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VOL 51, ISSUE 3

AUTOMOTIVE PLASTICS NEWS

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

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Plastics News



51ST ANNUAL



AUTOMOTIVE INNOVATION AWARDS COMPETITION & GALA

HONORING THE BEST IN AUTOMOTIVE PLASTICS

SPE® AUTOMOTIVE DIV. NAMES WINNERS FOR THE 51ST ANNUAL AUTOMOTIVE INNOVATION AWARDS

The Automotive Division of the Society of Plastics Engineers (SPE®) announced the winners for its 51st annual Automotive Innovation Awards Gala, the oldest and largest recognition event (established in 1970) in the automotive and plastics industries.

“This year’s program received a record number of nominations – 84 across 10 different categories including the new Electric and Autonomous Vehicle Systems Category highlighting some of the emerging innovations associated with those two topics given the industry investment in those areas and impressive product launch plans.”

– Jeffrey Helms, global automotive director, Celanese Corp.

See pages 4-11 all the details of this year’s show.



CONTENTS

Chair's Welcome	3
2022 IAG Recap	4-11
SPE Code of Conduct	12
Treasurer's Report	14
Sponsor News, featuring Chase Plastics	15
2022 ACCE Recap	16-23
2022 Golf Outing Recap	24-27
Plastics are Good for the Planet	28-32
2023 Electric and Autonomous Vehicles (EAV)	34-35
Education Report	36-38
Secretary's Report – BOD Minutes, October 24, 2022	40
2023 ANTEC	42-43
Tribute to Peter Grelle	44-45
Councilor's Report –October 31, 2022	46
Board of Directors / Directory	49

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AUTOMOTIVE

MEETING SCHEDULE & SPECIAL EVENTS CALENDAR

Electric and Autonomous Vehicles (EAV) Conference

Presentations Due January 31, 2023

SPE Auto. Div. Board Meeting

Hybrid (Virtual & In-person) 5:30 - 7:30 p.m.
Location TBD, MI February 6, 2022

2023 ANTEC

Hilton Denver City Center, All Day
Denver, CO March 27-30, 2023

SPE Auto. Div. Board Meeting

Hybrid (Virtual & In-person) 5:30 - 7:30 p.m.
Location TBD, MI April 10, 2023

2023 SPE Electric and Autonomous Vehicles Conference

Troy Marriott 8:00 a.m.-8:00 p.m.
Troy, MI USA April 16-19, 2023

2023 AUTOEPCON Conference

Troy Marriott 8:00 a.m.-5:00 p.m.
Troy, MI USA May 3, 2023

SPE Auto. Div. Board Meeting

Hybrid (Virtual & In-person) 5:30 - 7:30 p.m.
Location TBD, MI June 19, 2023

SPE Auto. Div. Board Meeting

Hybrid (Virtual & In-person) 5:30 - 7:30 p.m.
Location TBD, MI August 21, 2023

28th-Annual SPE Automotive Division Golf Outing

Fieldstone Golf Course All Day
Auburn Hills, MI USA September 5, 2023

23rd-Annual Automotive Composites Conference and Exhibition (ACCE)

Suburban Collection Showplace All Day
Novi, MI USA September 6-8, 2023

2023 SPE TPO Global Engineering Polyolefins Conference

Troy Marriott 8:00 a.m.-5:00 p.m.
Troy, MI USA October 1-4, 2023

SPE Auto. Div. Board Meeting

Hybrid (Virtual & In-person) 5:30 - 7:30 p.m.
Location TBD, MI October 23, 2023

52nd-Annual Innovation Awards Competition & Gala

Burton Manor 4:30 - 11:00 p.m.
Livonia, MI USA November 8, 2023

SPE Auto. Div. Board Meeting

Hybrid (Virtual & In-person) 5:30 - 7:30 p.m.
Location TBD, MI December 4, 2023

Automotive Division Board of Directors meetings are open to all SPE members. All events are listed on our website at <http://speautomotive.com>. Email **Dr. Sassan Tarahomi** at auto-div-chair@speautomotive.com for more information.

CHAIR'S WELCOME

SASSAN TARAHOMI, SPE AUTOMOTIVE DIVISION CHAIR



My dear SPE Automotive Division members, I have had a great last three months attending the TPO Conference and the IAG event. Unfortunately, I was out of the country during the ACCE Conference and the Golf outing. I missed a great opportunity to meet many of you in person and enjoy a great conference and have fun playing golf.

The ACCE was well attended with 500 registered attendees, 5 keynote speakers, one panel discussion, 47 technical presentations, 61 sponsors and 40 exhibitors. In addition, 47 students presented their posters of which 18 received awards. 3 ACCE scholarship awards of \$2,000 each and 2 Renkopf scholarship awards of \$2,500 each were given to the five college students selected by the ACCE committee. The ACCE committee selected one top presentation, recognizing the author with an award, and two additional finalist presentations. 40 Ecotec middle school and high school students participated in the conference and learned a great deal about composite materials, products and the overall plastics technology.

The IAG was very successful, about 600 people attended this event. Many thanks to Celanese the main sponsor and many other sponsors, judges, students, the SPE Automotive Division volunteers and the attendees. Theme for this year was "PLASTICS: ENABLING AN EVOLUTION IN MOBILITY", a perfect theme for changes plastics are bringing to the next generations of vehicles and the entire transportation market. The event was held at Burton Manor in Livonia, Michigan on Wednesday, November 2, 2022. If you missed the event this year, mark your calendar for the IAG 2023 in mid November 2023 at Burton Manor. You'll learn about the latest plastics advancements in the automotive and have fun at the same time.

Our next event is the 2023 Plastics in the Electric and Autonomous Vehicles Conference on April 16-19, 2023. The event will be at the Detroit Marriott -Troy in Troy, Michigan. The EAV technical team, with the leadership of Dr. Norm Kakarala and Dr. Suresh Shah and twenty plus volunteers, have planned a superb technical program for you. I made a short announcement during the IAG event about this conference. Six industry executives committed to deliver keynote speeches. Ms. Jamies Brewer, Executive Chief Engineer at General Motors Co., Jeff Makarewicz, Group Vice President R&D at Toyota, Alan Amici, President and CEO of Center for Automotive

Research, Kevin Swift, Sr. Economist at ICIS-Global Chemicals, Grahame Burrow, Magna Exteriors President and an executive from Rivian. Three concurrent technical sessions, a panel discussion on one of the hot topics of EV and many student posters to keep your interest. We have planned to add one additional hall to exhibitors to allow for more exhibition space, so our sponsors can showcase their latest products at this conference. Early bird sponsorship has been extended to November 30 to provide additional discount to sponsors of this conference. Hope to see many of you at this conference.

I was recently approached by one of our board members a few weeks back and was asked, if we will have a in-person board meeting. My answer was yes, and I promised to plan for few in-person board meeting at the ACC office or a local restaurant or a large meeting room that can accommodate most of us. By the time you read this newsletter, you should have received an email from me regarding planning the in-person board meeting and maybe we have had our first in-person board meeting by then.

Another important topic, I wanted to talk to you about is Safety. Regardless of what we do daily, safety must be of the highest priority for us. What I mean, is Safety at home, Safety out in the street, Safety in the plant, Safety on the road, Safety on the weekend having fun on the lake or working in the back yard. All of us need to practice developing a safety consciousness. Safety consciousness is the awareness of hazards and alertness to danger. Basically, sensing the danger and plan to avoid it before it happens. I would call it a Safety FMEA. We need to learn to have safety consciousness. It will keep us, our family, friends and co-workers safe.

Lastly, winter will be here before we know it. Lots of ice and snow on the roads. Many of us work from home but we still need to get out for various reasons and some of us still commute to work daily. No matter what, think and act safely on cold and snowy Michigan days and stay safe. May be next time, I see you, we can exchange a few safety stories over a cup of coffee.

Have an enjoyable and a very safe Thanksgiving and Christmas holidays and as always, you can reach me by email automotivechair@speautomotive.com or on my cell phone 989-335-0060.

*Your division chair,
Dr. Sassan Tarahomi*



SPE® AUTOMOTIVE DIVISION NAMES WINNERS FOR THE 51ST ANNUAL AUTOMOTIVE INNOVATION AWARDS

The announcement was made November 2, 2022 during the 51st SPE Automotive Innovation Awards Gala held at the Burton Manor in Livonia, Mich., USA. Winning Innovations from 10 different categories, selected by a panel of Blue Ribbon Judges who are industry experts, were honored at the event. A Grand Award, selected from the winners of each of the 10 categories, was also presented. A Hall of Fame (HOF) award was also announced. The criteria for a HOF award is that the nomination be in use for at least 15 years and be: game changing; very successful worldwide; innovative in materials, process and application; and still being used. In addition, a Vehicle Engineering Team Award (VETA) was presented to honor work in research, design, engineering, and/or manufacturing that has led to the significant integration of polymeric materials on a notable vehicle. Finally, a Lifetime Achievement Award (LAA) was presented to celebrate and recognize technical achievements of an individual whose work in research, design, and/or engineering has led to significant integration of polymeric materials on passenger vehicles. The following pages highlight this year's winners.

SPE's Automotive Innovation Awards Program is the oldest and largest competition of its kind in the world. Dozens of teams made up of OEMs, tier suppliers, and polymer producers submit nominations describing their part, system, or complete vehicle and why it merits the claim as the Year's Most Innovative Use of Plastics. The annual event typically draws approximately 700 OEM engineers, automotive and plastics industry executives, and media. Funds raised from the event are used to support SPE educational programs including technical seminars and conferences, which help educate and secure the role of plastics in the advancement of the automobile.

This year's program was made possible with the support from the following sponsors: Celanese, SABIC, DuPont, DSM, The American Chemistry Council – Plastics Division, Ascend Performance Materials, BASF, Covestro, INEOS Styrolution, Inteva Products, LyondellBasell, Fast Radius and Van Norman Molding.

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 Div., see <https://speautomotive.com/>. For more information on the Society of Plastics Engineers, see www.4spe.org.

INNOVATION AWARDS TROPHY ORDERS

Finalist: \$185. USD each

Category Winner/Hall of Fame: \$325 USD each

Grand Award: \$450. USD each



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Questions: please send an e-mail to info@speautomotive.com.

PLEASE NOTE: Company names will be listed on duplicate trophies and plaques in the same manner they were listed on presentations and signs at the Awards Gala unless SPE is notified in advance that changes must be made. Prices do not include shipping. You will be contacted after your order is received to confirm the application, quantity, and shipping costs.

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2022 GRAND AWARD & CATEGORY WINNER: CHASSIS/HARDWARE



Tension Leaf Spring 2022 General Motors Co. Chevrolet Silverado & GMC Sierra

Tier Supplier / Processor:
Mubea (Muhr und Bender KG)

Material Supplier / Toolmaker:
Multiple / Mubea (Muhr und Bender KG)

Material / Process:
Epoxy / Prepreg Layup and Compression Molding

The first all-composite leaf spring for light truck programs reduces mass up to 75% vs. all-steel and 58% vs. hybrid steel/composite solutions while doubling durability, eliminating corrosion, improving ride comfort, lowering NVH, and increasing payload. Fiberglass-reinforced epoxy prepreg is used to form a single leaf with a progressive spring rate that eliminates the shackle, shackle bushing, and helper leaves yet passes all OEM test requirements.





Category Winner:
ADDITIVE MANUFACTURING



Category Winner:
AFTERMARKET & LIMITED EDITION/SPECIALTY VEHICLES



**Spoiler Closeout Seal
2022 General Motors Co.
Chevrolet Tahoe, Chevrolet Suburban,
Cadillac Escalade, GMC Yukon**

Tier Supplier / Processor:
HP Inc. & AMT Ltd. / GKN Additive (Forecast 3D)

Material Supplier / Toolmaker:
BASF Corp. / GKN Additive (Forecast 3D)

Material / Process:
**BASF SE Ultrasint TPU01 TPU /
HP Multi Jet Fusion 5200 Series**

The powder-bed fusion process was used to source, print, process, and install 60,000 TPU spoiler closeout seals to meet 10 weeks of production as a bridge solution while hard tooling was being produced. Innovative vapor polishing and drying processes cleared a bottleneck, halved production time, were used to finish parts, eliminating the need for post-print dyeing. The seals close out gaps on left and right sides of rear spoiler, improving finish and fuel efficiency.

**Carbon Fiber C-Brace
2022 Ford Motor Co.
Ford Bronco Raptor**

Tier Supplier / Processor:
Montplast of North America

Material Supplier / Toolmaker:
BASF Corp. / Commercial Tool Group

Material / Process:
**Ultramid B3WC4 HP CF & GR PA6 /
Injection Molding**

This customer-visible, Class A C-brace was designed to meet offroad desert durability requirements for convertible versions of the vehicle while boosting torsional stiffness 40% to improve handling and NVH. Weight was reduced 55% vs. aluminum and 85% vs. steel by adopting a sandwich composite approach. Upper and lower shells were injection molded in 35% GR PA6 while a core was injection molded in 20% CF-PA6, then components were bonded with a newly formulated methacrylate adhesive.



Category Winner:
BODY EXTERIOR



**Panoramic Sunroof Frame
2022 Hyundai Motor Group
Kia Sorento**

Tier Supplier / Processor:
Inalfa Roof Systems Korea

Material Supplier / Toolmaker:
GS Caltex Corp.

