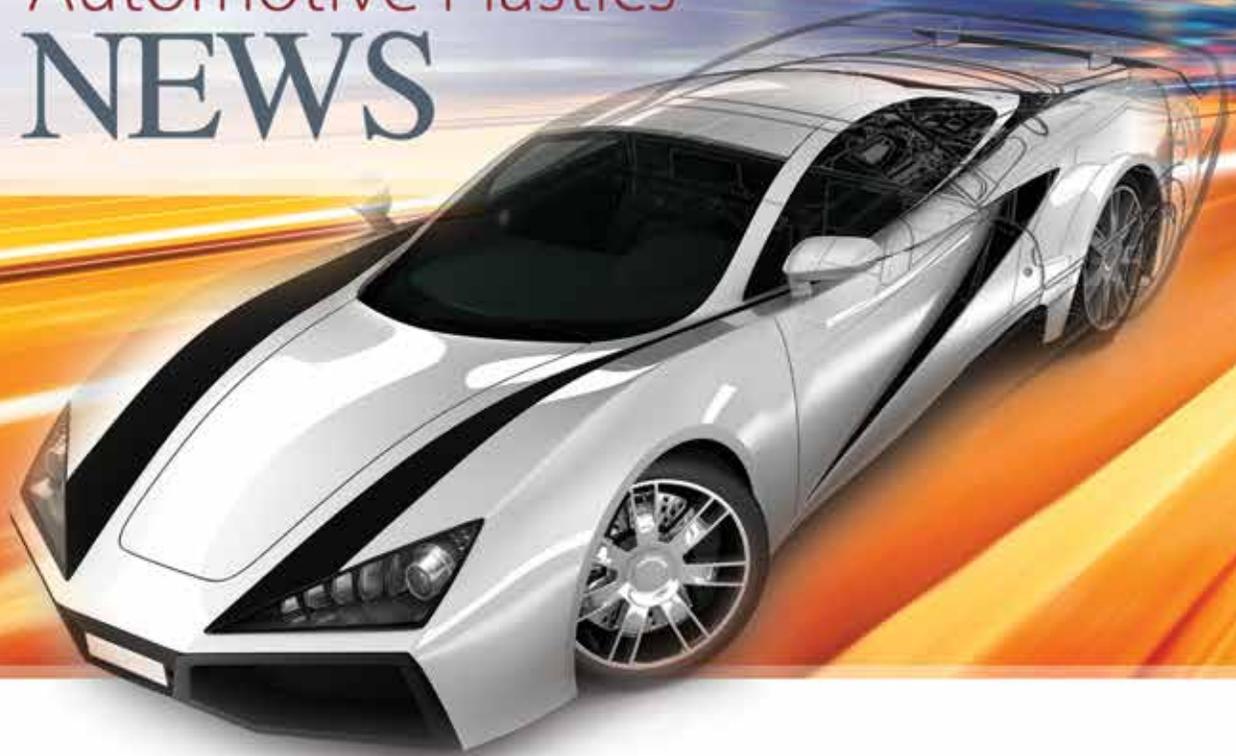




Automotive Plastics NEWS

MARCH 2017
VOLUME 46, ISSUE 3



2017 ACCE UPDATE

Work is well underway for the 2017 SPE Automotive Composites Conference & Exhibition (ACCE). This year's show returns September 6-8, 2017 to The Diamond Banquet & Conference Center at the Suburban Collection Showplace in Novi, Mich. in the Detroit area. Now in its seventeenth year, the ACCE is the world's leading forum for automotive composites and draws over 900 exhibitors, speakers, and attendees from 15 countries on five continents to the Detroit area.

Dale Brosius of IACMI secured the venue and also suggested our theme, *Composites: Solutions for a Multi-Material World*, after noting that multi-material vehicles are a hot topic these days and that "various grades of steel, aluminum and composites/plastics will all have to fit together to achieve future lightweighting." Rani Richardson, Composites & Additive Manufacturing Business Experience Consultant, Dassault Systèmes, has agreed to once again serve as the SPE ACCE event chair.



Composites:
Solutions for a
Multi-Material World

Sept 6-8
2017

ACCE



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AUTOMOTIVE DIVISION MEETING SCHEDULE & SPECIAL EVENTS CALENDAR



ACCE Abstracts Deadline	March 31, 2017
IAG Lifetime Achievement Nomination Deadline	March 31, 2017
SPE Auto. Div. Board Meeting American Chemistry Council - Auto. Ctr. Troy, MI USA	5:30 - 7:30 p.m. April 24, 2017
12th-Annual AutoEPCON Detroit-Troy Marriott, Troy, MI USA	ALL DAY May 2, 2017
ANTEC 2017 Anaheim, CA	ALL DAY May 8-10, 2017
ACCE Papers Deadline	May 31, 2017
IAG Hall of Fame Nomination Deadline	May 31, 2017
SPE Auto. Div. Board Meeting American Chemistry Council - Auto. Ctr. Troy, MI USA	5:30 - 7:30 p.m. June 12, 2017
SPE Auto. Div. Board Meeting American Chemistry Council - Auto. Ctr. Troy, MI USA	5:30 - 7:30 p.m. August 21, 2017
SPE Auto. Div. Golf Outing Fieldstone Golf Club Auburn Hills, MI USA	ALL DAY September 5, 2017
17th-Annual SPE Automotive Composites Conference & Exhibition (ACCE) The Diamond Banquet & Conference Center at the Suburban Collection Showplace Novi, MI USA	ALL DAY September 6-8, 2017
IAG Parts Nomination Deadline	September 13, 2017
First Round - Automotive Innovation Awards Judging Celanese Corp. Auburn Hills, MI USA	8:00 a.m.- 5:00 p.m. September 27-28, 2017
SPE Auto. Div. Board Meeting American Chemistry Council - Auto. Ctr. Troy, MI USA	5:30 - 7:30 p.m. October 2, 2017
19th-Annual SPE TPO Automotive Engineered Polyolefins Conference (TPO) Detroit-Troy Marriott Troy, MI USA	ALL DAY October 1-4, 2017
Second Round / Blue Ribbon - Automotive Innovation Awards Judging Celanese Corp. Auburn Hills, MI USA	8:00 a.m.- 5:00 p.m. October 9, 2017
47th-Annual SPE Automotive Innovation Awards Gala Burton Manor Livonia, MI USA	5:00-11:00 p.m. November 8, 2017

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

EEmail Matt Carroll at auto-div-chair@speautomotive.com for more information.

CORRECTION

The Hall of Fame (HOF) Award Winner in the December 2016 issue of this newsletter had the correct photos but the incorrect text. Our sincere apologies. Please see the correct HOF information on page 5.

CONTENTS

ACCE 2017	1, 8-11
Automotive Division Calendar	2
Chair's Welcome	3-4
2016 Hall of Fame Correction	5
Membership Report / IAG 2016 Trophy Order Form	7
AutoEPCON 2017 Report / Attend Show	12-13
Treasurer's Report	15
ANTEC 2017 Attend Show	16
Secretary's Report - February Minutes	18-19
TPO Conference 2017 Call for Papers	20
Education Report / PlastiVan	22-23
IAG 2017 Call for Nominations	25
IAG 2017 Call for Lifetime Achievement	26
Councilor's Report	27
Intersociety Report	28
Technical Paper	29-30
Board of Directors / Directory	32



CHAIR'S WELCOME

by Matt Carroll,
SPE Automotive Division Chair



This year is the 75th Anniversary of the Society of Plastics Engineers and we are very pleased to have you as teammates in the SPE Automotive Division!! Founded in Detroit in 1942, SPE has become the recognized medium of communication among scientists, engineers, and technical personnel engaged in the development, conversion, and application of plastics. Don't forget to visit www.4spe.org for more information from SPE Headquarters.

