



AUTOMOTIVE PLASTICS NEWS

DEC 2018/JAN 2019
VOL 48, ISSUE 2



SPE® Automotive Division Honors the Most Recent and Innovative Uses of Plastics in Automotive Applications at the 48th-Annual Automotive Innovation Awards Competition

48th-Annual



**AUTOMOTIVE
INNOVATION AWARDS
COMPETITION & GALA**
HONORING THE BEST IN AUTOMOTIVE PLASTICS

The 48th-annual SPE Automotive Innovation Awards Competition and Gala is now behind us. This year's event drew over 70 nominations and 700 gala registrations making it the 3rd largest attendance in recent years. It is always very difficult for the First Round and Blue Ribbon Judges to narrow down the list of quality submissions we receive each year to pick finalists and then category and the Grand Award winners. Many times the difference between being a finalist and winning a category is the difference of a vote or two. I think this shows how competitive the Automotive Innovation Awards Program is each year and should give satisfaction to all the nominees for a job well done with respect to commercializing innovative solutions in this industry. This year, as in the previous several years, we had strong support from our student volunteers with approximately 45 students and faculty from Ferris State, Lawrence Tech and Kettering Universities. These students are representative of the future of plastics engineering and will likely be much better prepared to handle the needs of automotive companies as pressure for cost and mass reduction escalate on new model programs.



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MEETING SCHEDULE & SPECIAL EVENTS CALENDAR

SPE Auto. Div. Board Meeting

American Chemistry Council - Auto. Ctr. 5:30 - 7:30 p.m.
Troy, MI USA February 18, 2019

TPO Shanghai Abstracts Deadline

March 1, 2019

TPO Shanghai Presentations Deadline

March 15, 2019

ANTEC 2019

Marriott Detroit Renaissance ALL DAY
Detroit, MI USA March 18-21, 2019

4th Annual TPO Shanghai Conference

Shanghai Marriott City Center ALL DAY
Shanghai, China April 3-5, 2019

ACCE Abstracts Deadline

April 15, 2019

SPE Auto. Div. Board Meeting

American Chemistry Council - Auto. Ctr. 5:30 - 7:30 p.m.
Troy, MI USA April 22, 2019

14th Annual AutoEPCON

Detroit Marriott Troy ALL DAY
Troy, MI USA May 7, 2019

ACCE Papers Deadline

June 15, 2019

SPE Auto. Div. Board Meeting

American Chemistry Council - Auto. Ctr. 5:30 - 7:30 p.m.
Troy, MI USA June 17, 2019

SPE Auto. Div. Board Meeting

American Chemistry Council - Auto. Ctr. 5:30 - 7:30 p.m.
Troy, MI USA August 19, 2019

SPE Auto. Div. Golf Outing

Fieldstone Golf Club, Auburn Hills, MI USA ALL DAY
September 3, 2019

19th-Annual SPE Automotive Composites Conference & Exhibition (ACCE)

Suburban Collection Showplace, Novi MI USA ALL DAY
Sept 4-6, 2019

21st-Annual SPE TPO Automotive Engineered Polyolefins Conference (TPO)

Detroit-Troy Marriott, Troy, MI USA ALL DAY
October 6-9, 2019

SPE Auto. Div. Board Meeting

American Chemistry Council - Auto. Ctr. 5:30 - 7:30 p.m.
Troy, MI USA October 21, 2019

49th-Annual SPE Automotive Innovation Awards Gala

Burton Manor 5:00-11:00 p.m.
Livonia, MI USA November 6, 2019

SPE Auto. Div. Board Meeting

American Chemistry Council - Auto. Ctr. 5:30 - 7:30 p.m.
Troy, MI USA December 9, 2019

Automotive Division Board of Directors meetings are open to
all SPE members. All events are listed on our website at

<http://speautomotive.com>

Email Dave Helmer at
auto-div-chair@speautomotive.com for more information.

CHAIR'S WELCOME

Dave Helmer, SPE Automotive Division Chair



AUTOMOTIVE



Happy Holidays – I hope that you and your family enjoyed a safe and enjoyable holiday season and hope we are all recharged to take on the challenges 2019 has to offer all of us.

In Fall of 2018, the SPE Automotive Division participated in several successful events. In September, the Automotive Composites Conference and Exhibition (ACCE) continued its growth in number of attendees, sponsors, and presentation count. Thank you very much to all the volunteers and especially to Dr. Alper Kiziltas and Matt Carroll for co-chairing the event.

In October, the TPO conference celebrated its 20th anniversary. The event was marked with a super set of innovation sessions with each having a distinguished keynote speaker that discussed industry trends over the past 20 years as well as a look toward future innovation. Like the ACCE, the TPO conference has had continued growth in number of attendees, sponsors, and presentations.

In November, the Innovation Awards Gala (IAG) honored plastic innovation across the automotive industry. Highlights of this year's IAG are spread throughout this newsletter but I wanted to highlight two. First, we added a category in additive manufacturing (also known as 3D printing) to showcase the plastic innovations in this ever-growing field. Second, we were all happy to honor Dr. Rose Ryntz as 2018 Lifetime Achievement award winner.

As 2018 is in the books, we have a busier than normal first half of 2019. First, ANTEC 2019 will be at the Marriott Detroit Renaissance held March 18th through the 21st with the Automotive Division leading one of the sessions. Second, the 2019 TPO Shanghai Conference, now sponsored by Automotive Division, will be held April 3rd through the 5th at the Shanghai Marriott City Center. Third, the Auto Epcon conference showcasing engineering plastics in automotive will be held May 7th at the Troy Marriott.

I would like to welcome two new board members. First, Jeremy Lee from Faurecia Automotive Systems who joined the board until May 2019. Jeremy provides a wealth of knowledge as a plastic specialist from the tier one perspective in automotive. Second, Dr. Sassan Tarahomi from Alterra Holdings joined the board until May 2021. Sassan also brings a wealth of knowledge from both the tier one and material supplier side as well as leading the TPO conference. Thank to both Sassan and Jeremy for volunteering to support and represent the SPE Automotive Board.

As a wrap up to 2018 and look forward to 2019, I hope you found this informational. At any time, if you have ideas on how to make our section better or would like to volunteer, do not hesitate to contact me at auto-div-chair@speautomotive.com.

Thank you,

Dave Helmer



New for this year was the addition of the Additive Manufacturing category. This latest addition demonstrates a new frontier in the use of plastics to deliver real JIT (Just In Time) delivery for parts used In vehicle operations and parts used In vehicle assembly. We are just In the infancy of this technology which could dramatically change how we think of automotive component manufacturing.

From across the 9 category winners, this year's Grand Award went to the Powertrain Category Winner, the Vacuum Generation System for Brake Assist on the 2017 Ford F-150. And, we awarded this year's Lifetime Achievement Award to Dr. Rose Ryntz, a long time contributor to innovations in automotive design and use of engineering plastics. Congratulations to Rose on a well-deserved recognition of her over 30 years of contributions to the automotive and plastics industries.



We will now turn to planning for next year's event, expanding our blue ribbon judging panel and recapping what went well and what could be done better for the 2019 program. We have set the date for November 6th, 2019. If you attended our Awards Gala this year and have suggestions on what we can do better, please don't hesitate to let us know. Email your comments to: feedback@speautomotive.com.