Material / Process:
**Hiprene ALG14BF PA6 /
Injection Molding**

Several novel technologies contributed to this large injection molded LFT-PA6 panoramic sunroof frame. First, flat rather than round glass fibers provided higher dimensional stability and reduced warpage. Second, the twist pultrusion was used to produce LFT pellets whose fiber length exceeds the length of the pellets, again contributing to mechanical improvements. Weight was reduced 51% and part count dropped from 33 to 4 vs. a steel frame. Versus carbon fiber-reinforced LFT, torsional rigidity was 13% higher and breaking force 25% better at 24% lower cost.



Category Winner:
BODY INTERIOR



**2nd Row Seat Backs & Cushions
2022 Toyota Motor Corp.
Toyota Tundra**

Tier Supplier / Processor:
**Flex-N-Gate Corp. & Adient /
Flex-N-Gate Corp. & L&L Products**

Material Supplier / Toolmaker:
BASF Corp. / SyBridge Technologies

Material / Process:
**Ultradid B3ZG7 35% GR-PA6 & Elastocoat
74850 80% GR-PUR PA6 & PU /
Pultrusion and Injection Overmolding**

This composite seat structure combines a pultruded continuous fiberglass-reinforced PUR reinforcement beam that is injection overmolded with short-glass/PA6 to form the seat frame geometry. By replacing a 60-piece high-strength steel frame structure with a 4-piece molded composite structure, significant crash performance improvements were achieved while both cost and mass targets of 20% reduction were met. Additionally, over 100 welds at 16 weld stations were eliminated, significantly improving quality control, and under-seat storage that wasn't possible with the previous solution was added.





Category Winner:
**ELECTRIC & AUTONOMOUS
 VEHICLE SYSTEMS**



Category Winner:
MATERIALS



**High Voltage Power Distribution System
 2022 Ford Motor Co.
 Ford F-150 Lightning**

Tier Supplier / Processor:
Aptiv PLC / Yazaki North America, Inc.

Material Supplier / Toolmaker:
DuPont de Nemours, Inc.

Material / Process:
**Crastin FR684 & HR5339 PBT /
 Injection Molding, Silicone Over Molding**

This customizable, shielded high-voltage power distribution system permits 7 sets of subassemblies and up to 64 possible configurations from a single tool, providing both flexibility and scalability for future programs. Three different materials are used: a flame retardant 25% GR-PBT forms the internal assembly and terminal blocks and a silicone seal is overmolded directly onto a 30% GR-PBT cover. A unique shielding system uses stamped connection interfaces that reduce mass by 2/3s vs. cast products while maintaining electromagnetic shielding.

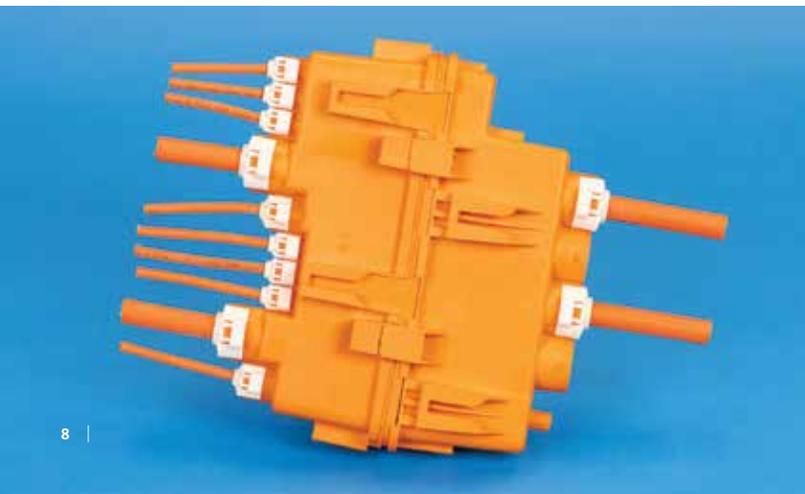
**Thermoplastic BEV Thermal
 Management Solution
 2023 General Motors Co. Cadillac Lyriq**

Tier Supplier / Processor:
Cooper Standard Automotive, Inc.

Material Supplier / Toolmaker:
**DuPont de Nemours, Inc., Dow Chemical Co.,
 LyondellBasell Industries /
 Cooper Standard Automotive, Inc.**

Material / Process:
**PA6/12, PA66 & PP / Extrusion, Molding, Forming,
 and Automated Assembly**

Two developments provide a lightweight, thermoplastic solution for EV thermal management systems. PlastiCool 2000 multilayer tubing for glycol applications to 120°C provides excellent chemical resistance, 25% better permeation resistance and 60% lower weight than EPDM, and is available in smooth, convoluted, round, and non-round configurations. Ergo-Lock+ modular VDA connectors are flexible, offer visual and scannable latch verification, reduce insertion forces >30%, The system's modularity permits hundreds of connector configurations to be produced from a standard set of molded subcomponents at lower total cost.





Category Winner:
POWERTRAIN



Category Winner:
**PROCESS/ASSEMBLY/
ENABLING TECHNOLOGIES**



**High Pressure Oil Cooler Gasket Seal
2022 General Motors Co.
Chevrolet Silverado & GMC Sierra**

Tier Supplier / Processor:
Uchiyama Marketing & Development America LLC

Material Supplier / Toolmaker:
**Uchiyama Marketing & Development America LLC
& DuPont de Nemours, Inc. / Uchiyama Marketing
& Development America LLC**

Material / Process:
**UMC V7401 Ethylene Acrylic Elastomeric Plastic /
Injection Molding**

Oil cooler gaskets are small parts with important sealing functions between oil coolers and oil pumps in demanding engine environments. To eliminate leaks seen with fluorocarbon seals during temperature cycling, a new ethylene acrylic TPV was developed. It offers superior low-temperature sealing and maintains good compression set and controlled oil swelling from -40°-150°C and 14 bars oil pressure. Gasket height also was increased to provide higher contact pressure and better sealing. Costs were reduced 66% and sustainability was increased since the thermoplastic material is recyclable.

**Direct Exposure Laser Welding
2022 General Motors Co.
Chevrolet Blazer**

Tier Supplier / Processor:
Magna Lighting

Material Supplier / Toolmaker:
Various / SPM Automation

Material / Process:
**Makrolon LED 2245 000000 PC /
Injection Molding, Laser Welding**

Hot-plate welding was replaced with a new process called direct exposure laser welding to meet customer styling requirements for the light guides. Scanning lasers replace heated tools and can weld opaque lens borders without need for more costly laser-transparent materials. Additionally, clearance between internal components and weld ribs was reduced and ribs can be heated very precisely. The current design's complex geometries would not have been possible with traditional welding processes. Additionally, scrap was reduced 40-50% and energy usage by 85-95%.



Category Winner:
SUSTAINABILITY

Category Winner:
VETA
(VEHICLE ENGINEERING TEAM AWARD)



**Reclaimed TPO/Foam System
2020 General Motors Co.
Chevrolet Silverado & GMC Sierra**

Tier Supplier / Processor:
Inteva Products, LLC

Material Supplier / Toolmaker:
Inteva Products, LLC

Material / Process:
**Inteather TGTPO ECO TPO / Extrusion and
Repelletizing; Co-Extrusion of TPO Sheets;
Vacuum Forming & Injection Graining; Press
Lamination; and Assembly**

Thanks to a patented recycling process, PIR bilaminate scrap comprised of TPO skins attached to cross-linked olefin foam is given new life in the same interior trim applications without sacrificing quality or performance. An additive package eliminates/binds/deactivates reactive residuals and trapped gases from foam. Just on this program, 680,389 kg of TPO resin is reclaimed annually, reducing landfilled scrap 93%, replacing 50% of prime TPO, and lowering CO₂ emissions and energy usage 48% each.

The all-electric 2023 Cadillac LYRIQ and a team from General Motors Co. (GM, Detroit) and its suppliers that developed the midsize sport utility vehicle (SUV) have been named the winners of this year's **Vehicle Engineering Team Award (VETA)**. The vehicle features numerous plastic and composite innovations, many of which were nominated in other categories of SPE's Automotive Innovation Awards Competition, including the following:

Aftermarket & Limited Edition/
Specialty Vehicles Finalist:
**Electric Vehicle Supply Equipment
(EVSE) Charging Accessory**

Aftermarket & Limited Edition/
Specialty Vehicles Nomination:
Ultium Battery Charger

Body Exterior Finalist:
Flow-Through Spoiler

Body Exterior Nomination:
Front Headlamp System

Body Exterior Nomination:
Rear Body-Side Taillamp System

Body Exterior Finalist:
Front Enclosed Illuminated Grille

Body Interior Nomination:
**High-Gloss Piano Black
Molded-in-Color (MIC)**

Electric & Autonomous
Vehicle Systems Nomination:
Connection Ring for EV Motors

Electric & Autonomous
Vehicle Systems Finalist:
**High-Damping AC Compressor
Bracket**

Materials Finalist:
Dual Cordset EV Charger Lens

Materials Finalist:
**Thermal Management Tube &
Connector Solution**

Materials Nomination:
Center Frame Panel

Process/Assembly/Enabling
Technology Nomination:
**Elastic Averaging Vehicle
Attachment**

Sustainability Nomination:
Recycled Resin Blow Molded Ducts





Category Winner:
HALL OF FAME



Category Winner:
**LIFETIME ACHIEVEMENT
AWARD**

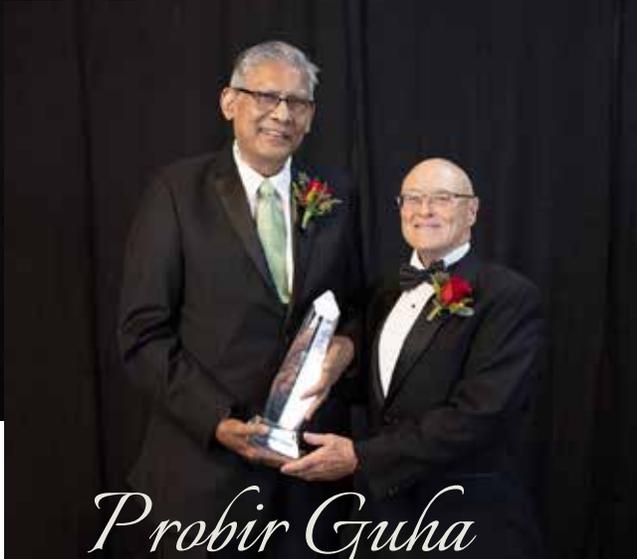


THE FIRST MOLD IN COLOR (MIC) WEATHERABLE GRILLE

The first Mold In Color (MIC) weatherable grille, used on the 1987 Volkswagen Golf, has been named the 2022 Hall of Fame Winner. The industry's first MIC weatherable grille, made possible with Luran S[®] ASA from INEOS STYROLUTION (precolored plastic resins used in the plastic injection molding process so the molded part emerges in a specific color and finish), proved to be a game changer for vehicle front grilles by providing a weatherable, paint free exterior surface.

MIC grilles have become the industry standard used by every major OEM for front grilles replacing traditionally painted materials on over 300M exterior parts including grilles, mirrors, pillars, spoilers, fog bezels and more. Further technology now being developed around MIC ASA includes radar detection covers, lidar equipment, and CHMSL (Center High Mounted Stop Lamp) bezels. The automotive market for MIC ASA has now grown to over 100M pounds globally.

The companies involved in developing the first MIC weatherable grille application include: OEM – Volkswagen Group; Molder/Processor – Volkswagen Group; and Material Supplier – INEOS STYROLUTION. Representatives from these companies accepted the SPE Automotive Hall of Fame Award, on behalf of the original team that worked to develop the technology.



Probir Guha, who retired in 2021 after an illustrious career in the automotive composites industry (mostly with the Budd Company, Continental Structural Plastics and Coats), has been named the **2022 Lifetime Achievement Award** winner by the Automotive Division of the Society of Plastics Engineers (SPE[®]). Over his almost 50 year career, he led key innovations in the field reflected by his many global patents (179 patents issued & pending as of June 19, 2022); participated in industry technical conferences presenting several papers and holding committee leadership positions; was recognized with an industry award for innovation, research and advancements with the 2019 Pioneer Award by The American Composites Manufacturers Association (ACMA); and has edited a book where he coordinated the efforts of industry and academic experts to share concepts of how to further the composites industry.

Guha has recently formed a technology consulting company, Composites Innovations Inc., bringing the adoption of lightweight materials across multiple applications focusing on sustainability and recyclability, continuous hybrid fibers, smart composite technologies and artificial intelligence in products for continuous improvement.

SPE CODE OF CONDUCT

SASSAN TARAHOMI, SPE AUTOMOTIVE DIVISION CHAIR



AUTOMOTIVE



My dear SPE members, the **SPE Code of Conduct** was developed to insure SPE members conduct themselves in a professional manner at SPE events or better yet at any event. This code of conduct is available in the SPE website and it is printed here in its entirety for your reference. Please read it and abide by it. It's our code of conduct and we need to adhere to it completely when we meet virtually or in person, be it a meeting or an event.

EVENT CODE OF CONDUCT

All attendees, speakers, sponsors, vendors, partners, SPE staff and volunteers at ANTEC® and its events, or any SPE event that is virtual or live, are required to adhere to the following Code of Conduct. Event organizers will enforce this Code throughout the SPE events.

Our aim in hosting an SPE event is to build a stronger community. Our goal is to create an environment where everyone feels welcome to participate, speak up, ask questions, and engage in conversation. This requires a harassment free and inclusive environment that recognizes the inherent worth of every participant. We invite all those who participate in an SPE event to help us create a safe and positive experiences for everyone.