In the coming year, **SPE will host over 40 Technology & Business Conferences** and the SPE Automotive Division will sponsor or support at least four of these events, covering a wide range of plastics. Since there is a real plethora of competing conferences and awards programs these days, we really appreciate your support for our **nonprofit** events. The SPE Automotive Division is organized as a 501(c)(3) **nonprofit** organization since our activities ultimately are charitable, educational and scientific. We hope that you favor our events when comparing against those held by the **for profit** outfits! When you look at conference prices, the choice should be a "no brainer"... and you can always count on outstanding attendance from our OEM friends.

The 12th annual AutoEPCON, **Automotive Engineering Polymers Conference**, with the theme *Plastics on the Move*, is lined up for May 2nd at the Troy Marriott. While one could argue that every polymer is an "Engineered Polymer", the focus at this conference is on the high temperature or decorative classes of resins rather than the more widely produced commodity plastics such as polystyrene, PVC, polypropylene and polyethylene. Registration fees for this one day event are eminently affordable:

SPE Member	\$125
Non-Member	\$175
Student	\$10

Sandra McClelland of Solvay and Gary Kogowski of Ravago are the co-chairs leading the AutoEPCON, and they still have room for papers. If interested, please forward your abstracts to Sandra McClelland at Sandra.McClelland@solvay.com and please review Gary Kogowski's short article in this newsletter.

Just one week later, ANTEC 2017, **The Plastics Annual Technology Conference**, will be held in Anaheim, California, May 8th – 10th. Truly, all of the polymer families are represented at this "catch-all" event in addition to the various processing and analysis techniques, markets, job functions, and other activities related to plastics. Norm Kakarala has led the planning for two Automotive Division sessions this year so please check out Norm's ANTEC summary inside this newsletter. If you can, please join us in LA LA LAND for this cornucopia of all things plastic.

Following a summer hiatus, several big Detroit-area SPE events are slated for the Fall of 2017. First, the **Automotive Composites Conference and Exhibition (ACCE)**, which graces our cover this month, will be held again at the Diamond Banquet & Conference Center at the Suburban Collection Showplace in Novi, MI on September 6-8, 2017. Composites: Solutions for a Multi-Material World, is the theme and registration fees for this event are expected to remain stable at:

\$475 USD – SPE Member
\$575 USD – Non-SPE Member (Includes 1 yr of SPE membership)

We hope you take advantage of this great value!

Welcome

The 19th Annual TPO *Automotive Engineered Polyolefins Conference*, put on by the SPE Detroit Section, is planned for October 1 – 4 also in Troy, MI at the Marriott. Technical sessions planned for 2017 include all of the usual suspects like:

- | | | |
|-------------------------|----------------------------|--------------------------------------|
| Additives & Modifiers | Reinforcements & Compounds | Adhesives & Coatings |
| Surface Enhancements | Interior Applications | Sustainability & Bio-Based Materials |
| Lightweighting of Parts | Process Developments | Modeling & Simulations |
| VOC & SOC Issues | | |

So please plan to participate!

Meanwhile, there have been a few notable happenings in the SPE Automotive Division “office”. Special welcome and thank you this month to our new Webmaster, Marc Bahm, of BASF. He has been converting our site into a format that is more “mobile friendly”. Please be patient as construction progresses at www.speautomotive.com. Our Treasurer, Bonnie Bennyhoff, is adding Administrator to her title for two of our events, the ACCE and the Innovation Awards Gala (IAG) and our Sponsorship Chair, Teri Chouinard, will also now take on the role of MARCOM (Marketing and Communications) coordinator for the IAG. Last but not least, the Education Committee, led by Monica Prokopyshen for many years now, is being bolstered with two new volunteers: Alper Kiziltas from Ford Motor and Brian Haggart from Ineos Styrolution. We are expecting nothing but great things from the team!

Many thanks to all of our SPE members and newsletter readers. With the four, aforementioned conferences, we obviously have the plastics industry very well covered. Hope to see you all soon!



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2016 SPE Automotive Division
Category Winner: **Hall of Fame**



First Polycarbonate Instrument Panel
Ford Motor Co. 1977 Econoline Van



OEM Make & Model: Ford Motor Co.
1977 Econoline Van

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Material Processor: Ford Saline / Faurecia Interior Systems

Material Supplier: GE Plastics / SABIC

Material / Proess: Lexan PC / Injection molding

The first use of polycarbonate (PC) to injection mold a hard (painted) instrument panel (IP) featured on the 1977 Econoline van is the 2016 Hall of Fame winner. PC and PC blends have been used to mold IP retainers, uppers, upper trim, lowers, and lower trim for both hard (painted) and soft (skin & foam) IP systems for the last 39 years. The application proliferated from commercial vans to pickups, passenger cars, and SUVs. To date an estimated 200-million IPs using 2-billion pounds/907,185 tonnes of PC or PC blends have been produced globally in the passenger vehicle market.

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MEMBERSHIP REPORT

Steven VanLoozen,
SPE Automotive Division Membership Chair

I would like to first thank everyone reading this for their ongoing support for SPE. Unfortunately, I need to report that our membership has dropped to 936 members. This is the first time that I can remember our membership falling below one thousand.

We will focus our efforts again this year on gaining membership from the continuously growing pool of young engineers at the OEMs through targeted events in the major tech centers here in the Detroit area. Membership is the lifeblood of SPE and ensuring that a new generation of talented engineers are exposed to the value membership can bring is our mission for 2017. The face to face networking and idea sharing with the dedicated professionals that make up SPE have done so much to help my growth in this industry. I hope that we in the SPE Automotive Division can impart this opportunity to learn and grow to those who haven't experienced it yet. I hope everyone who is taking the time to read this and feels the same about the experiences they have enjoyed as a member will share this message with any of your colleagues that have never been to one of our events or looked at our website. Thank you all for your support.

2016 IAG Plaque/Trophy Orders

TROPHIES

Grand Award: \$500. USD each • Category Winner: \$325. USD each
Finalist: \$160. USD each

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Call for Papers

The Technical Program Co-Chairmen this year are Dr. Michael Connolly, Huntsman and Creig Bowland, CPIC Fiberglass NA, and they are already forming the team and starting to hear from speakers and collect abstracts and papers. Those interested in speaking at this year's event should go to <http://SubmitACCEpapers.com> and upload abstracts by **March 31, 2017** and full papers or non-commercial presentations by **May 31, 2017**. Authors who submit full papers (not presentations) in the proper format will be considered for the conference's Dr. Jackie Rehkopf Best Paper Awards, which are presented during the event's opening ceremony. Questions for the peer review committee may be addressed to ACCEpapers@speautomotive.com.

Call for Nominations for Conference Parts Competition

The committee also issued a call for nominations for its sixth-annual ACCE parts competition. Prizes for the Most Innovative Composites Application will be awarded in three categories — Materials Innovation and Process Innovation (selected by media and members of the SPE ACCE planning committee), and People's Choice (selected by conference attendees) — with winning teams receiving recognition and a trophy after lunch on the last day of the show.

There is no cost to enter the competition. Any registered conference participant (speaker, sponsor/exhibitor, or attendee) may nominate original equipment or aftermarket composite parts on passenger cars or light trucks from any geography. The only requirement is that parts must be on a vehicle available for commercial sale in 2017 or prior years and that the vehicle producer must give permission. Nomination instructions are available from Teri Chouinard, teri@intuitgroup.com. Preliminary descriptions and photos about the application's innovations are due **July 31, 2017** and should be eMailed to ACCEpapers@speautomotive.com. Physical parts must be brought to the SPE ACCE for final review by judges during a formal walk-through at the show.

Call for Student Scholarship Applications

Since supporting students is a core activity of SPE, conference organizers have issued an annual call for applications for four SPE ACCE scholarships, thankfully sponsored by the Michigan Economic Development Corporation or MEDC, and two awards from a new endowed scholarship still in the process of being funded in honor of the late Dr. Jackie Rehkopf, a long-time SPE Automotive Division board member, SPE ACCE volunteer, and automotive composites expert. Winners will be selected from a pool of qualified applicants and announced in July prior to the 2017 SPE ACCE show.



