, 2012 Council Meeting were approved. A moment of silence was held for members who passed away.

Russell summarized his year as president. He indicated that in the beginning of his term he noted the need to embrace change. He had to embrace several changes in staff at SPE in what he referred to as a "whirlwind year." Russell continued to increase global awareness of SPE that the previous President, Ken Braney, brought forward. SPE Eurotech was a success. SPE had a second consecutive year of growth in membership. Russell increased student awareness and remarked how the student luncheon was sold out at ANTEC in Boston last year. As social media has grown, SPE has embraced the change. Russell hired SPE CEO Wim de Vos. Russell said that he feels he leaves his term as president in good standing.

Vijay Boolani, SPE treasurer, presented the 2011-2012 financial report. SPE performed better than expected to the budget. SPE made \$155,000 in income in 2011. In 2010 SPE made \$27,000.

Wim De Vos explained the positive trend in the financials. A big stream of revenue comes from membership dues that bring in \$1.6 million. The second biggest source of sales revenue for SPE is ANTEC, accounting for revenues of \$700,000. Journals are the third biggest source of revenue accounting for \$615,000. De Vos indicated the past two years has showed financial gain for SPE. He commented on the 2012 budget. Cash flow is a concern because SPE will not see cash revenue for ANTEC registration until SPI transfers it to SPE.

Len Czuba presented bylaws and policies proposed changes. The bylaws were changed to indicate the new SPE headquarters address.

Tom Conklin presented a membership report. There are two new types of membership: Young Professional Member is for someone under 30 years of age and not a student; Senior Member is for someone with 10 or more consecutive years of membership. Dues for both levels of membership are \$99 per year. There was a 2% increase in membership last year. The

U.S. accounts for 76% of membership globally; with the remaining 24% international. The average age of members is 46 years old. The Automotive Division

has approximately 1,000 members. Conklin indicated that there are issues with the membership database software that they are working to resolve. He also said that Eurotech had a total of 333 attendees. ANTEC Mumbai will be held December 6 to 7, 2012 at the Renaissance Mumbai Convention Center Hotel in Mumbai, India.

Steve McCarthy presented an update on student chapters status. General Motors Institute is placed on provisional status. A school on provisional status for two years then becomes defunct. McCarthy listed school chapters that are in poor standings. The University of Michigan-Ann Arbor and the University of Michigan-Dearborn are in poor standings. Both schools need to have their student membership increase to 10 members or more to be in good standing.

Barbara Arnold-Feret presented the Division's committee report. Rick Wagoner will be the new division chair. Face-to-face meetings are becoming more popular again with more people attending such meetings in the past year. In the Section's committee report, it was noted the University of Texas at Dallas would like to become a student chapter.

The student activities at ANTEC 2012 were discussed. The student usher program was eliminated. The Student Award Luncheon is scheduled for Wednesday at ANTEC. The SPE Automotive Division was not listed as a sponsor. Tom Pickett commented that the Automotive Division had agreed to sponsor \$1,500 for the Student ANTEC Activities. There are 80 student poster papers.

Old & New business: Funds from the Polyolefin Conference were given to SPE. SPE Councilors ending their 6 years of service were recognized. SPE Councilors ending 3 years of service were recognized. Russell Broome introduced Jim Griffing as incoming president. Griffing expressed thanks to Broome for his leadership. Meeting adjourned.

### PART II

Secretary conducted roll call. Jim Griffing appointed Jeffrey Helms as SPE vice-president. Vacant councilor positions in sections and divisions were identified. Mid-Michigan was one of the sections identified with a councilor vacancy.

Griffing introduced the 2012-2013 executive committee. He recognized the SPE staff and past presidents. The 2012-2013 SPE operating plan was approved. Griffing talked about how

## Councilor's Report CONTINUED FROM PAGE 26

SPE was started in Detroit by a group of sales people and to honor where SPE was founded, he plans to hold next council meeting in Dearborn, Mich. on September 15, 2012. Griffing remarked that SPE has changed over the years. It now has presence in social networking. He talked about a hallway discussion at a company he had years ago with a person about SPE and today that company is a big supporter of SPE. Griffing remarked that there is a lot of knowledge in the minds of SPE members. He encouraged us to meet members, get to know them, develop trust with them and share information with them.

Greg Campbell, treasurer, reviewed the plans for 2012-2013. He thanked outgoing treasurer, Vijay Boolani. A motion was approved for a new student chapter at the University of Texas at Dallas. Under old business / new business several sections and divisions announced plans for conferences for next year.

Meeting adjourned. Next Councilor meeting is on Sept.15, 2012 in Dearborn, MI.