We are dedicated to providing a harassment-free environment for everyone, regardless of gender, gender identity and expression, age, sexual orientation, disability, physical appearance, body size, race, ethnicity, or religion (or lack thereof), marital status, nationality, political affiliation, ability status, educational background, or any other characteristic protected by law. We do not tolerate harassment of participants in any form. Harassment includes but is not limited to inappropriate or intimidating behavior and language, unwelcome jokes or comments, unwanted touching or attention, offensive images, photography without permission, and stalking. Disruptive or harassing behavior of any kind will not be tolerated. Sexual language and imagery are not appropriate during any aspect of the event/conference, including talks, workshops, parties, social media such as Twitter, or other online media.

Following a Code of Conduct allows SPE to create the best experience possible for all attendees.

EXPECTED BEHAVIOR:

- Exercise consideration and respect in your speech and actions.
- Attempt collaboration before conflict.
- Refrain from demeaning, discriminatory, or harassing behavior and speech.
- Be mindful of your surroundings and of your fellow participants. Alert SPE staff if you notice a dangerous situation, someone in distress, or violations of this Code of Conduct, even if they seem inconsequential.
- While at an SPE event no participant should engage in harassment in any form.

Sanctions may range from verbal warning to ejection from the meeting without refund, to notifying appropriate authorities. Retaliation for complaints of inappropriate conduct will not be tolerated. If a participant observes inappropriate comments or actions and personal intervention seems appropriate and safe, they should be considerate of all parties before intervening. Participants asked to stop any harassing behavior are expected to comply immediately.

REPORTING AN INCIDENT:

Alert SPE staff if you notice or experience a dangerous situation or a violation of this Code of Conduct, or see someone in distress even if it seems inconsequential during the event. Please seek out the nearest SPE team member to escalate your complaint. If you see, overhear or experience a violation of the Code of Conduct during an event, please seek out the nearest SPE team member to escalate your complaint. If you cannot find a team member or would like to report a violation after an event, you may email wecare@4spe.org.



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AUTOMOTIVE

TREASURER'S REPORT

JITESH DESAI
SPE AUTOMOTIVE DIVISION TREASURER



2022 has been a challenging and exciting year. Thank you to Bonnie Bennyhoff for tremendous guidance and coaching during transition, and continued support. I have assumed the responsibilities of Automotive Division treasurer starting April 2022. Financial status as of December 02, 2022, for the fiscal year net operating revenue of \$ -25,425.93.

Thank you, Bonnie, for doing the heavy lifting to complete the fiscal year transition to match with SPE HQ as well as making it easy for financial reporting. All the events for the year will now conclude well in advance of end of the year allowing to report more accurately the financial status.

Thank you to SPE Automotive Division for support, guidance and entrusting in me the confidence. I am looking forward to work with the team and commit to doing my best to support the organization to further our goals and carry out SPEAD mission.

**There are outstanding accounts receivables from EAV, ACCE, and IAG that amounts to \$58,750 (expected to be received by end of the year) + 2023 EAV and ACCE early bird sponsorship due 31 January 2023.*

AS OF DECEMBER 02, 2022 THE DIVISION'S ACCOUNT BALANCES WERE:

Checking:	\$305,008.81*
Savings:	\$27,515.39
Total:	\$332,604.20



AUTOMOTIVE

SPONSOR NEWS

CHASE PLASTICS PARTNERS WITH GLOBAL THERMOPLASTIC ELASTOMER COMPANY ELASTRON



Redefining Resin Distribution®

Clarkston, Mich. (December 1, 2022) — Chase Plastics announced today the formation of a new supplier partnership with global thermoplastic elastomer company Elastron. Effective December 1, 2022, Chase Plastics will distribute the Elastron V product portfolio of thermoplastic vulcanizates. "We are thrilled about our new Elastron partnership and the customer-focused synergies that our two companies share," said Chase Plastics' President, Adam Paulson. "Our core values are aligned with a passion for customer satisfaction and delivering outrageous service. As a leading North American distributor of thermoplastic elastomers, the Elastron V comprehensive product line rounds out our extensive TPE product offering with a high-quality thermoplastic vulcanizate."



Headquartered in Gebze, Turkey, with offices around the world, Elastron serves the North American market from its production facility in Gainesville, GA. Elastron General Manager for the US Operation, Dr. Zev Gurion, spoke of the company's new relationship with Chase Plastics. "We are very excited to cooperate with Chase Plastics as our new distributor for our Elastron V product line. Our excellent quality and customer focus will match well with Chase Plastics' outstanding distribution system and best-in-class customer service, and we expect that the strong synergy between our companies will result in very strong growth."

Elastron V is a cross-linked EPDM-based thermoplastic elastomer vulcanizates. Elastron V (TPV) grades have excellent mechanical properties, quality sustainability, flexibility, and low compression set. They are used in several market segments, including automotive, medical, consumer, construction, and other industrial applications.

ABOUT CHASE PLASTICS

Chase Plastic Services, Inc., is a stocking distributor with a portfolio that offers more than 35,000 varieties of specialty, engineering, and commodity thermoplastics from the industry's leading manufacturers and global suppliers. As a top-ten North American specialty and engineering plastics distributor, Chase Plastics is committed to helping their customers turn resin into reality by Redefining Resin Distribution.®

The Company, formed in 1992, provides customers with an industry-leading portfolio of value-added services delivered by skilled sales professionals and dedicated teams of technical process engineers, market development engineers, and more – all of whom guide the material selection, application development, and manufacturing processes. The Company's unmatched level of dedicated support, together with blending, repacking, inventory management, and logistics services via a network of distribution and sales locations throughout North America, is singularly focused on helping customers boost efficiencies and profitability.

Based in Clarkston, Michigan, Chase Plastics was founded by Kevin and Carole Chase, who serve as the Company's CEO and Vice President, respectively. Learn more about Chase Plastics and its commitment to providing outrageous customer service at www.chaseplastics.com

ABOUT ELASTRON TPE

Elastron USA was formed in 2010 and started production in 2018, in Gainesville, Georgia. Elastron USA serves the North American market with warehouses in the East and the West Coasts. It's parent company, Elastron, is a global supplier of thermoplastic elastomers. It is one of the premier thermoplastic elastomers suppliers in Europe and does business in over 55 countries.

Elastron's main production facility in Gebze, Turkey, is at the intersection of the East and the West. Elastron has offices in China, Taiwan, and Japan for the Asia Pacific market. It also uses a Germany office to provide solutions to the European market.

Since 1980, Elastron provides TPE solutions to its global business partners in different sectors and supports them in preparing products that touch daily life and takes pride in providing industry leading customer service and support.

With TPV, SEBS and SBS based series; Elastron TPE is the key player in automotive, consumer goods, construction, medical and industrial applications from beginning to the end. Elastron R&D center develops customer-oriented and sustainable solutions in addition to its high-quality general product line. Learn more about Elastron at www.elastron.com



BY TERI CHOUINARD, SPE AUTOMOTIVE DIV. COMMUNICATIONS CHAIR

SPE AUTOMOTIVE COMPOSITES CONFERENCE & EXPO 2022 SURPASSES 2021 EVENT IN ATTENDANCE, PRESENTATIONS, SPONSORSHIPS, EXHIBITS & KEYNOTES

**NEW CATEGORY – “COMPOSITES IN ELECTRIC VEHICLES” ENHANCED THE EVENT
74 TECHNICAL PRESENTATIONS, 45 STUDENT POSTERS, 61 SPONSORSHIPS, 40 EXHIBITS, 5 KEYNOTES**

The 22nd annual **SPE® Automotive Composites Conference & Expo (ACCE)**, produced by SPE’s Automotive and Composites Divisions, surpassed the ACCE 2021 event with increased attendance, technical presentations, student posters, sponsorships, exhibits and keynotes. *“Our ACCE theme ‘Composites the Key to EV’ was effective in attracting 15 technical presentations and 5 keynotes demonstrating how polymer composite technologies provide solutions for BEVs (Battery Electric Vehicles),”* said Dr. Leonardo Simon - ACCE Co-Chair and professor, Chemical Engineering at University of Waterloo. *“Numerous ACCE exhibits featured advanced materials, machinery, tooling, testing, software and other technologies necessary to support the automotive industry transition to sustainable mobility,”* said Dr. Christoph Kuhn - ACCE Co-Chair and project manager, HV Battery at Volkswagen Group of America. *“ACCE is where composites industry and academia leaders network, learn and build relationships to advance the automotive industry and the move toward BEVs is benefiting increased partnerships and growth,”* said Dr. David Jack – ACCE Technical Program Co-Chair and professor, Mechanical Engineering at Baylor University.

The ACCE 2022 event **COMPOSITES THE KEY TO EV** was held September 7 – 9, 2022 at the Suburban Collection Showplace Diamond Banquet and Conference Center in Novi, Michigan. The SPE ACCE is known as *“The World’s Leading Automotive Composites Forum.”* ACCE’s goal is to educate the global transportation industry about the benefits of polymer composites in vehicle design and manufacturing for reducing mass, improving performance, lightweighting, and more.

THE ACCE 2022 EVENT ATTRACTED OVER 500 REGISTERED ATTENDEES including automotive OEMs, tier suppliers, academic faculty and students, and other industry professionals. The technical program included 74 presentations on the latest automotive composites advancements organized into the following 10 categories: Composites in Electric Vehicles; Advances in Thermoplastic Composites; Advances In Thermoset Composites; Enabling Technologies; Additive Manufacturing And 3D Printing; Carbon Composites And Reinforcements; Modeling Of Composites; Sustainable Composites; Bonding, Joining And Finishing; and Business Trends And Technology Solutions.



Welcoming Remarks given by Dr. Christoph Kuhn



**CONFERENCE
CO-CHAIR**
Dr. Leonardo Simon
University of Waterloo

**CONFERENCE
CO-CHAIR**
Dr. Christoph Kuhn
Volkswagen Group of America

**TECHNICAL PROGRAM
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Dr. Oleksandr G. Kravchenko
Old Dominion University

**TECHNICAL PROGRAM
CO-CHAIR**
Dr. David Jack
Baylor University

**TECHNICAL PROGRAM
CO-CHAIR**
Dr. John Gillespie
University of Delaware

Three presenters were recognized in the program guide and honored at the event as a **“Finalist for Best Paper Award”**. Five keynotes and a panel discussion about Composites in Electric Vehicles were highlights of the event. The **Student Poster Competition** included 45 posters illustrating composites research projects from 12 universities from the United States and Canada. Eighteen students received awards for having the best posters in a variety of categories. **Scholarships** were awarded to five students who demonstrated scholastic excellence in composites engineering and related studies and promise for the future. The annual **ACCE Part Competition** included five nominations for material innovations in prototype and production parts. Awards were presented for most innovative parts, selected by industry experts, and a **“People’s Choice” award** was also presented. The total number of sponsorships reached 61 including 40 exhibitors displaying the latest composites technologies and additional companies sponsoring coffee breaks, lunches, receptions and advertising. Ten leading industry publications supported the event with advertising worldwide.

THE 2022 ACCE WAS LED BY returning ACCE 2021 Co-Chair **Dr. Leonardo Simon**, professor, Chemical Engineering at University of Waterloo and new ACCE Co-Chair **Dr. Christoph Kuhn**, program manager, HV Battery at Volkswagen Group of America. The technical program was co-chaired by **Dr. David Jack**, professor, Mechanical Engineering at Baylor University; and **Dr. Oleksandr G. Kravchenko**, assistant professor, Composites Modeling and Manufacturing Group, Department of Mechanical and Aerospace Engineering at Old Dominion University; and **Dr. John W. (Jack) Gillespie Jr.**, director, Center for Composite Materials (CCM) at University of Delaware.



ACCE had FULL House for Lunch

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All five keynote presentations, a panel discussion, and many of the technical paper presentations reflected the conference theme “Composites: The Key to EV” emphasizing the continued importance of composites in the advancement of the automobile.

KEYNOTES

THE FIRST KEYNOTE of the conference, “Advanced Polymer Composites for Next Generation Electric and Autonomous Vehicles (EV/AV) – Challenges and Opportunities,” was delivered by **Dr. Felix H. Wu**, senior technology manager, Vehicle Technologies Office (VTO), Office of Energy Efficiency and Renewable Energy (EERE) at the U.S. Department of Energy (DOE). His presentation outlined the science and innovation developed from the ongoing VTO’s Composites Core Program. New research on multi-functional materials utilizing advanced polymer composites to reduce manufacturing cost and carbon footprint, overall embodied energy of the vehicle as well as weight saving of electric vehicles was also presented. “Multi-functional materials will allow design of automotive components capable of undertaking multiple functions, increasing battery specific energy capacity, reducing the number of vehicle components and thus overall weight and total cost,” said Wu. “Such composite materials and structures systems with autonomous health management could transform the current EV/AV platform,” added Wu.



THE FOURTH KEYNOTE, “Opportunities for Composite Material in Future Multi-material Battery Enclosures,” was presented by **Warden Schijve**, design leader, AZL Aachen GmbH. Warden led a one-year consortium project at AZL Aachen with 46 participating companies on multi-material battery casing designs. It yielded 20 different concept designs that were CAE analyzed to all relevant load cases and compared on cost and weight with a state-of-the-art metal

(welded aluminum) design. The keynote presentation highlighted the project results including analysis and comparisons of both thermoset and thermoplastic materials, solid laminate and sandwich solutions, short fiber overmolded solutions, various SMC options, steel, aluminum, and combinations of all these materials.

THE FINAL KEYNOTE, “The Journey to a Composite Battery Enclosure,” was delivered by **Fred Chang**, leader, Automotive Electrification and Structures at Sabic. The presentation featured how advanced polymer composites and technologies are helping the industry to meet critical goals and requirements for EV batteries including reducing weight and cost and enhancing fire protection and crashworthiness.