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All four ACCE scholarships from the MEDC are in the amount of \$2,000 USD. Two of the scholarships (given annually since 2007) are for full-time graduate students anywhere in the world who are pursuing degrees in Polymer Science, Composites, Plastics or a related Engineering discipline. The other two ACCE scholarship are available for graduate or junior or senior undergraduate students pursuing similar academic programs at a university or college in the US state of Michigan. In addition to a letter of recommendation from an advisor or mentor, students must provide a succinct 2-page essay explaining how their planned work will benefit polymer composites usage in the automotive or other ground-transportation industry. Winning students are required to submit a formal paper on the work by June the following year and are expected to present their results in person at that next year's SPE ACCE conference.

The **Dr. Jackie Rehkopf Scholarship** continues the march to its \$100,000 USD goal to reach full endowment, but contributions from the SPE Automotive and Composites Divisions, who have co-organized the ACCE show since 2001 and provided seed money to get the endowed scholarship started, have agreed to contribute funds to allow two scholarships to be given in 2017. The scholarships are available to either full-time graduate or junior or senior undergraduate students anywhere in the world

pursuing degrees in Polymer Science, Composites, Plastics or a related Engineering discipline, with preference given to female students, although the best candidates will be selected. Up to two \$5,000 awards each will be awarded to qualified graduate students, or up to two \$2,500 awards each will be awarded to qualified undergraduate students if no graduate applications are received, or a combination of one \$5,000 graduate award and one \$2,500 undergraduate award for the 2016-2017 academic year. As with the ACCE scholarships, a letter of recommendation from the student's advisor/mentor and a 2-page essay is required showing planned work and how it benefits composites usage in the automotive or other ground-transportation industry. Work supported by the scholarship must be formally written up and either presented at an SPE technical conference like the SPE ACCE or published in an SPE technical journal.

Applications for ACCE, Rehkopf, and many other SPE scholarships for the 2017-2018 academic year may be found on the SPE Foundation® website at <http://www.4spe.org/>. Deadline for submission is **May 1, 2017**.

Those interested in contributing to the Dr. Jackie Rehkopf endowed scholarship should send a check (made out to The SPE Foundation) to:

The SPE Foundation - Rehkopf Scholarship
 Attn: Gene Havel
 6 Berkshire Blvd, Suite 306
 Bethel, CT 06801 USA

PLEASE mark in the Notes section of your check that the funds are for the Rehkopf Scholarship so they are applied to the correct fund. Then please send an eMail to News@SPEAutomotive.com and let us know how much you have contributed so we can keep track of the scholarship. For more information, call +1 203.740.5457 or email foundation@4spe.org. Donations made by U.S. citizens are tax deductible.

Call for Entries for ACCE Student Poster Competition

The ACCE team also issued an invitation for entries on innovative composites technologies for automotive and ground transportation for its ninth-annual student poster competition. Judges made up of media, industry experts, and SPE board members will review all posters with student authors on the first day of the conference. First-, second-, and third-place awards will be presented to winners in graduate and undergraduate categories during a special ceremony after lunch on the event's second day.

Students and their posters will be ranked according to the following criteria:

- Content (student and poster demonstrate clarity of topic, objectives, and background);
- Motivation for research and technical relevance to conference theme;

- Methodology and approach to problem;
- Quality of proposed research results/findings;
- Conclusions are supported by information presented;
- Presentation (display aesthetics are pleasing and there is a logical flow between sections);
- Knowledgeable (presenter has a good grasp of the subject);
- Understandability (poster is effective even without student being present to explain it); and
- Overall rank vs. other posters and presenters.

Since 2008, the SPE ACCE poster competition has been organized annually by Dr. Uday Vaidya, chief technology officer, Institute for Advanced Composites Manufacturing Innovation (IACMI) and professor and governor's chair-Advanced Composites Manufacturing at University of Tennessee-Knoxville. He is supported by Dr. David Jack, professor, School of Engineering & Computer Science, Baylor University.

Students interested in participating in the 2017 competition should contact Prof. Vaidya at ACCEposters@speautomotive.com. Abstracts are due by **March 31, 2017** and digital copies of posters are due by **August 20, 2017**. A poster template will be made available at a later date on the ACCE website and students will need to bring physical versions of their posters with them to the conference.

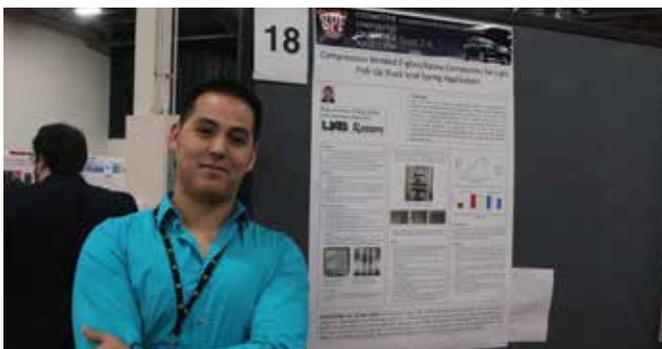
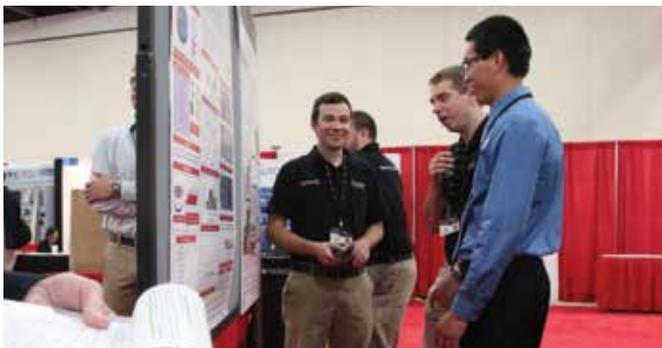
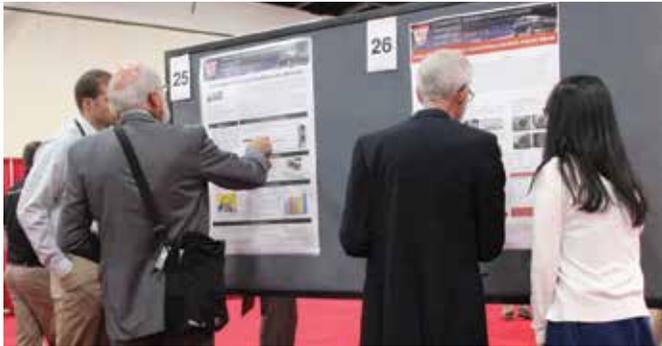
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Here are some “action shots” around some of the 43 excellent posters at last year’s conference.



Below is the 2016 Panel Discussion: ***Critical Issues in Automotive Composites: Technology, Policy & Supply Chain*** moderated by ***Dale Brosius*** with Panelists: ***Dr. Craig Blue***, IACMI & Oak Ridge National Laboratory
Rick Neff, Cincinnati Inc.
Rich Fields, Lockheed Martin Missiles & Fire Control
Ove Schuett, Dassault Systèmes
James Staargaard, Plasan Carbon Composites



About the SPE ACCE

Held annually in suburban Detroit, the ACCE draws over 900 speakers, exhibitors, sponsors, and attendees and provides an environment dedicated solely to discussion and networking about advances in transportation composites. Its global appeal is evident in the diversity of exhibitors, speakers, and attendees who come to the conference from Europe, the Middle East, Africa, and Asia / Pacific as well as North America. Fully one-third of attendees indicate they work for automotive and light truck, agriculture, truck & bus, or aviation OEMs, and another 25% represent tier suppliers. Attendees also work for composite materials, processing equipment, additives, or reinforcement suppliers; trade associations, consultants, university and government labs; media; and investment bankers. The show has been jointly sponsored by the SPE Automotive and Composites Divisions since 2001.

Learn more at: <http://speautomotive.com/acce-conference> or <http://specomposites.com>.