Tom Pickett  
SPE Automotive Division Councilor



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## EDUCATION CHAIR'S REPORT – April 2012 Monica Prokopyshen



The results of this year's Explorathon workshops and the Education Committee's proposal for student community service credits were reported at the April Board of Directors meeting.

### COMMUNITY SERVICE CREDITS

The following measures of community service were proposed to assist in allocating SPE AD funds to support college student activities.

- 1) Participation at SPE AD sponsored / co-sponsored events such as
  - a. Paper presentation (includes ANTEC automotive sessions)
  - b. Poster contest participation
  - c. Volunteering at the Innovations Awards Gala or another division event
  - d. Event attendance
- 2) SPE Membership in a student chapter or the SPE AD
- 3) Other Potential Activities
  - a. Submit a blog article for the SPE AD website
  - b. Publish topical paper in a journal
  - c. SPE scholarship recipient.

### EXPLORATHON 2012

In addition to sponsoring the Plastivan® mobile science lab visits to local schools throughout the school year, the SPE AD has been hosting career workshops for over a decade as part of the

AAUW's (American Association of University Women's) Explorathon event. Students in grades 8 through 12 from southeast Michigan attend sessions conducted by professionals working in healthcare, sciences, technology, engineering and mathematics.

This year, fifty-five to sixty students attended the 3 "Chemistry and Designing with Plastics" workshops conducted by the SPE AD on April 4, 2012. Student participation by grade follows: 57% (8), 16% (9), 7%(10), 5% (11), 16% (undeclared grade). The sessions featured the latest in automotive "Design for the Environment" innovations, recycling, chemistry, hands-on experiments and discussions of polymers in medical, recreational, consumer and industrial products.

Although fewer schools bussed students to this year's event, the total student participation was similar to last year's, at 550, as more parents drove students to the event. There was a wider disparity in underlying science knowledge this year but also a higher interest in why and how things worked. Students also showed greater product focus than in prior years.

The workshop composition comprised students who selected the workshop and those who were assigned by teachers. This explains why the students expressed an average interest of 84% in the workshop, yet rated the session overall at a high 92% satisfaction.

The following write-in responses were typical for the question: "What was most useful about this session?"

*The experiments. The video. Everything was hands-on. Being able to do experiments. I loved it. The hands on experiments helped me understand it better.*



# SECRETARY'S REPORT

## SPE Automotive Division Board Meeting Minutes

### Dec. 5, 2011



#### ATTENDEES

Yvonne Bankowski  
Teri Chouinard  
Fred Deans  
Anthony Gasbarro  
Ed Garnham  
Brian Grosser  
Jeff Helms

Chuck Jarrett  
Norm Kakarala  
Mark Lapain  
Peggy Malnati  
Mike Masserant  
Al Murray  
Kevin Pageau

Tom Pickett  
Bill Pippine  
Monica Prokopyshen  
Jay Raisoni  
Nippani Rao  
David Reed  
Jackie Rehkopf

Suresh Shah  
Mike Whitens  
Sheldon Brown  
Ron Price  
Bonnie Bennyhoff  
Suzanne Cole  
Ed Luibrand

Meeting was held at ACC in Troy, 5:30 p.m. – 7:00 p.m.  
August 15th minutes approved.

#### COUNCILOR REPORT – Tom Pickett

A virtual division meeting was held Oct. 21st. As of Dec. 5th the official minutes had not yet been published. GPEC exhibit space was sold out. The virtual meetings have good attendance, though voting is difficult since not all participants had the requisite software. Tom (SPE AD) and Norm Kakarala (Detroit section) called in to the Nov 12th meeting (Barcelona). Most councilors in attendance were from the US.

#### EDUCATION – Monica Prokopyshen

Explorathon 2012 scheduled for April 4, 2012 at Detroit Country Day Upper School in Beverly Hills. The CCS final project review is Dec. 14, 2011 8:00 a.m. – 12:00. IAG student participant certificates issued -- thanks to J. Rehkopf, J. Keeler and Peggy Malnati. Student service points straw person issued for comment (appended). The ACC donated 40 copies of the "The First Snap-Fit Handbook: Creating Attachments for Plastics Parts," by Paul R. Bonenberger, published by Hanser Gardner Publications for distribution to universities.

#### MEMBERSHIP – Bill Pippine

Bill Pippine looking for volunteers for the membership position.

#### TREASURER'S REPORT –Yvonne Bankowski

Filed IRS tax form (full form version) in November and sent copies to national. Gross receipts from ACCE \$46-47 K. Ticona sponsorship has been renewed through 2015 (\$65 K). Mike Whitens acknowledged Ticona's support of the IAG. IAG production (Voorhes) bill paid \$57 K.