THE SECOND KEYNOTE of the conference, “Material Innovations in EV Battery Enclosures including UL Solutions’ Battery Enclosure Material Screening (BEMS),” was presented by **Daniel O’Shea**, principal engineer, UL Solutions. His presentation included a background on electric vehicle (EV) battery packs, a description and examples of thermal runaway events, and available methods for the evaluation of plastic and composites materials

for battery applications, including the Battery Enclosure Thermal Runaway (BETR) evaluation.

THE THIRD KEYNOTE, “Setting Up Local HV Competencies,” was presented by **Wolfgang Maluche**, vice president engineering, Engineering & Planning Center (EPC), Volkswagen Group of America. His presentation outlined how Volkswagen is testing and incorporating HV batteries into their vehicles and featured a video on the new VW ID. Buzz and ID. Buzz Cargo based on the Volkswagen Group’s Modular Electric Drive matrix (MEB).



Westlake Epoxy with PlastiVan Students at ACCE

PANEL DISCUSSION

The ACCE 2022 event also included a panel discussion, **“Plastics and Composites in Electric Vehicles,”** moderated by ACCE Co-Chair Dr. Leonardo Simon, professor, Chemical Engineering at University of Waterloo. The panelists included: ACCE Co-Chair Dr. Christoph Kuhn, program manager, HV Battery at Volkswagen Group of America; Dr. Deborah Mielewski, technical fellow, Sustainability at Ford Motor Company; Brent Collyer, director, R & D Light Weighting at Rassini International; Dr. Warden Schijve, design leader, AZL Aachen GmbH; and Dr. Venkat Aitharaju, staff researcher at General Motors Company, and principal investigator, Department of Energy Project (DOE) developing multi-functional advanced composite materials and applications for structural battery enclosures. The panel of industry experts discussed the importance and value of polymer composites in advancing EV automotive mobility, future challenges, and the need for more innovation including solutions for expanding range, infrastructure and energy solutions.



Panel Discussion – Plastics and Composites in Electric Vehicles

BEST PAPER AWARDS



Excellence in technical writing is recognized annually at ACCE by honoring those who have presented the best papers at the conference. The 2022 Best Paper Award winners received the highest average ratings by conference peer reviewers including members of the ACCE planning committee and other industry experts. The ACCE 2022 Best Paper Award Winner was **Garam Kim**, from *Purdue University* for his paper, **“Application of Thermoset Polymer Coating to Additively Manufactured Carbon Fiber Composite Tooling.”** Best Paper Finalist Awards were presented to **Mohammad Nasmus Saquib**, from *Old Dominion University* for his paper, **“Reconstruction of Full Fiber Orientation Distribution in Molded Composites,”** and to **Sagar Doshi**, from *the University of Delaware – Center for Composite Materials* for his paper **“Effect of Environmental Factors on the Properties of Resin, Interface and Composites in Automotives.”** All of the winners (first place and finalists) this year were students and all were presented with plaques and certificates at the event.



Dale Brosius at ACCE 2022 IACMI Exhibit

STUDENT POSTER COMPETITION

Sponsored by



Students from the U.S.A. and international universities feature innovative research related to polymer composite materials and manufacturing technologies for automotive applications via the annual ACCE Poster Competition. This yearly event enables students to meet with people in the industry and learn about career opportunities as a scientist, engineer, researcher and other professions in the field. Automotive OEMs, tier suppliers, and others appreciate the introduction to the next generation of automotive composites engineering professionals and opportunity to potentially hire them in the future. The 2022 ACCE Student Poster Competition included 45 posters from 12 different universities in the United States and Canada.



Dr. Uday Vaidya with ACCE Student Poster Competition

The 2022 ACCE Student Poster Competition winners are:

UNDERGRADUATE CATEGORY

1ST PLACE:

“Poly(Butylene Succinate-co-Butylene Adipate) based Biodegradable Composites for Sustainable Automotive Packaging”

Kaitlyn Root, University of Guelph

2ND PLACE:

“Sustainable and Lightweight Compatibilized Biocomposites from Ocean Recycled Nylon and Lignin Biocarbon for High Performance Automotive Applications”

Victoria Muir, University of Guelph

3RD PLACE CO-WINNER:

“Cork Waste in Sustainable Composites Uses: Performance Comparison Between Biodegradable Composites and Polypropylene-Based Composites”

Kiara Mohr, University of Guelph

3RD PLACE CO-WINNER:

“Effect of Carbonization Temperature on Tensile Strength and Electrical Resistivity of Lignin-Based Carbon Fibers”

Charlton Hill, Clemson University

MASTERS CATEGORY

1ST PLACE:

“Recycled Carded Carbon Fibers for Automotive Applications”

Vinit Chaudhary, University of Tennessee

2ND PLACE:

“Design Validation of a Structural Component of an Ultra-Lightweight Carbon Fiber Reinforced Thermoplastics Composites Automotive Door”

Akash Ravindra, Kolhe, Clemson University

3RD PLACE:

“Mechanical Behavior of Impacted Nylon/Carbon-Fiber Additively Manufactured Components Prepared via Fused Filament Fabrication”

Jackson Wilkins, Baylor University

PHD – NONDESTRUCTIVE EVALUATION & CHARACTERIZATION CATEGORY

1ST PLACE:

“Characterization of Void and Fiber Distribution Within the Bead Microstructure for Large Area Additive Manufacturing Polymer Composite deposition Using Micro-CT”

Sayah Neshat, Baylor University

2ND PLACE:

“Quantitative Inspection of Internal Raster Orientation of Additively Manufactured Components via Ultrasonic Nondestructive Testing”

Atik Amin, Baylor University

3RD PLACE:

“Investigating Impact from UT Uncertainty in Quantifying Ply Orientation on the Probabilistic Failure Envelope”

Rahul Kirtunia, Baylor University

PHD – BIO, ADDITIVE MANUFACTURING CATEGORY

1ST PLACE:

“Bamboo Trailer Decking Development for Sustainable Transportation”

Sanjita Wasti, University of Tennessee

2ND PLACE:

“Predicting Z-Strength in Polymer Additive Manufacturing”

Sarachandra Kundurthi, Michigan State University

3RD PLACE CO-WINNER:

“Metal 3D Printing Through Thixotropic Processing”

Sriram Jaishanka, Georgia Tech

3RD PLACE CO-WINNER:

“Automated Tape Placement”

George Chahine, University of Tennessee

PHD – DESIGN, MODELING & SIMULATION CATEGORY

1ST PLACE:

“Short Carbon Fiber Orientation Evolution Analysis for Polymer Melt Additive Manufacturing via Coupled CFD-DEM Simulation”

Jason Pierce, Baylor University



2022 Student Poster Competition PhD – Design, Modeling & Simulation Category 1st Place Winner
– Jason Pierce, Baylor University

2ND PLACE:

“Effective Elastic Properties Calculation on Pristine and Wrinkled Composite Laminates with Ply Orientation Variation”

Victor Mota, Baylor University

3RD PLACE CO-WINNER:

“Modeling Fiber Dispersion and Attrition During the Extrusion Process for Single Screw Extruders”

Hector Perez, University of Wisconsin

3RD PLACE CO-WINNER:

“Predicting Material Properties of Reprocessed LFT’s via Machine Learning: Optimizing Recycling of Composite Materials”

Allen Jonathan Roman,

University of Wisconsin-Madison



STUDENT POSTER COMPETITION CHAIR
Dr. Uday Vaidya
University of Tennessee-Knoxville

Dr. Uday Vaidya has chaired the SPE ACCE Student Poster Competition since 2002. Our sincere thank you goes out to him for his continuous contribution to the up and coming generations of plastics engineers.

SCHOLARSHIP AWARDS

The ACCE organizing committee honored the winners of the the **three SPE ACCE Scholarships** and **two Dr. Jackie Rehkopf Scholarships** at this year’s event. The ACCE Scholarships are sponsored by the SPE Automotive and SPE Composites Divisions. The Dr. Jackie Rehkopf Scholarships are sponsored by the SPE Automotive and Composites Divisions and the generous donations of friends and family to honor the memory of the late long-time SPE ACCE committee member, SPE Automotive Div. board member, and automotive composites researcher. All scholarships are awarded to promising students pursuing advanced studies in a composites related field and administered as part of the SPE Foundation.

The three winners of the 2022 SPE ACCE Scholarships (\$2,000 USD each) were **Cecile Grubb**, a graduate student pursuing a PhD in Materials Science and Engineering at the *University of Tennessee Knoxville*, **Nityanshu Kumar**, a Polymer Physicist at *The University of Akron*, and **Alireza Zarei**, a PhD candidate pursuing a doctoral degree in Automotive Engineering at *Clemson University*.

The two winners of the 2022 Dr. Jackie Rehkopf Scholarships (\$2,500 USD each) are **Sanjita Wasti**, a PhD candidate pursuing a doctoral degree in Mechanical Engineering at the *University of Tennessee Knoxville*, and **Madhura Limaye**, a PhD candidate pursuing a doctoral degree in Mechanical Engineering at *Clemson University*.

The SPE ACCE Scholarship committee was led by **Dr. Alper Kiziltas**, Amazon Advanced Materials, and included **Dr. Leonardo Simon**, University of Waterloo; **Dr. Christoph Kuhn**, Volkswagen Group; **Dr. Oleksandr G. Kravchenko**, Old Dominion University; **Dr. John W. Gillespie, Jr.**, University of Delaware; **Dr. Akshay Trivedi**, General Motors Co.; **Dr. David Jack**, Baylor University; **Keith Siopes**, Sumika Polymers North America; and **Zeynep Iyigündođdu**, Adana Alparslan Turkes Science and Technology University.



CECILE GRUBB
2022 ACCE SCHOLAR
PhD Candidate,
Materials Science and Engineering,
University of Tennessee Knoxville



ALIREZA ZAREI
2022 ACCE SCHOLAR
PhD Candidate,
Automotive Engineering,
Clemson University



NITYANSHU KUMAR
2022 ACCE SCHOLAR
Polymer Physicist
at The University of Akron



SANJITA WASTI
2022 DR. JACKIE REHKOPF SCHOLAR
PhD Candidate,
Mechanical Engineering,
University of Tennessee Knoxville



MADHURA LIMAYE
2022 DR. JACKIE REHKOPF SCHOLAR
PhD Candidate,
Automotive Engineering,
Clemson University

PART COMPETITION

This year's ACCE Part Competition included 5 nominations. A panel of automotive composites industry experts, from industry and academia, studied the nominations in advance of the event and reviewed the parts onsite and voted for the most innovative material and process applications in 2 categories (Most Innovative Production Part and Most Innovative Prototype Part). Nominations were judged on the impact and trendsetting nature of the application, including materials of construction, processing methods, assembly methods, and other enabling technologies that made the application possible. Nominations emphasized the benefits of design, weight and cost reduction, functional integration, and improved performance. A separate prize, the People's Choice award, was selected by vote of conference attendees. Here are the winners:

MOST INNOVATIVE MATERIAL IN THE PRODUCTION PART CATEGORY:

Polyurethane Pultrusion Overmolded Seat Back and Seat Cushion Frame on the 2022 Toyota Tundra

Nominated by: BASF

MOST INNOVATIVE MATERIAL IN A PROTOTYPE PART CATEGORY:

Carbon Fiber Composite Timing Cover

Nominated by: University of Toronto and Ford Motor Co. of Toronto

MOST INNOVATIVE PROCESS IN A PROTOTYPE PART CATEGORY:

Lightweight Composite Axel Spacers

Nominated by: University of Toronto and Ford Motor Co. of Toronto

PEOPLE'S CHOICE AWARD:

Multi-Material EV Battery Enclosure Prototype

Nominated by: Teijin Automotive Technologies

HONORABLE MENTION MATERIAL IN A PROTOTYPE CATEGORY:

Lightweight Composite Axle Spacers

Nominated by: Rassini International



Toyota & BASF Wins Award for Most Innovative Production Part In the Material Innovation Category at ACCE 2022

PLASTIVAN®

Once again, ACCE hosted the PlastiVan® program – this year including 40 students from Ecotek Lab, in Detroit, Mich. The PlastiVan program provides sound science and educational programs, including fun experiments with plastics, which spark scientific curiosity in students while increasing their knowledge of the contribution plastics make to modern life and encouraging them to seek careers in engineering. The Ecotek program is focused on providing academically gifted students in middle school and high school with opportunities to participate in international science research projects. The projects are very challenging and prepare the students for college-level opportunities. After the PlastiVan class onsite at ACCE, the students toured the ACCE exhibits and student posters and enjoyed learning more about automotive composites.