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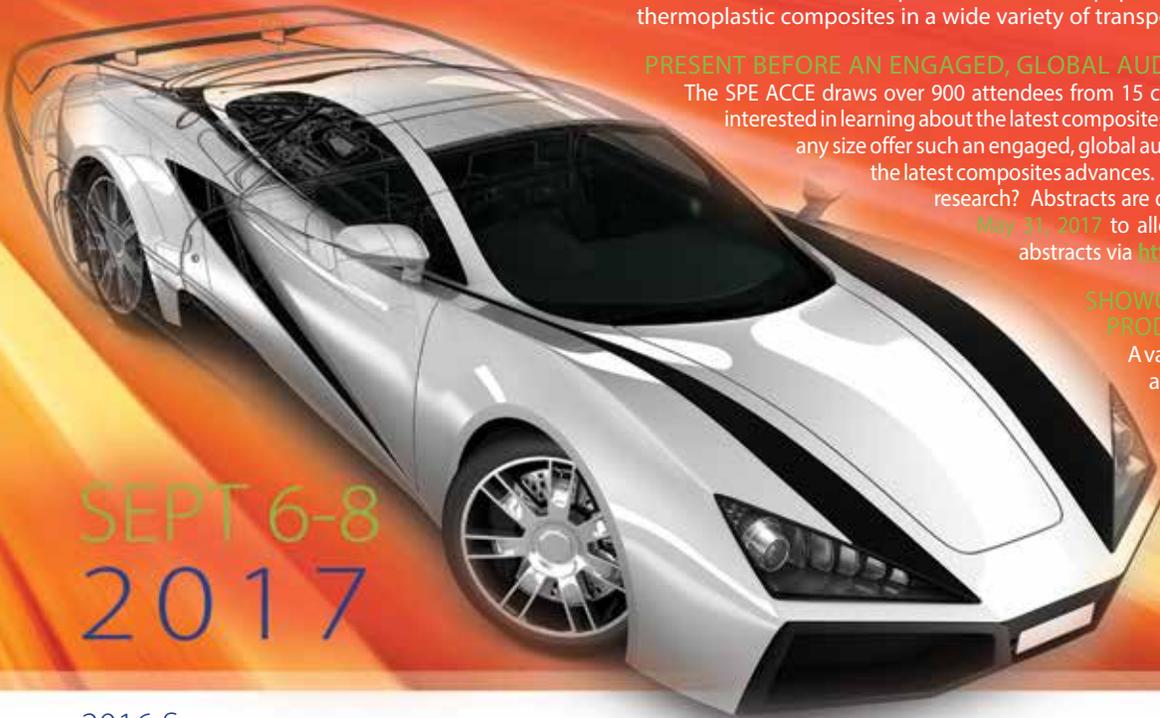
You're invited to attend the 17th-annual SPE Automotive Composites Conference and Exhibition (ACCE), September 6-8, 2017 in the Detroit suburbs. The show – which has become *the world's leading automotive composites forum* – features technical sessions, panel discussions, keynotes, receptions, and exhibits highlighting advances in materials, processes, and equipment for both thermoset and thermoplastic composites in a wide variety of transportation applications.

PRESENT BEFORE AN ENGAGED, GLOBAL AUDIENCE

The SPE ACCE draws over 900 attendees from 15 countries on 5 continents who are interested in learning about the latest composites technologies. Few conferences of any size offer such an engaged, global audience vitally interested in hearing the latest composites advances. Interested in presenting your latest research? Abstracts are due **March 31, 2017** and Papers on **May 31, 2017** to allow time for peer review. Submit abstracts via <http://SubmitACCEpapers.com>.

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The 2017 SPE Auto EPCON, the annual SPE automotive engineering thermoplastics conference, is scheduled for Tuesday, May 2, 2017 at the Detroit-Troy Marriott, Troy, MI. This year the conference is presented to you by the SPE Automotive Division, the SPE Detroit Section, and the SPE Injection Molding Division. As our dedicated committee continues to plan the conference we have confirmed some great keynote speakers from Fiat-Chrysler Americas Group, LMC Automotive, a leading provider of automotive forecast services, and others. We are planning a detailed session on 3-D printing technology too. Please contact Mr. Keith Siopes, our 3-D Printing session chair at Keith.Siopes@DSM.com if you are interested in a technical presentation. At this time our planning committee

is requesting a "call for conference papers" for new or unique engineering thermoplastic applications and polymers related to automotive applications. Please forward your abstracts to Sandra McClelland at Sandra.McClelland@solvay.com by March 1, 2017. For additional information, sponsorship opportunities, and conference registration, please visit www.4spe.org/events and click on the Auto EPCON 2017 link.

Dr. Gary J. Kogowski
Sandra McClelland

Dr. Gary J. Kogowski and Sandra McClelland
 SPE Auto EPCON Co-Chairs

12th Annual

AUTOEPCON

Plastics on the Move

May 2, 2017

Detroit Marriott Troy - Troy MI



Sponsored by the SPE
Detroit Section & Automotive Division



SPE AutoEPCON Announces Call for Papers

This conference is to inform, update and educate the OEM and supplier communities about advances in both thermoplastic and thermoset engineering polymers. Learn how these widely used materials can help improve performance and productivity, while reducing cost and mass.

PRESENTATIONS

Hear technical presentations on the newest advances in engineering materials related to: design engineering, materials development, light-weighting, thermal management, processing technologies, predictive engineering, new applications, 3D printing and more.

ABSTRACT DEADLINES

50-word abstract: February 28, 2017

Presentations: April 8, 2017 (no paper required)

SUBMIT ABSTRACTS TO:

Sandra McClelland
Solvay Specialty Polymers
sandra.mcclelland@solvay.com

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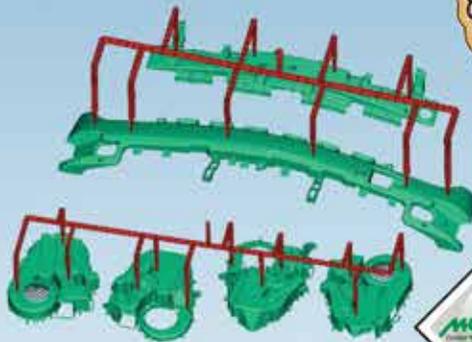
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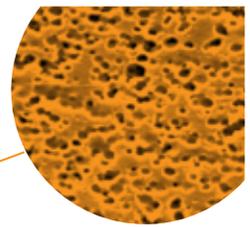
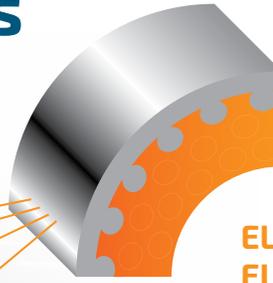
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Our Automotive grades are listed at GM (GMW15572 and GMW15581), Ford (MATS), BMW (GS93016), Renault-Nissan (PMR2016), Daimler (DBL5404), FCA, PSA.



Gerhald Claussen
 305 699 3130
gerhald.claussen@elix-polymers.com

Treasurer's Report

BY BONNIE BENNYHOFF,
 SPE AUTO. DIV. TREASURER

As of February 18, 2017, the division's account balances were:

Checking:	\$381,736.60 USD
PayPal	100.00 USD
Savings:	\$ 27,452.70 USD
Total:	\$409,289.30 USD

The Automotive Division is in full swing planning for next year's major events – which actually occur this calendar year. Budgets have been approved with attention paid to cost efficiency. And if not already obvious, it's extremely helpful for sponsor companies to let us know your intentions early so we can count on your support.

We're no different than any other organization when it comes to controlling expenses. One of the ways we're trying to rein in cost is by seeking additional volunteers to take on tasks. For example, a HUGE thank you goes to our newsletter editor, David Helmer, for volunteering his time to assemble this publication for us! In addition to Dave's volunteerism, we were able to cut



printing costs in half. The bottom line is more money for us to give back in the form of scholarships to promote our industry. Please contact me if you'd like to be a part of our team of volunteers.