Jeff Helms

2018 SPE Automotive Innovation Awards Chair

See this year's SPE Automotive Innovation Awards Competition winners at <http://speautomotive.com/inno>.

Attn. Editors: Photos of all the parts nominated for this year's SPE Automotive Innovation Awards Competition (including these Category and Grand Award winners) are available via Teri@intuitgroup.com.

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Category Winner: Lifetime Achievement Dr. Rose Ryntz



Dr. Rose A. Ryntz, vice president, Global Advanced Development and Material Engineering at International Automotive Components Group (IAC) was named the 2018 Lifetime Achievement Award winner. Ryntz is a technical specialist and research leader in automotive plastics technology with more than 35 patents and five trade secrets in production and material technology that have advanced the industry. Her game-changing innovations include the development of damage resistant fascias, automotive interior skin technologies for use in seamless passenger airbag instrument panels and interior and exterior automotive coatings on plastics. Her technical support, with several automotive suppliers, led to several Joint Development Agreements further advancing the industry.

These include functionally integrated interior automotive components with heating, lighting, and Human Machine Interface (HMI) content, bi-laminate and compact sheet technologies for use in vacuum formed and In-Mold grain laminate doors and instrument panels and lightweight technologies incorporating natural fiber and bio-based solutions.

Ryntz has won more than 20 prestigious industry awards internationally (including three SPE Automotive Innovation Awards for Sustainability and Lightweighting) and is respected as an industry expert and a key opinion leader. She has been interviewed over 40 times by industry trade journals, been featured as a keynote speaker more than 15 times, presented more than 120 technical papers worldwide and authored four technical books.

"I am very honored to be recognized to receive this very prestigious award and hope it will help to inspire more women to pursue careers in Science, Technology, Engineering & Manufacturing (STEM) programs, and become more involved in their industry" said Ryntz.

2018 SPE Automotive Division GRAND AWARD & CATEGORY WINNER: Powertrain



Vacuum Generation System for Brake Assist 2017 Ford Motor Co., Ford F-150

- **Tier Supplier / Processor:** Dayco Products / MacLean-Fogg, Engineered Plastics Co.
- **Material Supplier / Toolmaker:** DuPont Automotive / Kaid Tool & Die
- **Material / Process:** Delrin 73M30 POM+PTFE, Minlon 520MP PA6 / injection molding

In the Powertrain category, the Winner and Grand Award Winner was the **Vacuum Generation System for Brake Assist** on the 2017 Ford F-150 pickup from Ford Motor Co. Tier supplier Dayco Products, processor MacLean-Fogg, Engineered Plastics Co., material supplier DuPont Automotive and tooling supplier Kaid Tool & Die also were named on the award. The materials used for this application were Delrin 73M30 POM+PTFE and Minlon 520MP PA6. The open/close valve actuation is accomplished via two complimentary resin systems acting in concert to provide for critical no “stick-slip” and no measurable wear after 2,500,000 hot/cold test cycles. Processing via injection molding allowed for very close tolerances of critical details necessary for total system performance. A 40% weight savings and a 25% cost savings over current pump systems was achieved.



Category Winner: Additive Manufacturing



Window Alignment Fixture 2017 Ford Motor Co., Mustang Convertible

- **Tier Supplier / Processor:** Stratasys / Stratasys
- **Material Supplier / Toolmaker:** Stratasys / Stratasys Direct Manufacturing
- **Material / Process:** PA 12 35% short carbon fiber / Fused Deposition Modeling (FDM)

In the Additive Manufacturing category, the winner was the **Window Alignment Fixture** on the 2017 Mustang Convertible sports car from Ford Motor Co. Tier supplier, processor, material supplier, and tooling supplier Stratasys also was named on the award. The material used for this application was PA 12 35% short carbon fiber. This additive fixture was 30% lighter and cheaper to produce vs. a traditional welded fixture. It was also much faster to manufacture – only 50 hours to build the integrated fixture with handles and mounting brackets. Ergonomics were improved significantly. The plastic fixture allows for easier handling and avoided the requirement for a lift assist. The printed fixture integrated pneumatic control, eyelets for a stowage rack, trigger switch housing, ergonomic handles, gage protector deflector and pneumatic tubing retainers and switch mounts.



Category Winner: Body Exterior



Thermoplastic Liftgate 2019 Fiat Chrysler Automobiles, Jeep Cherokee

- **Tier Supplier / Processor:** Magna International Inc. / Magna Exteriors Belvidere
- **Material Supplier / Toolmaker:** Trinseo & LyondellBasell / Tycos Tool & Die
- **Material / Process:** DLGF 9411 & Hifax TYC TPO / injection molding

In the Body Exterior category, the winner was the **Thermoplastic Liftgate** on the 2019 Jeep Cherokee SUV from Fiat Chrysler Automobiles. Tier supplier Magna International Inc., processor Magna Exteriors Belvidere, material suppliers Trinseo & LyondellBasell and tooling supplier Tycos Tool & Die also were named on the award. The materials used for this application were DLGF 98411 & Hifax TYC TPO. Replacing a steel liftgate with a new thermoplastic design enabled a 28% mass reduction and a 50% tooling and capital investment savings through part integration and manufacturing efficiency. An industry first use of conformal infrared welding behind the MIC grain class A surface increased structural and dimensional performance and enabled quicker processing. Bonded in brackets enabled patent pending tethering attachments without fasteners, improved metal reinforcement efficiency and maintained styling surface wrap in D pillars without sacrificing DLO. All this was accomplished within an 18-month window.



Category Winner: Body Interior



Category Winner: Chassis & Hardware



Integrated Modular Pelvic Bolster 2018 Ford Motor Co., Lincoln Navigator

- **Tier Supplier / Processor:** Faurecia Interior Systems / Faurecia Interior Systems
- **Material Supplier / Toolmaker:** LyondellBassell / Roush Tooling
- **Material / Process:** Profax SG702 PP / injection molding

In the Body Interior category, the winner was the **Integrated Modular Pelvic Bolster** on the 2018 Lincoln Navigator SUV from Ford Motor Co. Tier supplier and processor Faurecia Interior Systems, material supplier LyondellBassell and tooling supplier Roush Tooling also were named on the award. The material used for this application was profax SG702 PP. This application combines 2 unique side impact bolster designs to meet the requirements for 5th and 50th percentile occupants. Integrating them into the map packet resulted in tooling cost savings estimated at \$100K. There was an additional \$100K indirect savings in testing time and \$8 per vehicle cost avoidance if add on bolsters were used. An approximate 10% weight savings was achieved. Modular features were added to improve performance, by increasing flexibility of design, and reduce use of multiple bolster parts.

High Strength Self-tapping Composite Nut 2016 Fiat Chrysler Automobiles, Chrysler Pacifica

- **Tier Supplier / Processor:** ITW Deltar Fasteners / ITW Deltar Fasteners
- **Material Supplier / Toolmaker:** Asahi Kasei Plastics / Maple Mold
- **Material / Process:** Leona 90G55 PA66 / injection molding

In the Chassis / Hardware category, the winner was the **High Strength Self-tapping Composite Nut** on the 2016 Chrysler Pacifica minivan from Fiat Chrysler Automobiles. Tier supplier and processor ITW Deltar Fasteners, material supplier Asahi Kasei Plastics and tooling supplier Maple Mold also were named on the award. The material used for this application was Leona 90G55 PA66. This composite nut has self-healing properties enabling it to maintain sufficient torque and clamp load even after it has been stripped, unlike the metal nut that this composite nut replaces. Total mass savings is 8g per location x 121 locations for a total vehicle mass savings of 2.1 lbs specific to the Chrysler Pacifica. The estimated cost savings per vehicle is \$3.25. The composite nut can be translated across all OEMs and in many additional applications.



