WINTER 2022
VOL 51, ISSUE 1

AUTOMOTIVE PLASTICS NEWS

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

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

SPE® AUTOMOTIVE DIV. NAMES WINNERS FOR THE 50TH ANNUAL AUTOMOTIVE INNOVATION AWARDS

The Automotive Division of the Society of Plastics Engineers (SPE®) announced the winners for its 50th annual Automotive Innovation Awards Gala, the oldest and largest recognition event (established in 1970) in the automotive and plastics industries. The Category and Grand Award winners were announced November 10, 2021 held at the Burton Manor in Livonia, Mich., USA. The Grand Award winner is selected from the winners of each of 7 categories by a panel of Blue Ribbon Judges who are industry experts. A Vehicle Engineering Team Award (VETA) was also announced. The VETA honors work in research, design, engineering, and/or manufacturing that has led to the significan ingtegration of polymeric materials on a notable vehicle.

Continued on page 4

50 YEARS OF
PLASTICS INNOVATION

NOVEMBER 10, 2021
RECAP

CONTENTS

AUTOMOTIVE

MEETING SCHEDULE & SPECIAL EVENTS CALENDAR

Electric and Autonomous Vehicles (EAV) Conference Presentations Due	April 15, 2022
ACCE Papers/Presentations Due	April 15, 2022
SPE Auto. Div. Board Meeting via Webex – Contact Us for Meeting Link	5:30 - 7:30 p.m. April 18, 2022
Electric and Autonomous Vehicles (EAV) Conference Troy Marriott Troy, MI USA	All Day May 4-5, 2022
ANTEC 2022 Charlotte, NC	June 14-15, 2022
SPE Auto. Div. Board Meeting via Webex – Contact Us for Meeting Link	5:30 - 7:30 p.m. June 20, 2022
SPE Auto. Div. Board Meeting via Webex – Contact Us for Meeting Link	5:30 - 7:30 p.m. August 22, 2022
27th-Annual SPE Automotive Division Golf Outing Fieldstone Golf Course Auburn Hills, MI USA	All Day September 6, 2022
22nd-Annual Automotive Composites Conference and Exhibition (ACCE) Suburban Collection Showplace Novi, MI USA	All Day September 7-9, 2022
Innovation Awards Competition (IAG) Parts Nominations Due	September 7, 2022
IAG First Round Judging	September 15-16, 2022
IAG Blue Ribbon Judging	September 23, 2022
SPE Auto. Div. Board Meeting via Webex – Contact Us for Meeting Link	5:30 - 7:30 p.m. October 24, 2022
51st-Annual Innovation Awards Competition & Gala Burton Manor Livonia, MI USA	4:30 - 11:00 p.m. November 2, 2022
SPE Auto. Div. Board Meeting via Webex – Contact Us for Meeting Link	5:30 - 7:30 p.m. December 5, 2022

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

CHAIR'S WELCOME

ALPER KIZILTAS, SPE AUTOMOTIVE DIVISION CHAIR

Dear Automotive Division of the Society of Plastics Engineers Friends

The past two years have been extremely challenging for every organization due to the pandemic, and this time has taught us that we can find our path through uncertainty and emerge on the other side, stronger. A big thank you to all our directors, committee chairs and volunteers for their service and time spent to make SPE Automotive Division so strong. Even though Automotive Division continued to thrive during this difficult period, with two outstanding face-to-face events (ACCE and IAG) and many virtual events over the past two years, we are all at the point where we need more face-to-face meetings. Please spread the word about our division to people who seem interested in places and communities and who may not realize that Automotive Division is a home for them within SPE, plastics and composites industry. Automotive Division membership was over 1,100 in 2021. Let's reach out to people so that we can connect them to Automotive Division (and have as many paper sessions, sponsors, and student participations as possible).

We are excited to meet again in person and catch up with our old friends and colleagues and meet new ones in Michigan in May, September, and November. Automotive Division activities will be designed to provide outstanding networking opportunities for both emerging and seasoned specialists in the field, as well as new entrants and students who are seeking to join this exciting field of plastic and composites in automotive and transportation industries.

I have the high privilege and honor to invite you to join us in Troy for the 1st Plastics in Electric & Autonomous Vehicle (EAV) Conference (**https://speautomotive.com/plastics-in-electric-autonomous-vehicle-conference/**), from May 4-5, 2022. EAV team places strong emphasis on practical and timely topics on the state-of-art in the many research areas related to electric and autonomous vehicles such plastic for battery and thermal management systems, advanced driver assistance systems (ADAS), noise, vibration sealing, sustainability and advanced interior and exterior applications and materials. This event will feature high quality peer-reviewed technical presentations, keynote speakers and special panel discussion about sustainability, networking breakfasts, breaks, lunches, and receptions. Exhibitors at EAV demonstrate state-of-the-art technologies, products, and solutions, creating a highly interactive networking environment, mixed with student poster competitions (from high school to Ph.D. students) on the same floor.

Building on the success of the 2021 Annual ACCE Conference (**https://speautomotive.com/acce-conference/**), I would like to invite you to join us in in Novi, MI for the 2022 Annual ACCE Conference, from September 7-9, 2022. ACCE is widely recognized as the world's leading technical conference and exhibition for the latest composites' technologies for lightweighting, improved performance and styling and adding value to vehicles. ACCE also brings together leading researchers, engineers, scientists, and students from around the world, to share break-through ideas and latest advances in the composites field for automotive and transportation industries.

I cordially invite you to participate in our 51st Automotive Innovation Awards Gala (IAG), the oldest and largest recognition event in the automotive and plastics industries. The event will be held November 2, 2022. We will have more information soon.

For more details on these and future events, please go on our new website **https://speautomotive.com/** and go to the upcoming events link – we hope to see you there.

At any time, if you have ideas on how to make our section better or would like to volunteer, do not hesitate to contact me at **auto-div-chair@speautomotive.com**. The success of Automotive Division event falls on our directors, committee chairs and volunteers. As we head into in our first event, we ask you to consider how you can be involved and how we can work together to craft the best vision for Automotive Division 2022 and beyond.

We look forward to making these events highly engaging and memorable professional events of your year! See you in our first event Troy, May 4-5, 2022!

Alper Kiziltas, Ph.D., SPE Fellow
SPE Automotive Division Chair

AUTOMOTIVE INNOVATION AWARDS COMPETITION & GALA

HONORING THE BEST IN AUTOMOTIVE PLASTICS

IAG Continued from Page 1

To commemorate "50 Years of Plastics Innovation," instead of picking a single **Hall of Fame** (HOF) Winner for 2021, the HOF committee selected the top 5 leading innovations from the previous 37 winners – from 1983 to 2019. 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. A **Lifetime Achievement** award was also presented.

This year, a special category was added to recognize **INNOVATIVE AUTOMOTIVE INDUSTRY PLASTIC SOLUTIONS FOR COVID-19 PROTECTION**. This honors the outstanding effort of the automotive industry to provide much needed Personal Protective Equipment (PPE) during the early days of COVID-19, bringing capacity to the market with automotive design and production strength at the same time most companies were dealing with COVID-19 shutdowns. The effort provided much needed protection to frontline medical workers at a time when the health challenge was at its peak and supply chains for PPE were unable to meet the urgent demand. Only the collaboration and commitment from the automotive manufacturers and supply base made that achievement possible.

"This year, in addition to celebrating '50 Years of Plastics Innovation,' we will showcase how polymer technologies enabled solutions for battling COVID-19. Protective masks, face shields, clothing; medical supplies; ventilators and more are made possible or enhanced with plastics. Our society benefits from the ability of plastics to deliver form and function in unique ways through the creativity of automotive engineers and designers."

– Jeffrey Helms, global automotive director, Celanese Corp.

Winners from this year's competition are featured here as well as all the finalists for the new category.

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

2021 LIFETIME ACHIEVEMENT AWARD WINNER

NIPPANI RAO (1939–2021)

Nippani Rao's son Stephen and daughter-in-law Michelle Rao

Nippani R. Rao (1939 – 2021), a pillar in the automotive industry and long-time Board of Director for the SPE Automotive and SPE Composites Divisions and SPE Detroit Section, has been named SPE's Lifetime Achievement award winner for 2021 posthumously. Nippani Rao contributed many years of thoughtful and responsible leadership to SPE resulting in conferences, events and programs improved from his leadership. During his industry tenure, Nippani served in many leading SPE roles:

- SPE Automotive Division – Board Member
- SPE Composites Division – Board Member
- SPE Detroit Section – Board Member
- SPE Automotive Division Lifetime Achievement Award – Chairperson
- SPE Automotive Division Hall of Fame Awards – Chairperson
- Blue Ribbon Committee for the SPE Automotive Innovation Awards – Judge
- SPE Detroit Section – Awards Committee Chair
- SPE ACCE Part Competition – Judge
- SPE Detroit Section - TPO Conference Founder
- Active in the TPO Conference since its inception in 1999
- Active in the ACCE Conference since its inception in 2001
- SPE Detroit Section Annual Golf Outing – Resurrected the Event

HIS WORK EXPERIENCE INCLUDES:

- President, RAO Associates 2009 – 2021
- Technology Manager, Asahi Kasei, LLC 2008 – 2010
- Materials Engineering Supervisor, Chrysler LLC 1986 – 2008
  - Nippani's engineering responsibility included the award-winning Dodge Viper body innovations with RTM (Resin Transfer Molding). He has numerous material patents. Nippani greatly valued SPE and made sure Chrysler stayed involved in the Society.

HIS FORMAL EDUCATION INCLUDES:

- Xavier University, MS and MBA, Chemical Engineering and Marketing
- University of Cincinnati, Master's Degree, Chemical Engineering

AWARDS:

- SPE Detroit Section – Honored Service Member
- The SPE Automotive Div. was proud to honor Nippani R. Rao with the 2021 Lifetime Achievement Award posthumously and a tribute at this year's SPE Automotive Div. Innovation Awards Gala.

2021 GRAND AWARD & CATEGORY WINNER:
CHASSIS/HARDWARE

Multi-Material Rear Leaf Spring
2021 Ford Motor Co. Ford F150

Tier Supplier / Processor:
Rassini Suspensiones/ Rassini Suspensiones, SGL Carbon

Material Supplier / Toolmaker:
Hexion Inc., SGL Carbon / Not Available

Material / Process:
EPIKOTE Resin TRAC 06150, EPIKURE Curing Agent TRAC 06150, HELOXY Additive TRAC 06805/ High Pressure Transfer Molding (HP-RTM)

This new hybrid rear leaf spring combines a high-strength steel main pack plus an HP-RTM fiberglass-reinforced epoxy composite helper that reduces mass 30% while providing the same stiffness and durability as a conventional steel leaf spring system. Additional benefits include increased payload capability, lower part count, decreased interleaf friction, smoother engagement, lower noise, and lower carbon footprint.

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

Category Winner:
ADDITIVE MANUFACTURING

Integrated Tether System
2021 Ford Motor Co.
Ford Maverick

Tier Supplier / Processor:
IAC Group / IAC Group

Material Supplier / Toolmaker:
Not Available / Not Applicable

Material / Process:
Not Available / Additive Manufacturing

In an industry first, customers can select, download NFTL files, and 3D print their own swappable accessories (e.g. cupholders, trash bins, etc.) that fit in storage slots of their vehicle across the entire Maverick series. Initial designs were developed by Ford and its supply teams, but future ones could be suggested by customers. A variety of printer types and suggested materials can be used. This provides customers with flexible, customizable storage and use features or the option to maximize cabin space while avoiding significant tooling investment.

Category Winner:
BODY EXTERIOR

Grille with Integrated Lit Emblem
2021 Ford Motor Co.
Ford Mustang Mach E GT

Tier Supplier / Processor:
Magna Exteriors /
LexaMar Div. of Magna Exteriors

Material Supplier / Toolmaker:
Covestro / Inevo Group

Material / Process:
PC / Injection Compression Molding

This hardcoated and painted front grille with lit emblem provides a 3D, futuristic effect in a single part. Injection/compression molding forms the large-format clear PC grille with variable wall thicknesses (ranging from 3-5 mm) in a lower-tonnage press that helped minimize or eliminate flow lines and stress marks. After molding, the optical-quality part undergoes hardcoat silicone dip to provide excellent weathering and abrasion resistance, the pony emblem is milled out, and primer and paint are selectively applied to the B side of the part—the first use of paint-over-hardcoat for an auto exterior trim application.

Category Winner:
BODY INTERIOR

3rd Row Seatback
2021 Toyota Motor Corp.
Toyota Sienna

Tier Supplier / Processor:
Toyota Boshoku Corp. / Flex-N-Gate Corp.

Material Supplier / Toolmaker:
BASF Corp. / Concours Technologies, Inc.