#### AUTOEPCON – Nippani Rao

First planning meeting as held Dec. 5, 2011 for May 1st event.

#### HOUSE – Ed Garnham

The board approved \$200 / month to continue the current storage unit contract. Anthony Gasbarro reported that the quarterly agreement with the ACC is still in place with plans to continue the agreement for a year.

#### ANTEC – Anthony Gasbarro

Anthony reported that 4 papers had been received. Due to ANTEC website issues the deadline has been extended a week, though it is earlier than last year's deadline.

#### MARCOM – PEGGY MALNATI

1. ACCE: Dates are set for Sept. 11-13, 2012. The theme is Un-leashing the Power of Design. Conference art is complete and ads are being sent to publications. A new attendance record of 480 was reached, as well as new records in sponsorship and sold out exhibit space. For the first time a plant tour was held in conjunction with the ACCE. Ward's AutoWorld Editor-in-Chief Moderated a session on "The Role of Composites in Battery Cases & Trays for Fleet Electrification."
2. IAG: Marcom highlights include 18 magazine swaps, and good pick up and carry on coverage from press releases announcing winners. The press release announcing winners was issued 15 minutes after the show! The IAG awards module was posted to the website in record time and duplicate trophy orders are up.
3. Web site: updated with 2011 IAG winners and awards module. 2012 call for papers posted. SPE AD web site reached #1 of 36,000 in a Google search of hierarchy for "automotive plastics."
4. Twitter followers have risen to 2737 (up from 215 in August). Blog has 32 posts, 17 external comments and 2305 all-time views. Year 3 Communications Leader report is in process.
5. Board approved general funds for Marcom, not to exceed \$2440, for exhibit booth upgrades and annual updates to the flyer.

#### NEWSLETTER / SPONSORSHIP

Next newsletter submissions TBD.

#### NEW BUSINESS/OTHER

Jeff Helms is chair elect, Yvonne Bankowski is vice chair and Jackie Rehkopf will become treasurer.

Leslie Kyle, SPE International Professional Event Organizer, left the organization.

The Pinnacle award submission is due year end.

Malnati, Rao, and Whitens to draft a plan on how to recognize Ticonca's SPE AD / IAG support.

Jim Kolb is retiring at year end and will be presented a plaque at the Detroit section dinner meeting on behalf of the Detroit Section and SPE Automotive Division.

#### NEXT BOD MEETING

Date / Time: April 16th, 2012



# SECRETARY'S REPORT

## SPE Automotive Division Board Meeting Minutes

### Jan. 30, 2012



#### ATTENDEES

Yvonne Bankowski  
Teri Chouinard  
Fred Deans  
Anthony Gasbarro  
Ed Garnham  
Brian Grosser  
Jeff Helms

Chuck Jarrett  
Norm Kakarala  
Mark Lapain  
Peggy Malnati  
Mike Masserant  
Al Murray  
Kevin Pageau

Tom Pickett  
Bill Pippine  
Monica Prokopyshen  
Jay Raisoni  
Nippani Rao  
David Reed  
Jackie Rehkopf

Suresh Shah  
Mike Whitens  
Sheldon Brown  
Ron Price  
Bonnie Bennyhoff  
Suzanne Cole  
Ed Luibrand

Meeting was held at ACC in Troy, 5:30 p.m. – 7:00 p.m.

**COUNCILOR REPORT – Tom Pickett** No report.

**EDUCATION – Monica Prokopyshen** No report.

**MEMBERSHIP – Bill Pippine**

Bill Pippine is resigning from the Membership Chair position in June 2012, but would like to remain on the Board. The Membership Chair position is open for anyone interested.

**TREASURER'S REPORT – Jackie Rehkopf**

Current Balance:

Checking: \$126.0 K + \$6.2 K in pending transactions  
Savings: \$27.4 K  
Total: \$159.6 K

Ron Price suggested moving the money in the savings account in an investment with a higher return. Jackie will check into this at the local Comerica branch.

**AUTOEPCON – Nippani Rao**

Four keynote speakers are already booked: David Cole (Center for Automotive Research), Alan Taub (GM), Kathy Minnich (Ford), Maria Ciliberti (Ticona). Large sponsors include Ticona, DSM and Styron. Norm Kakarala is working on the technical sessions.

**ACCE**

The committee is considering a part competition and use this opportunity to draw nominations for IAG. Only one part will be awarded for most innovative at the conference. All present SPE board members agreed to move forward with the part competition.

**HOUSE – Ed Garnham**

The 2011 IAG nomination display is underworks at ACC.