Plasmatreat Exhibit with Demonstration at ACCE



INEOS Composites with PlastiVan Students

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The 2022 SPE Automotive Composites Conference & Expo (ACCE) was made possible by the support of Sponsors including:

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Since 2001, The Automotive and Composites Divisions of the Society of Plastics Engineers (SPE®) have jointly produced the ACCE to educate the industry about the benefits of composites in automotive, light and heavy-duty truck, off-highway vehicles, and other ground transportation applications. The next ACCE is scheduled for **Sept. 6 – 8, 2023** at the same venue as the 2022 event - the Suburban Collection Showplace Diamond Banquet and Conference Center in Novi, Michigan. An **“Early Bird Discount”** is available to sponsors who commit to supporting the ACCE 2023 event in 2022 and process payment by January 31, 2023. For more info contact teri@intuitgroup.com

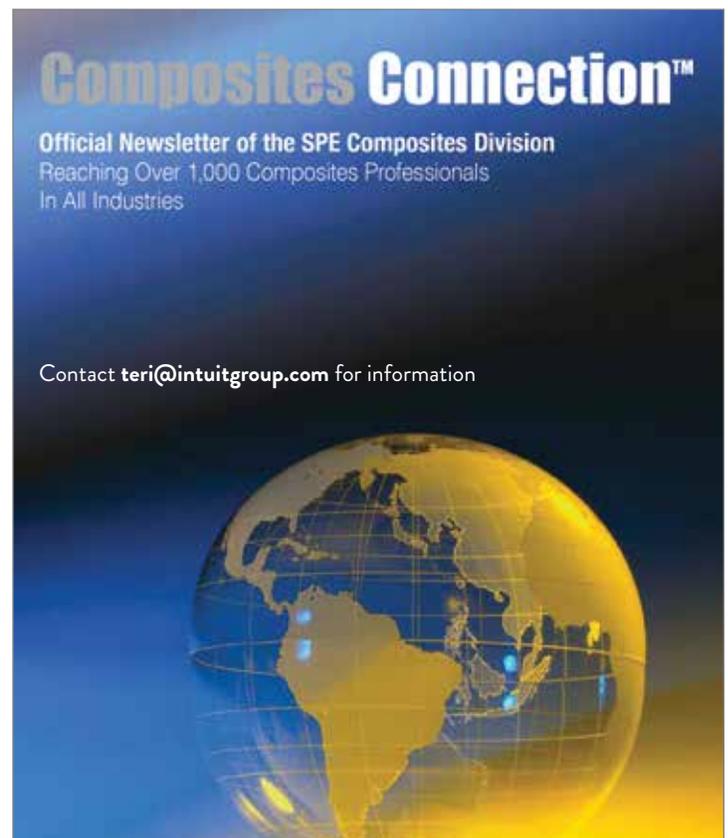
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**AUTOMOTIVE COMPOSITES
CONFERENCE & EXHIBITION**
Presented by SPE Automotive and Composites Divisions

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AND SPE COMPOSITES DIVISIONS





AUTOMOTIVE GOLF OUTING RECAP

Fieldstone Golf Club • Auburn Hills, MI
Presented by SPE Automotive Division



2022 SPE AUTOMOTIVE DIV. GOLF OUTING WAS A GREAT TIME AS USUAL

CLUBBING AT IT'S BEST!

The annual SPE Automotive Div. Golf Outing is always a great time. It's become a favored event for many of our sponsors who attend year after year. It's a perfect occasion for team building, entertaining customers and meeting new friends.

Once again, the event was held at Fieldstone Golf Club in Auburn Hills, Michigan.

The course is hailed as one of the top public golf courses in Metro Detroit. It features an exceptional variety of hole designs by the renown architect, Arthur Hills, that mesh the diverse landscape and wetlands with beautiful rolling fairways through majestic hardwoods.

This year's 27th annual event was held on Tuesday, September 6th. It included 17 foursomes and a handful of additional guests for dinner. "Although golf is the main attraction of this event, networking and enjoying industry camaraderie can be enjoyed by non-golfers as well," said Fred Deans, SPE Golf Outing Chair for Life. "We encourage anyone in the automotive plastics industry who is interested in networking and a nice dinner to attend."

THIS YEAR'S GOLF OUTING CHAMPION TEAMS INCLUDE:

- **ID Additives** – First Place Winning Team
- **RCO Engineering** – Second Place Winning Team
- **ATF** – Third Place Winning Team

CONTEST HOLE WINNERS:

- **Joe Mihelich, JSP** – Closest to the Pin
- **Eric Naber, JSP** – Longest Drive
- **Dan Dowdall, INEOS Composites** – Longest Putt

SPECIAL THANKS TO OUR SPONSORS:

- **Mitsubishi Chemical** who sponsored lunch at the turn
- **ATF, ID Additives, and Manvel Machinery Sales Co.** for sponsoring contest holes
- **Ascend Performance Materials, Chromaflo, Incoe, INEOS Composites, JSP, and RCO Engineering** for sponsoring holes

ADDITIONAL THANKS TO:

- **Crank's Catering**
- **Fieldstone Golf and Country Club**

MUCH APPRECIATION TO:

- **Fred Deans** – Golf Outing Chair for Life
- **Jitesh Desai** – SPE Automotive Div. Treasurer
- **Suzanne Cole & Bonnie Bennyhoff** – For extra support at this year's event

The 2023 SPE Golf Outing is scheduled for Tuesday, Sept. 5. If you would like to participate as a sponsor and/or learn more about the event – contact teri@intuitgroup.com.

Teri Chouinard – SPE Automotive Div. Golf Outing Sponsorship Chair & Event Manager



caption



It was a Great Putt!



RCO Engineering Teams Wins Second Place



ATF Team Wins Third Place



Joe Mihelich from JSP Wins Closest to the Pin



Dan Dowdall from INEOS Composites Wins Longest Putt



Eric Naber from JSP Wins Prize for Longest Drive



Fred Deans, SPE Automotive Div. Golf Outing Chair for Life Enjoys the Event



Everyone Wins a Prize!



Dinner was Delicious!



The Banquet was a Delicious Highlight of the Event



Incoe Team Enjoyed the Outing



Suzanne Cole from Miller Cole LLC Wins a Grand Prize Donated by Kelli Buck from Ascend Performance Materials

THANKS TO OUR 2022 SPONSORS



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CHEMISTRY THAT MATTERS™

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AUTOMOTIVE GOLF OUTING

Fieldstone Golf Club • Auburn Hills, MI
Presented by SPE Automotive Division

SEPTEMBER 5, 2023

28TH ANNUAL SPE GOLF OUTING

PROCEEDS BENEFIT SPE STUDENT CHAPTERS

2023 SPONSORSHIP OPPORTUNITIES

TYPE OF SPONSORSHIP	COST	BENEFITS INCLUDE
CONTEST HOLE	\$1000. USD	1 foursome, signage, flag & more
HOLE	\$750. USD	1 foursome & signage
BREAKFAST	\$1500. USD	2 foursomes & signage
LUNCH	\$2000. USD	2 foursomes, signage & 100 fliers printed & distributed at the event promoting sponsoring company or its products
DINNER	\$3000. USD	3 foursomes, signage, company message / logo on dinner table centerpieces, 100 fliers printed & distributed at the event promoting sponsoring company or its products

Please note that Team Captains are asked to bring donations for the Prize Table.

SPONSORSHIP CHAIR:

Teri Chouinard, Intuit Group
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teri@intuitgroup.com

<https://speautomotive.com/spe-golf-outing/>

SEPT 5 2023

COST:

\$500. USD/Foursome
\$125. USD/Player

PROGRAM:

8:30am: Sign-in & Continental Breakfast

10:00am:
Shotgun Start

Box Lunch at Turn

3:30pm:
Buffet Dinner

4:00pm:
Awards & Prizes



FIELDSTONE GOLF CLUB
1984 Taylor Road Auburn Hills, MI



AUTOMOTIVE

PLASTICS ARE GOOD FOR THE PLANET

Welcome to our new feature “Plastics are Good for the Planet” Dedicated to the benefits of plastics and their positive impact on environmental sustainability. We hope you enjoy our latest article “PLASTICS & THE ENVIRONMENT – FACT OVER FICTION” by Dr. Chris DeArmitt



PLASTICS & THE ENVIRONMENT FACT OVER FICTION

THE MOST INDEPENDENT & COMPREHENSIVE INVESTIGATION

INTRODUCTION

We have been bombarded with stories about how bad plastics are for the environment. The problem is that these stories do not come from professional scientists. Instead, they come from other, less credible sources. You have heard from the media who get paid to create sensational stories, but who are not qualified to understand the science. You have heard from so-called environmental groups who get paid by making us so angry that we donate.

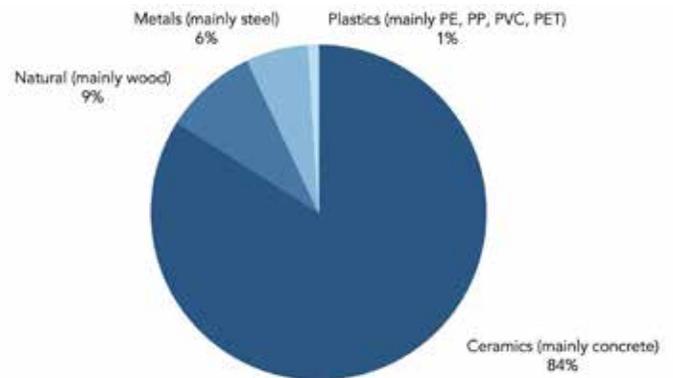
In fact, the only one you have not heard from is a top independent scientist. I spent 1500 hours **unpaid** to read 3000 peer-reviewed articles on materials use, waste, litter, microplastics, ocean plastics, degradation and more. This page distills down the essential information, so that you can have the facts in just a few minutes.

If you want to know a little more, then [there is a 20 minute video](#) that will astound you. And for those of you who are really passionate, The Plastics Paradox book is available for free in several languages at the bottom of this page.

How concerned should we be about plastics? The only way to be sure is to look at the evidence...

HOW MUCH PLASTIC DO WE USE?

One reason people criticize plastics is because of the perception that we use too much in the way of materials and we need to cut back. It is true that we are a wasteful society and that we should reduce our use of materials. How much does plastic contribute to our use of materials? The answer may surprise you...

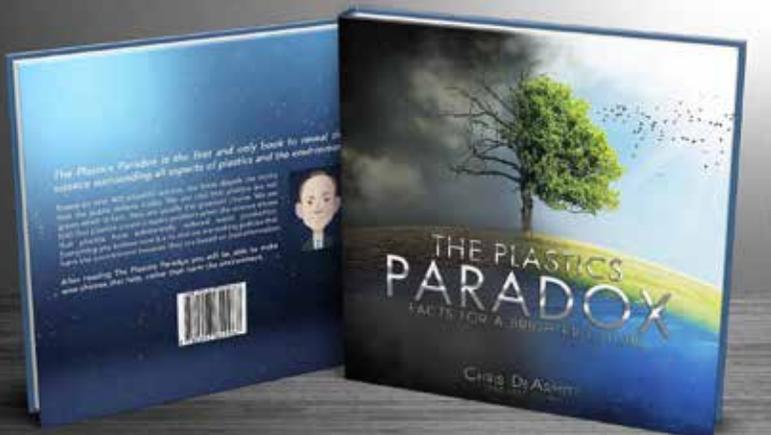


Materials and the Environment: Eco-informed Material Choice 1st Edition (page 18)
Assessing Global Resource Use: A systems approach to resource efficiency and pollution reduction, Stefan Brinzeu et al., UNEP 2017
Global plastic production 1950-2019, Published by M. Garside, Statista, Dec 11, 2020

Are you shocked? I know that I was. In fact, although I found that data in a well-respected book, I struggled to believe it. So, I checked it against several other sources and found that the best estimate for global plastics consumption is 0.4% by weight and under 1% by volume. Just ask Siri or Google these two questions:

- “Hey Siri – what’s the global consumption of materials?”
- and
- “Hey Siri – what’s the global consumption of plastics?”

You will see for yourself that the numbers are right – plastics are under 1% of the materials we use. Why did no-one check this before? Maybe they didn’t want us to know the truth. Clearly, anyone who is against plastics because they contribute to our over-use of materials is overlooking 99% of the problem. Ignoring 99% of a problem and obsessing over 1% of it is a sure path to failure.



IS THE GROWTH OF PLASTICS EXPONENTIAL?

We often hear that plastics growth is out of control and that it must be stopped. Is that really true? When you check the data, it turns out to be partly true but it's only half the story. The use of plastics has grown very rapidly over the past several decades. That's hardly surprising because plastics were only invented relatively recently, so their growth started from zero, which made the percentage growth large, by definition.

Is it fair to criticize plastics in particular for their rapid growth? The data on materials growth rate shows that all materials are now expected to grow at about the same rate. Metal, wood, concrete, paper and plastics are all projected to grow at ~2% per year. All of them are increasing as we become more prosperous and as the population grows. It is fair to say that we should reduce our use of materials, but it is not justified to single out plastics for particular criticism.

Consumption growth rate of selected materials worldwide from 2018 to 2050, Statista

WOULD WE SAVE MATERIAL IF WE ELIMINATED PLASTIC?

As we now know, removing all plastic would leave us with 99% of our materials usage addiction unaddressed. Even the total elimination of plastic materials would not even make a dent. This highlights why we need to check the scientific evidence before leaping to conclusions, or taking action, based on rumors we hear online. At the moment, people are talking only about plastic but not one word about the other 99% of materials we use. Would we save on overall material use if we removed plastic? That depends on how much material we would need to replace the plastic. That is addressed in the next section. What other effects would there be if we removed all plastic from our lives? I think you can imagine some of the consequences.

HOW MUCH WASTE DOES PLASTIC CREATE?

Another reason for the attacks on plastics is the perception that plastics generate a lot of waste. It is true that humanity creates a lot of waste. In fact, the more prosperous we become, the more waste we generate. We should try to reduce our waste but how much do plastics contribute to waste?

We just heard that plastics are under 1% of materials we use, so perhaps it will come as no surprise to hear that plastics also represent under 1% of all waste we create. Again, that is what the scientific evidence shows us. That means that if all plastic waste were eliminated tomorrow, we would still have 99% of our waste left to deal with.

Why do we hear so much about plastic waste but nothing at all about the other 99% of the problem? Ignoring 99% of a problem is a sure recipe for failure and yet, that is what we are doing right now.