Category Winner: Environmental



Sustainable Hybrid Composites 2018 Ford Motor Co., Lincoln Continental

- **Tier Supplier / Processor:** Summit Polymers / Summit Polymers
- **Material Supplier / Toolmaker:** Celanese & International Paper / Summit Polymers
- **Material / Process:** THRIVE & Celstran PP+HC (CF/LGF) PP/RPP / melt compounding followed by injection molding

In the Environmental category, the winner was the **Sustainable Hybrid Composites** on the 2018 Lincoln Continental luxury sedan from Ford Motor Co. Tier supplier, processor and tooling supplier Summit Polymers and material suppliers Celanese and International Paper also were named on the award. The materials used for this application were Celstran PP+HC (CF/LGF) PP/RPP and THRIVE. This is an industry first application of composites combining tree (cellulose) fiber with long glass fiber (LGF) in a polypropylene (PP) matrix to replace 35% short glass-mineral filled PP. This console component is the largest sustainable injection molded part in vehicles today. A 24% weight savings and a 13% cost savings were realized. A total \$2 million cost savings resulted by reducing weight and reducing cycle times by 20% - 40%. A life cycle assessment improvement was also attained.

Category Winner: Materials



EMI Shielding Compounds for High-Voltage Cover 2019 Hyundai Motor Co., Hyundai Nexo

- **Tier Supplier / Processor:** Yura Corporation / Yura Corporation
- **Material Supplier / Toolmaker:** Hanwha Compound / Hyundai Motor Co.
- **Material / Process:** Hanwha Compound ESM-204B PA6 / injection molding

In the Materials category, the winner was the **EMI Shielding Compounds for High-Voltage Cover** on the 2019 Hyundai Nexo SUV from Hyundai Motor Co. Tier supplier and processor Yura Corporation and material supplier Hanwha Compound also were named on the award. The material used for this application was Hanwha Compound ESM-204B PA6. New conductive plastic compound materials for EMI (Electromagnetic Interference) shielding were developed for high-voltage junction box upper covers. The material replaces conventional die cast aluminum covers for reduced weight and manufacturing costs. The materials are Polyamide 6/PPO compounds with hybrid conductive carbon filler (Carbon fiber, nano carbon fiber filler – CNT, Carbon black) not containing metal powder or metal coated fiber. The weight savings is estimated at 30% (0.3kg) and the cost savings is estimated at 70% (\$50 per vehicle.)



Category Winner: Process / Assembly / Enabling Technologies



Integrated Tire Carrier, Rear Camera & Brake Light Assembly, 2018 Fiat Chrysler Automobiles, Jeep Wrangler

- **Tier Supplier / Processor:** TMD-Grammer AG Group / Leggera Technologies
- **Material Supplier / Toolmaker:** DuPont / Leggera Technologies
- **Material / Process:** Zytel ST 801 AW PA66 / injection molding

In the Process/Assemble/Enabling Technologies category, the winner was the **Integrated Tire Carrier, Rear Camera & Brake Light Assembly** on the 2018 Jeep Wrangler SUV from Fiat Chrysler Automobiles. Tier supplier TMD-Grammer AG Group, processor and tooling supplier Leggera Technologies and material supplier DuPont also were named on the award. The material used for this application was Zytel ST 801 AW PA66. This hybrid composite technology utilizes magnesium injection molding for higher structural strength with reduced weight & polymer over molding for improved impact and corrosion resistance. A 60% weight savings is achieved compared to metal stamping and a 20% weight savings is achieved compared to die casting processing methods. A cost savings of 20% is achieved with an improved load rating from 85 lbs to 115 lbs. The new design eliminates the need for a steel bracket for an indirect cost savings.



Category Winner: Safety



Interlocking Mechanism Design for Side Impact 2019 Ford Motor Co., Ford Transit Connect

- **Tier Supplier / Processor:** Faurecia Interior Systems / Thermolympic SL
- **Material Supplier / Toolmaker:** Trinseo / Meymol SL
- **Material / Process:** Magnum 3325MT ABS / injection molding

In the Safety category, the winner was the **Interlocking Mechanism Design for Side Impact** on the 2019 Ford Transit Connect van from Ford Motor Co. Tier supplier Faurecia Interior Systems, Processor Thermolympic SL, material supplier Trinseo and tooling supplier Meymol SL also were named on the award. The material used in the process was Magnum 3325MT ABS. This interlocking mechanism improves door trim performance during side impacts by preventing fracture or separation of components that could cause sharp edges. This patent pending design provides strong attachment, force absorption and high impact resistance between two components during side impact. It replaces the need for metal bracket reinforcement solutions (saving 3.70kg in weight per vehicle). A cost avoidance savings of \$30.60 per vehicle and a tooling investment of \$9.88 million is achieved.



Category Winner: Hall of Fame



First Injection Molded Thermoplastic (PC/PBT) Energy Absorber 2003 Honda R & D Americas, Honda Element

- **Tier Supplier / Processor:** Shape Corp. (Net Shape)
- **Material Supplier / Toolmaker:** SABIC (GE Plastics)
- **Material / Process:** XENOY PC/PBT / injection molding



The first injection molded thermoplastic (PC/PBT) rear energy absorber for a vehicle bumper system, used on the 2003 Honda Element compact crossover SUV from Honda Motor Company, was named the 2018 Automotive Innovation Awards Hall of Fame winner. The energy absorber, made with XENOY™ Polycarbonate/Polybutylene Terephthalate (PC/PBT) resin from SABIC (then known as GE Plastics), replaced expanded polypropylene (EPP) foam energy absorbers in less package space at lower cost with better damageability

performance. To be considered for a Hall of Fame Award, an automotive plastic or composite component must have been in continuous service in some form for at least 15 years and broadly adopted in the automotive industry. This application certainly qualifies as over 80 million pounds of XENOY™ (PC/PBT) injection molded energy absorbers have been validated and launched on multiple vehicles, in both front and rear bumper system applications, leading to numerous innovations improving crash safety worldwide. Representatives from Honda R&D Americas, Net Shape (now part of Shape Corp.), Shape Corp., and SABIC accepted the award on behalf of the original team that worked to develop the technology.



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HUSHMAN vs. The SQUEAK MONSTER

*It was supposed to be the perfect weekend. A happy couple, starting off on a getaway weekend where the future groom-to-be plans to pop 'the question'. These unsuspecting passengers are soon to be attacked by the sneaky and annoying... **SQUEAK MONSTER!***



*A romantic mood fills the car... They slowly lean toward one another, resting their arms on the console. Where Squeak Monster lies in wait. First with a **LOW SQUEAK...***



*Unsuspecting, the future fiancé places her water bottle in the console... and the plating area emits a horrific **SQUEAK!!***



YIKES! PLEASE, PULL OVER!!