**MARCOM – PEGGY MALNATI**

1. AutoEPCON: The 2012 event has new banner art. The Call for Papers Design has been created. The first press release on the 4 keynote speakers will be written and distributed in February.
2. ACCE: Dates are set for Sept. 11-13, 2012. The theme is Unleashing the Power of Design. Conference art is complete and ads are being sent to publications. Sponsorship levels are at the same high level as in 2011. The SPE/ACA Golf Outing is set for Sept. 10, 2012. There was a proposal to investi-

gate using Burton Manor instead of the MSU MEC venue, but the final decision was to stay at the MSU MEC for 2012. The ACCE committee wants to hold a composites part competition at this year's show.

3. IAG: Need to select theme.

4. Web site: New look and banners went up in December. The archiving work still continues. The Board of Directors page should be updated. The web traffic continues to trend upwards, though there were some drops in October and December.

5. Twitter followers have risen to 317 (from 273 in Dec '11)

**IAG**

The 2011 IAG is still seeing coverage. Orders for plaques and trophies are still coming in.

The 2012 IAG date is set for November 12, 2012.

**NEWSLETTER / SPONSORSHIP**

Next newsletter submissions TBD.

The 2012 sponsorship total is \$32,800.

**NEW BUSINESS/OTHER**

Open Board Positions: Membership Chair, Social Chair, Inter-Society. Peggy Malnati agreed to be the Inter-Society Chair. Anthony Gasbarro to check with Sue McClelland to see if she is interested in any board positions.

Dave Reed suggested that the SPE AD participate in the Eyes on Design Event and have a tent or tabletop to draw designers and new interest to SPE AD.

Replacements for Jim Kolb at ACC are in the process of being interviewed.

Vince Holmes (now with Wellman) would like to get more involved with SPE.

Dave Reed suggested putting together a rolling display of the IAG awards that can be taken to different companies for display. Jeff Helms to take that on.

**NEXT BOD MEETING**

Date / Time: April 16th, 2012

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Product Code R-401, Published November 2011,  
List Price \$99.95

### Automotive Carbon Fiber Composites

From Evolution to Implementation

Jackie D. Rehkopf

SAE International

ebooks

### Automotive Carbon Fiber Composites

By Jackie D. Rehkopf

This book provides a high-level summary on carbon reinforced fiber composites specific to the automotive industry today and its vision for the next 5 to 10 years. It is applicable for those involved in technical material strategy and research, plus those who need to understand the basics of this subject to support better business decisions.

Product Code T-124, Published November 2011,  
List Price \$99.00



### Engineering Plastics and Plastic Composites in Automotive Applications

By Kalyan Sehanobish

Plastics have proven to be cost effective while providing automakers with the design freedom to accommodate safety, styling, and comfort. This publication focuses on some of the various types of plastics and plastic composites and their applications and advantages within passenger vehicles.

Product Code T-122, Published April 2009,  
List Price \$199.00



### Design of Durable, Repairable, and Maintainable Aircraft Composites

This guidebook will assist in the design and integration of composite commercial aircraft structures. The book identifies problems that have occurred with various composite components and provides potential problem-solving recommendations.

Product Code AE-27, Published August 1997,  
Sale Price \$79.99



### Plastics and the Environment

By Francis Gardiner, Eleanor Garmson

This book provides readers with a look into the environmental issues of plastics products throughout the complete product lifecycle, from material selection to product design to recycling. Written by some of the leading researchers and practitioners on this topic, it is a distinctive look at how to maximize profitability through environmental compliance in the plastics supply chain.

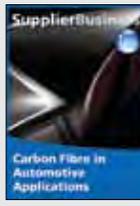
Product Code B-RAP-004, Published by Rapra Publishing, January 2010,  
List Price \$165.00



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Product Code MR-SB-089, Published by SupplierBusiness, May 2011,  
List Price \$1,830.00



### Carbon Fibre in Automotive Applications

This new briefing examines the relationship between carmakers and fibre suppliers, examines the feedstock and its constraints, looks at cost implications, as well as considering a whole new supply base.

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Published by SupplierBusiness, May 2011,  
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**Jeff Helms, Chair-Elect & Past-Chair**  
Ticona Engineering Polymers  
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**Yvonne Bankowski, Vice-Chair**  
Ford Motor Company  
(313) 673.8776

**Jackie Rehkopf, Treasurer**  
Plasan Carbon Composites  
(248) 324.9128

**Monica Prokopyshen, Secretary**  
Retired - Chrysler LLC  
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**Tom Pickett, Division Councilor**  
General Motors Company  
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**Josh Madden, Director Emeritus**  
Material Engineering Services  
(248) 505.2776

**Dr. Allan Murray, Director Emeritus**  
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**Nippani Rao, Director Emeritus**  
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**Fred Deans, 2012 Golf Outing**  
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