In fact, there is more to the story. Scientists have looked at how much material it takes to replace plastic. You can check this yourself at home. It's a fun experiment to do with your children.

Bags: plastic 6 grams paper 60g

Straws: plastic 1g paper 2g metal 11g glass 22g

Bottles: plastic 30g aluminium 90g glass 325g

A detailed substitution analysis for many different items revealed that on average it takes 3-4lb of other materials to replace 1lb of plastic. That means that eliminating all plastic tomorrow would:

Remove just 1% of materials and waste

Significantly increase the total amount of materials and waste

This is another example where science soundly contradicts what we have been told. I was surprised as well. When I wrote *The Plastics Paradox*, I showed the EPA numbers which indicate that plastics make up 13% of household waste. What I didn't know then was that household waste is just 3% of total waste – the other 97% is industrial waste from mining, factories and so on.

WHAT IS THE ENVIRONMENTAL IMPACT OF PLASTICS?

Scientists have developed a tool called lifecycle analysis, or LCA for short, which is the only reliable method to work out what is green and what is not. LCA totals up all of the carbon dioxide generated, the energy used, the water used, the transportation, the pollution, waste and recycling aspects. It is a method that's standardized and trusted by companies, governments and non-governmental environmental groups alike. What does it tell us?

There have been 28 LCA studies on grocery bags. Every one ever done concluded that plastic polyethylene bags cause less harm than paper, cotton or degradable plastic bags. That means that banning or taxing PE bags is scientifically certain to increase harm.

There are LCA studies on straws. Of course, taking no straw is the greenest choice. But if you have to take a straw, then LCA shows that the normal plastic straw causes least harm. Plus, it can be reused many times, which lowers its impact even further.

When it comes to soft drink containers there are several LCA studies there too and they all agree that plastic containers made of HDPE or PET are the greenest recyclable choice. Steel, aluminium and glass are all far worse for the environment as they take far more energy, generate far more CO₂ and also far more waste. Again, the greenest choice is to avoid soft drinks and bottled water whenever possible. Comprehensive studies find that plastics are responsible for 0.5% of carbon dioxide creation and that they dramatically reduce carbon dioxide compared to alternative materials. More on that in on this [dedicated page on the carbon footprint of plastics](#).

Drink Container LCA

Container Type and Material	Container Mass (grams)	Carbon Footprint per Container (kg/kg)	Carbon Footprint per Fluid Packaged (g/L)	Recycling Rate (Percent)
500ml Cardboard PE Al PP	22	3.55	78	0
1L HDPE Bottle	30	2.8	84	8
500ml PET Bottle	25	2.7	135	21
440ml Steel Can	45	2.3	235	42
750ml Glass Bottle	325	0.76	247	24
440ml Aluminium Can	20	12	545	43

It is interesting to note that the greenest materials have a low recycling rate but the least green materials like metal and glass have the highest recycling rate. Why is that? It turns out that the less green a material is, the more expensive it is and therefore more worth recycling. So platinum, palladium and gold which are worst materials for the environment are expensive and therefore recycled more. The converse is also true, meaning that the greenest materials are so cheap that they are not worth recycling, i.e. you cannot make a profit recycling them. That is the real reason why the present recycling rate for plastics is so low.



LITTER

It is popular to blame plastic, products or companies for litter. We see posts blaming Coca Cola for creating litter, or blaming the material. Is that justified? Once again, huge scientific studies have been done to investigate the subject and they concluded that litter is caused by people. That means that blaming companies or materials is unjust and counterproductive because a problem can only be solved if we place the blame properly.

Studies on litter show that effective solutions must be based around changing behaviour through education and fines.

They observed hundreds of thousands of littering events. 81% of litter was dropped intentionally, so people are definitively to blame. They looked at increasing the number of trash cans and found that it did help but only to a certain extent. Even with trash cans placed every 20 feet (8 steps apart), people still dropped litter. [Read more about plastics and litter on this dedicated page.](#)

As with the other examples above, we see that we have been distracted from the true cause of the problem and that means that our current proposed solutions like taxes, EPR or bans will fail.

Patel, G. W. Thompson & N. Wilson, Cigarette butt littering in city streets: a new methodology for studying and results, Tobacco Control, 22 pp 59–62 2013

HOW LONG DO PLASTICS TAKE TO DEGRADE?

Plastics are criticized because they do not degrade. But is that true? We buy items made of plastic and we know that they degrade. I bought a trampoline with plastic trim and the plastic degraded so badly that it had actually crumbled to dust and vanished within three years outdoors. Why do we believe people who tell us that plastic don't degrade when our own eyes tell us the opposite?

Scientists have studied plastics degradation for decades. They know that some plastics degrade so quickly they that could not even be used without additives to help slow down the process. Billions of dollars are spent every year on stabilizers additives used to protect plastics from degradation. Those billions would not be spent unless the plastics really are unstable. Once again, you can easily check this yourself with Google or Siri:

“Hey Siri – what’s the global market for plastics stabilizers?”

Plastic Stabilizer Market in-Depth Analysis, Global Trends, New Technologies, Regional Analysis, Growth Factors, and Forecast 2030

Estimates for the global market for plastics stabilizers range from two billion to eight billion dollars per year.

Why are plastics unstable? It's because they are organic molecules held together by carbon-carbon bonds just like proteins, carbohydrates, enzymes, cellulose and even the DNA that holds the code for life. All of those are polymers with similar chemistry and they all degrade similarly.

Scientific studies show that a plastic bag disintegrates in less than a year outdoors, just like a leaf does. As a rule of thumb, a piece of plastic like polyethylene or polypropylene will degrade at about the same speed as a leaf or piece of wood of similar size.

“Films of polyolefins with low or zero content of antioxidant additives degrade severely in less than one year of exposure to natural weathering.”

T. Ojeda et al., Degradability of linear polyolefins under natural weathering, Polymer Degradation and Stability, 96 (4), 703-707 2011

Plastics are continually criticized for degrading too slowly. We are told that they last forever. As we know know, that's clearly untrue. Is it fair to single out plastics? How long does it take for the other 99% of materials we use to degrade? Let's take a look:

- ~85% ceramics – inorganic material – thousands of years
- ~5% metals – inorganic material – thousands of years
- ~10% wood – organic material – hundreds of years

We routinely find ancient objects made of metal, glass, wood, cloth, clay or paper and we celebrate the finding, put it in a museum and charge money to see it. But when it comes to plastics, we criticize them for not vanishing instantly when we drop them as litter. What a blatant double standard.

As we now know, of all the materials we use, plastics degrade faster than almost all of them. How were we ever fooled into demonizing plastics for not degrading quickly enough when the evidence shows the reverse?

In conclusion, the argument that plastics are bad because they don't degrade is pure fiction as proven by the thousands of peer-reviewed scientific articles on plastic degradation. If you want more details and proof about plastics degradation in the environment, then [see this dedicated page.](#)

T. O'Brine, R. C. Thompson, Degradation of plastic carrier bags in the marine environment, Marine Pollution Bulletin, 60 (12), 2279-2283, 2010

I. E. Napper, R. C. Thompson, Environmental Deterioration of Biodegradable, Oxo-biodegradable, Compostable, and Conventional Plastic Carrier Bags in the Sea, Soil, and Open-Air Over a 3-Year Period, Environ. Sci. Technol., 53 (9), 4775–4783, 2019

HOW MUCH HARM DO MICROPLASTICS CAUSE?

I have heard people say that plastics are dangerous because they degrade to give smaller particles. That is a strange claim when you stop to think about it because every solid material we know of does exactly the same. Boulders become rocks, rocks become pebbles, pebbles become sand and so on. Metals crumble and rust. Leaves and branches become brittle and break into pieces. All of that is perfectly natural and not a concern. We need only be concerned if those particles turn out to be toxic. Are there studies on the toxicity of these particles, and if so, what do they say?

Material	Safety
Polyethylene PE	Non-toxic
Polypropylene PP	Non-toxic
Polyester PET	Non-toxic
Quartz dust	Carcinogenic
Wood dust	Carcinogenic
Leather dust	Carcinogenic
Soot	Carcinogenic
Cement dust	Respiratory effects
Coffee dust	Respiratory effects
Metal dust	Respiratory effects

J. A. Styles & J. Wilson, Comparison between in vitro toxicity of polymer and mineral dusts and their fibrogenicity, Ann. Occup. Hyg., 16 (3), 241-50, 1973



When comparing the scientific findings on plastics to other particles we are exposed to, we find that the standard plastics are non-toxic but many of the other particles are actually a proven hazard to human health. For example, PE and PP are shown to be safe and they make up just 0.03% of dust. In contrast, quartz is proven to cause cancer when breathed in and that makes up about 25% of dust. I know which one I am most worried about.

The WWF tells us that we eat a credit card's worth of plastic per week whereas the latest independent scientific study says that they are wrong and that it actually takes over 20 000 years. The credit card per week sounds dramatic and assumedly leads to donations from an alarmed public – nevermind that it's been proven untrue.

Once again, we have been intentionally misled into ignoring real and present dangers and instead focusing on plastics, which are known to be some of the safest materials. How were we so badly misled?

Völker, J. Kramm and M. Wagner, On the Creation of Risk: Framing of Microplastics Risks in Science and Media, Global Challenges, 4 (6) 2020

HOW DO PLASTICS AFFECT WILDLIFE AND MARINE ANIMALS?

It is often claimed that plastics harm wildlife and marine animals in particular. Such claims made but no evidence is presented – instead we see an image as if that is all the proof that's needed. But we all know how easy it is these days to edit photographs.

The image on the left was posted on LinkedIn to show how damaging plastics are to marine wildlife. I commented that it was probably Photoshopped and to my surprise, a LinkedIn user went away and checked. They posted the original stock image from Adobe which contains no plastic bag (on the right). The bags had indeed been edited to mislead the public and unjustly demonize plastic.



Who gains by lying and falsifying evidence? Look to see which groups make money from making us angry enough to donate to them and you will have your answer.

What about real evidence? What do scientists say about the effects of plastic on turtles, whales and birds? It turns out that huge studies have been done to see what threats there are to turtles, birds and whales. The scientists listed tens of thousands of data points showing the causes of death for each type of animal. The words “plastic” or “bag” or “straw” did not even appear in those studies because they are not a significant threat. What about the turtle with a plastic straw up its nose? It turns out there's no evidence for that either. The object didn't look like a straw, it was never analyzed to see what it was made of and when I emailed them, they said they were not at all sure it was a straw at all. [Read more about the fake story about the sea turtle with a plastic straw up its nose here.](#) Does any of these matter if there will be more plastic than fish in the ocean by 2050? It turns out that [the more plastic than fish claim is false as well and has been debunked again and again – see here for more on that.](#)

It would seem that we have been tricked into donating our money based on fiction. How can we be sure that is really the case? Simple – Dr. Patrick Moore, the former President of Greenpeace wrote a report saying that they abandoned science and evidence and are now just trying to get donations by peddling fiction.

Google or download [“Greenpeace Wants a Piece of Your Green”](#) to see that report. Also, read his book [“Confessions of a Greenpeace Dropout”](#) in which he describes how he left in disgust when they changed from being pro-environment to pro-fiction. He is not alone – other former environmental group members have also exposed the shady dealings of their former organizations.

This is why we cannot trust our so-called “environmental groups” and must instead rely on solid independent and scientific peer-reviewed evidence. If you care about our future and our children's future, then visit [plasticsparadox.com](#) where the book is a free download, or if you want a short summary, then watch the YouTube video [The Great Plastics Distraction](#) here.

CONCLUSIONS ABOUT PLASTICS & THE ENVIRONMENT

The impression we get from our exposure to internet sources is that plastics are public enemy number one. It is easy to go along with the online narrative, even though most of us realize that online information is untrustworthy. After all, who really has time to go check all the facts we're told? Who has the scientific training to understand the peer-reviewed works?

Fortunately, an independent scientist has now checked the facts. I spent 1500 hours unpaid to read over 3000 scientific articles. The most comprehensive review of the science ever done reveals that most of what we believe now is simply fiction. Thousands of peer-reviewed scientific publications disprove what we and our politicians believe today. The science contradicts what teachers are telling our children in school.

It turns out that the demonization of plastics is unwarranted and distracts the public from the real issues. Not only that, but policies based on this misinformation are proven to increase harm, not decrease it. Even if we banned plastics tomorrow, nothing would be gained. In fact, that would increase material use, increase waste creation, increase CO₂ and increase fossil fuel use. Plus of course, without plastics we would have no electricity in our homes, no computers, no cell phones, no internet, no cars, no airplanes and no access to good medical equipment.

More information can be found free of charge at plasticsparadox.com where you can see hundreds of citations to the peer-reviewed science that back up all the statements made. I have not cluttered this article with all of the scientific citations because they are all on the website and in the video for those people who want a better future based on a foundation of hard data.

Plastics are ~0.5% of materials we use

Plastics are ~0.5% of waste we create

Plastics replacement means 3-4x more material and waste

Plastic production accounts for ~0.5% of CO2

Plastics are usually the greenest option according to LCA

Plastics degrade more rapidly than most other materials

There is no credible evidence that microplastics are a threat

Saving the planet takes real work. We have the easy option of demonizing plastic which is trendy but proven to increase harm or the harder, virtuous option of acting on the science to pave the way for a brighter future. Remember...

“you can be for the environment, or against plastics, but not both”.

SOME REVIEWS FOR THE PLASTICS PARADOX...

“The best book about sustainability in our lifetime” “Pure Accuracy from a Real Expert!”