*Luckily, **HUSHMAN®** is flying above. He hears the awful noise and knows, "**SQUEAK MONSTER** has struck again." Is he too late to save the day – and romance??!*



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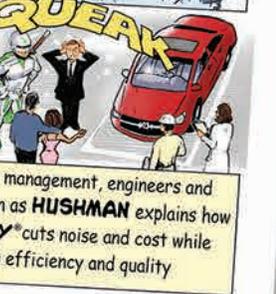
*Flustered by the hideous and untimely **NOISE**, she gets out of the car! The future groom is in a panic! "This squeak is ruining everything! I can't let this happen - I'll call the OEM!"*



*The entire console is **SQUEAKING!***



ENGINEERS DESK AT THE OEM



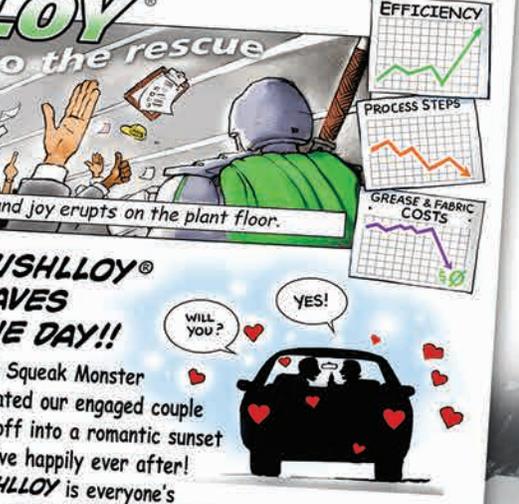
*OEM plant management, engineers and workers listen as **HUSHMAN** explains how **HUSHLLOY®** cuts noise and cost while raising efficiency and quality*



*...and then they watch in amazement as **HUSHMAN** defeats the **SQUEAK MONSTER!***



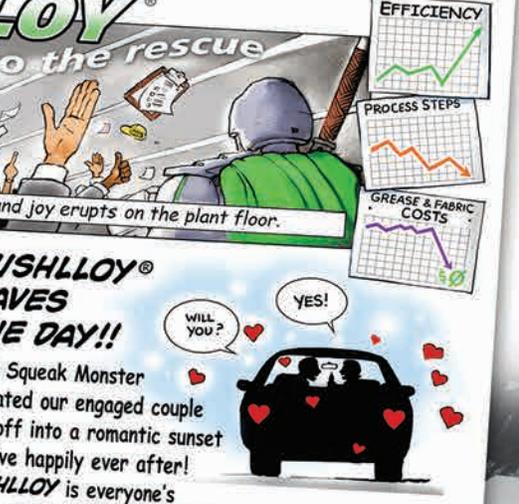
*With Squeak Monster defeated our engaged couple ride off into a romantic sunset and live happily ever after! **HUSHLLOY** is everyone's noise solution - **SILENCE IS GOLDEN!!***



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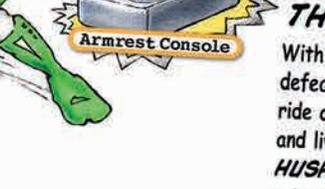
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GREASE & FABRIC COSTS



Armrest Console





SOCIAL REPORT

Teri Chouinard, SPE Automotive Division Social Chair

Thank You SPE Automotive Div. Program Sponsors!



Your sponsorship support of our educational programs, that nurture growth in the automotive plastics industry, is greatly appreciated. Please join us for an evening of fun and celebration honoring you, and your company, and reviewing the programs and scholarships your support enables. It's been a great year and we look forward to celebrating with you!

Please join the SPE Automotive Division Board of Directors for a Happy New Year celebration highlighting the benefits your support provided in 2018 and learn about new benefits we are offering with sponsorship in 2019.

Thursday, January 24, 2019 – 6 pm to 8 pm

Ruth's Chris Steak House,
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to the finalists and to those who partner with us to bring unique solutions to the Automotive Industry!



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2019 Technical Sessions include:

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- Process Developments & Simulations
- Sustainability & Emissions

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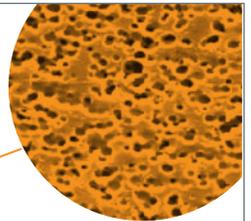
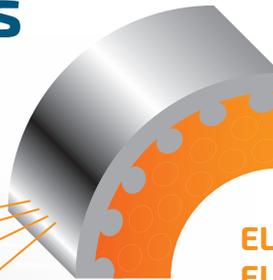
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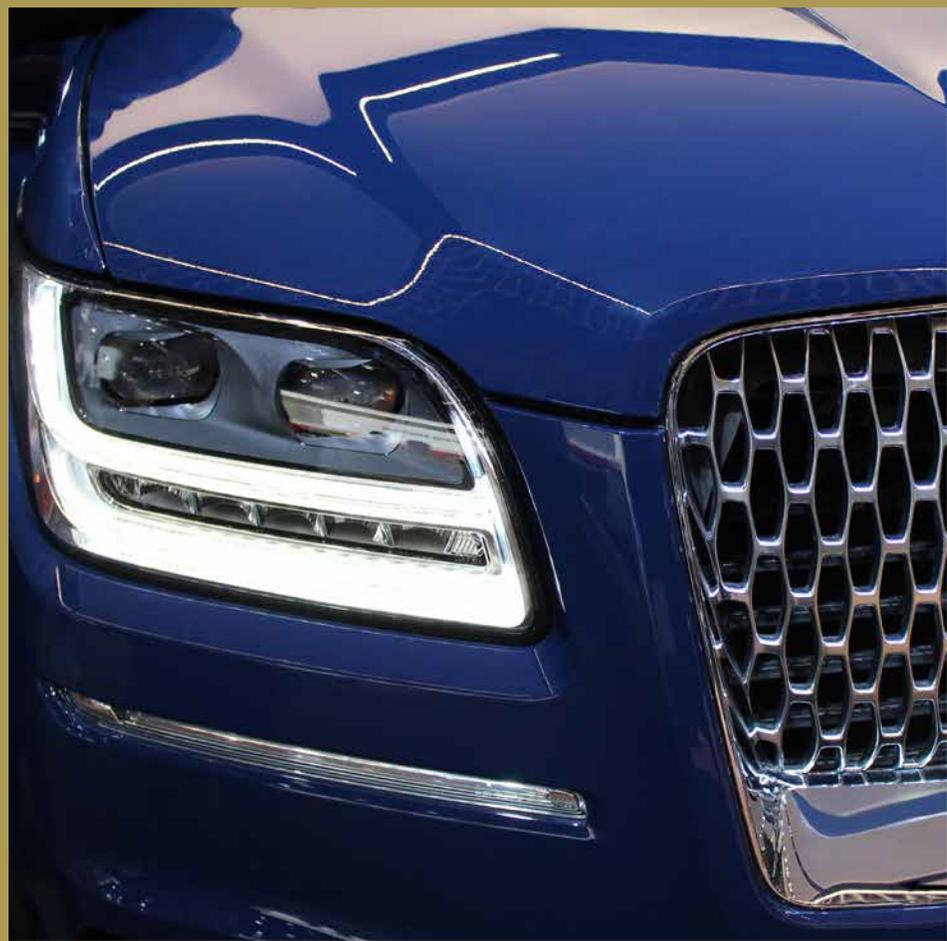
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SPE DESIGN OUTREACH PROGRAM

by Chuck Jarrett and Steve Van Loozen



AUTOMOTIVE

For the second year, The SPE Automotive Chapter kicked off its Auto Design outreach program with the faculty and students at Lawrence Technologies University's (LTU) Transportation Design and Industrial Design program. LTU is one of the premier design schools in the country, and Keith Nagara, Director, assisted the SPE Auto Section to educate the up and coming students on the capabilities of today's thermoplastics related to Design. Last year, \$5,000 in scholarships was offered to the winners. This year, SPE is pleased to offer \$10,000.