Finally, it's not too late to make a request for the PlastiVan to visit your school to teach students about plastics and careers in plastics. Reviews from students and teachers say it's fantastic! The Automotive Division will pay the cost of \$1350 per day for SPE to send a professional instructor to do lots of hands on experiments. If you'd like to see the PlastiVan visit your school, or to learn more, please contact me.



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The plastics technology conference

May 8-10—Anaheim, CA

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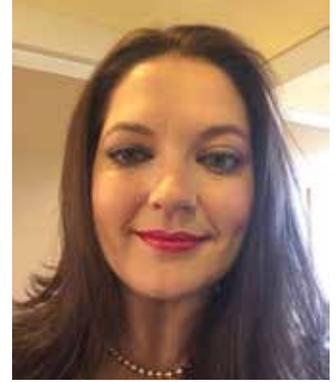
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SECRETARY'S REPORT

SPE Automotive Division Board
February 13, 2017 Meeting Minutes



ATTENDEES

Matt Carroll	Marc Bahm	Dave Helmer	Suresh Shah	<i>Tom Pickett</i>
Teri Chouinard	Gary Kogowski	Mark Lapain	Norm Kakarala	<i>Nippani Rao</i>
Crystal VanHouten	Brian Haggart	Ed Luibrand	<i>Ph: Andy Stecher</i>	<i>Umesh Gandhi</i>
Bonnie Bennyhoff	Chuck Jarrett	Anthony Coppola	<i>Dhanendra Nagwanshi</i>	<i>Steve Van Loozen</i>
Alper Kiziltas	Cynthia Flanigan			

Meeting was held at the ACC (American Chemistry Council) in Troy, 5:32pm – 7:27pm

OPENING – Matt Carroll
Review of Agenda for Meeting

FINANCIAL – Bonnie Bennyhoff
Account Balances as of Feb. 8th, 2017 – Checking \$380,909.45, Savings \$27,452.70, Paypal \$100 for a Total of \$408,462.15

INTERSOCIETY REPORT – Dhanendra Nagwanshi
ESD Gold Award Reception & Recognition ~ Wednesday, March 29, 2017 at Henry Ford College, Dearborn

SPE Automotive is a member of ESD
Sustainable Mobility Project 2.0 – Industry led organization. Dhanendra to find out more information. Cynthia to follow up within Ford to find out additional information.

NEWSLETTER – Dave Helmer
- December edition completed and mailed. HOF error to be corrected in March newsletter.
- Deadline for the March Newsletter is 2/15/2017
- Open space available for article submission
- Sponsorship to Date for Newsletter: Approx. \$52,000 - \$57,000 with 15 sponsors, however income per issue is not clear – Bonnie to verify
- Cost to produce approximately \$6,000

Motion made to vote on print vs. e-edition for next Fiscal year
All in favor of printing the newsletter; no objections

CHAIR REPORT – Matt Carroll
MOTION to pay Bonnie as an independent contractor for treasury and administrative duties at same level Dawn Stephens was compensated. It will be allocated as follows:
- \$6,000 for general Treasurer responsibilities + administrative duties
- \$12,000 for IAG support & \$12,000 for ACCE support (assuming some tasks Peggy previously had)
All approved, no objections

- Schedule of Events will be put in the March Newsletter on their own page
- Press release for the IAG Lifetime nomination will be out soon
- Pinnacle GOLD application submitted and received on time by SPE HQ, January 27th, 2017 (completed)
- Only item remaining is the final tax information, due February 15th, 2017
- Pinfa North America would like SPE AD as a co-sponsor of the conference which is held Sept 26-28
- Motion: ad swap. Include our Innovation Awards Gala notice in the PINFA program guide and they can also do an email to their mailing list. We would include a half page ad in our Newsletter.
- All approved, no objections

There will be a vote in MAY for BOD; Take applicants for the next meeting

- Would like to have additional committees:
 - Award Committee – Nippani will help
 - Teri is now our communications chair for the IAG

Design in Plastics Conference

- Russ Broome, SPE HQ, collaborating with Bob Grace for Design in Plastics 2017
- Motion: Education Sponsor – Exclusive \$15K - Motion moved until more information is provided
- Work with SPE & CCS to host a design competition around automotive
- Steve Van Loozen to be a CHAIR from the SPEAD for the design competition; Chuck Jarrett to assist Steve

AUTOEPCON – Steve Van Loozen

- Could use more paper submissions
- Next committee meeting is March 3rd
- Conference held on May 2nd 2017 in Troy

Minutes

SECRETARY'S REPORT Continued

SPE Automotive Division Board
February 13, 2017 Meeting Minutes



ACCE

- Call For Papers went out in December 2016 Newsletter
- Sponsorship to date for ACCE is \$231,500 (49 Sponsors)
- Program Guide Volunteer Needed
- AD Swaps for ACCE discussed
- ACCE last year had full page ads for the following organizations in the program guide. Committee to review the following list and indicate which ones will be supported in 2017
 - Automotive Design & Production. www.ADandPmedia.com
 - www.themoldingblog.com
 - Plastics Engineering
 - JEC International Conference www.JECcomposites.com
 - Composites World 2016 CarbonFiberEvent.com
 - Extrusion 2016 ExtrusionConference.com
 - SAMPE www.theCAMX.org
 - China Plastics & Rubber Journal cprj@adsale.com.hk
 - Wards Auto User Experience Conference UX.WardsAuto.com
 - GuptaVerlag magazines www.gupta-verlag.com
- Recommendations for other publications to look into - the Heritage News circulations (Tech Center News, Ren Cen News, etc..) Plastics Technology and Composites Manufacturing

ANTEC 2017 – Norm Kakarala

- Held in Anaheim, CA , May 8-10, 2017
- Divisions are required to run two sessions; sessions are full.
- SPE Automotive Division sessions are the first day of the conference thanks to Norm's intervention
- Some new rules - first time to allow PowerPoint; Everything will be on the web

IAG – Jeff Helms, IAG Chair, Teri Chouinard, IAG MARCOM

- Sponsorship to date for IAG is \$97,500 (Celanese, DuPont, Sabic, American Chemistry Council)
- SPE IAG Theme/Masthead, Sponsorship form (with a new "Part Display" sponsorship)
- "Call for Nominations" Flyer/Ad ready. PR will be distributed soon
- REQUEST: SPE Membership Cards distributed at event

MEMBERSHIP – Steve Van Loozen

- 1065 Active Members
- 112 elapsed memberships YTD 2016
- 28 year average duration of current membership
- At the next meeting, would like to know how many student memberships are active
- Goal is attracting, 1st and maintaining, 2nd

WEBSITE – Marc Bahm

- About 80% done
- Mobile Friendly
- Sponsorship would include Web & Newsletter

EDUCATION – Monica Prokopysheh

- Alper Kiziltas & Brian Haggart would like to be co-chairs and assist
- SPEAD grants and scholarships
 - ANTEC scholarship discussed since requests have been made for support - \$2,500 being considered

Suggestions of involving Students as moderators for events (ACCE, AUTOEPCON, etc.)

SOCIAL – Teri Chouinard

- Sponsor Appreciation once a year
- Attract students for free memberships
- Student Event at Schools – Student Chapters

COUNCILOR'S REPORT – Norm Kakarala

- SPE HQ would like to host more seminars & conferences independently
- Business plan is to move away from membership as their primary funding
- Elections are coming up for SPE officers in March. Only councilors vote for these
 - March 20th is the vote for President Elect
 - March 9th is the next Council meeting; call in
 - Face to face meeting at ANTEC

Next Meeting: Monday April 24th, 2017 , 5:30pm @ ACC in Troy

Meeting adjourned.

Minutes



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**PINFA NA ANNUAL WORKSHOP
MEETING FIRE SAFETY REQUIREMENTS IN AUTOMOTIVE DESIGN
-- SEPTEMBER 26-28, 2017 --
Dearborn Inn, Dearborn, MI**



ABOUT THE WORKSHOP:

Phosphorus, Inorganic and Nitrogen Flame Retardants North America, Inc. (PINFA NA) and SAMPE are sponsoring this event. This workshop will offer insight into trends in automotive design that will affect the choice of flame retardants and materials in transportation solutions. Attendees will hear from automobile OEMs and their tier suppliers, and regulatory experts regarding needs in the transportation industry. The presentations will include fire retardants technologies, test methods, environmental and regulatory updates, advanced manufacturing and materials technologies. This conference will include panel discussions on these topics. In addition a formulator workshop will co-locate with the event.