Material / Process:
Ultramid B3ZG7 CR PA 6 / Injection Molding

A 16-piece steel assembly was replaced with a single, shoot & ship plastic assembly for this 3rd-row seatback that reduced mass 30%, cost 15%, represented a 2x improvement in crash performance, and takes 63% less effort for occupants to raise the seat to its upright position, eliminating the need for a seat motor. This is industry's first fully-plastic freestanding seatback offering excellent energy absorption without need for metal support brackets. A new 35% short-glass, impact-modified PA6 resin was developed for this sequentially injected application.

Category Winner:
ENVIRONMENTAL

Wiring Harness Clip
2021 Ford Motor Co.
Ford Bronco Sport

Tier Supplier / Processor:
Lear/ HellermannTyton North America

Material Supplier / Toolmaker:
DSM/ HellermannTyton North America

Material / Process:
Akulon RePurposed PA6 PA6 /
Melt Compounding, Injection Molding

These rPA6 wire-harness clips are injection molded from 100% PCR ocean plastics. Ghost gear (fishing nets) are collected by fishermen in the Indian Ocean and Arabian Sea, providing jobs, more sustainable livelihoods, and healthier marine life. The material provides comparable performance to petroleum-based prime resin at 10% cost savings, lower energy, improved supply-chain stability, and LCA benefits. No tooling changes and minimal process changes were needed for this drop-in change.

Category Winner:
MATERIALS

Composite Roof Receivers
2021 Stellantis
Jeep Wrangler and Jeep Gladiator

Tier Supplier / Processor:
Stellantis / Not Available

Material Supplier / Toolmaker:
Mitsubishi Chemical Advanced Materials / Maple Mold Technology

Material / Process:
KyronMAX S-4330 PPA w /30% USCF / Injection Molding

Six brackets for removeable hardtop and soft top roofs were converted from investment cast steel to 30% ultrashort carbon fiber (USCF)-reinforced PPA, providing comparable part strength while reducing costs 38% and mass 79%. Powder coating was eliminated and scratch & mar improved while providing a weatherable, MIC, Class A finish that allowed for mid-program replacement and backwards service compatibility. The USCF composite molds like neat polymers but outperforms LFT materials, is fully recyclable, and has a lower carbon footprint than metal/alloy parts. Direct-drop valve gates and T-nut fasteners also were key enablers.

Category Winner:
PROCESS / ASSEMBLY / ENABLING TECHNOLOGIES

Thick Lightbar Development
2021 General Motors Co.
Cadillac Escalade

Tier Supplier / Processor:
Valeo Lighting Systems / Valeo Lighting Systems

Material Supplier / Toolmaker:
Covestro LLC / Windsor Mold Group

Material / Process:
Makrolon LED PC / Multi-cavity, Multi-shot Injection Molding

This challenging 780 mm long and 18 mm thick transparent-red light blade for rear taillamps functions offers a unique appearance and homogeneous lit appearance. Keys to making the patented application work were advanced simulation tools for design and functional optimization and warpage control; complex runner, parting line, shutoff valves, and multi-shot injection process control; plus a custom-formulated optical-grade of PC that helped manage quality, cost, and molding capacity and met all legal rear-lighting requirements. Despite technical challenges, program timing was reduced by 3 months and $250,000 in prototype tooling was avoided through virtual prototyping.

Category Winner:
INDUSTRY SOLUTIONS FOR COVID-19

Powered Air Purifying Respirator 2020 Ford Motor Co. Limited Use PAPR

Tier Supplier / Processor:
Ford Motor Co. / Denso Corp.

Material Supplier / Toolmaker:
Asahi Kasei America, Inc., Celanese / 3Dimensional Services, Protolabs

Material / Process:
PPTD40, POM Asahi P-40TC-1102 NT101, Celanese M90 CF2001 PolyPro, POM / Injection Molding

The team produced the first all-plastic PAPR, converting previously metal components to plastic to reduce mass and costs and improve user comfort for this personal protective equipment used by medical workers caring for COVID patients. The lighter, more efficient design improved battery life, enabling workers to complete a 12-hr shift without needing to recharge the battery. NIOSH certification was achieved in just 3 days on the first try. Production was increased to 8,500 units/week from the 650/week the previous supplier achieved. All profits from sales were donated to COVID-19 relief funds and 4 patents are pending on the unit.

Category Winner:
HALL OF FAME

Top 5 Hall of Fame Awards from 1983 – 2019

To commemorate "50 Years of Plastics Innovation," instead of picking a single **Hall of Fame** (HOF) Winner for 2021, the HOF committee selected the top 5 leading innovations from the previous 37 winners – from 1983 to 2019. 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.

- **HDPE (High-Density Polyethylene) Fuel Tank** awarded to Volkswagon AG in 2000
- **Front & Rear TPO (Thermoplastic Polyolefin) Bumper Fascias** awarded to General Motors Co. in 2010
- **PVB (Polyvinyl Butyral) Windshield Interlayer** awarded to Ford Motor Co. in 1988
- **PA (Nylon) Thermoplastic Intake Manifold** awarded to Porsche AG in 2005
- **PC (Polycarbonate) Headlamp Assembly** awarded to Ford Motor Co. in 2007

See page 14 for more on this presitgious award

Ventilator Main Chassis Production
2020 General Motors Co. /
Ventec Life Systems V+Pro Emergency Ventilator

System Supplier:	Hi-Tech Mold & Engineering, Inc.
Material Processor:	Hi-Tech Mold & Engineering, Inc.
Material Supplier:	SABIC
Resin:	Lexan 500R 10% GF PC
Tooling/Equipment Supplier:	Hi-Tech Mold & Engineering, Inc.

In less than 18 days, the team sourced materials, built tooling, brought dimensional quality into spec, automated installation of 48 brass insert nuts (verified by vision systems), converted a manufacturing facility, trained a workforce, and scaled up production of tight-tolerance ventilator chassis components from thousands/year to thousands/week, eventually delivering 30,000 over 154 days. Whereas the previous supplier had struggled to meet accuracy, FTQ was raised to 98.7 at faster production times.

Energency Ventilator
2020 General Motors Co. /
Ventec Life Systems V+Pro Emergency Ventilator

System Supplier:	Cascadia Custom Molding
Material Processor:	West Michigan Molding, Inc.
Material Supplier:	Avient Corp.
Resin:	Versollan OM1262NX-1 TPE
Tooling/Equipment Supplier:	Proper Group International, Inc.

The team developed a unique TPE—offering modified flow, high adhesion to the PC/ABS substrate, and excellent chemical resistance—and shipped it within 24 hr. High-cavitation tooling was rapidly produced to ensure sufficient supply. A solid supply chain was established that met demand throughout 2020.

Warpage Correction in Ventilator O_2 Bracket
2020 General Motors Co. / Ventec Life Systems
V+Pro Emergency Ventilator

System Supplier:	PTI Engineered Plastics
Material Processor:	PTI Engineered Plastics
Material Supplier:	Victrex PLC
Resin:	Victrex 450FC30 PEEK
Tooling/Equipment Supplier:	PTI Engineered Plastics

In less than 1 week, the PEEK resin was fully characterized for CAE material cards and tooling for a key ventilator component, which was redesigned using mold morphing/windage techniques to address warpage issues that had previously required post-mold fixturing and machining. New tooling was produced and first parts were shot 9 days later. This allowed the team to hold extremely tight tolerances without post-mold countermeasures. This enabled production to be scaled from thousands/year to thousands/week to meet high demand. Costs were reduced 30-40% by eliminating post-mold machining.

Flexible Air Breathing Tube for Powered
Air Purifying Respirator (PAPR)
2021 Ford Motor Co. Powered Air Purifying Respirator

System Supplier:	TI Fluids Systems
Material Processor:	Flexaust
Material Suppliers:	Celanese, AT Polymers, TechmerPM, INEOS Styrolution Group GmbH, DuPont
Resins:	EVA,LDPE, PE, ABS, PA6/6
Tooling/Equipment Supplier:	N/A

To meet NIOSH certification requirements, the team used automotive tools to deliver on all project objectives in less than 30 days. A new breathing tube design was developed where one size fits bodies ranging from 5th percentile female to 95th percentile male in a variety of postures. The design features quick connects to ensure a robust connection and offers 25% greater airflow but consumes 24% less current for extended battery life. It also is lighter and 8 dB quieter. The team delivered 42,000 breathing tubes during the program.

Multi-Use Isolation Gown
2020 Ford Motor Co. Isolation Gown

System Suppliers:	Joyson, Windsor Machine Group
Material Processor:	N/A
Material Suppliers:	Highland Industries, Aunde
Resin:	PA6/6, PET
Tooling/Equipment Supplier:	N/A

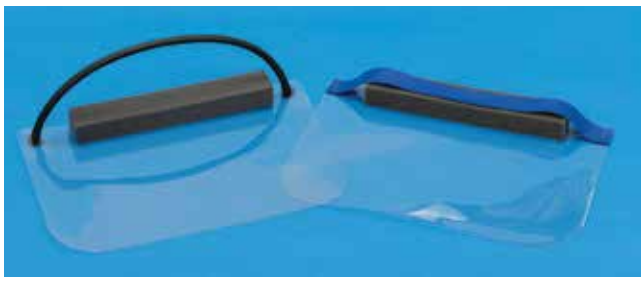
Responding to the scarcity of PPE early in the pandemic, the team repurposed airbag and seat trim materials and used idle cut & sew facilities to produce 50x washable isolation gowns for frontline workers. Two different fabrics were developed and approved in less than 2 weeks (PA6/6 with silicone coating and PET with paraffin/C6 fluorocarbon coating) and gown designs were modified to prevent sleeves from riding up when workers were gloved. A total of 1.32-million gowns have been shipped to date. Efforts were made to reduce gown cost to health-care providers.

PPE Production Through #TyvekTogether and Project Airbridge

System Supplier:	N/A
Material Supplier:	DuPont
Resin:	Tyvek HDPE
Tooling/Equipment Supplier:	N/A

Two different programs—Operation Airbridge and #TyvekTogether—dramatically increased production capacity for hospital gowns and coveralls for healthcare workers and first responders. Additionally, a new fabric was formulated in just 3 weeks to optimize utilization and increase downstream production. Idle capacity and resources at 15 U.S.-based partners were used In total, the team produced and shipped 17.6-million garments to replenish the National Stockpile.

Apollo PPE Face Shield
2020 Ford Motor Co. PPE face Shield



System Supplier:	Troy Design Manufacturing
Material Processor:	Placon
Material Supplier:	Ex-Tech
Resins:	PET, APET, RPET, PE
Tooling/Equipment Supplier:	Placon

This is the first time this type of PPE equipment has been produced at extremely high volumes. Within 2 days' time, the team developed its first clear face shields and within 13 days, 1.1-million units had been produced and delivered. To address supply constraints and potential failure modes, material was changed from RPET to APET and pushpin attachments replaced stapling. Supply streams and manufacturing teams were capacitized to over 5-million pieces/week. In total, over 21-million units were shipped to protect frontline workers.

Acteev Technology

System Supplier::	N/A
Material Processor::	N/A
Material Supplier:	Ascend Performance Materials
Resin:	N/A
Tooling/Equipment Supplier:	N/A

A new low-odor fabric introduced in Nov. 2019 was repurposed to produce washable and reusable nonwoven face masks for the pandemic. Key to the material's efficacy is the fact that zinc ions are embedded in the polymer matrix during polymerization, so the antibacterial treatment doesn't wash or wear off and remains active for the life of the product. The technology also can be used for knits, woven fabrics, and engineering plastics and is covered by more than 100 patents to date.

Ventilator Diaphragm, 2020 Ventec Life Systems V+Pro Emergency Ventilator

System Supplier:	Ventec Life Systems
Material Processor:	Lumenflow Corp.
Material Supplier:	Wacker Chemical Corp.
Resin:	Elastosil LR 3003/50 silicone rubber
Tooling/Equipment Supplier:	2K Tool

The team used its automotive skillset to retrofit processing equipment to switch from optical-grade silicone to conventional liquid silicone rubber, solve a void issue, build new tooling in just 19 days, and ramp up production of a critical ventilator diaphragm from 1,000/year to 4,000/week.

VEHICLE ENGINEERING TEAM AWARD

2021 FORD F-150 PICKUP PICKS UP VEHICLE ENGINEERING TEAM AWARD

The team at Ford Motor Co. (Dearborn, Mich.) and its suppliers that developed the 2021 model year Ford F-150 pickup has been named the **Vehicle Engineering Team Award (VETA)** winner by the Automotive Div. of the Society of Plastics Engineers (SPE*).