The students were tasked with leveraging the innovative use of plastics as a Design enabler versus traditional materials such as steel, aluminum or thermosets. The LTU design students collaborated with several other corporate-related design tracks this semester and our brief is to dovetail into their current body of work which includes Magna, Wards Automotive, Ford, GM and Calsonic.

These student have met with SPE members and automotive design professionals several times one on one to discuss their individual projects. During this time they determine how plastics influence their individual projects, and they collaborate to create new avenues for design in various aspects of their solutions.

Two of Detroit's iconic Automotive Design leaders judge our student design competition. We are so fortunate to have Gordon Platto, Design Director from Ford Motor Company and Mark Trostle, Head of Dodge and SRT Design at FCA, involved in this organic growth of new potential for the future of plastics, from the origination of the students' ideas all the way to their finished projects. Both judges deeply support the students and the SPE Auto Chapter Design outreach scholarship program. We appreciate their guidance and participation in support of the students at LTU's Transportation Design, Industrial Design program and SPE.

The judging for the scholarship program will occur prior to the end of the fall semester. The announcement for the winners will occur at a very notable venue in line with the commencement of the North American International Auto Show (NAIAS) in

January at the "MAIN Event20". The MAIN Event (Motor City Auto Industry Night) will be held at the famed Max M. Fischer Music Center - Detroit Orchestra Hall on the Sunday night prior to Media days at NAIAS. The event recognizes the industry's global leaders in Auto Design and industry though leaders such as Bob Lutz and Elon Musk. The event is MC'd by Detroit's own Huel Perkins who will recognize the scholarship winners during the awards segment of the event.



TREASURER'S REPORT

Bonnie Bennyhoff,
SPE Automotive Div. Treasurer



**AS OF DEC. 13, 2018,
THE DIVISION'S
ACCOUNT
BALANCES WERE:**

Checking:	\$553,220.83
Savings:	\$ 27,472.81
Total:	\$580,693.64

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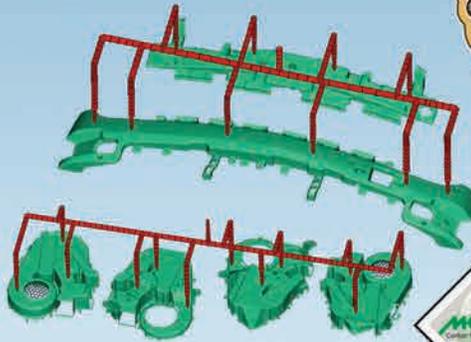
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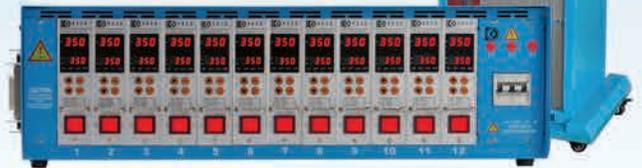
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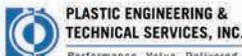
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ANTEC® 2019

Detroit, MI • March 18-21, 2019

Dr. Norm Kakarala & Tom Pickett



The 2019 SPE Annual Technical Conference (ANTEC) will be held at the Renaissance Center Marriott Hotel in Detroit from March 18 - 21, 2019. ANTEC is the largest and most respected technical conference in the plastics industry.



The ANTEC will have 13 concurrent sessions with about 400 presentations. Three Automotive Sessions have nineteen papers that will be presented in the Mackinac East

Room on Monday March 18th afternoon, Tuesday March 19th morning and afternoon. In Monday's session six invited industry leaders will provide reflections and trends in automotive TPO innovations and implementations. Automotive Materials and Process Developments will be covered in two sessions on Tuesday with 13 presentations.

A Plenary Presentation on Automotive is scheduled for Wednesday morning at 8 AM in the Renaissance Ballroom. **Dr. Deborah Mielewski** (the Senior Technical Leader of Sustainable Materials and Advanced Materials at Ford Motor Company) is the Plenary Presenter on "Advances in Automotive Plastics & Composites" and will review use of cost effective, lightweight, sustainable and advanced materials for automotive applications.

The Co-Chairs of the 2019 ANTEC Automotive Division Session are **Norm Kakarala** and **Tom Pickett**. Helping to recruit and review the papers for the ANTEC Automotive Sessions are **Suresh Shah, Alper Kiziltas,** and **Keith Siopes**.

The details of the Automotive Sessions are listed in this newsletter. More information about ANTEC and specific details of the papers in the other sessions will be included in the upcoming Plastics Engineering magazine and also available on the SPE website.



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ANTEC® 2019

Detroit, MI • March 18-21, 2019

Session Title Automotive TPO Developments **Time: Monday March 18th, 2019**
Moderator Norm Kakarala **Place: Mackinac East Room**

Time	Presenter	Topic Title
2:00	Mike Balow, Asahi Kasei Plastics	An Overview of Key Material Developments in Engineered Polyolefins for Automotive Applications
2:30	Dr. Rose Ryntz, Ryntz & Assoc., LLC	Have Plastic Surfaces Been Enhanced?
3:00	Robert Eller, Robert Eller Assoc., LLC	Twenty Years of TPE and TPO Evolution and a Vision of the Future
3:30	Paul Spadafora, Magna Exteriors	Driving Innovation and Material Collaboration on Exterior Products
4:00	Matthew Marks, Sabic	Polypropylene's Use in Structural Automotive Applications – A Historical View
4:30	Jason Holbrook, KrausMaffei	20 Years of Developments in Process & Equipment Trends

Session Title Automotive Materials Development **Date: Tuesday March 19th, 2019**
Moderator Tom Pickett, General Motors **Place: Mackinac East Room**

Time	Presenter	Topic Title
8:00	Dr. Suresh Shah, SPE Fellow	Innovations in Automotive Plastics "Materials and Processes"
8:30	Cindu Annandarajah, Iowa State Univ.	Effect of Fiber Pretreatment on Mechanical Properties of Agave Fiber (AF)-Polypropylene (PP) Biocomposites
9:00	SungHye Kim, Celanese	Extremely Low Emission Polyoxymethylene for Automotive Interior Parts
9:30	Rodrigo Polkowski, Ford Motor	Recent advances in graphene based rubber compounds
10:00	Jakub Oliverius, Borealis	Foamed PP for visible automotive applications - challenges and opportunities
10:30	David Tucker, HP	3D printing Applications with MJF for Automotive Production

Session Title Automotive Process Developments **Date: Tuesday March 19, 2019**
Moderator Dave Helmer, General Motors **Place: Mackinac East Room**

Time	Presenter	Topic Title
2:00	Dr.Sassan Tarahomi, Alterra Holdings	Evolution in Automotive TPO
2:30	Dr. Suresh Shah, SPE Fellow	Innovations in Automotive Plastics "Materials and Processes/Enabling Technologies"
3:00	Jakub Oliverius, Borealis	Novel Polyolefin solutions addressing the main challenges of future mobility
3:30	Marjolein Groeneweg, Trinseo	Mineral Fiber Filled PC+ABS Blend Designed For Large Off-line Painted Exterior Components
4:00	Ashwini Mishra, Tata AutoComposites	Lightweight Automotive Composites for Lowered Emissions
4:30	Marjolein Groeneweg, Trinseo	MAGNUM ABS: The Benchmark ABS for Extrusion
5:00	Xiaoling Jin, General Motors	Plastic Material Considerations for Electrified Propulsion Systems



Where has the year gone? We ask this question every December. Time seems to move at warp speed. Amazing. Reflecting on 2018, I am also awestruck by just how quickly the automotive industry is moving to next-generation mobility solutions, like

Automated, Connected, Electric, and Shared vehicles (ACES).