WHO SHOULD ATTEND:

OEMs; Designers; Manufacturing; Market Development; Supply Chain; Regulatory, Green Chemistry & Transportation Industry

Call for papers: If you are interested in submitting an abstract, please email your abstract to Tim Reilly:
Timothy.Reilly@clariant.com

For up to date details on conference: please visit www.pinfa.org



EDUCATION REPORT

by Monica Prokopyshen,
SPE Automotive Div. Education Chair

PLASTIVAN® VISITS 18 MIDDLE SCHOOLS IN 2016

As in the past, the SPE Automotive Division supported visits of the PlastiVan to a number of schools in 2016. Please contact me or Eve Vitale (+1 810-814-6412, evitale@4spe.org), to schedule an event at your favorite school, while the funding lasts! On the next page, the flier describing PlastiVan has more information.

Date of Program	School Name	School City	School State	Event Amount
2/4/2016	Leominster High	Leominster	MA	\$1,350
2/25/2016	Warren Mott High	Warren	MI	\$1,350
2/26/2016	Baker Middle	Troy	MI	\$1,350
2/27/2016	Baker Middle	Troy	MI	\$1,350
3/3/2016	Boulan Park Middle	Troy	MI	\$1,350
3/4/2016	Boulan Park Middle	Troy	MI	\$1,350
3/23/2016	Explorathon AAUW	Birmingham	MI	\$1,350
3/28/2016	Larson Middle	Troy	MI	\$1,350

3/29/2016	Larson Middle	Troy	MI	\$1,350
4/15/2016	Smith MS	Troy	MI	\$1,350
4/18/2016	Smith MS	Troy	MI	\$1,350
4/27/2016	Iroquois, Chippewa Valley	Macomb	MI	\$1,350
5/24/2016	Clarkston MS	Clarkston	MI	\$1,350
5/25/2016	Clarkston MS	Clarkston	MI	\$1,350
10/27/2016	Baker Middle	Troy	MI	\$1,350
10/28/2016	Baker Middle	Troy	MI	\$1,350
11/21/2016	Smith Middle School	Troy	MI	\$1,350
11/22/2016	Smith Middle School	Troy	MI	\$1,350

Total \$24,300

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The program is available for Middle School students (grades 5-8) as an introductory science lab experience.

The High School lab (grades 9-12) delves into the chemistry and properties of polymers and plastics.



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www.4spe.org

DISCOVER



PLASTICS

"I had the pleasure of attending a PlastiVan™ workshop recently at Washington Junior High School. I was thrilled to see the engagement of all students and the depth and complexity of the information presented."

Through vivid demonstrations, the students understood complex relationships and the associated outcomes. The students were not only excited about the classroom activities, but also future careers associated with the sciences."

*Don Stockton, Superintendent
Conroe Independent School District*

SCHEDULE A VISIT

To bring the PlastiVan™ Program to your community, contact:

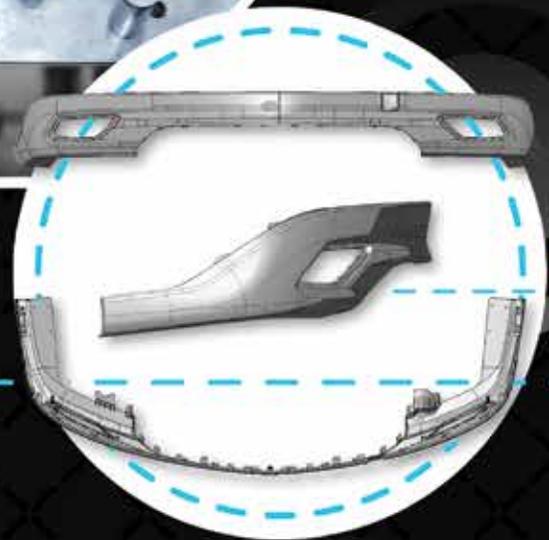
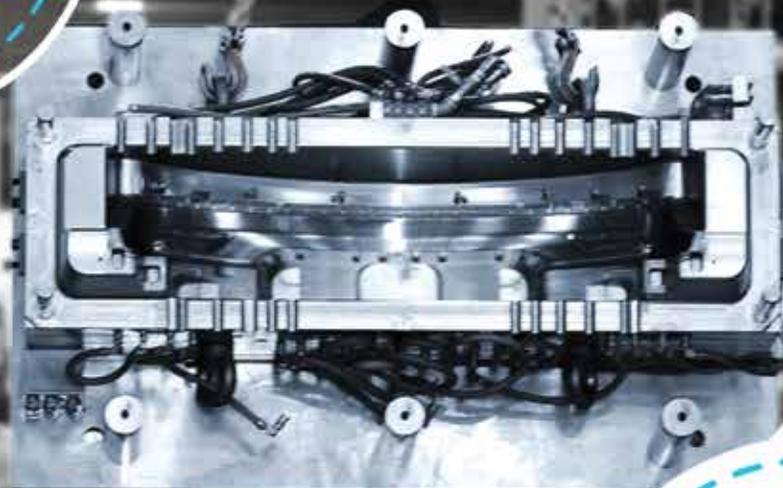
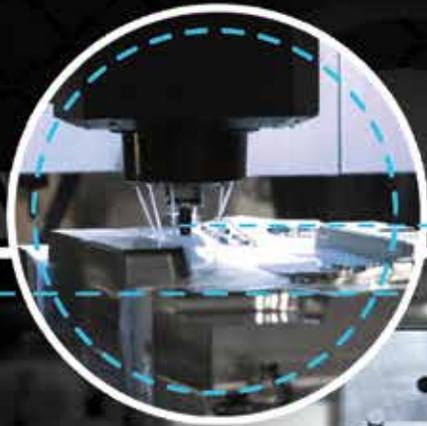
Eve Vitale

SPE Foundation Director
+1 810-814-6412
evitale@4spe.org

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- Hall of Fame Award
- Most Innovative Use of Plastics Awards

Go to www.speautomotive.com to submit nominations and get more information.

For more information on the Society of Plastics Engineers, visit www.4spe.org.

Sponsorship Opportunities

This annual event typically draws over 700 OEM engineers, automotive and plastics industry executives, and media. A variety of sponsorship packages - including tables at the banquet, networking receptions, advertising in the program book, signage at the event and more are available. Contact Teri Chouinard of Intuit Group at teri@intuitgroup.com.

The Automotive Division of the Society of Plastics Engineers (SPE®) is announcing a "Call for Nominations" for its 47th-annual **Automotive Innovation Awards Gala**, the oldest and largest recognition event in the automotive and plastics industries. This year's Awards Gala will be held **Wednesday, November 8, 2017** at the Burton Manor in Livonia, Mich. Winning part nominations (*due by September 13, 2017*) in 9 different categories, and the teams that developed them, will be honored with a **Most Innovative Use of Plastics** award. A **Grand Award** will be presented to the winning team from all category award winners. An application that has been in continuous use for 15 years or more, and has made a significant and lasting contribution to the application of plastics in automotive vehicles, (*nominations due by May 31, 2017*) will be honored with a **Hall of Fame** award. The event also recognizes the leadership and technical achievements of an individual whose work in research, design, and/or engineering has led to significant integration of polymeric materials on passenger vehicles (*nominations due by March 31, 2017*) with a **Lifetime Achievement Award**.