The VETA award was created by SPE in 2004 to recognize the technical achievements of entire teams — comprised of automotive designers and engineers, tier integrators, materials suppliers, toolmakers, and others — whose work in research, design, engineering, and/or manufacturing has led to significant integration of polymeric materials on notable vehicles. Previous winners of the VETA award, which is given from time to time, include:

- 2004 MY Porsche Carrera GT supercar,
- 2009 MY Ford Flex crossover utility vehicle (CUV),
- 2010 MY Ford Taurus sedan,
- 2011 MY Ford Explorer sports utility vehicle (SUV),
- 2011 MY Chrysler 200 & Dodge Avenger sedans,
- 2013 MY SRT Viper supercar, and
- 2020 MY Chevrolet Corvette sports car.

For 44 years, F-Series has been the best-selling pickup in the U.S. and the 2021 edition features numerous plastics and composites innovations, many of which were nominated in other categories of SPE's 50th Automotive Innovation Awards Competition, including:

BODY EXTERIOR NOMINATIONS

Cowl Vent Grille

BODY INTERIOR NOMINATIONS

Armrest Insert
Max Recline Seat
1st-Row Center Seat Mobile Workstation
Upper Glovebox with Remote Release
Work Surface Foldout Armrest

CHASSIS & HARDWARE NOMINATIONS

Multimaterial Rear Leaf Spring
Folding Shifter

MATERIALS NOMINATION

Coolant Flow Management Baffle

"Innovative application of plastics was paramount in delivering the many advanced features and new technologies and an improved customer experience in the award-winning 14th-generation F-150," explains **Milton Wong**, ***Ford F-150 chief program engineer.*** "Advancement in plastics enabled us to give our customers more while balancing cost and weight, and ensuring durability. We are honored to receive the VETA award, and we encourage and support continued innovation in this areza for automotive applications."

Photos courtesy of Ford Motor Co.

HALL OF FAME

SPE® AUTOMOTIVE DIV. ANNOUNCES TOP 5 MOST INNOVATIVE HALL OF FAME AWARD WINNERS

AUTOMOTIVE
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HALL OF FAME WINNERS ARE AUTOMOTIVE PLASTICS INDUSTRY WORLDWIDE GAME CHANGING APPLICATIONS STILL BEING USED

The Automotive Division of the Society of Plastics Engineers (SPE®) is announcing the "Top 5 Most Innovative Hall of Fame Award Winners" since the category was established in 1983 for its 50 th annual Automotive Innovation Awards Gala, the oldest and largest recognition event (established in 1970) in the automotive and plastics industries. To commemorate "50 Years of Plastics Innovation," instead of picking a single Hall of Fame Winner for 2021, the HOF committee selected the top 5 leading innovations from the previous 37 winners - from 1983 to 2019. 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. The HOF committee consists of engineers, managers, executives, technical experts, SPE Fellows, SPE Honored Service Members and automotive industry technical experts having served at least 30 plus years in the industry. The top 5 Most Innovative HOF Award Winners are:

1. HDPE (High-Density Polyethylene) Fuel Tank awarded to Volkswagon AG in 2000
2. Front & Rear TPO (Thermoplastic Polyolefin) Bumper Fascias awarded to Generals Motors Co. in 2010
3. PVB (Polyvinyl Butyral) Windshield Interlayer awarded to Ford Motor Co. in 1988
4. PA (Nylon) Thermoplastic Intake Manifold awarded to Porsche AG in 2005
5. PC (Polycarbonate) Headlamp Assembly awarded to Ford Motor Co. in 2007

Nominees, finalists or award winners can request these logos for use in your future advertising:

INNOVATION AWARDS TROPHY ORDERS

Grand Award: $550 USD/ea Category Winner: $400 USD/ea
Finalist: $220 USD/ea

NOMINATION DISPLAY PLAQUES

9x12 in.: $16. USD each (available for ALL nominated parts)
Visit http://SPEADStore.com Questions? 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.

2022 KEY DATES

SEPT 7 – Deadline for submission of nominations, Parts Due September 15
SEPT 9 – Notification of time and date for presentation to SPE Board of Directors
SEPT 15 & 16 – Presentations to Board of Directors, Location: Celanese, Auburn Hills, MI
SEPT 23 – Finalists Presentations to Blue Ribbon Panel, Location: Celanese, Auburn Hills, MI
NOV 2 – SPE Automotive Division Innovation Awards Gala, Location: Burton Manor, Livonia, MI

NOTE that the event, nomination due date and presentations are all a week earlier than in previous years to avoid having the gala the same week as the mid-term elections and Veteran's Day holiday weeks.

BY TERI CHOUINARD, SPE AUTOMOTIVE DIV. COMMUNICATIONS CHAIR

SPE® ACCE (AUTOMOTIVE COMPOSITES CONFERENCE & EXPO) ANNOUNCES CALL FOR PAPERS, SPONSORS & EXHIBITORS FOR 2022 EVENT

The SPE Automotive Composites Conference & Expo (ACCE) team is announcing its Call for Papers, Sponsors & Exhibitors for their 22nd annual event September 7 - 9, 2022 at the Suburban Collection Showplace in Novi, Michigan. "Composites: The Key to EV" is the theme for the 2022 event. "Composites are playing a key role in the development of electric vehicles, said **Dr. Leonardo Simon,** professor, Chemical Engineering at University of Waterloo and returning ACCE 2022 chair. "Lightweight composites are ideal materials for improving vehicle performance, reducing mass, extending range and compensating for battery weight," continued Simon. "Polymer composites are also enabling lower emission vehicles, reducing carbon footprint and saving energy to benefit the environment now and in the future," added Simon. "Thermoset and thermoplastic composites are the key to EV, Mobility & Sustainability."

The ACCE features technical sessions, panel discussions, keynotes, and exhibits highlighting advances in materials, processes, and equipment for both thermoset and thermoplastic composites in a wide variety of transportation applications. Networking breakfasts, lunches, and receptions enhance the value of the event that typically attracts over 800 attendees from across the globe. The Automotive and Composites Divisions of the Society of Plastics Engineers (SPE®) jointly produce the ACCE to educate the industry about the benefits of composites in transportation applications.

The technical program will be co-chaired by returning 2018, 2019, 2020 and 2021 co-chair **Dr. David Jack,** professor, Mechanical Engineering at Baylor University and returning 2020 and 2021 co-chair **Dr. Alex Kravchenko,** assistant professor, Composites Modeling and Manufacturing Group, Department of Mechanical and Aerospace Engineering at Old Dominion University, and new co-chair **Dr. John W. (Jack) Gillespie Jr.,** director, Center for Composite Materials (CCM) at University of Delaware. "This year's program will launch a new session/track of papers on Composites in Electric Vehicles and include presentations on how composites are enabling advances in mobility," said Jack. "The technical program will also have an expanded track of papers on Sustainable Composites, said Kravchenko.

THE 2022 ACCE TECHNICAL PROGRAM will include 80 – 100 technical presentations on current and future industry advances. In addition to the new category on Composites in Electric Vehicles, the presentations are organized into the following categories: Thermoplastic Composites; Thermoset

DR. LEONARDO SIMON

DR. DAVID JACK

DR. OLEKSANDR (ALEX) G. KRAVCHENKO

DR. JOHN (JACK) GILLESPIE

Composites; Modeling; Additive Manufacturing & 3D Printing; Enabling Technologies; Sustainable Composites; Bonding, Joining & Finishing; Carbon Composites; and Business Trends/ Technology Solutions. Paper abstracts are requested as soon as possible and are due by **APRIL 15TH, 2022**. Final papers or non-commercial presentations are due **JUNE 17TH, 2022**. Authors who submit full papers (not presentations) in the proper format will be considered for the conference's Best Paper Awards, which are presented during the event's opening ceremony. A template for papers can be downloaded from the SPE ACCE website online via **http://speautomotive.com/acce-forms**. Inquiries about submitting papers can be sent to **ACCEpapers@speautomotive.com**.

A VARIETY OF SPONSORSHIP AND EXHIBIT OPTIONS offer companies the opportunity to support the event and promote their products and services to a very targeted and interested audience. Student Poster Competition and Scholarship sponsorships are also available. All sponsorships include passes to the event including access to all keynotes, panel discussions, technical sessions and daily networking opportunities. Sponsorship also includes corporate exposure on SPE ACCE websites, advertising, publicity, social media, signage throughout the event venue and more. Early Bird Sponsors to date for ACCE 2022 include Hexion, Ineos Composites, Molding Products, MSC Software Corporation/Hexagon, BYK USA, Dieffenbacher, Baylor University MTACC & Protolab, Schmidt & Heinzmann and DSC Consumables. Companies interested in supporting the event with sponsorship and showcasing their products and services should contact Teri Chouinard at **teri@intuitgroup.com** and go to **www.speautomotive.com/acce-conference** for more information.

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. The **SPE Composites Division** is dedicated to the growth of composites in multiple industries. Topic areas for both divisions include applications, materials, processing, equipment, tooling, design, and development.

For more information see **http://speautomotive.com** and **https://composites.4spe.org**. Visit the ***Society of Plastics Engineers, Inc.*** global website at **www.4spe.org**.

CALL FOR PAPERS

SPONSORSHIP OPPORTUNITIES

The automotive and transportation industries are advancing with composites playing a key role in the development of electric vehicles and sustainability initiatives worldwide. Lightweight composites are ideal materials for improving vehicle performance, reducing mass, extending range and compensating for battery weight. Polymer composites are enabling lower emission vehicles, reducing the carbon footprint and saving energy to benefit the environment now and in the future. Thermoset and thermoplastic composites are the **THE KEY TO EV MOBILITY AND SUSTAINABILITY.**

In addition to the new category on Composites in Electric Vehicles, the presentations are organized into the following categories: Thermoplastic Composites; Thermoset Composites; Modeling; Additive Manufacturing & 3D Printing; Enabling Technologies; Sustainable Composites; Bonding, Joining & Finishing; Carbon Composites; and Business Trends/ Technology Solutions. Paper abstracts are requested as soon as possible and are due by **May 16th, 2022.** Final papers or non-commercial presentations are due **June 17th, 2022.** Authors who submit full papers (not presentations) in the proper format will be considered for the conference's Best Paper Awards, which are presented during the event's opening ceremony. A template for papers can be downloaded from the SPE ACCE website online via **http://speautomotive.com/acce-forms**. Inquiries about submitting papers can be sent to **ACCEpapers@speautomotive.com.**

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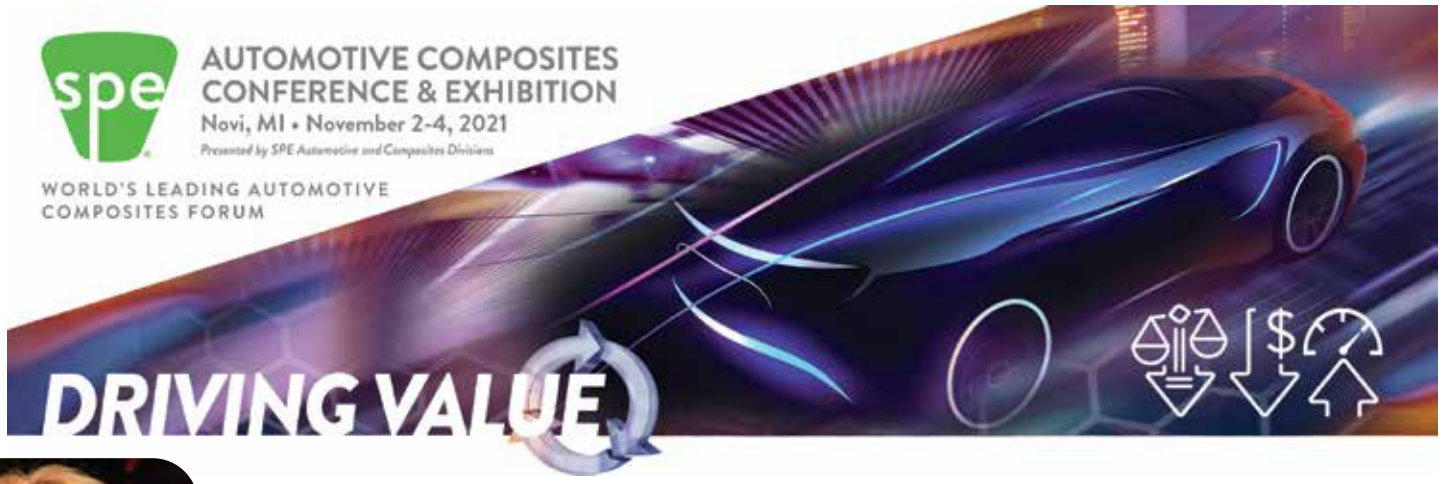


BY TERI CHOUINARD, SPE AUTOMOTIVE DIV. COMMUNICATIONS CHAIR

SPE AUTOMOTIVE COMPOSITES CONFERENCE & EXPO (ACCE) WAS A SUCCESS!