“Don’t be afraid to learn the truth”

“An excellent book that everyone should read. It summarizes pretty well all the misinformation we receive on plastics. Hopefully, it will make people think twice when they say “plastics are bad for the environment”.”

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ABOUT Chris DeArmitt, PhD FRSC FIMMM CChem President - Phantom Plastics LLC

Chris is considered one of the top plastic materials experts and problem-solvers in the world, which is why companies like HP, Apple, P&G, iRobot, Eaton, Total, and Disney come to him for help.

A deep understanding of materials combined with high creativity allows Chris to quickly solve even the toughest challenges. As one example, he solved a serious production issue that had plagued BASF for 30 years and cost them millions.

He has also received six open innovation cash prizes, placing him among the top 0.01% of innovators. In 2016, he published the book Innovation Abyss which reveals the true reasons for innovation failure and the proven path to success.

In 2018, Chris was featured on CBS's 60 Minutes with Scott Pelley as an expert witness in a class-action lawsuit related to Marlex mesh plastic implants. He helped thousands of women get settlements. Later television appearances include Sky News and the BBC as well as assorted radio and internet media interviews.

In 2020, Dr. DeArmitt published The Plastics Paradox, the first comprehensive, scientific overview of plastics materials and the environment covering all topics including waste, litter, microplastics, degradation, ocean plastics and more.

Chris has a multitude of granted patents as well as numerous articles, book chapters, encyclopedia chapters, and conference presentations to his name. He is an award-winning keynote speaker educating global audiences on plastic materials science and the environmental effects of plastics.

<https://speakerhub.com/speaker/chris-dearmitt-phd-fimmm-frsc>

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EDUCATION REPORT

BY CHUCK JARRETT, SPE AUTOMOTIVE DIV. EDUCATION CHAIR AND EVE VITALE, SPE FOUNDATION



Through a partnership with the SPE Foundation, the SPE Automotive Division impacted hundreds of students in the second half of 2022 with its support of positive plastics education. Working with local schools, many in Detroit, kept us busy as the demand for the unique experiences and opportunities SPE and the plastics industry have to offer, created interest and excitement.

On three days in July, **Flex-N-Gate** hosted students from **Ecotek Lab** and **American International Academy** in Detroit's District 3. These manufacturing field trips were well attended. Students got to see plastics and metal manufacturing equipment all related to the automotive industry. The Quality Lab was a hit as students got to see white-light scanning and CMM technology. Flex-N-Gate is one of the largest Tier-1 suppliers to the automotive industry.



DeAndre Brown
Detroit Merit Charter Academy



Amir Muhammad
Renaissance High School



Angel Griffith
University Prep Science & Math High School



Akaylah Talley
American International Academy



Curtis Towns, Jr.
Stevenson High School



Jaydon Barton
Frederick Douglass Academy

The Division is now sponsoring six (6) Junior Researchers. These students are participants in the Ecotek Lab program (see Summer 2022: Volume 51, Issue 2 for more information) and all have projects relating to the design, sustainability and additive manufacturing of electric vehicle components. Each **SPE Automotive Junior Researcher** will receive a \$500 stipend to forward their research and project work. Their deliverables include a final report and participation in a poster presentation. Many of the students will be presenting at the Division's **Plastics in Electric & Autonomous Vehicles Conference** next April.

SPE Automotive Educational Chair, Chuck Jarrett, is spearheading a mentoring program for the Junior Researchers. The goal this year it to mentor at least six students in a way that helps them understand engineering process steps and gateways. This knowledge is meant to inform the direction that their projects take from concept through testing and validation. Most mentoring will take place virtually in group sessions.

There will be a chance for some in-person sessions at Ecotek Lab which is located on Wayne State University's campus at its TechTown Detroit urban research and technology business park. Chuck has already gotten commitments from many mentors who also sit on the Plastics in Electric & Autonomous Vehicles Conference Committee. If you're interested in supporting this effort, please contact Chuck at chuck.jarrett@thematerialsgroup.com.



Keith Young, Ecotek Lab CEO and Students at Gala 2022

Including students in professional networking and technical events helps them envision a future in our industry. By welcoming young people who have an interest in the automotive industry we create an inclusive environment to foster and nurture young engineers and material scientists – our future workforce. This year the Division hosted almost 30 students from **Michigan State University**, **Ferris State University**, and **Ecotek Lab** in Detroit at the **Innovation Awards Gala** in November. Collectively we are supporting the STEM pipeline from freshman in high school to Ph.D. candidates, supporting our industry. A big shout out to **Celanese**, who sponsored dinners for hungry students!



GIVING TUESDAY is a National Day of Philanthropy celebrated on the first Tuesday after Thanksgiving. This year the SPE Foundation raised funds for its Girl Scout Color Your World with Polymer Science patch. The Automotive Division utilized \$10,000 of its 2022 support for the Giving Tuesday Campaign and the SPE Foundation was able to leverage that gift as a matching fund to motivate other donors. The goal was to raise \$25,000, and with the Division's help over \$31,000 was raised. Besides many individual donors, the SPE Chicago Section and Chicago SPE Educational Foundation also donated \$5,000 for the cause.

The patch is currently available to the 19,000 girls in the **Girl Scouts of Northeast Texas Council**. One of the program pillars of the Girl Scouts is **STEM** (Science, Technology, Engineering, & Mathematics). The data shows that Girl Scouts aspire to leadership in STEM careers at a higher rate than girls who are not Girl Scouts. We want to educate these girls and young women about the opportunities they have in the plastics industry.

Plans for the 2023 Girl Scout collaborations involve marketing the current patch to at least five (5) more councils including two in Michigan. A second patch will also be developed using the **Girl Scout Leadership Experience** processes and the **PlastiVan®** curriculum to 1) Demonstrate the benefits of plastics in everyday life; 2) Excite girls about careers in the plastics industry; 3) Encourage girls to recycle at home; and 4) Change the perception of plastics. Through this positive plastics education girls will explore the plastics packaging industry, sustainability, and recycling.



Girl Scouts in Dallas earned their Polymer Science Patch



The Automotive Division also sponsors our flagship **PlastiVan**® program, so hundreds of students get a classroom experience that includes lively demonstrations and hands-on activities, designed to excite students about the opportunities in science and engineering in the plastics industry. Students are educated about the chemistry, history, processing, manufacturing, and sustainability of plastics and how the science and real-world applications relate to their everyday lives.

Positive Plastics Education is an important step in changing the "plastics" narrative to reflect the science and innovative culture of our industry. The SPE Foundation relies on partners like the SPE Automotive Division to get our job done. If you or your company would like to support our efforts, please email **Eve Vitale** at foundation@4spe.org.

The **SPE Foundation** and its partners utilize **Positive Plastics Education** in three areas of influence and impact. For **Emerging Workforce**, it awards scholarships and grants. To **Create Opportunities for Historically Under-represented Populations** in the plastics industry, including students of color, women, and students of lower socio-economic backgrounds, the Foundation collaborates with community partners to deliver multi-touch STEM education, engage students in after-school **SPE STEM** clubs, and collaborates with the **Girl Scouts** to engage girls in polymer science STEM activities. The **PlastiVan**® and **PlastiVideo**® programs engage students in the discussions and science-based evidence surrounding the **Sustainability of Plastics** and exposes students to the many career pathways available to them in the plastics industry.



PlastiVan® has shifted gears to PlastiVideo™!

If you'd like to sponsor a visit or bring virtual plastics education to your community contact us.

Julie Proctor, PlastiVan Program Coordinator
jproctor@4spe.org

www.plastivideo.org



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SECRETARY'S REPORT

SPE AUTOMOTIVE DIVISION
 VIRTUAL BOARD MEETING MINUTES, OCTOBER 24, 2022
 BY STEVE VANLOOZEN



ATTENDEES:

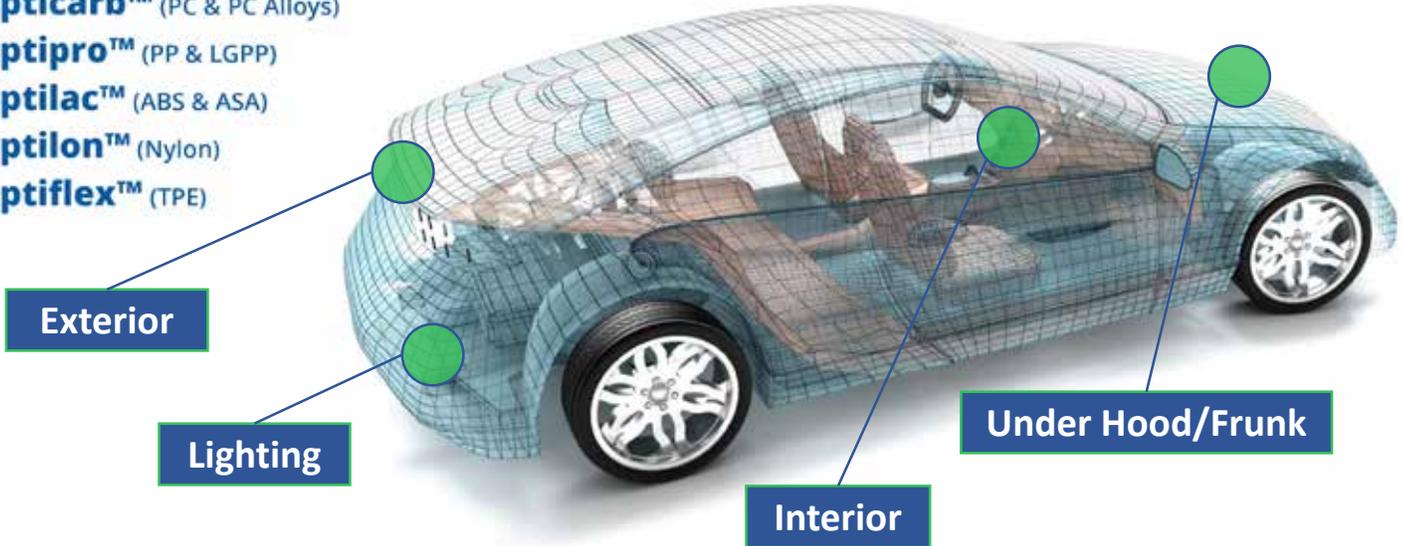
Sassan Tarahomi	Alper Kizitlas	Paula Krueger	Neil Fuenmayor
Norm Kakarla	Drew Geda	Teri Chouinard	Jeremy Lee
Jitesh Desai	Eve Vitale	Rob Phillip	JP Wiese
Jeff Helms	Fred Deans	Dave Helmer	Dhanendra Nagwanshi
Suresh Shah	Leonardo Simon	Rodrigo Orozco	Martin Popella
Suzanne Cole	Keith Siopes	Ewa Lewbert	Dean Stevenson
Akshay Trivedi	Armando Sardanopoli	Steve VanLoozen	Arash Kiani

- Meeting initiated by Sassan with sincere thanks to the ACCE Committee for successful conference. New members introduced: Dean Stevenson with Rivian and Arashi Kiani.

- August meeting minutes approved.
- No councilor report provided. Next meeting scheduled for October 31.
- Detailed information on 2023 Antec provided. Antec will be live conference from March 27 through March 30 in Denver, CO. There will be no individual automotive session at this years' conference. Conference to be organized into themes including: Sustainability, Digitalization/Additive Manufacturing, Polymer Processing & Equipment, Advances in Materials & Characterization.
- ACCE Conference wrap-up provided by Dr. Leonardo Simon. 2022 conference featured 74 technical presentations, 40 exhibits, 45 student posters, 61 sponsors, and over 500 registered attendees. Dr. David Jack will chair next years' ACCE scheduled for September 6 through 8.
- Second annual SPE EAV conference scheduled April 16-19, 2023. Suggestion for article in "Automotive News" to help promote the conference. Keynote speakers from Toyota and GM have been secured. Abstracts due 11/15. Contract with Marriott fully executed October 2nd.
- Preparations for IG complete with event scheduled for November 2. Expecting over 600 attendees for the 2022 event.
- Eve Vitale presented Education initiatives over the past 6 months. Highlights included the Ascend sponsored IACME event that drew nearly 150 students. Work with Girl Scouts toward promoting STEM careers also discussed.
- Jitesh Desai presented divisions financial report. No items of concern noted. Current assets for the Automotive Division have recovered to ~\$467K putting us above the levels of 2019 and 2020 Covid years.
- Paula Krueger will be sending out call for articles shortly after the IAG event. Asked board members to recruit more sponsors for the newsletter and highlighted pricing plans.
- Fred Deans provided brief overview of the annual golf outing held September 6 at Fieldstone.
- Sassan detailed dates for formation of an awards committee including appointment of a Chair by November 30, committee formation by December 23, 22 and first report out by February 6, 2023.
- Next meeting: December 5, 2022, 5:30-7:30 PM.

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Contact The Materials Group (TMG) by email at sales@thematerialsgroup.com, or for more information on the sustainable portfolio from TMG please visit www.thematerialsgroup.com/sustainability.html.



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The cover of the SPE Automotive Plastics News newsletter. It features a blue car wheel and the SPE logo. The text reads: 'spe AUTOMOTIVE PLASTICS NEWS', 'A PUBLICATION OF THE AUTOMOTIVE DIVISION OF THE SOCIETY OF PLASTICS ENGINEERS', 'Looking for a cost-effective way to REACH TRANSPORTATION ENGINEERS working with plastics around the world? Help sponsor our SPE AUTOMOTIVE DIVISION NEWSLETTER, distributed globally three times per year.', and 'For rates & information, please contact Teri Chouinard at Intuit Group, teri@intuitgroup.com +1.248.701.8003'.