Innovative Part Competition Categories:

- Aftermarket
- Body Exterior
- Body Interior
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- Electrical Systems
- Environmental
- Hall of Fame
- Materials
- Process, Assembly & Enabling Technologies
- Powertrain
- Safety

Nov 8, 2017

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CALL FOR NOMINATIONS FOR LIFETIME ACHIEVEMENT AWARD (DUE MARCH 31, 2017)

to be Presented at the 47TH-Annual Automotive Innovations Awards Gala, November 8, 2017

The Automotive Division of the Society of Plastics Engineers (SPE®) is announcing a Call for Nominations for the “Lifetime Achievement Award” (due March 31, 2017) for presentation at its 47th-annual **Automotive Innovation Awards Gala** on Wednesday, November 8, 2017 at the Burton Manor in Livonia, Mich. First given in the year 2001, **The Lifetime Achievement Award** recognizes leadership and technical achievements of individuals whose work — in research, design, and/or engineering, etc. — has led to significant integration of polymeric materials on passenger vehicles. **The Criteria evaluated for consideration for the Lifetime Achievement Award are as follows:**

- 25 or more years of experience and significant contributions in the automotive industry or automotive plastics industry
- Education/Degrees in chemical, plastics, mechanical, electrical, materials or other engineering and/or business management or related areas
- Leadership and years of service in SPE (Society of Plastics Engineers), SAE (Society of Automotive Engineers), ESD (Engineering Society of Detroit), SAMPE (Society for the Advancement of Materials and Process Engineering) and other similar industry associations – including the size/number of members in the associations
- Patents awarded for innovations in automotive, plastics, chemical and other similar industry advancements
- Participation and leadership in industry technical conferences including number of papers presented, keynotes, and committee leadership
- Other industry awards received for innovation, research and advancements including but not limited to “Lifetime

Achievement Awards” from other associations, “Honored Service Member,” “Fellowships,” “Best Paper,” and other honors

To submit a nomination for the SPE Automotive Div. Lifetime Achievement Award, prepare a word document outlining the candidate’s qualifications using the information above as a guideline and please limit the information to 2 – 3 pages. Email your nominations to Dave Reed, SPE Lifetime Achievement Award Chairman fierodreed@sbcglobal.net and copy Nippani Rao, SPE Lifetime Achievement Award Co-Chairman nippanirao@aol.com.

The SPE Automotive Innovation Awards Program is the oldest and largest competition of its kind in the automotive and plastics industries. This annual event typically draws over 700 OEM engineers, automotive and plastics industry executives, and media. As is customary, funds raised from this event are used to support SPE educational efforts and technical seminars, which help to educate and secure the role of plastics in the advancement of the automobile.

The mission of SPE is to promote scientific and engineering knowledge relating to plastics worldwide and to educate industry, academia, and the public about these advances. SPE’s Automotive Division is active in educating, promoting, recognizing, and communicating technical accomplishments in all phases of plastics and plastic based-composite developments in the global transportation industry. Topic areas include applications, materials, processing, equipment, tooling, design, and development.

For more information about the SPE Automotive Division and the Innovation Awards Competition and Gala see www.speautomotive.com. For more information on the Society of Plastics Engineers, see www.4spe.org.

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COUNCILOR'S REPORT

December 7, 2016 Council Teleconference Meeting Minutes

Norm Kakarala participated as proxy for Suresh Shah

President Owens asked for a moment of silence to remember the five SPE members who have recently passed away. Terry Q. Cressy is one of them and he served the Automotive Division as a Board Member for several years and took retirement from Dupont few years back.

Past President Dick Cameron made the announcement that CEO De Vos will not renew his contract with SPE (which ends in 2017). CEO De Vos will remain in his position until a new CEO is hired. SPE will start the search for a new leader in January 2017 with the goal to have him/her on-board by mid-year.

Managing Director Broome reviewed the new capabilities of the dashboard. These included a variety of society-wide analytics and chapter-specific data.

Financial Update

CEO De Vos gave a review of 2016 finances and the financial outlook for 2017 along with the key budget assumptions. Revenues of membership dues are under budget and revenues from advertising sales and the pipeline are increasing. Events are slightly below revenue due to the lower ANTEC registration. Other revenue categories are on budget. Most Expenses are well under control and below budget. Operational results are in-line with expectations.

A loan was taken from the investment account to improve the current cash flow position. It is expected that payments will be made toward this loan in 2017.

New SPE Events and Corporate Services

CEO De Vos gave an overview of additional events, services, and advertising for getting additional revenue to offset shortfall in membership dues revenue in 2017.

Events Planned: Medical Plastics Europe, Support PEPP Europe Conference, Plastics in Construction, Support RE-FOCUS, 3DP / Additive Manufacturing, Injection Molding USA, Design in Plastics, Additives and New Materials (China), Cyclitech (Brussels or Paris),

Services Planned: Value Chain Seminars for companies, Strategic Market Surveys, Dedicated e-mail sends, Technology Awareness articles, Corporate Webinars, Innovation Platform, Innovation Partner, The Plastics Race App. There are new pages on the SPE website that describes these services.

Advertising Planned: Plastics Insights Newsletter, The Chain (TechTalk, Industry Xchange).

2017 Budget

New services will bring in additional revenue (Plastics Insights Newsletter, Corporate Surveys, Dedicated email blasts, Corporate Webinars, Innovation Platform). We currently have nearly 500 companies that we are targeting in the sales pipeline. Overall a conservative approach was used to project revenues, and an aggressive approach was used to project expenses. A detailed presentation of the projected revenues and expenses is posted on The Chain.

The budget also takes into account that continual investment in technology is and will be necessary.

Election Review

CEO De Vos reviewed the SPE Officers Election Process. The 2017 elections will be performed electronically. Election will start on March 20, 10:00 A.M. EST (President-elect); March 27, 10:00 A.M. EST (Vice Presidents). In each case polls will be open for 24 hours. March 5, 2017 will be the deadline for nominations from the floor. Campaigns by the candidates can begin on February 10, 2017. A moderated live web based discussion will be held with the candidates. The 2017 ballot will indicate a candidate's endorsement by the nominating committee. Details of the election process are posted on Leadership Lane. Past President Dick Cameron alerted Council that after these elections we need to revisit nominations from the floor. With our new position descriptions for VPs this traditional policy seems to be obsolete.

The next council meeting will also be a Teleconference Meeting in March.



INTERSOCIETY REPORT

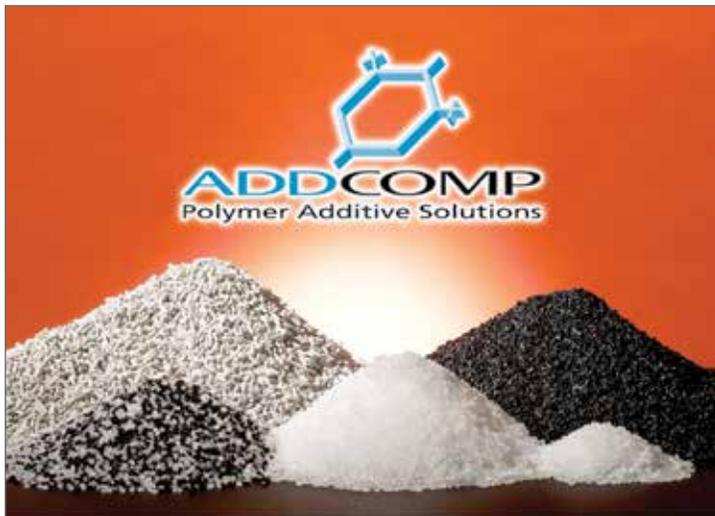
by Dhanendra Nagwanshi,
SPE Automotive Division Intersociety Chair

The SPE Automotive Division is one of 105 Engineering Society of Detroit (ESD) Affiliate Council Member Societies. One main mission of the ESD Affiliate Council is to encourage cross-society cooperation and communication and to promote peer recognition of noteworthy members.

Monthly Affiliate Society meetings are held on the third Wednesday of the month with a light dinner at 5:30 pm, brief business meeting at 6:00 pm and a presentation with guest speaker at 6:20 pm. Meetings conclude by 7:15 pm.

Affiliate Society members like us have the ability to contribute to both the ESD online and print magazine *Tech Century*. We are also invited to participate in the ESD Job Bank. This is open to all of our society members and is a technical job board frequented by our corporate members at <http://jobs.esd.org/>.