ATTENDEES WERE HAPPY TO BE BACK NETWORKING IN PERSON AGAIN

60 TECHNICAL PRESENTATIONS, 35 STUDENT POSTERS, 52 SPONSORS, 35 EXHIBITS, 3 KEYNOTES

The 21st annual SPE® Automotive Composites Conference & Expo (ACCE), produced by SPE's Automotive and Composites Divisions, was a success according to sponsors, exhibitors, and attendees. "It was great to be back networking again in person," said Raymond Curtice – Engineering Manager of ProtoLAB at Baylor University. "The attendees are motivated to learn how composites technologies will help their business and they are the 'movers and shakers' in the industry – the kind of people we want to meet and get to know, continued Curtice. "Once again, the entire event was excellent in terms of content, organization, and value, said Erik LaBelle – Automotive Technical Business Development Specialist at 3M. "SPE ACCE is the best conference for educating the industry and academia about the design versatility, structural strength, sustainability and lightweighting performance benefits of composites material technologies for advancing innovative applications," said Dr. Alper Kiziltas – Technical Expert at Ford Motor Co. "Congratulations to the ACCE Team for persevering through COVID-19 challenges and producing a successful in-person event important for the industry and student opportunities," added Kiziltas.

The ACCE event was held November 2 – 4, 2021 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 2021 event attracted 450 registered attendees including automotive OEMs, tier suppliers, academic faculty and students, and other industry professionals. The technical program included 60 presentations on the latest advancements in thermoplastics and thermoset composites; enabling technologies, additive manufacturing, carbon composites and reinforcements; modeling; sustainable composites; business trends and technology solutions; and bonding, joining and finishing. Three presenters were honored at the event with Best Paper awards. Three keynotes were featured and a panel discussion with industry leaders was also included. The Student Poster Competition included 35 posters illustrating composites research projects from 13 universities from the United States and Canada. Fifteen students received awards for having the best posters in a variety of categories. Scholarships were awarded to

DR. LEONARDO SIMON

DR. XIAOSONG HUANG

DR. KHALED SHAHWAN

DR. DAVID JACK

DR. OLEKSANDR (ALEX) G. KRAVCHENKO

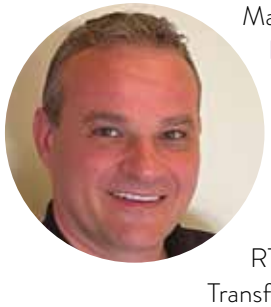
three students who demonstrated scholastic excellence in composites engineering and related studies and promise for the future. The annual ACCE Part Competition included 5 nominations for material innovations in prototype and production parts. Awards were presented for most innovative prototype and production parts, selected by industry experts, and a "People's Choice award was also presented. Sponsorship included 35 exhibitors displaying the latest composites technologies and 7 companies sponsoring breakfasts, coffee breaks, lunches, receptions and advertising. Ten leading automotive, plastics and composites media publications supported the event with advertising worldwide.

The 2021 ACCE was led by Dr. Leonardo Simon, professor, Chemical Engineering at University of Waterloo; returning ACCE co-chair **Dr. Xiaosong Huang,** lab group manager of Polymer Research & Development, General Motors Company; and **Dr. Khaled W. Shahwan,** senior technology leader – Advanced Technology & Pre-Development Programs, Stellantis. 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.

KEYNOTES

THE FIRST KEYNOTE of the conference, "Advancements for Cost-Effective Resin Systems and Composite Applications," was delivered by **Dan Dowdall, *Global Business Development Manager-Transportation Composites,* INEOS Composites.** His presentation outlined INEOS Composites' resin systems for value-driven composites and highlighted recent and potential product applications. "As auto/truck OEMs and mobility suppliers move in dramatic new directions, one requirement has remained constant – design and material decisions must be cost-effective," said Dowdall. "Polymer composites are the material of choice for design flexibility, reducing weight and improving performance in automotive applications," continued Dowdall. "However, historically composites were used mainly in lower production applications such as high-performance racing and luxury sports cars due to higher costs associated with composites technologies," added Dowdall. "Now, composites are also meeting the challenge of being cost-effective making them more practical for high volume automotive production applications which will revolutionize the industry."

THE SECOND KEYNOTE of the conference, "Rassini's Innovative Journey to HP-RTM Manufacturer," was presented by **Brent Collyer, *VP Engineering, R & D Director Lightweighting,* Rassini International Inc**. His presentation outlined the design and implementation of North America's first high volume HP-RTM (High Pressure – Resin Transfer Molding) process for composites automotive parts. "Rassini substituted spring steel with GFRP (Glass Fiber Reinforced Plastic) using a thermoset resin system from Hexion to produce a multi-material (plastic and steel) leaf spring and achieved a 30% weight savings per component compared to an all-steel component" said Collyer. "Equal to or better performance criteria for the suspension system was achieved," continued Collyer. Rassini is a world leader in automotive suspension producs for global OEMs and now the first company in North America to commercially mass produce HP-RTM GFRP suspension components for a high volume light duty truck in North America.



THE THIRD KEYNOTE, "IACMI: A National Asset and What Comes Next," was presented by **John Hopkins, *CEO*, IACMI** (Institute for Advanced Composites Manufacturing Innovation). His presentation outlined how IACMI, from its inception in 2015, has been focused on helping industry transition technologies from laboratory scale to full production. IACMI has facilitated the creation of the largest collection of open-access composites facilities at relevant scale supported by leading universities and national labs. This has resulted in the commercialization of dozens of new products, the lowering of cycle times and costs, improving simulation tools, and advancing recycling technologies. IACMI's workforce development successes are recognized nationally, preparing the next generation of technicians, scientists and engineers for the composites industry. The presentation highlighted challenges and future opportunities and how IACMI is addressing them.

PANEL DISCUSSION

The ACCE 2021 event also included a panel discussion, ***"Driving Value in Automotive Composites Manufacturing,"*** moderated by ACCE Lead Chair **Dr. Leonardo Simon,** Professor of Chemical Engineering, University of Waterloo. The panelists included: **Dan Dowdall,** Global Business Development Director, INEOS Composites; **Dale Brosius,** Chief Commercialization Officer for the Institute for Advanced Composites Manufacturing Innovation (IACMI); **Hugh Foran,** Executive Director, Teijin Automotive Technologies (formerly Continental Structural Plastics/CSP); and **Steve Eynon,** Advanced Engineering Development Lead, Stellantis. The panel of industry experts noted how value in automotive composites manufacturing is driven by automotive consumer perceptions, OEM and tier supplier innovations and industry collaborations advancing the industry via trade associations, conferences and events.

STUDENT POSTER COMPETITION

Every year at ACCE, students from the U.S.A. and international universities present their innovative research related to plastic composites materials and manufacturing technologies relevant to automotive applications. This annual event is a great opportunity for the students to interact with members of the automotive composites industry and learn about what it is like to work as a scientist or engineer in the field. OEMs and tier suppliers benefit being able to meet the next generation of automotive composites engineers and scientists and potentially hire them. The ACCE 2021 Student Poster Competition included 35 posters from 13 different universities in the United States and Canada. The 2021 ACCE Student Poster Competition winners are:

UNDERGRADUATE CATEGORY

1ST PLACE:

"Low Cost Carbon Fibers from Lignin Precursors for Automotive and Ablative Composites"
Elijah Taylor, Clemson University

RUNNER-UP:

"Development of Innovative Filament Wound Systems for Automotive & Truck Applications"
Nicholas Martin, University of Tennessee

RUNNER-UP:

"Mechanical Behavior of Short Pitch Based Carbon Fiber Reinforced PA66 Polyamide Composites Using Wet-Laid Technique"
Tyler Sundstrom, University of Tennessee

MASTERS CATEGORY

1ST PLACE:

"Wide Carbon Tow Thermoplastic Melt Impregnation Development and Applications"
Benjamin Schwartz, University of Tennessee

2021 PhD – Nondestructive Evaluation & Characterization Category 3rd Place Winner - Siavash Sattar, Old Dominion University

2021 PhD – Processing, Modeling & Simulation Category 3rd Place Winner – Victor Mota, Baylor University

RUNNER-UP:

"Study of the Properties of Polypropylene Based Wood Plastics Using Two Different Wood Fillers: Wood Flour and Wood Pellets"

Geeta Pokhrel, University of Maine

RUNNER-UP:

"Composites Innovations for Lightweight Bicycles"

Ryan Ogle, University of Tennessee

PhD – NONDESTRUCTRIVE EVALUATION & CHARACTERIZATION CATEGORY

1ST PLACE:

"Mechanical Testing of Induction Bonded Joints With and without Guided-Wave Controlled Processing"

Rajendra Palanisamy, Michigan State University

2ND PLACE:

"Determination of Ply Stack in Plain Weave Carbon Fiber Composites Using High-Frequency Pulse Echo Ultrasound"

Nathaniel Blackman, Baylor University

3RD PLACE:

"Effect of Platelet Length and Stochastic Morphology of Flexural Behavior of Prepreg Platelet Molded Composites"

Siavash Sattar, Old Dominion University

PhD – NANO, BIO, ADDITIVE MANUFACTURING CATEGORY

1ST PLACE:

"Novel Microcellular Injection Molding Technology Ku-Fizz™ – Effect of Gas Pressure on the Fiber Microstructure and Flexural Properties"

Sara Simon, University of Wisconsin

2ND PLACE:

"Multiphysics and Multiscale Modeling of AM Printed Parts"

Saratchandra Kundurthi, Michigan State University

3RD PLACE:

"Effects of Midplane Carbon Nanotube Sheet Interleave on the Strength and Impact Damage Resistance of Carbon Fiber Reinforced Polymer Composites"

Amir Nasirmanesh, Baylor University

PhD – PROCESSING, MODELING & SIMULATION CATEGORY

1ST PLACE:

"Fiber Dispersion Characterization Method via X-ray Imaging – Couetter Flow Prediction Using Artificial Intelligence"

Allen Roman, University of Wisconsin

2ND PLACE:

"The Effect of Fiber Bundle Morphology on Dispersion for Long Fiber-Reinforced Thermoplastics"

Hector Perez, University of Wisconsin

3RD PLACE:

"GUI Development for Composite Laminate Property Computation Using MATLAB App Designer"

Victor Mota, Baylor University

BEST PAPER AWARDS

To honor excellence in technical writing, those presenting the best papers are recognized annually at ACCE. The Best Paper Award winners received the highest average ratings by conference peer reviewers out of a field of close to 60 contenders. This year we had three finalists for the Best Paper Award at ACCE, **Rebecca Cutting** from Purdue University, **Nathaniel Blackman** from Baylor University, and **Chinmoyee Das** from Michigan Technical University. After a series of extensive reviews and ballots, Rebecca Cutting and her co-authors from Purdue were awarded the Best Paper Award.

SCHOLARSHIP AWARDS

This year's ACCE Scholarship was named in honor of the late Nippani Rao – a long time ACCE supporter/volunteer and member of the SPE Automotive and Composites Div. Board of Directors. The winner of the SPE ACCE scholarship ($2,000 USD), named in honor of Nippani Rao, is **Jomin Thomas,** a PhD candidate pursuing a doctoral degree in Polymer Engineering at The University of Akron. The two winners selected this year for the Dr. Jackie Rehkopf Scholarship ($2,500 USD each) were **Lauren Slann,** a graduate student pursuing a Master of Science degree in Automotive Engineering at Clemson University and **Sara Andrea Simon,** a PhD candidate pursuing a doctoral at the Polymer Engineering Center (PEC) at the University of Wisconsin – Madison.

2021 Best Paper Award Winner– Rebecca Cutting, Purdue University

2021 Best Paper Finalist and PhD – Nondestructive Evaluation & Characterization Category 2nd Place Winner – Nathaniel Blackman, Baylor University

2021 Best Paper Finalistt – Chinmoyee Das, Michigan Technological University

2021 Dr. Jackier Rehkopf Scholarship recipient and PhD – Nano, Bio, Additive Manufacturing Category 1st Place Winner – Sara Simon, University of Wisconsin

2021 Nippani Rao ACCE Scholar – Jomin Thomas, The University of Akron

2021 Dr. Jackier Rehkopf Scholarship recipient – Lauren Slann, Clemson University

PART COMPETITION

This year's ACCE Part Competition included 5 nominations. A panel of 13 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 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 ON A PRODUCTION PART

Carbon Fiber FMC Roof on 2021 Toyota GR Yaris
Nominated by: Gemini Composites/Mitsubishi Chemical Advanced Materials (MCAM)

MOST INNOVATIVE MATERIAL ON A PROTOTYPE PART:

Azdel's XL4 Core for Trunk & Interior Applications
Nominated by: Hanwha Azdel

PEOPLE'S CHOICE AWARD:

Multi-Material Leaf Spring on 2021 Ford F-150
Nominated by: Rassini & Hexion

OTHER NOMINATIONS:

Thermoplastic Composite KyronMax S-4330 Material Roof Receivers on 2021 Jeep Wrangler and Jeep Gladiator
Nominated by: Mitsubishi Chemical Advanced Materials (MCAM)

Mustang I4 Blue Cam Cover with a Low Cost and Reclaimed/Recycled Carbon Fiber
Nominated by: University of Toronto & Ford Motor Co.