This evolution requires collaboration. Indeed, several industry-wide collaborations among various societies, associations, and other bodies this year have focused on building an understanding of the needs, opportunities, and potential solutions to help us address the pain points and challenges of advancing ACES. Consider a few of these initiatives.

SAE International and General Motors have partnered to headline sponsor the AutoDrive Challenge™, the latest of SAE International's Collegiate Design Series. This newly established, three-year autonomous vehicle competition will task students to develop and demonstrate a full autonomous driving passenger vehicle.

The Motor & Equipment Manufacturers Association (MEMA) has formed a new professional advisory board to guide the motor vehicle supplier industry in a time of rapid and paradigm-shifting technological change. Never before has the mobility industry had to embrace so many advances in vehicle technology so quickly and on a global scale. This new advisory board will ensure that MEMA is in a position to help lead the industry through the emergence and adoption of new technologies.

In addition, 2018 saw the release of a report from the Center for Automotive Research's (CAR), through its Coalition for

Automotive Lightweighting Materials (CALM) group, on the impact of ACES on design, materials, manufacturing, and business models. I strongly recommend you go to CAR's website (www.cargroup.org), download the report, and share with others in your organization.

For us in the automotive plastics industry, we can be optimistic because our class of materials are going to play a key role in advancing ACES, especially when it comes to reducing weight and enabling electrification and other emerging technologies.

Plastic and plastic composites, as the stat goes, account for about 50 percent of the volume of a typical vehicle, but only 10 percent of its weight. That shows just how far we have come in half a century or more because, as you know, it was not always that way. Those who came before us probably did not imagine just how much impact plastics would have.

The source for that stat, the American Chemistry Council (Plastics Division), published an article earlier this year: **"Advanced Plastics Are the Future of our Autos."** If correct, then we are poised for more amazement on the automotive innovations that plastics can and will make possible.

A new year will soon be here. Soon enough, at warp speed, that year will also be near its end. If we continue to come together, we will be that much closer to meeting the challenges posed to us by ACES and other next-mobility opportunities.

In closing, I would like to share how grateful I am to serve as the SPE Automotive Division Intersociety Chair and have the privilege of meeting so many of you at various industry events. I look forward to new opportunities to meet in 2019. No matter how fast time goes, we can seize as many moments as we can to do what we do best – collaborate, imagine, and help shape the future of mobility with all that plastics can make possible.



AUTO EPCON

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Presented by SPE Detroit Section, SPE Automotive Division,
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COUNCILOR'S REPORT

**SPE Council Meeting Minutes, Charleston, SC
September 21-22, 2018, by Dr. Suresh Shah**

WELCOME, ANTI-TRUST, & CONFLICT OF INTEREST STATEMENT (B. GRADY)

President Grady called the meeting to order. He reminded everyone that the meeting was held accordance with the SPE Anti-Trust and Conflict of Interest policies.

The agenda was approved as published.

The motion to pass the minutes from the May 6 council meeting. The meeting was approved.

OPENING REMARKS (B. GRADY)

President Grady called for a **moment of silence** to honor the passing of several distinguished SPE members: Jeffrey A. Forger, Stuart Levine, Ronald Price, Juergen O. Rathgeber, Raymond J. Shute Jr. and Earl W. Veazey.

FINANCIAL REPORT (P. FARREY)

CEO Farrey reminded all Councilors of the danger of email phishing scams which have already cost SPE \$2600 due to lack of awareness.

In the absence of VP Finance, Jeremy Dworshak, Farrey presented a summary of SPE financials through June 30, 2018. All details are posted to Leadership Lane. YTD membership revenues exceed YTD budget by 17% for regular members and 27.5% for new members. The increase in new members and higher dues revenue is attributed to better marketing programs and dues increase. ANTEC 2018 was a net positive for SPE while other SPE-managed events showed minor gains and losses. Farrey presented the budgeting process for 2019. Council will review the budget after the Finance Committee on December 13, 2018.

Farrey responded to questions about SPE's financial investment performance which is below budget. SPE's risk profile is conservative, reflected in a 50% bond / 50% equities portfolio.

MARKETING & COMMUNICATIONS REPORT (C. CARLIN)

VP Carlin provided details on the SPE Online Technical Library which now contains over 14,000 items. The tool can be used by all chapters to build brand equity and create member value. Instructions on how to prepare and upload items were given and posted on the SPE website: **Content > Leadership Resources > Leadership Documents**. SPE will provide more specific guidance on criteria for content selection, authorship, permissions, copyright.

DIVISIONS REPORT (J. LYONS)

VP Lyons presented ideas on how to enhance member data, including a plan to rejuvenate chapter boards through supply chain outreach. Lyons provided a platform for Councilor feedback via a short poll.

SECTIONS REPORT (S. EASTMAN)

VP Eastman presented data on SPE Operating Policy 13 – the minimum operating requirements for affiliate groups. Eastman stressed that there is room for improvement because many sections are technically not compliant. At the time of writing, only 11% of sections are in full compliance with SPE operating requirements. Eastman reported a recommendation from the Sections Committee to the Executive Board. 3 sections in formation are to be dissolved: Turkey, Mexico Centro, China.

Eastman made a motion to move 4 sections to provisional status (Toledo (4), Great Salt Lake (77), Central Europe (87), Brazil (97)). Discussion ensued, with Councilor S. Tarahomi (Detroit Section) offering to reach out to Toledo. The motion passed.

YOUNG PROFESSIONALS REPORT (L. NEBEL)

VP Nebel presented the perspective of Young Professionals and what challenges they face when considering joining associations like SPE. Nebel announced a new program, approved by the Executive Board, where YP dues are waived for 2 years. This gives SPE an opportunity to develop relationships and demonstrate value to an important demographic. Nebel announced a new electronic newsletter targeted at YP and discussed a possible new program to develop a specific welcome kit for new YP members. NGAB liaison, Erin Keaney, will advise SPE on matters relevant to YP.

CEO UPDATE (P. FARREY)

Farrey presented future net savings of \$200k annually from the information systems overhaul at SPE. SPE promoted two staff members, Sue Wojnicki and Kathy Schacht, to director-level positions to improve reporting structure. K. Schacht provided details on SPE governance updates, including new tools to make information easier to access. These tools will be available on the SPE website: **Content > Leadership Resources > Leadership Documents**. S. Wojnicki presented details about SPE member experience and SPE brand development. A new marketing program manager has been hired to create and improve processes for member acquisition and retention. Wojnicki also presented an overview of a new

COUNCILOR'S REPORT

**SPE Council Meeting Minutes, Charleston, SC
September 21-22, 2018, by Dr. Suresh Shah**



content strategy, including licensed learning courses (include those from the Institute of Packaging Professionals) and SPE-developed webinars, which are free for SPE members and \$199 for non-members.