ANTEC® 2023

Denver, CO · March 27-30, 2023



SPE is hosting ANTEC® 2023 at the Hilton Denver City Center, Denver, CO from March 27–30, 2023.

ANTEC® 2023 will showcase the latest advances in industrial, national laboratory, and academic work. Learn about new findings and innovations in polymer research, products, and technologies.

There will be multiple opportunities to spend time with colleagues at SPE-hosted meetings, receptions, networking luncheons, and SPE Chapter networking events.

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The SPE Annual Technical Conference (ANTEC) will take place **March 27-30, 2023** at the **Hilton Denver City Center in Denver, CO**. ANTEC 2023 will showcase the latest advances in industrial, national laboratory, and academic work focused on plastics and polymer science. Papers and presentations will be organized into four program themes: Sustainability, Digitalization and Additive Manufacturing/3D Printing, Polymer Processing and Equipment, and Advances in Materials and Characterization. SPE will also accommodate presentations that do not fit specifically into a theme.

CALL FOR SPEAKERS

New for 2023: Speakers are not required to submit a technical paper. A presentation may be submitted in lieu of a paper. All presentations are 30 minutes, including Q&A.

SUBMISSION TIMELINE

Call for Speakers Deadline: December 2, 2022

Accepted Speakers Notified: December 16, 2022

Speakers Upload Papers or Presentations: Beginning December 16, 2022

Speakers Upload Papers or Presentations Deadline: January 20, 2023

Final Speaker Approval and Program Set: February 1, 2023



**DR. NORM KAKARALA
& TOM PICKETT**

For the latest information on ANTEC, visit the website: www.4spe.org/antec



PETER GRELLE

PETER GRELLE
1952 – 2022

*Peter presents the SPE Detroit Section Awards -
September 2013 Technical Dinner Event at Schoolcraft*

*Pete Received the SPE Detroit Section Lifetime
Achievement Award, Kettering University Technical Dinner
Event - September 14, 2015*

A Tribute to Peter Grelle

It is with heavy hearts we announce the loss of our dear friend and longtime SPE Detroit Section and Injection Molding Division Board member, Peter F. Grelle, who passed away on Thursday August 11, 2022. Peter was a light in this world, and now we need to continue shining his light by carrying it within us in our own lives.

Peter was a native of Lawrence, Massachusetts, born May 5, 1952, to the late Peter and Frances Grelle. He was a compassionate and caring man who loved and valued his family and friendships.

Peter loved the plastics industry and was involved in many professional societies, events, and conferences. His interest in plastics started while attending Lowell Technical Institute (now University of Massachusetts at Lowell). He decided to study Plastics Engineering based on a suggestion by his mother who was the first female injection molding machine operator in the General Tire Rubber Company in Lawrence, MA from 1934 to 1936. In 1974 Peter received his Bachelor of Science degree in Plastics Technology and followed in 1980 with a Master of Science degree in Plastics Engineering.



2016 Future City Event Judging - Pete Grelle and Bob Petrach

He was employed in the plastics industry for more than 45 years, at the Dow Chemical Company for nearly 20 years, and prior to Dow was employed by the Monsanto Company, the Winchester Group of Olin Corporation, and Wellman Inc. Plastics Division.

He was the owner and president of Plastics Fundamentals Group LLC, a company specializing in Plastics Technology training, and an adjunct instructor in the Plastics Technology Program at Schoolcraft College, Livonia, MI.

Peter joined the Society of Plastics Engineers in 1972 and became a very active member. From 1993 to 1996 Peter served on the SPE Rochester NY Board of Directors. He served on the Board of the Injection Molding Division from 1991 until he passed away. He was the Chairperson of that Division in 1997-98. Since 1999, Peter served as the Technical Director of the Injection Molding Division and in 2000 he received the Division Engineer of the Year Award. In 2006 Peter received the SPE Honored Service Member Award.

In 2009 Peter became a member of the SPE Detroit Section Board of Directors and becoming President of the Section in 2013. In 2015, Peter received the Lifetime Achievement Award from the SPE Detroit Section.

In addition to the SPE activities, Peter was active in the Society of the Plastics Industry (SPI) and served on the Structural Plastics Conference Committee from 1994 to 2007 becoming the Conference Chair from 1999 to 2001. In 2002 he received the SPI Industry Recognition Award for his contributions to the Structural Plastics Conference and the Structural Plastics Industry.

Peter held 4 U.S. and International patents and published 40 papers and articles in Plastics Technology.

Peter was the 2019 SPE Detroit Section Outstanding Member. He was active in Society of Automotive Engineers (SAE) and from 2009 – 2017 he participated in the SAE Detroit A World in Motion (AWIM) Program. In 2016, he received the Outstanding Contributions to AWIM award from the SAE Detroit Section.



FRIEND, COLLEAGUE, MENTOR

2013 Material Auction which Pete organized for the SPE Detroit Section

SPE Detroit Section Christmas Dinner - December 7, 2018

Peter has been with the SPE, SPI and SAE for a long time. He will be greatly missed by all of us at SPE Detroit Section, SPE Injection Molding Division and SPE Automotive Division.

Read Pete's obituary here: Peter F. Grelle: <https://obits.pennlive.com/us/obituaries/name/peter-grelle-obituary?id=36213145>

"Pete was a kind gentlemen and friend to us all."

"Pete was a great guy! He will truly be missed."

"Pete will be missed in many ways."

"He contributed so much to the Society."

What a lovable human being."

"No one is more lovable than Pete with his kindness and dedicated service."

"His absence will leave a gaping hole in the heart of Detroit SPE."



Professional Experience

- (2014 – present) Adjunct Instructor- Schoolcraft College, Livonia, MI.
- (1989-2008) Senior Specialist/ Development Leader, The Dow Chemical Company, Midland, MI., Rochester, NY, and Detroit, MI.
- (1987-1989) Senior Engineer - Monsanto Corp., Plastics Products Business Group, St. Louis, MO.
- (1981-1987) Senior Plastics Engineer, Olin Corp., Winchester Group, East Alton, IL.
- (1978-1981) Asst. Technical Superintendent, Wellman Inc. Plastics Div., Johnsonville, SC
- (1977-1978) Production Engineer, Sewell Plastics, Inc., Atlanta, GA.
- (1976-1977) Production Supervisor, Schick Safety Razor Co, Milford, CT.
- (1976) Production Supervisor, Carlon Inc., Oklahoma City, OK and Cleveland, OH.



The very first Plastic Course Certificate Ceremony where Peter, as the SPE Detroit Section president, presented the students their Certificate of Course Completion. Lots of Smiles!



SPE Detroit Section Board Members Meeting Wim Devos, SPE CEO at Marriott Troy - January 6, 2014



Key TPO Committee Members Thanking the Marriott Management team for their service and dedication to the TPO Conference - October 2013



COUNCILOR'S REPORT

AUTOMOTIVE

OCTOBER 31, 2022 COUNCIL MEETING

MINUTES BY DR. JEFFREY HELMS, AUTOMOTIVE DIVISION COUNCILOR



The SPE Fall Council meeting was held virtually on October 31, 2022.

OPENING REMARKS – DR. JASON LYONS, PRESIDENT OF SPE

Jason Lyons, President of SPE, welcomed the committee and reminded the anti-trust regulations. This was the last Council meeting with Jason. Bruce Mulholland will assume the SPE President position for the upcoming term.

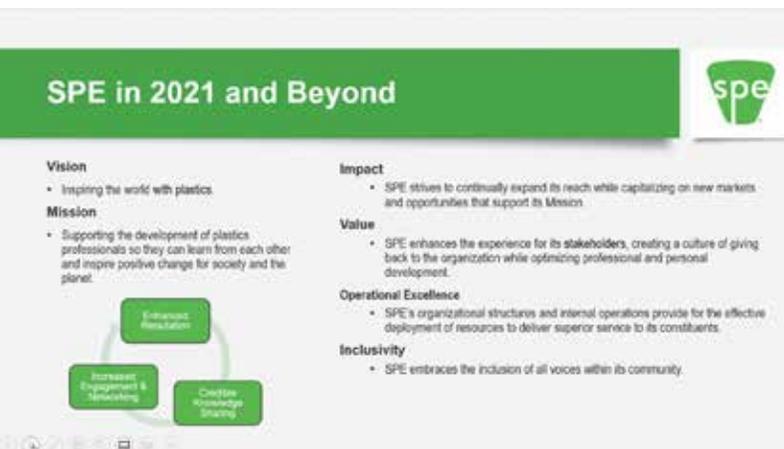
Jason reviewed the SPE Vision, Mission and Values strategy for 2021 and beyond with specific examples of progress in enhancing the organization's reputation, increasing engagement and networking and credible knowledge sharing.

- Injection Molding
- Plastics Processing
- Rotational Molding
- Building and Infrastructure

INCREASED ENGAGEMENT & NETWORKING:

- 24 SPE events in 2021, 50 events estimated for 2022.

Scott Eastman, SPE VP of Chapters, reviewed a section of the SPE code of conduct to reinforce SPE's commitment within Sections and Divisions on refraining from any harassing behavior towards our colleagues. Apparently, this was due to an issue that arose at a specific SPE meeting in 2021.



ENHANCED REPUTATION:

- Established a Girl Scouts patch program in Northeast Texas where young girls learn and demonstrate the properties of plastics and the impact of these materials in their everyday lives. The intent is to expand this to other Girl Scout groups.
- Created an on-demand speaker series on the topics of essential life skills, leadership and workforce development.
- Developed a 6-month cohort-based learning program on the Essentials of Management and Leadership in Plastics.

CREDIBLE KNOWLEDGE SHARING:

- Established a new position, Director of Technical Programs, within SPE – Dr. Ivan Lopez will lead this effort.
- Launched the SPE National Weeks of Learning with tutorials and presentations in the following subjects:
 - Coloring Plastics
 - Flame Retardants

The remainder of the meeting was focused on the SPE Elections for SPE Directors. Jaime Gomez, SPE Immediate Past President, reviewed the process and candidate expectations for SPE Directors. 3 Directors are appointed by Council and 3 Directors are appointed by the Executive Board. The Executive Board has recommended Connor Carlin, Managing Director, Illig North America for President-Elect. There are four candidates under consideration by Council to select the 3 Council appointed directors. Council members were invited to meet each candidate and ask questions relative to their experience and vision for SPE. Those candidates are:

- Todd Bier, Account Manager, Palmer Holland, Inc.
- Praveen Boopalachandran, Research Scientist, Dow Chemical
- Barry Morris, Managing Director, BA Morris Consulting, LLC
- Lynzie Nebel, Upstream Quote Engineer, Cytivia

Council voting will be held Monday, November 14, at 9 am ET through Wednesday, November 16, at 5 pm ET.

Closing comments were given by Dr. Jason Lyons. The next Council meeting will be held at the 2023 ANTEC on March 27, 2023, in Denver, CO.

Plastics News

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SPONSORSHIP:

- Educates the Industry about the benefits of thermoset composites in numerous applications - The 2022 SPE Thermoset TopCon included 160 registered attendees, 27 sponsors, 2 Keynotes, 20 technical presentations and great networking during 2 breakfasts, 2 lunches and a fun cocktail reception!
- Enables Awards for Research in the field by promising students - The First SPE Thermoset Div. Poster Competition was launched at the 2022 event.
- Provides Educational Grants to Universities to Expand Thermoset Technology Education - A Grant in Honor of Hugh Karraker, Great Grandson of Leo Baekeland, the "Father of Modern Plastic" was awarded to the University of Wisconsin- Madison Polymer Education Center.
- Provides the SPE - Thermoset Division valuable resources required to ensure our continued success.



PAPERS:

Thermoset plastics are the most durable, versatile and attractive materials for automotive; air and ground transportation; off-highway equipment; medical; appliance; oil and gas; and a wide variety of other applications where structural integrity, lightweighting, and heat and corrosion resistance are important. Join industry leaders and present your company's latest advancements in thermoset technologies. Technical paper presentations on innovative thermoset plastic materials, processing, manufacturing, testing, sourcing, component design, sustainability and other solutions are encouraged.

Abstracts are due **JANUARY 20, 2023** and final presentations are due **MARCH 1, 2023**. Limited timeslots are available. Email abstracts to teri@intuitgroup.com.

The **SPE Thermoset TopCon 2023** will also feature keynotes and exhibits highlighting advances in materials, processes, and equipment for thermoset technologies in multiple applications. The 2-day conference includes networking breakfasts, lunches and a cocktail reception for enhanced collaboration. Optional social events, including a tour of the Polymer Engineering Center at UW - Madison, golf outing at University Ridge Golf Course and a cruise of the Madison shoreline via private yacht with deluxe appetizers and beverages are offered on May 8, the day before the conference begins.

SPONSORSHIP OPPORTUNITIES

A variety of sponsorships are available including passes to the conference, exhibit opportunities, and great corporate exposure.

All sponsorships include 10 ft. wide exhibit spaces with a skirted table and chairs, company logo on signage at the event and in conference advertising and company name in publicity.

Breakfast, Lunch and Reception Sponsorships include additional corporate specialty signage, more prominent promotion, and premier exhibit placement at the event.

- **BREAKFAST:** \$8,000 includes 4 passes
- **LUNCH:** \$9,000 includes 5 passes
- **RECEPTION:** \$10,500 includes 6 passes
- **PLATINUM:** \$4,500 includes 3 passes
- **GOLD:** \$3,500 includes 2 passes
- **SILVER:** \$2,500 includes 1 pass

Go to spethermosets.org/topcon for more info. For more info on sponsorship, contact Teri Chouinard at 248.701.8003.

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