Cory Dubrish from Hanwha accepts the ACCE Award for Most Innovative Material on a Prototype Part

Stephen Greydanus from Hexion accepts the ACCE People's Choice Award for Rassini and Hexion from Teri Chouinard, ACCE Part Competition Chair

PLASTIVAN®

Once again, ACCE hosted the PlastiVan® program – this year including 14 students from Ecotec, 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. In addition, academic leaders from the University of Waterloo, Baylor University, Old Dominion University and University of Tennessee-Knoxville met with the students and advised on the benefits of composites in industry and advanced educational opportunities in the field. Industry professionals from the The Materials Group, INEOS Composites, JM Polymers and Intuit Group met with the students for a round table discussion on careers in the industry. Ecotek students and faculty, PlastiVan program leaders, and ACCE leadership and sponsors all enjoyed the experience.

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The 2021 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 event is scheduled for **Sept. 7 – 9, 2022** at the same venue as the 2021 event - the Suburban Collection Showplace Diamond Banquet and Conference Center in Novi, Michigan. ACCE 2021 Attendees who took photos at the event are encouraged to send them to **teri@intuitgroup.com** for posting to the ACCE website.

For more information see **https://speautomotive.com** and **https://composites.4spe.org**. Visit the ***Society of Plastics Engineers, Inc.*** global website at **www.4spe.org**.

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PLASTICS IN ELECTRIC & AUTONOMOUS VEHICLES

Troy, MI • May 4-5, 2022

Presented by SPE Automotive Division

PRESENTED BY SPE AUTOMOTIVE

CALL FOR PRESENTATIONS

DUE APRIL 15, 2022

PRESENT TO INDUSTRY DECISION MAKERS IN AUTOMOTIVE PLASTICS

Be part of the all new **SPE Automotive Plastics in Electric & Autonomous Vehicles Conference** and learn how electric and autonomous vehicle development is driving innovative automotive solutions. This event will feature technical presentations, keynote speakers and panel discusions, networking breakfasts, breaks, lunches and receptions, and exhibits that highlight advances in this fast-growing industry.

2022 EAV Conference Sessions Topics and Leaders:

- **KEYNOTE SPEAKERS**
  Josh Tavel, Executive Chief Engineer, General Motors
  Dave Pascoe, Chief Technology Officer, International Automotive Components
  Ken Laberteaux, Senior Principal Scientist, Toyota Motor North America-R&D
- **BATTERY AND THERMAL MANAGEMENT SYSTEM**
  Dr. Jeff Helms, Celanese Corp. | **Dhanendra Nagwanshi,** SABIC
- **ADVANCED DRIVER ASSISTANCE SYSTEM (ADAS)**
  Dr. Rodrigo Orozco, DuPont | **JP Wiese,** SABIC
- **MATERIAL INNOVATIONS AND LIGHT WEIGHTING**
  Mike Shoemaker, Borealis | **Paula Kruger,** DSM | **Sunit Shah,** LyondellBasell
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  Dr. Rose Ryntz, Ryntz & Associates, LLC | **Jim Keller,** Mankiewicz Coatings LLC
  Jeff Crist, Ford Motor Co.
- **SUSTAINABILITY, RECYCLING AND CARBON NEUTRALITY**
  Dr. Alper Kizilias, Ford Motor Co. | **Chuck Jarrett,** The Materials Group
  Drew Geda, Hyundai-Kia America
- **NOISE, VIBRATION AND SEALING**
  Mark Jablonka, Dow | **Tom Pickett,** General Motors Co.
- **ADVANCED MANUFACTURING AND ENABLING TECHNOLOGIES**
  Steve Vanloozen, Lotte Advanced Materials | **David Kosse,** Ascend Materials
- **EVOLUTION OF EXTERIORS AND VEHICLE ARCHITECTURE**
  Mark Lapain, Advanced Composites | **Dave Helmer,** General Motors Co.
  Dr. Akshay Trivedi, General Motors Co.
- **PLENARY TALKS AND STUDENT PARTICIPATION**

SPONSORSHIP OPPORTUNITIES

- **PLATINUM** – $6,000 and cover the cost for a Lunch or a Reception or Breaks, 12 conference tickets + premier booth space + full page ad
- **GOLD** – $6,000
  6 conference tickets + high traffic booth space + ½ page ad
- **EXHIBITOR** – $4,000
  2 conference tickets + booth space + ¼ page ad

Contact **Dr. Sassan Tarahomi,** at +1.989.335.0060 or email EAVConference@speautomotive.com

FOR MORE INFORMATION

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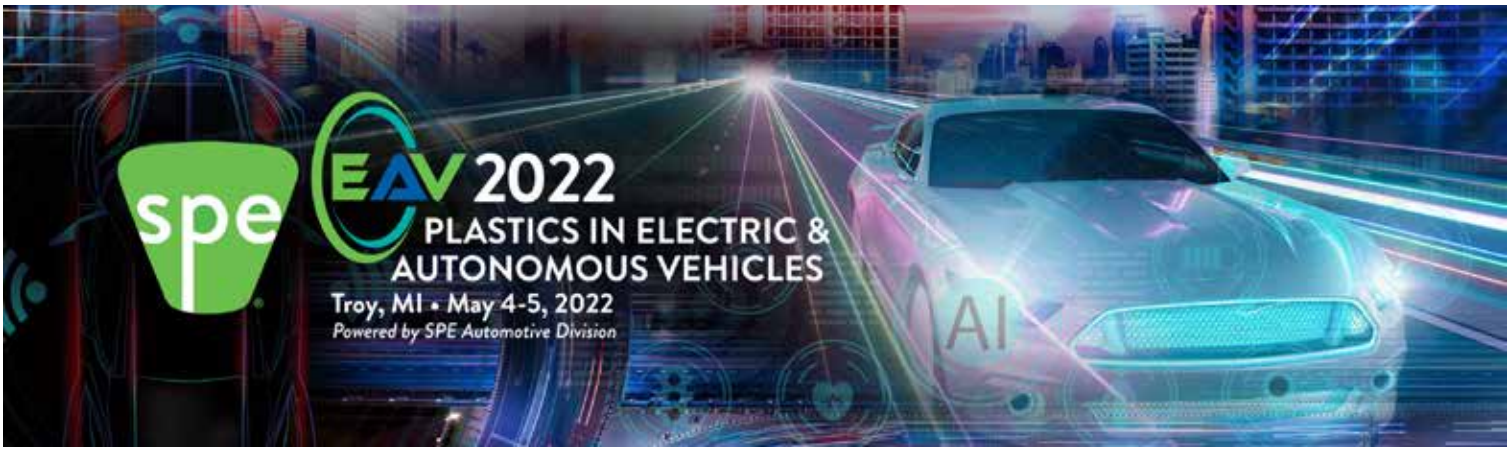


1ST ANNUAL PLASTICS IN ELECTRIC AND AUTONOMOUS VEHICLES CONFERENCE

SPE Automotive Division has announced their new global Plastics in Electric and Autonomous Vehicles Conference to be held at Marriott-Troy, in Troy, Michigan on **Wednesday, May 4 and Thursday, May 5, 2022**. The EAV conference is the only global conference that covers all family of plastics used in Electric or Autonomous vehicles. The SPE Automotive Division board members **Dr. Sassan Tarahomi, Dr. Norm Kakarala** and **Dr. Suresh Shah** planned this event to address the industry need for a comprehensive coverage of Plastics in Electric and Autonomous Vehicle Technology in one conference. This is an in-person event, and it is expected to draw a large crowd from Automotive OEMs, Tiers and Suppliers of the Automotive Industry.

JOSH TAVEL, Executive Chief Engineer, General Motors Co.

On May 4, the conference will be kicked-off with a keynote by Tavel, Executive Chief Engineer, Battery Electric Trucks from General Motors.

Tavel is the Executive Chief Engineer (ECE) for Battery Electric Trucks. He leads the team responsible for creating and executing an all-new electric truck architecture, w hich will underpin the HUMMER EV Pickup, the recently announced Chevrolet Silverado future products. Prior to this position, Tavel was the Executive Chief Engineer for midsize truck, commercial fleet, van and upfitter integration.

Josh will share how GM has developed a dedicated electric vehicle architecture and propulsion system, the Ultium Platform, as the foundation for its all-electric future. The Ultium Platform gives GM the capability to build an entire retail and commercial portfolio and to leverage the technology to expand its business to non-automotive applications.

With all-new EVs planned globally through 2025, two-thirds of which will be available in North America, Ultium will be the key driver of GM's expansion and next phase of growth. Tavel will discuss how Ultium will enable GM to make nearly every type of vehicle – across its different brands and up and down the portfolio – by building everything from affordable, high-volume crossovers and passenger cars to full-size pickups and SUVs, performance, and commercial vehicles.

DAVE PASCOE, Chief Technology Officer International Automotive Components

On May 5, the keynote speaker is Dave Pascoe, Chief Technology Officer of International Automotive Components.

In his role at International Automotive Components, Pascoe is responsible for expanding the company's advanced technology portfolio and evolving its global product strategy.

Previously, Pascoe was Vice President of Engineering, Research and Development for Magna International, where he managed advanced engineering developments and started Magna's Open Innovation Initiative to identify and vet global technology opportunities. He held various executive positions with Magna companies throughout his 31-year career including Vice President of Corporate Engineering and R&D, Vice President of Electric Vehicle Technology and Vice President of Battery Technology. He spent the first 10 years of his career as a design engineer at Magna, where he worked on product design and development for full vehicle, body, chassis, hardware, powertrain, interiors, seating, and mirrors projects.

Dave's keynote speech is focused on impact on plastics in a vehicle interior due to vehicle architectural changes, powertrain changes and driver/passenger awareness changes resulting from the electrification of passenger cars and the automation of vehicle executive functions.

KEN LABERTEAUX, Senior Principal Scientist, Toyota Motor North America-R&D

In his twenty-nine years in the automotive and telecommunication industries, Ken has produced 39 scholarly publications and 18 patents. Ken's current research focus is sustainable mobility systems, including vehicle electrification, Mobility as a Service, automated driving, and US urbanization and transportation patterns. In 2021, his group released an opensource tool to visualize the greenhouse gas (GHG) and total cost of ownership for light-duty vehicles, available at **www.carghg.org**. Ken completed his M.S. and Ph.D. degrees in Electrical Engineering from the University of Notre Dame, and B.S.E., in Electrical Engineering from the University of Michigan, Ann Arbor. In his free-time, Ken plays guitar, with a focus on Irish traditional music. He is a partisan Android phone user, a recovering audiophile, and spent most of the last 2 years quarantining with his wife and two sons at their home in Ann Arbor.

In this talk titled 'Modeling the future price of electric vehicles', we describe an original price model for future BEV, PHEV, HEV, and ICE vehicles until 2030. In doing so, we contribute to the growing literature on this topic, which informs policy makers, vehicle manufacturers, and the public. This model is based entirely on publicly-available materials, promoting transparency and open debate on the key issues.

On both days, after the keynote speech and a short break, the conference continues with concurrent technical session presentations which is divided into 8 specific areas with superb industry leaders moderating each session.

- **BATTERY AND THERMAL MANAGEMENT SYSTEM,** moderated by session co-chairs, **Dr. Jeff Helms,** Celanese Corp. and **Dhanendra Nagwanshi,** SABIC
- **ADVANCED DRIVER ASSISTANCE SYSTEM (ADAS),** moderated by session co-chairs, **Dr. Rodrigo Orozco,** DuPont and **JP Wiese,** SABIC
- **MATERIAL INNOVATIONS AND LIGHT WEIGHTING,** moderated by session co-chairs, **Mike Shoemaker,** Borealis, **Paula Kruger,** DSM and **Sunit Shah,** LyondellBasell
- **EVOLUTION OF INTERIORS,** moderated by session co-chairs **Dr. Rose Ryntz,** Ryntz & Associates, LLC, **Jim Keller,** Mankiewicz Coatings LLC and **Jeff Crist,** Ford Motor Co.
- **SUSTAINABILITY, RECYCLING AND CARBON NEUTRALITY,** moderated by Session co-chairs **Dr. Alper Kiziltas,** Ford Motor Co., **Chuck Jarrett,** The Materials Group and **Drew Geda,** Hyundai-Kia America
- **NOISE, VIBRATION AND SEALING** moderated by session co-chairs, **Mark Jablonka,** Dow and **Tom Pickett,** General Motors Co.
- **ADVANCED MANUFACTURING AND ENABLING TECHNOLOGIES** moderated by session co-chairs **Steve Vanloozen,** Lotte Chemical and **David Kosse,** Ascend Materials
- **EVOLUTION OF EXTERIORS AND VEHICLE ARCHITECTURE** moderated by session co-chairs **Mark Lapain,** Advanced Composites, **Dave Helmer,** General Motors Co. and **Dr. Akshay Trivedi,** General Motors Co.