Finally, the ESD Gold Award Reception & Recognition is scheduled for Wednesday, March 29th where Mr. Pranab Saha, PhD, PE, INCE Bd Cert, FESD (nominated by SAE Detroit Section) is the recipient. The Award event is at Henry Ford College, Dearborn at 6 pm with an early bird rate of \$45 honored until March 1st. You may want to block your calendar for this event.



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*Treatment of glass fiber dashboard
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Technical Report

Lightweight Design with Long Fiber Reinforced Polymers – Technological Challenges Due to the Effect of Fiber Matrix Separation

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Abstract

During the processing of long fiber-reinforced thermoplastics (LFT), various long fiber specific effects occur, which can have significant influence on the component properties. A major effect that results when processing LFT is Fiber Matrix Separation (FMS), which leads to a non-uniform fiber density distribution throughout the part. The development and impact of this effect is not thoroughly examined. Experimental investigations in compression molding with long fiber reinforced thermoplastics have shown an unequal distribution of fiber content with increasing fiber length. With effects already visible in free flow regions, FMS especially leads to significant changes in fiber content in complex geometries. Particularly in specific rib sections, fiber content decreases greatly, leading to a significant change in component behavior. Furthermore, extensive fiber bundling and clogging is observed at the rib entrance.

Introduction

Global car manufacturers aim to reduce the weight of vehicles, since more appliances, functions and safety features are integrated due to consumer demand and government regulations. With the increase of electrified power trains, in fully electric cars or hybrids, the weight of batteries significantly increases the total weight of a car. The aim for future cars is to reduce weight in order to achieve stricter carbon emission regulations [1-3] while still maintaining great performance. Fiber reinforced polymers (FRP) offer high mechanical properties to weight ratios and low cost processes for large scale production. By intelligent combination with other lightweight materials, FRP make future lightweight design possible.

Virtual process simulation tools for processing of discontinuous FRP minimize unnecessary process steps during component design and evaluation. Commercially available simulation tools are used to model numerous effects during processing. In the field of fiber reinforced polymers, the resulting fiber parameters (orientation, length, content) inside the composite are of great value, especially for the use in structural and safety-related components. By using the predicted fiber parameters in the process simulation, the component behavior can be precisely simulated for multiple scenarios, such as crash and fatigue. Current simulation tools have multiple models available for the prediction of fiber orientation [4] and fiber length degradation [5]. With increasing fiber length, a non-uniform fiber density distribution appears throughout the component. Current simulation tools do not adequately represent this phenomenon.



ABOUT CHRISTOPH KUHN

Christoph Kuhn, who is simultaneously working as a project engineer in the Group Research department at Volkswagen AG (<http://www.vw.com/>; Wolfsburg, Germany) and also pursuing a doctorate degree at Friedrich-Alexander University Erlangen-Nuremberg, (<https://www.fau.eu/>; Erlangen, Germany), has been named a winner of the **Dr. Jackie Rehkopf Best Paper Award** by the peer-review committee for the **SPE® Automotive Composites Conference & Exhibition (ACCE)**. He co-authored a paper entitled *Lightweight Design with Long Fiber Reinforced Polymers – Technological Challenges due to the Effect of Fiber Matrix Separation* that was presented at the sixteenth-annual SPE ACCE conference. Kuhn obtained his undergraduate degree at the RWTH Aachen University (<http://www.rwth-aachen.de/>; Aachen, Germany), then was awarded a full one-year scholarship from the German Academic Exchange Service (DAAD) to attend graduate school at University of Wisconsin-Madison. There, under the direction of Prof. Tim Osswald, he completed his M.S. degree in Mechanical Engineering in 2014 and returned to RWTH Aachen to complete a second master's in Plastics and Textile Technology in 2015. Since 2014 he also has been pursuing his Ph.D. degree through the industrial doctorate program at Volkswagen AG's Group Research under the guidance of Prof. Osswald at the Friedrich-Alexander University Erlangen-Nuremberg. Kuhn's work at Volkswagen is focused on lightweight design projects with thermoplastic and thermoset composite for use on many Volkswagen brands. His work has been featured in numerous publications and presentations in Europe and the U.S.

The effect of FMS has been mentioned in earlier publications [7-8], but it is not thoroughly examined. Fiber content experiments with BMC by Schmachtenberg et al. [7] show an increase in fiber content over a flow path in relation to the processing parameters. Experiments with Londoño et al. [8] show a significant change in fiber content in a breaker box. Londoño gives a first introduction to complex forces working at the rib geometry and the principle of the complex interaction between fibers and matrix. He describes the two governing forces during mold filling of rib geometries. According to Londoño, the fibers are squeezed into the rib according to Darcy's Law (Eq.1), which describes the flow of a fluid through a porous medium in relation to the fluid velocity (V), the porosity (κ), viscosity (η) and the pressure gradient (dp/dx). Bakharev and Tucker [9] predict the permeability of a glass fiber bed (Eq.2).

$$V = \frac{\kappa}{\eta} \left(-\frac{dp}{dx} \right) \quad (1) \quad \kappa = 0.00025 \phi^{2.4} D^2 \quad (2)$$

The hydrodynamic force on the fiber at the rib entrance can then be calculated as the pressure on the effective fiber area, as described in Londoño et al. (3), where \dot{h} is the closing speed of the press, L_{rib} the width of the rib and L the length of the fiber bundle.

$$F_{hyd} = \frac{\dot{h} \eta L_{rib} L}{\kappa} dx \quad (3)$$

According to Londoño et al. [8], the force counteracting the fibers getting squeezed into the rib geometry is represented by the force (F) needed to bend fibers into the rib (Eq. 4), where (C_f) is a constant, (E) the Young's modulus, (EI) the moment of inertia, (δ) the deflection of the fiber and (L_r) the free length of deflection.

$$F_F = C_f \frac{EI\delta}{L_r^3} \quad (4)$$

Londoño introduces a Fiber-Matrix Separation constant Θ , which describes the ratio of fiber deflection force to hydrodynamic forces (Eq. 5). FMS occurs for values of $\Theta \ll 1$, when the fiber bending forces are higher than the hydrodynamic forces and the matrix is squeezed out of the fiber bed.

$$\Theta = \frac{F_{hyd}}{F_F} \quad (5)$$

A suggested continuum model describes the interaction of the fibers and the polymer matrix as a two phase flow (Figure 1). Hereby, the fibers and the polymer matrix are divided into two separate domains, which are displayed as an elastic fiber domain (grey, velocity vector v) and a viscous polymer matrix domain (red, velocity vector u). These two domains interact as described in the Fiber Matrix Separation constant. The ratio of elastic fiber forces to viscous hydrodynamic forces Θ describes the differences in flow of the two phases. A simplified description of the counteracting forces is shown in Figure 2. During Fiber Matrix Separation, the elastic fiber forces excel the hydrodynamic forces, leading to a reduced fiber content in the flow front and an agglomeration along the flow path.



Figure 1: A continuum model of a two phase flow of matrix (red) and fiber phase (grey)

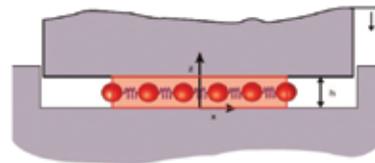


Figure 2: Interaction of the elastic fiber and viscous matrix domain in a continuum model for Fiber Matrix Separation

In this paper, the effect of Fiber Matrix Separation is examined in compression molding experiments with long glass fiber reinforced thermoplastic materials. The selected mold geometry features a series of different ribs with alternating design. The effect of differing material properties and rib designs on Fiber Matrix Separation is analyzed. In this context, the fiber properties are measured using traditional processes like pyrolysis as well as state of the art CT imaging. The gathered data is then analyzed and compared to the process simulation results.

EDITOR'S NOTE: Read the rest of this award-winning paper in the SPE ACCE Archives at: http://www.temp.speautomotive.com/SPEA_CD/SPEA2016/about.htm



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