Farrey presented business development results with 2018 2x over 2016 numbers. There is a focus on developing events as revenue-generating items for SPE.

Farrey reported positive operational results with continued management efforts resulting a 3% decline in costs while adding headcount and implementing salary increases. On the topic of ANTEC sponsorships, Councilor Tarahomi (Detroit Section), offered to help raise funds through a targeted outreach in the greater Detroit area.

Farrey presented an update on the initial impact of Council's decision to stay with the old chapter dues system after having implemented a new software program. The current way of doing business results in higher costs (\$5k one-time charge, \$6k monthly accounting fees) while reducing efficiencies such as enabling auto-renewal for members.

VP Gomez made a motion that Council changes the previous vote and recommends the adoption of the model as designed. 2nd by C. Bowland (Composites Division). Discussion ensued, and clarification was requested on the topic of chapter dues and assignment of section geography. Several councilors emphasized that volunteer sections have a responsibility to attract new members by creating value. Others expressed concern about loss of financial resources. A vote was taken and the motion passed.

Farrey announced that student memberships have been officially underwritten by PLASTICS up to \$20k.

Farrey reviewed chapter insurance requirements. A global agreement has been negotiated by SPE to offer insurance for all chapter board members for \$450/yr. Chapters must be in compliance in order to be insured. Farrey reviewed the specific requirements. A webinar covering all details will be hosted by SPE at 11h00 EST on September 27, 2018. Details about the program are posted at www.4spe.org/chapterinsurance

SIGs and student chapters are exempt as they are covered by SPE. Chapters that already have coverage are encouraged to talk to Farrey directly about the transition.

Farrey presented new chapter benefits including the elimination of the costly Connex conference calling system; a new ability of SPE to process credit cards for chapter events and membership; improved website experiences through SPE hosting.

President Grady put Council in recess until Council Committee of the Whole (CCOW) on Saturday, September 22.

CCOW SUMMARY (B. KAPUR)

CCOW Chair Kapur summarized the main points of the meeting. The new ANTEC format was discussed; training for new SPE leaders and volunteers; the megatrend of sustainability; CCOW needs to be more action-oriented.

EVENTS REPORT (J. GOMEZ)

VP Gomez reviewed the functional VP model and the impact that has had on SPE events. There are 2 categories of events: SPE-led and Chapter-led. Gomez addressed the challenges of time and resources association with putting on events and stressed that there is competition in the events field. Gomez requested input from Council on how to explore topical opportunities where SPE can act more nimby to capture and establish thought leadership.

TECHNOLOGY & EDUCATION REPORT (R. PEARSON)

VP Pearson announced details on a nanotechnology conference in Washington DC and National Nanotechnology Day on 10/9. Pearson also introduced Professional Development Courses (PDCs) to be created and delivered by SPE. He stressed that this initiative was in the feasibility stage. The goal is to generate revenue for SPE. Councilors stated that PDCs exist at some TopCons already.

BY-LAWS & POLICY REVIEW (B. MULHOLLAND)

There were 2 by-law changes that required a vote by Council regarding 3.6 (Anti-Trust) and 18.2 (Indemnification).

The list of approved operating policy changes was posted to Leadership Lane on 8/10/2018 and 8/24/2018.

PINNACLE AWARDS (B. LANDES / R. PEARSON)

President-Elect, Brian Landes, reviewed the types of Pinnacle Awards available and stressed the importance of recognition conferred by the awards on volunteers in the Society. VP Ray Pearson will be taking over the Pinnacle Awards



COUNCILOR'S REPORT

SPE Council Meeting Minutes, Charleston, SC
September 21-22, 2018, by Dr. Suresh Shah

AUTOMOTIVE

Program. He stated that the link for submission for Pinnacle Award Applications is now live on the SPE website.

Nominating Committee Report (R. Al-Zubi)

There are 3 open positions on the SPE Executive Board:

- President-Elect: 1-yr term, 3-yr commitment
- VP Events: 3-yr term
- VP Young Professionals: 3-yr term

Past-President Al-Zubi reviewed the timeline and mechanisms for the election process. All details are posted to Leadership Lane.

FOUNDATION REPORT (E. VITALE)

SPE Foundation Director, Eve Vitale, announced that the Foundation Annual Report will be available at ANTEC 2019 in Detroit. Vitale reviewed multiple initiatives underway through the Foundation including increased advocacy efforts with PLASTICS for both workforce development and recycling infrastructure funding; PlastiVan outreach programs with Kettering University, Baylor University, SPE Divisions including Thermoforming and Composites, and a virtual classroom seminar with students in Australia in partnership with the AUS/NZ Section.

NEW BUSINESS / OLD BUSINESS (B. GRADY)

President Grady fielded questions and comments from Councilors on the topic of ANTEC, student activities including the traditional poster program, and perceived limits on Council's time during meetings. Councilors requested longer meetings, better communication in advance, and tools for new Councilor training.

Monika Verheij was asked by President Grady to report on the new SPE Mentor Program. Details can be found on a new webpage: www.4spe.org/mentor

President Grady re-opened the previously tabled discussion about chapter dues mechanisms. VP Sections, Scott Eastman, summarized multiple conversations and identified major themes including improved communication and balance between lean operations and small section membership. Eastman proposed an amendment to VP Gomez's initial motion, to freeze the minimum amount of dues to be passed through to chapters. 2nd by Councilor V. Flaris. A further amendment

by R. Joslin stipulated a 2-year trial period. VP Gomez made a motion that Council adopt the new chapter dues model while freezing the minimum amount of pass-throughs as of the last dues payment date (6/30/2018), for a period of two years, with instructions on how to access member data. Secretary Carlin certified that 45 Councilors and proxies were presented to meet quorum. A vote was taken and the motion passed.

The next SPE Council meeting will be held remotely at 10h00 EST on December 13, 2018.

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SECRETARY'S REPORT

**SPE Automotive Division Board Meeting Minutes
October 15th, 2018, by Crystal VanHouten**

Matt Carroll,
Alper Kiziltas,
Bonnie Bennyhoff,
David Helmer,

Fred Deans,
Gary Kogowski,
Norm Kakarala,
Steve Van Loozen,

Teri Chouinard,
Crystal VanHouten,
Mark Lapam,
Dhanendra Nagwanshi,

Paula Krueger,
Jeremy Lee,
Samar Teli,
Tom Pickett,

Ed Louibrand,
Neil Fouymeyer
*Ph: Mark Bahm,
Cynthia Flannigan,
Jeff Helms*

Meeting was held at the ACC Office (American Chemistry Council) in Troy, 5:50pm – 7:32pm

OPENING – Dave Helmer

Review of Agenda for Meeting
ACC Office Calendar review for meetings next year

FINANCIAL – Bonnie Bennyhoff

October review of assets is \$559,584.67. All is good.
P&L statement review of ACCE. New Fiscal year started July 1st, 2018.

COUNCILOR REPORT – Suresh Shah

Please read full report published.

WEBSITE ANALYTICS – Mark Bahm

13,000 visitors a month
ACCE and IAG increase over 400% within a few months leading up to event or month of event
Until we get corporate to change the font size, we cannot use the SPE AUTOMOTIVE logo.

2018 ACCE REPORT – Alper Kiziltas, Matt Carroll, Teri Chouinard, Bonnie Bennyhoff

Event had positive reviews. Papers are published online.
Over 100 students attended. PlastiVan was very well received.
1100 attendees total at ACCE this year.