Conference chair is **Dr. Sassan Tarahomi,** Alterra Holdings. **Dr. Norm Kakarala,** retired Inteva Sr. Fellow and **Dr. Suresh Shah** retired GM Fellow are the conference technical co-chairs leading all the technical presentations and recruiting the session co-chairs for the conference. **Thomas Picket** from General Motors Company planned and lead all keynote speech activities. The conference sponsorship committee are, **Dr. Sassan Tarahomi,** Alterra Holdings, **Dr. Rodrigo Orozco,** DuPont, **Keith Siopes,** Sumika Polymer N.A. and **Jitesh Desai,** retired Inteva. Three levels of Platinum, Gold and Exhibitor sponsorship are offered with many other sponsorship opportunities for companies who want to be part of this event. Detail conference information on keynote speech, technical presentation, sponsorship sign-up, individual attendee registration and more are available through the SPE Automotive Division website. **https://speautomotive.com/plastics-in-electric-autonomous-vehicle-conference/**

A block of rooms at a discounted price has been reserved for Tuesday and Wednesday nights (May 3 & 4) for conference attendees. Deadline for hotel reservation at the discounted price is April 12, 2022.

For technical presentations call **Dr. Norm Kakarala** at **248-840-6747** or **Dr. Suresh Shah** at **248-635-2482.**

For sponsorship call **Dr. Sassan Tarahomi** at **989-335-0060** or **sassan@compounding.us**.

For technical, sponsorship or any other information about the conference please visit our website **https://speautomotive.com**

spe AUTOMOTIVE

SPONSOR NEWS

INCOE HOT RUNNER SYSTEMS

INCOE - YOUR PARTNER FOR AUTOMOTIVE PRODUCTION

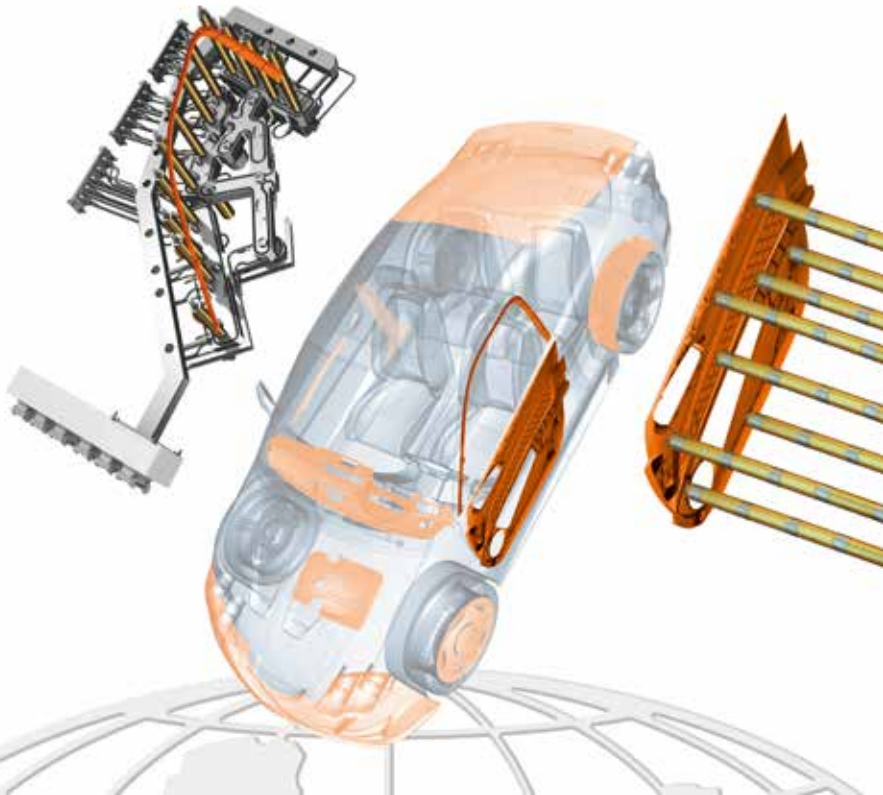
For more than 60 years, INCOE has made their contribution to implementing a variety of hot runner technologies, processes and products for the automotive industry and its suppliers. Realizing the mobility of tomorrow involves major new challenges, the aim is to prioritize today's mobility at an economically and technologically high level. To aid in production and development in the future of the automotive industry, INCOE offers reliable hot runner solutions: from back-molding of e.g. natural-fibre mats to optimal process design with controlled valve gate technology.

PIONEERING HOT RUNNER TECHNOLOGY SINCE 1958

INCOE designs and manufactures hot runner systems driven by performance for the processing of all injection moldable plastic materials. A leader and pioneer in the plastics industry, our original patented design was the first commercial hot runner nozzle available. The development and use of hot runner systems has led to the advancement of injection molding on a global basis. By design, the hot runner system has been "eco-friendly" since inception with reduced material use and waste by-product.

A global company that is 100% family owned and operated with a commitment to supporting the plastics industry, innovating new products and providing "best in class" service to our customers is our priority. INCOE's engineering team supports you throughout the entire process — from engineering mold review and filling simulation to on-site technical support. Supported by an experienced team of professionals in over 45 countries, our global commitment is to be your Melt Logistics® partner for automotive production— producing value in your process — and ultimately delivering satisfaction where it counts.

For more information, you can find us at **www.incoe.com**.



Your Melt Logistics® partner
for automotive production

INCOE's diverse product range provides Hot Runner Technology solutions for a large variety of resins and molding applications, including sequential, multi-cavity and 2 & 3 material multi-component molding. INCOE's engineering team supports you throughout the entire process — from engineering mold review and filling simulation to on-site technical support.

Our global commitment is to be your Melt Logistics® partner — producing value in your process — and ultimately delivering satisfaction where it counts.

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Grey Parker
Principal & CEO
Sundberg-Ferar

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PANEL DISCUSSION:

PLASTICS IN THE CAR OF THE FUTURE

Alper Kiziltas
Technical Expert, Sustainability & Emerging Materials
Ford Motor Company

Katie Roco
Customer Engineering Director
Faurecia Interiors

Jeff Stout
Executive Director
Yanfeng Automotive Interiors

Carla Bailo
President & CEO
Center for Automotive Research

Headline sponsor: MHolland

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Organized by: AMI, CRAIN COMMUNICATIONS GLOBAL POLYMER GROUP

2021 SPE AUTOMOTIVE DIV. GOLF OUTING ATTENDANCE WAS ON PAR AGAIN!

Thanks to our great sponsors and participants – the annual SPE Automotive Div. Golf Outing was a success. Attendance was back on par with 80 players enjoying great fun and camaraderie. Beautiful weather enhanced the event.

"It was wonderful to see everyone enjoying each other and the day," said Fred Deans – SPE Golf Outing Chair for Life. "We have a great group of sponsors and attendees who support this annual 'feel good' event," continued Deans. "It's also especially nice that, thanks to the generosity of our sponsors and attendees, proceeds from this event support SPE Student Chapters, scholarships and other student programs."

THIS YEAR'S GOLF OUTING CHAMPION TEAMS INCLUDE:

- **Trinseo** – First Place Winning Team
- **Chromaflo** – Second Place Winning Team
- **Lotte Chemical** – Third Place Winning Team

CONTEST HOLE WINNERS:

- **Tony Girgenti** – Closest to the Pin
- **Pete Tropper** – Longest Drive
- **Tim Radke** – Longest Putt

SPECIAL THANKS TO OUR SPONSORS:

- **Plastics Engineering & Technical Services (PETS)** for sponsoring lunch at the turn
- **Mitsubishi Chemical** for sponsoring breakfast
- **ID Additives** and **Ravago** for sponsoring contest holes
- **Chromaflo, JSP, Lotte, Mitsubishi Engineering Plastics** and **Polyplastics** for sponsoring holes
- **EMS-Grivory America, ID Additives, JSP, RCO Engineering, RTP Company, Toray Resins** and **Washington Penn Plastics** for participating with foursomes

ADDITIONAL THANKS TO:

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

MUCH APPRECIATION TO:

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

The 2022 SPE Golf Outing is scheduled for **Tuesday, Sept. 6.** 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*

THANKS TO OUR 2021 SPONSORS

Plastic Engineering & Technical Services, Inc.

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Ravago MANUFACTURING

Chromaflo Technologies

JSP
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A Subsidiary of Mitsubishi Engineering-Plastics Corporation

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RTP Co.
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TORAY
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Washington Penn Plastic
Engineering Polyolefin Compounds

27TH ANNUAL SPE GOLF OUTING

PROCEEDS BENEFIT SPE STUDENT CHAPTERS

SEPT 6 2022

2022 SPONSORSHIP OPPORTUNITES

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.

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

SPONSORSHIP CHAIR:
Teri Chouinard, Intuit Group
+1.248.701.8003
teri@intuitgroup.com
https://speautomotive.com/spe-golf-outing/

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TREASURER'S REPORT

BONNIE BENNYHOFF, SPE AUTOMOTIVE DIVISION TREASURER

AS OF FEBRUARY 5, 2022, THE DIVISION'S ACCOUNT BALANCES WERE:

Checking:	$347,009.02
Savings:	$27,502.52
Total:	**$374,511.54**

A NEW YEAR, A NEW ERA. This is my last report as treasurer of SPEAD, a responsibility I have thoroughly enjoyed. But all good things come to an end, and in my case, so I can focus on different good things like grandkids, golf and travel. Fortunately, **Jitesh Desai,** a very capable, long time member of SPE, has been training with me to enable a smooth transition. With this change, it made sense to also change the fiscal year accounting period (just as SPE HQ has done), making it easier to understand event budgeting at any given point in time. You can thank me later Jitesh.

Effective January 1, 2022, the calendar year and fiscal year for Automotive Division now coincide. A short year tax form will be filed showing a loss of $9986 for the period July 1, 2021 to December 31, 2021. I depart feeling confident the road ahead looks rosy for SPEAD, with new events planned and heightened awareness to provide increased benefits to our members. Please consider getting involved: one thing the pandemic taught us is that there is satisfaction in working together. I'm stepping down as treasurer, but it is with immense satisfaction from working with a fantastic team of professionals. I will forever cherish the friendships made while carrying out the mission of SPEAD. Thank you!

REACH A GLOBAL AUDIENCE OF PLASTICS DECISION MAKERS AT THE WORLD'S LARGEST PLASTICS TECHNOLOGY EVENT!

4SPE.ORG/ANTEC

The SPE Annual Technical Conference (ANTEC) will take place **June 14 and 15, 2022** in Charlotte, NC. ANTEC is the most respected and well-known technical conference in the plastics industry. It will be held in conjunction with PLASTEC South. ANTEC will be a hybrid format of in person talks and online talks.

The Co-Chairs of the 2022 ANTEC Automotive Division Session are **Norm Kakarala** and **Tom Pickett**. SPE Headquarters is working on aligning 139 talks into different sessions. At the time of this article, the tentative schedule for in-person ANTEC 2022 is as follows:

DR. NORM KAKARALA & TOM PICKETT

DAY 1 (JUNE 14)

8:00 am – 12:00 pm	SPE Meetings
1:00 pm – 5:00 pm	ANTEC® Sessions
5:00 pm	Evening Networking Events

DAY 2 (JUNE 15)

8:00 am – 12:00 pm	ANTEC® Sessions
12:00 pm – 1:30 pm	SPE Networking and Honors & Awards Presentations
1:30 pm – 5:00 pm	ANTEC® Sessions
5:00 pm	SPE Chapter Networking Events

The Automotive Division Session of ANTEC is well attended each year by leaders in the Automotive Industry. Visit the SPE website address for the latest information: **www.4spe.org/antec**

EDUCATION REPORT

BY CHUCK JARRETT, SPE AUTOMOTIVE DIV. EDUCATION CHAIR

In the Fall of 2021 we had some great connection time with the local community of students we have supported through the SPE Foundation team led by Eve Vitale, SPE's Foundation Chief Executive. Considering all the challenges of virtual and in person fluctuations, we launched our **SPE STEM CLUB** with University Prep Science Math High School in Detroit as the SPE Automotive Division sponsored STEM Club. We also had some great field trips that manifested in some great student opportunities!