DESIGN IN PLASTICS / The MAIN Event – Steve Van Loozen

YTD there have been four meetings with the students this year.
Students will present updates to the SPE Members on October 19th, 2018, as well in November and December.

EDUCATION – Alper Kiziltas

PlastiVAN is on track for visiting 20 different schools/events.
YTD we have reached 2,854 students.
Any suggestions of schools to sponsor, please reach out to Alper.

MEMBERSHIP – Samar Teli

Total Registered 884, active 759
New Members in 2018, 136
More global, diversity members
US and Canada have the most membership members
Membership drives during conferences/gala. Samar would like to add a welcome message to new members.

NEWSLETTER

November 5th, 2018 is the hard deadline for article submission.

CHAIR REPORT – Dave Helmer

Liability Insurance Coverage has been renewed
Need a copy of bylaws
Sponsorship Appreciation Dinner will be held in January for sponsor for all events.

AUTO EPCON REPORT – Gary Kogowski

2018 AutoEpcon was a success.
21 Exhibitors and 244 attendees
Committee kickoff meeting Friday, October 19th, 2018.
2019 AutoEpcon will be held on May 7th, 2019.
Call for paper landing site is ready.

IAG – Jeff Helms

67 Part Nominations displayed
214,000 in Sponsorships
33 tables without media, students and OEMS. Can have up to 80 tables
Chimes will be used to indicate start of event

INTERSOCIETY REPORT – Dhanendra Nagwanshi

ESD Affiliate Council Fall Networking event is this Wednesday, October 17th, 2018.

TPO SHANGHAI – Norm Kakarala

To be held April 3-5, 2019

GOLF OUTING – Fred Deans, Teri Chouinard

Event was a great success.

ANTEC – Norm Kakarala, Tom Pickett

Being held at the Detroit Marriott in March
Paper submissions are due October 19th, 2018.
NEW – SPE International is requiring written papers this year. Deadline is earlier than usual.
Paula Kruger and Keith Siopes have been assisting in recruiting papers for ANTEC.
New Technology Forum will be a new showcase event at ANTEC 2019.

NEW BUSINESS

Michigan Material Society for U of M would like to discuss SPE.
SPE headquarters sent over a presentation. Tom Miller will be visiting on 10/19/2018.
Next Gen Events – Reminder
Meeting adjourned at 7:32pm.



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MEMBERSHIP REPORT

Samar Teli, SPE Automotive Division Membership Chair

First I want to thank you for being a valued member of SPE. Your ongoing support for the SPE and the Automotive Division is very critical to our success. It builds on our strength to provide the educational outreach to the young professionals and helps prepare the new generation leaders for innovations in automotive plastics.

The total memberships in the automotive division as of December 1, stands at 913. There have been 183 new members added in our division so far in 2018. I like to welcome each of you and once again thank you for your support. I also like to remind you to utilize all the great benefits your membership provides. I encourage you to take few moments to log on to the www.4spe.org. There is an extensive library of technical resources and technical journals available to you as a member. Whether you are a student member or professional member, this is very valuable resource and feature of your membership.

There are other great benefits as well. As a student member, you can also access the SPE's online career solutions tools. Join the CHAIN, SPE's professional online networking tool. You can take advantage of discounted admissions to the online trainings and conferences. Plan to attend different SPE events that are scheduled throughout the year. These events provide opportunities for networking with great professionals in our industry.

On behalf of the SPE Automotive Division Board, I wish you Merry Christmas and Happy Holidays.

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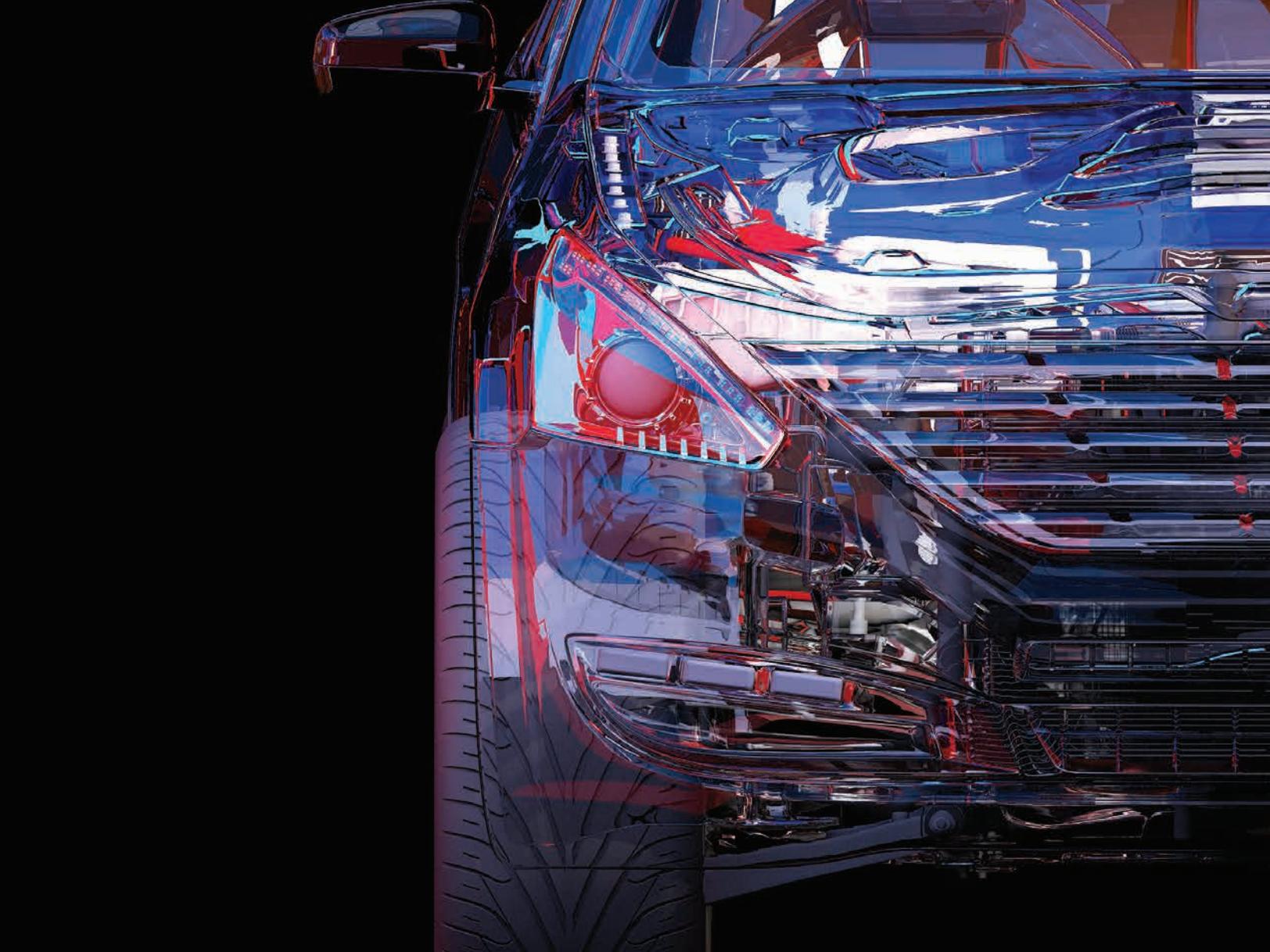
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