ACCE – The SPE Automotive Chapter sponsored 15 Students to attend the conference at the Novi Showplace. We had 10 middle school and 5 high school students. We sponsored PlastiVan training, talks with Grad students about the poster competitions, exhibit floor engagement with the vendors and we had a panel discussion about career planning and professional networking.

SPE IAG – The SPE Automotive Division sponsored 9 students to attend the Innovation Gala and at the event Celanese announced a $30,000 Ecotec lab grant to support student research.

In the coming months we intend to have more student involvement through our UPSM HS STEM Club with visits to Ford Research Labs and a Ford Rouge tour where they make the renowned F-150 Pick-up and future home of the F-150 Lightning!

Additionally, we have plans for 30 students to attend the upcoming all new SPE Automotive Electrical & Autonomous Vehicle Conference in May for a day and to participate in a poster competition as well. The students will have firsthand interactions with Plastics industry professionals, University level students and to sit in on the talks from a selection of eight different topics of interest. What a great learning opportunity and experience for so many students!

For a further update on the SPE Education Foundation, here's a recent article that will be published in the SPE Composite Division's newsletter The Composites Connection.

FIND, FOCUS, AND FLOURISH: HOW THE SPE FOUNDATION IS WORKING TO SOLVE OUR INDUSTRY'S WORKFORCE SHORTAGE

By Eve Vitale,
SPE Foundation Chief Executive

Picture yourself comfortably retired on your 65th birthday which is coming up later this year. It's time for you to finally take a breather from your demanding, yet exciting career in our beloved industry. Sure, there's social security, but what other

resources will you need to live the lifestyle you want? My guess is you haven't waited until the last moment to start investing. Finance doesn't work that way. If you want to reap the rewards of a great investment strategy, then you know you must start early – the earlier the better.

It's the same with workforce development. I get calls and emails quite frequently from folks who are looking for solutions to their lack of qualified or even interested workforce. This is only exacerbated by the great resignation we're experiencing in the U.S. What I tell the frantic manager or business owner is that the SPE Foundation cannot churn out solutions (people) on demand – it takes **time and investment.** And that means we must look beyond the next quarter.

Arkema Junior Researcher, Jonathan Bryant
Project: 3D Printing of Electric Vehicle Charging Adapters

So that's what we're doing at the SPE Foundation. We're investing in students early and often. Our new programming has been developed with key performance indicators (KPIs) which will lead to a strong return on investment (ROI) – more plastics workforce. Think of it as a start-up and this is our collective opportunity to invest.

The SPE Foundation set out to FIND students, FOCUS on quality plastics education, and watch young minds FLOURISH.

We FOUND community partners and schools that were interested in what we had to offer – an after school SPE STEM Club to FOCUS on supporting students' Science, Technology, Engineering and Mathematics learning through positive plastics education.

We utilize the PlastiVan® curriculum. This weekly programming with students is enhanced with all-school access to our PlastiVideos™ which were developed in 2020 to support continued plastics education in pandemic-learning conditions. We also deliver school-wide Plastics STEM Days which engage all students and faculty in the science and engineering of plastics. Schools also have access to an annual "Wonders of Plastics" essay contest and are encouraged throughout the year to ask questions about plastics, polymers, composites, sustainability, and innovation and to craft an essay answering those questions. This gets them engaged in investigation and critical thinking. Last year we had middle school entries on "Bioplastics and Artificial Limbs," "Using Chemistry to Make Plastics Biodegradable," "Recycling Marine Fishing Nets," and high school entries on "Plastics in a Pandemic – Protecting Lives Every Day," "Pyrolytic Gasification," and "3D Printing on the International Space Station."

There is also a Polymer Science Fair component. This is the standard science fair competition with posters and displays and a chance for students to present on the topic of their choice. Last year we had entries in 3D printing of electric vehicle charging adapters and using bioprinting technology to produce micronutrients to combat malnutrition in Zimbabwe, to name a few.

We encourage industry field trips and participation in SPE conferences. Although we continue to be hampered by the latest COVID surges, 15 Detroit students were able to attend the SPE Automotive Composites Conference and Exhibition in Novi, MI in 2021. They participated in the PlastiVan program, interacted with grad students and their research posters, talked with exhibitors, and attended a panel discussion about careers and the business of composites in the automotive industry.

Young scientists and engineers get the chance to become a researcher at one of Ecotek Science at Work! Labs. This is a year-round extracurricular activity giving students the chance to excel in science and engineering through weekly practice in a lab setting. Many student projects focus on polymeric materials. Through a partnership with Arkema, students in the 8th-12th grades are eligible to apply for an Arkema Young Researcher Award. This $500 research stipend helps students fund project development and teaches them how to manage "grant" funding. Arkema is also funding college scholarships for select students who will be seeking a degree that is beneficial to a plastics career.

Through these activities we now watch young minds FLOURISH. Students who might otherwise never see themselves as scientists or engineers become accustomed to mastering STEM knowledge and then sharing that comprehension through essays, projects and even teaching peers. Observing this has been my greatest delight in this work we're doing.

SPE STEM Club – Modeling polymer chains

In December I had the pleasure of witnessing 7th and 8th grade STEM Club participants teaching their classmates and some high school students what they were learning. Twenty American International Academy students from Inkster, MI worked several tables demonstrating the cool tricks of polymer science and 3D printing. At first, they seemed nervous, but as we all know, teaching is one of the best ways to learn. By the end of the event, they had become experts by fielding questions, coming up with clearer explanations, and sharing their grasp of scientific and engineering principles. It was inspiring to watch. This equal access to STEM educational experiences will help these students lay claim to their abilities and if they so desire, become plastics professionals. We are privileged to partner with the families, schools, and community leaders so we can witness this flourishing of young minds and spirits.

The SPE Foundation has made a 10-year commitment to these programs. Remember – it's an investment strategy. We are currently in Michigan and Florida serving thousands of students and have plans to expand to Texas in 2022. We're capturing data to help us on our journey of continuous improvement and impact. We are also looking for corporate and SPE Chapter partners. That's where **YOU** come in.

To make a difference we need to work together, pooling our resources of time, talent, and dollars. If you would like to learn more about virtual mentoring, judging the "Wonders of Plastics" essay contests, judging the Polymer Science Fair, inviting students to see your lab or shop, becoming a corporate or chapter sponsor of this impactful programming, or you just want to share your ideas about how we can support plastics workforce, please reach out to me directly at **evitale@4spe.org +1 810.814.6412**

Eve Vitale

SPE Foundation Chief Executive

AUTOMOTIVE

COUNCILOR'S REPORT

FALL 2021 COUNCIL MEETING, OCT 1, 2021, LED BY SPE PRESIDENT DR. JASON LYONS MEETING MINUTES BY DR. SURESH SHAH

11:00 AM – 12:00 PM EST, Virtual Meeting

AGENDA

1. Welcome, Antitrust & Conflict of Interest..... Dr. J. Lyons
2. President's Opening Remarks..... Dr. J. Lyons
3. Year in Review..... Dr. J. Lyons
4. SPE Strategic Plan 2021-2022.....B. Mulholland
5. News from HQ ..... P. Farrey
6. Adjournment/Next Meeting ..... Dr. J. Lyons

ATTENDEES:

Dr. Jason Lyons, Bruce Mulholland, Patrick Farrey, Kathy Schacht and 48 other Council members

OPENING REMARKS – DR. JASON LYONS, PRESIDENT OF SPE

- Dr. Lyons presented slides about the current status of our lives with COVID 19 and how everyone has been affected by it. **Global supply chain shortages have had major effect on the entire industry including plastics.**
- **Dr. Lyons recognized passing of Irv Poston a long-time member of SPE Detroit section** who retired as a manager from GM, Honored Service member, A fellow of society and an Emeritus member. **Dr. Lyons read the entire obituary of Mr. Poston and asked for a moment of silence. It was a well-deserved time recognizing a giant of industry and friends to many of us here in the Detroit area. He will be sadly missed but he will always be remembered.**
- Dr. Lyons introduced the 21-22 Executive board members. **https://www.4spe.org/i4a/pages/index.cfm?pageid=3330**
- Dr. Lyons presented one slide on activities completed since June 1, 2021 by all SPE chapters and another slide by activities completed by SPE HQ staff.

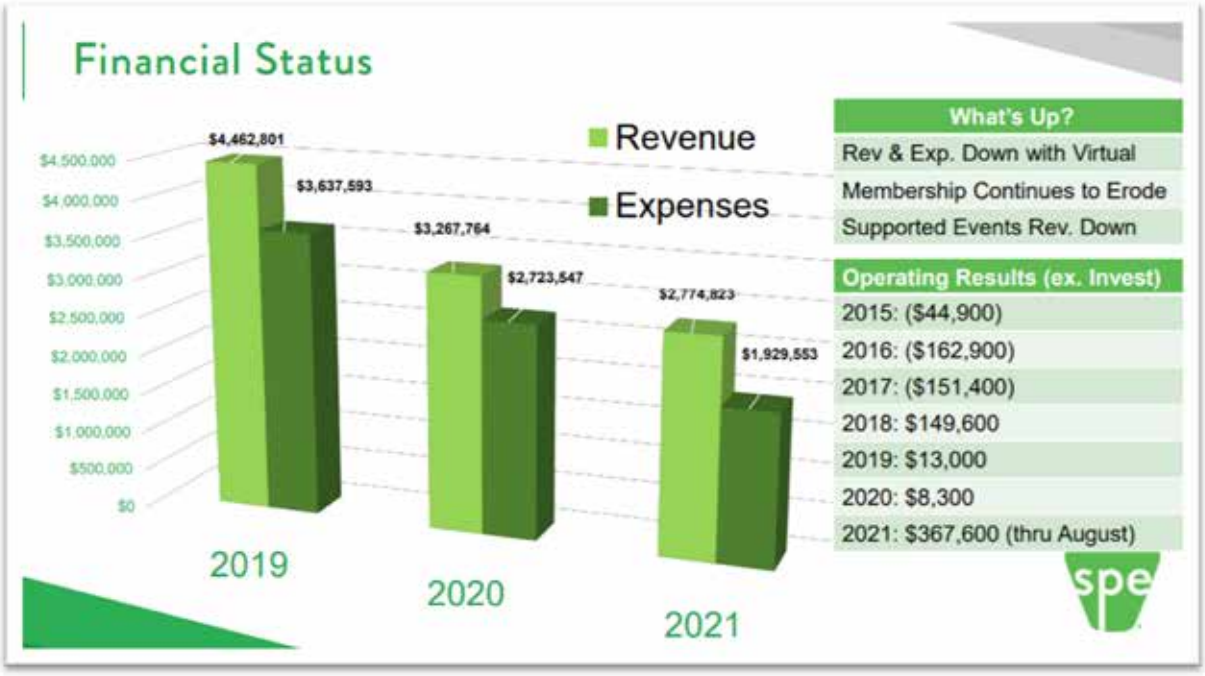
Wow! You've been busy

Date	Event	Chapter
June 1	Non-Halogenated FR Workshop (4 part series)	Non-Halogen FR TIG
June 10	Medical Plastics Virtual Symposium 2021	Medical Plastics
June 25	ASEAN Webinar	ASEAN Section
July 15-16	RACE – Recycling & Circular Economy Conference Asia	Recycling, India
July 20	Applied Rheology Workshop (3 part series)	Applied Rheology
August 10	Medical Plastics to Help Save the World	Medical Plastics
Sept 13-16	SPE Foams® Virtual Conference	Thermoplastic Mat. & Foams
Sept 16-17	SPE Decorating & Coating Division TOPCON and IMDA Symposium	Decorating & Coating
Sept 19-21	CAD RETEC®	Color & Appearance
Sept 20-22	SPE Thermoforming Conference® (hybrid)	Thermoforming
	14!!!!! MORE TO COME	

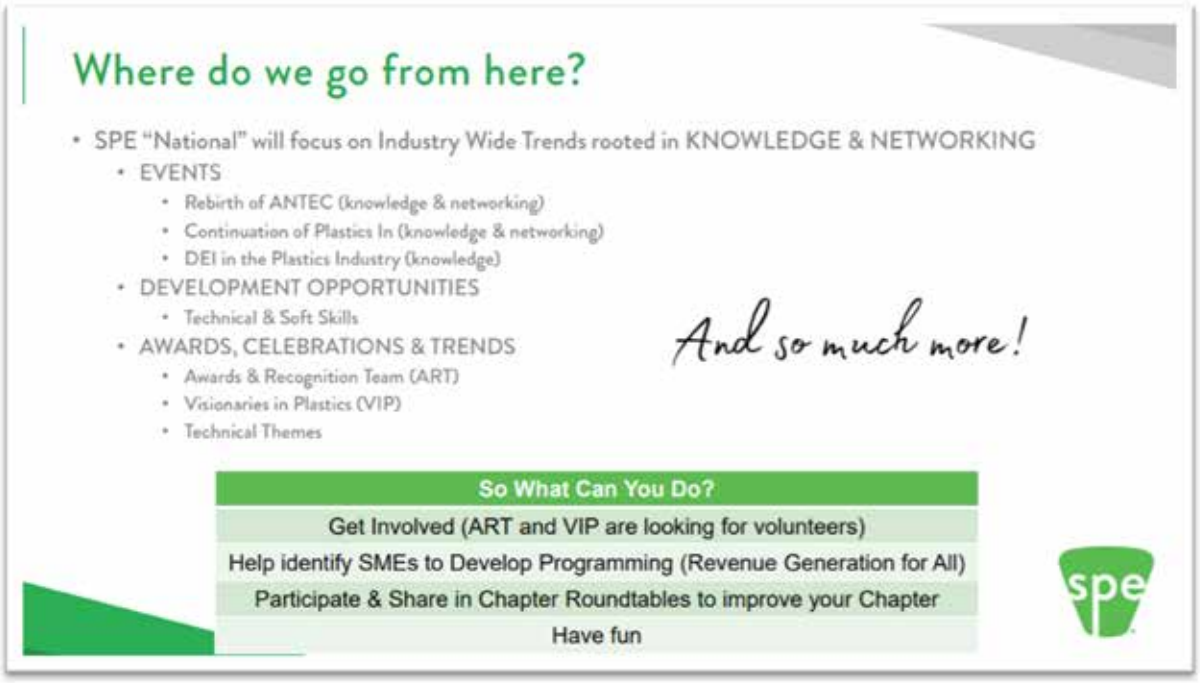
- An update was given on Regional Interest Group (RIG) and Technical Interest Group (TIG)

YEAR IN REVIEW – DR. J. LYONS

- **FINANCIAL STATUS** was presented. Revenue has been down but also the income. **$367,600 operating result thru August.**

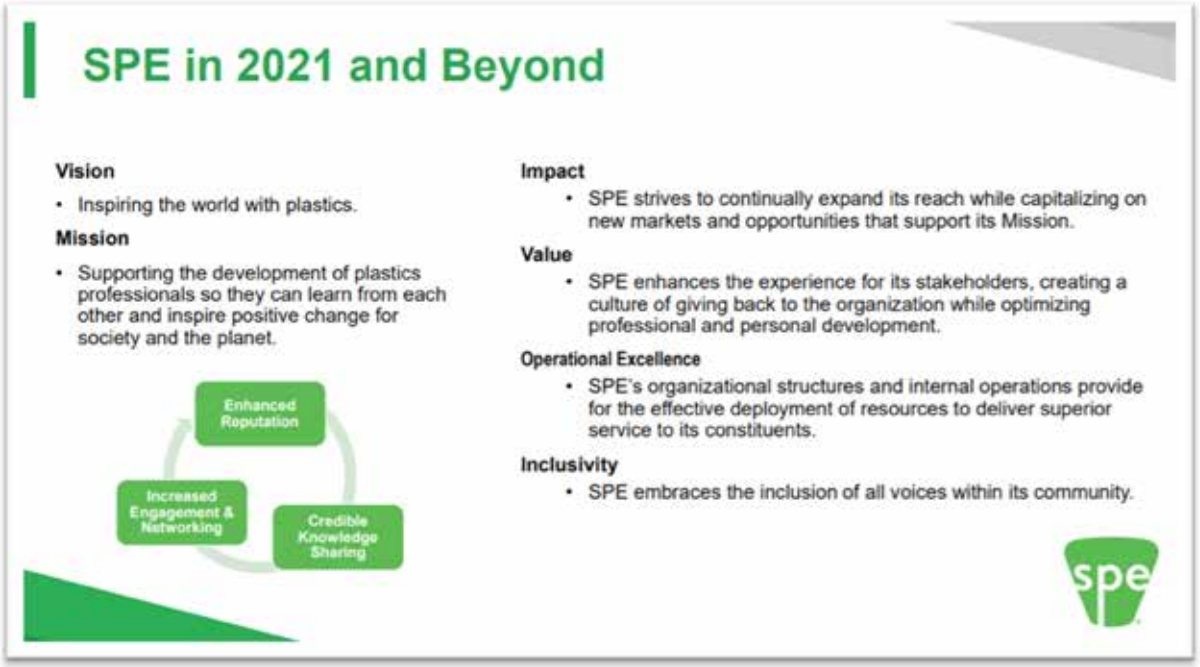


- Next, Dr. Lyons spent few minutes talking about upcoming events, development opportunities, Awards and Recognition Team (ART) and Visionaries in Plastics(VIP), as well as what we as a member can do to make the society better.



SPE STRATEGIC PLAN 2021-2022 – B. MULHOLLAND

- Mr. Bruce Mulholland, the president elect presented few slides on "Strategic Plan for 21-22".



Strategic Goals

Enhanced Reputation

- Become the leading advocate for diversity, equity and inclusion in the plastics industry.
  - Produce extensive new content to support this journey.
- Create a functional leadership development program (soft skills & technical).
  - Prepare individuals for leadership positions within the Society and other external industry roles.
- Create programs to recognize and award certain aspects of stakeholders' engagement.
  - *Plastics for Life*-type competitions (recognition of members' work products, new technologies and innovations.
  - Micro-credential recognition for participation in SPE programs, workshops, etc.
  - Individual and Chapter recognition for service "above and beyond" the ordinary.
- Expand SPE's voice to larger audiences.
  - Examples include SPE leaders as guests on public media, etc.

Strategic Goals

Knowledge Sharing

Develop a more robust "Create, Curate, Connect" knowledge-sharing program.

- Connect: Develop a schedule for thematic "months of knowledge," highlighting, for example, a different division every month (i.e., Thermoforming Month). In these months, existing content will be highlighted, new content will be presented (ANTEC-style presentations, webinars, etc.), *Plastics Engineering* stories will center on the theme, and more.
- Create: Cultivate and grow general knowledge sharing programs by identifying SME's (people and companies) willing to share their information under the SPE brand. This includes both technical and relevant non-technical information (i.e., "soft skills," etc.).
- Curate: Review the model for hosting and retrieving SPE content to improve the visibility, searchability and monetization of that content.

Strategic Goals

Increased Engagement & Networking

- Create more opportunities for stakeholder interactions at live events, and help attendees be able to better optimize their networking experiences.
- Teach stakeholders how to achieve maximum efficacy from our existing tools to create virtual connection opportunities.
- Explore how to better connect stakeholders around non-technical endeavors, through an expanded utilization of SPE Communities and beyond.

NEWS FROM HQ – P. FARREY

- **SPE is hosting ANTEC® 2022 in-person, co-located with PLASTEC® SOUTH in Charlotte, NC, on June 14-15. PLASTEC® SOUTH** is a comprehensive annual plastic design and manufacturing event for plastics professionals, suppliers and buyers to discover innovation, engineer new technology, and to expand their networks. **ANTEC® 2022** will also include an online component.

  > **ANTEC® 2022 Agenda**
  > **Day 1 (June 14, 2022)**
  > 8:00 am – 12:00 pm: SPE Meetings
  > 1:00 – 5:00 pm: ANTEC® Sessions
  > 5:00 pm: Evening Networking Events
  >
  > **Day 2 (June 15, 2022)**
  > 8:00 am – 12:00 pm: ANTEC® Sessions
  > 12:00 – 1:30 pm: SPE Networking, Honors & Awards Presentations
  > 1:30 – 5:00 pm: ANTEC® Sessions
  > 5:00 pm: SPE Chapter Networking Events

- SPE commitment to Diversity, Equity and Inclusiveness (DEI). Chapter round table on this topic. DEI advisory board was formed and 4 regional events on DEI.
- **SPE decided to close the HQ office** which was opened in 2019. COVID-19 has changed our work location. SPE HQ staff were working mostly from home and it was decide to end the lease on the location and staff to continue working from home. **This will save an approximate $150K annually.**
- Pat emphasized to all, to use the "SPE Communities".

Meeting was adjourned at 12:00 PM.

AUTOMOTIVE

SECRETARY'S REPORT

SPE AUTOMOTIVE DIVISION
VIRTUAL BOARD MEETING MINUTES, DECEMBER 6, 2021
BY STEVE VANLOOZEN

- Meeting initiated with the introduction of three new members. David Tucker, Akshay Trivedi, and Leonardo Simon were welcomed to the Automotive Division Board.
- Announcement that the ACC Auto Center in Troy is officially re-opened to visitors. Use of the Auto Center conference room is limited to 50% capacity and reservations for meetings must be made and approved in advance.
- The 2021 SPE ACCE was a success. People were happy to be out networking in-person again. The event featured 60 Technical Presentations, 35 Student Posters, 52 Sponsors, 3 Keynotes, 1 Panel, 450 Registered Attendees. Fifteen middle and high school students from Ecotek Lab Detroit attended the event impressing the Automotive Divisions commitment to youth STEM programs.
- Chuck Jarrett provided report on the primary function of SPE, Education. Description of the events to be sponsored in 2022 based on the Automotive Divisions nearly fifty-thousand-dollar budget dedicated to education. Celebrated the thirty-thousand-dollar contribution to the Ecotek Lab in Detroit announced by Celanese at the IAG.
- The SPE Annual Technical Conference (ANTEC) will be June 14 and 15, 2022 in Charlotte, NC and will be both in-person and on-line. The event will be co-located with PLASTEC South, a plastic design and manufacturing event for plastics professionals, suppliers and buyers to discover innovation, engineer new technology, and to expand their networks.
- Jeff Helms reported on 50th Anniversary IAG. The event drew over 500 attendees and there was very positive feedback regarding having the event in-person. There were no reported Covid outbreaks associated with either round of judging or the event on November 10. Jeff requested help expanding the blue-ribbon judge list for 2022 with other industry veterans (retired or consultants), national lab, university profs, etc.
- Bonnie Bennyhoff shared Automotive Divisions Financials thus far for the 2021-2022 fiscal year. Net Revenue for the Division has dropped over $45K versus last report in October. Fluctuations are normal given the nature of inflows and outflows created by SPE events. The projection for the 2021 ACCE event suggests that the event will provide roughly $11K in income to be split evenly with the Composites Division.
- Updated Automotive Division website has continued to get good visibility with roughly 2,000 visitors in both October and November.
- Automotive Division Membership has been steadily improving. We are back to over one-thousand members with 213 members added so far in 2021.
- Announcement of 2022 Plastics in Electric and Autonomous Vehicles Conference scheduled for May 4 & 5, 2022 at the Troy Marriot. Over 32 committee members have joined to help with the conference. Conference committee will be meeting every two weeks. Call for presentations is out, and session chairs have been identified.
- Board implored to investigate purchasing equipment for schools and help facilitate a curriculum to go with the Schoolcraft College plastic technology program by Armando Sardanopoli. It was agreed to consider when financial conditions improve.
- Next meeting: April 18, 2022, 5:30-7:30 PM.

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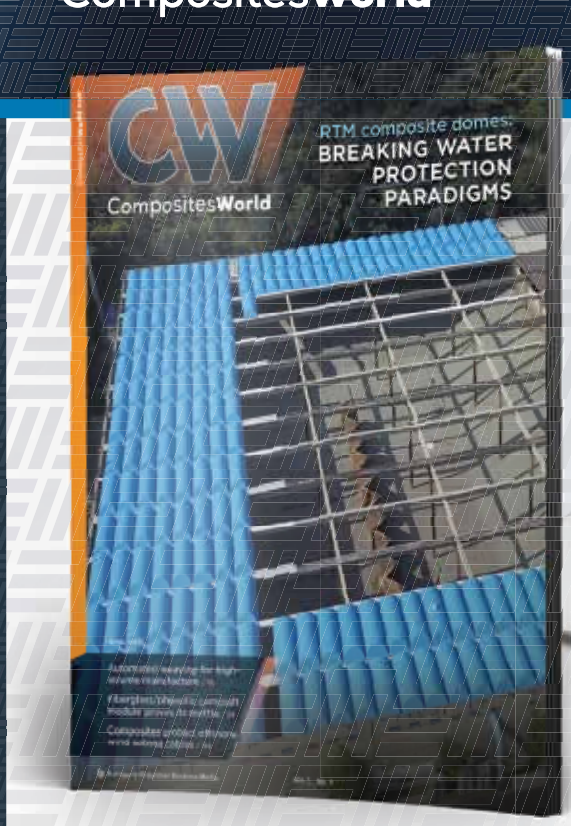

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