



TRENDS & TOPICS

DETROIT SECTION - SPE INSPIRING PLASTICS PROFESSIONALS - "THE CHARTER CHAPTER"
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THE FUTURE OF PLASTICS SUPPORTED BY DETROIT SPE



DELTA POLYMER SCHOLARSHIP
AWARD, CARTER DORAN



REGINALD BELL SCHOLARSHIP
AWARD, TANASHKI FRATER

OUR TOP SCHOLARS FOR 2021



FUTURE LEADER SCHOLARSHIP
AWARD, KHARI GRAY



WOMEN TO WATCH SCHOLARSHIP
AWARD, ASHLEY WISDOM

INSIDE: READ MORE ABOUT OUR SCHOLARS ON PAGE 4



PRESIDENT'S MESSAGE

DAVID A. OKONSKI, GENERAL MOTORS RESEARCH & DVLP. CENTER



This past January marked the two-year anniversary of the first reported case of the coronavirus in the United States. I don't believe that there is any citizen of our great country who would not be willing to travel back in time to Wuhan China on January 15th, 2020 and somehow prevent all passengers from boarding that plane headed to our West Coast. If only those passengers were quarantined instead of allowed to fly, then just maybe we would have been spared the fear, isolation, and some of the political divisiveness of the last two years. Unfortunately, we cannot change the past, and hindsight is really only useful to create the "lessons learned" that can make us smarter for the next pandemic – maybe that is wishful thinking as well. Like the rest of you, the Detroit Section has had to make lemonade from all the lemons thrown at us the last two years; we've had to be flexible and agile in order to meet our mission of educating plastics professionals and promoting growth of the industry in our region of influence.

The Detroit Section canceled the 2020 TPO Conference as well as both the 2020 and 2021 AutoEPCON Conferences due to the pandemic. We planned a hybrid (live + virtual) 2021 TPO Conference but converted the event to entirely virtual because of the rising number of COVID cases and looming gathering limits being imposed by the State of Michigan. The virtual conference attracted 518 attendees and had 33 sponsors & exhibitors that

were able to create virtual display booths with the help of the virtual platform provider CVENT. The conference was a great success, and I commend the organizing committee as well as the Conference Chairs for a job well done. Our next offering is the 2022 AutoEPCON Conference which will be a live event scheduled for May 3rd; I sincerely hope that all of our membership will continue to support this longstanding conference as the organizing committee is working hard to provide relevant technical content and networking opportunities.

Despite having fewer conferences and little income, the Education Committee was able to maintain pre-pandemic spending levels for scholarships and PlastiVan visits in 2021. This was only possible due to the foresight of previous Detroit Section Boards to create a "rainy-day fund" for the purpose of getting us through crisis situations. The one constant through all the fiscal years has been a pretty savvy Treasurer who has been an incredible steward of our monies. It is now the job of the current Board to maintain that rainy-day fund and fulfill our mission by getting back to the business of creating value through live conferencing, parts competitions, material auctions, mentoring, technical dinner meetings, golf outings, and all that other stuff we do because we want to and can.

Best Wishes for 2022,
D. A. Okonski
SPE Detroit Section President

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CALL FOR PAPERS

The 2022 Auto EPCON Conference is looking for presentations on engineering plastic materials for the following topics:

- **Light weighting materials**
- **Sustainable material solutions**
- **Solutions for Electrification technologies including -batteries, motors, e- drives, electronic control units, and fuel cell vehicles.**
- **Additive Manufacturing**
- **Metal replacement**
- **New materials**
- **CAE/FEA analysis techniques**
- **Materials designed for improved NVH**

ABSTRACT SUBMISSION DATE: APRIL 1, 2022

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REGISTRATION IS NOW OPEN

The SPE Detroit Section and the SPE Injection Molding Division are pleased to announce the 2022 Automotive Engineering Plastics Conference and Exhibition (Auto EPCON) will be held on **MAY 3, 2022**, at the Detroit Marriott Troy, located in Troy Michigan.

Please join us to meet, network, and learn with influential engineers and scientists involved in specifying, designing, and recommending engineering plastics.

REGISTER NOW



2021-2022 SPE DETROIT SCHOLARSHIP WINNERS

DELTA POLYMER SCHOLARSHIP AWARD, CARTER DORAN



Carter Doran is a junior at Ferris State University (FSU) majoring in Plastics & Polymer Engineering Technology. He is active in the SPE student chapter at Ferris State.

Carter has experience in the plastics industry at FSU and his internship at Agape Plastics Inc. The experience helped to open his eyes to the diversity of plastic processes. At FSU, Carter helped the Technical Vice President with planning various activities and designing a thermoforming mold to make the top for an RC car for the SPE Thermoforming Division RC Car competition. Carter is interested in becoming a processing engineer and helping to further develop and improve the plastics industry.

FUTURE LEADER SCHOLARSHIP AWARD, KHARI GRAY



Khari Gray graduated with a mechanical engineering degree from Kettering University and is pursuing his graduate degree at Kettering. He enjoys 3D printing and co-oped for Tesla at their factory in Fremont, California. Khari saw firsthand how Tesla

makes their plastic components for their model 3, S and X vehicles. He feels the plastics industry could be fun and even profitable as a hobby: making things out of plastics. One day, he wants to own a 3D printer and bring things he has modeled to life with manufacturing skills gained from industrial engineering.

REGINALD BELL SCHOLARSHIP AWARD, TANASHKI FRATER



Tanashki Frater is a senior at Kettering University majoring in Industrial Engineering. She is active in the SPE student chapter at Kettering.

Tanashki aspires to generate a cleaner and healthier atmosphere for sustaining life while advancing and improving the recycling process. She learned 3D printing and used it to design toys for children in need. She sees a future where plastics will continue to be vital and intends to explore conference opportunities that exist in SPE to further her knowledge of the industry to create a better tomorrow. The applications of plastics are many but with 3D printing she sees a world where anything you want is in the hands of the maker.

WOMEN TO WATCH SCHOLARSHIP AWARD, ASHLEY WISDOM



Ashley is a senior at Kettering University majoring in Chemical Engineering. She is passionate about the environmental issue of the disposal of plastic materials and hopes to devote her career addressing the negative environmental issues some plastics impose on the planet. She desires to put more research into biodegradable alternatives that can be implemented in packaging.

OTHER SCHOLARS INCLUDED:

NOLAN HOUGHTELING,

Senior at Michigan State University in Mechanical Engineering

CHELSEA WRIGHT,

Senior at Kettering University in Industrial Engineering

CHELSEA WALTERS,

Senior at Kettering University in Industrial Engineering

KIMBERLY BETTE,

Sophomore at Kettering University in Mechanical Engineering

TANISHA FRANCIS,

Sophomore at Kettering University in Computer Science

TAVEL NELSON,

Sophomore at Kettering University in Mechanical Engineering and Applied Math



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THE PLASTICS SHOW



CHAPTER AWARDS

EVE VITALE, SPE FOUNDATION CHIEF EXECUTIVE
FANG WANG, SUN CHEMICAL

EVE VITALE VOTED SPE DETROIT CHAPTER OUTSTANDING MEMBER FOR 2021



Eve Vitale was voted the SPE Detroit Chapter Outstanding Member for 2021. She served as President of SPE Detroit in 2018-2019 and has also been the newsletter editor since 2015.

Eve currently is the Chief Executive of the SPE Foundation and previously worked with her husband, Mark Richardson at Series One LLC, an engineering consulting firm specializing in recycling and sustainability.

At the SPE Foundation, Eve's focus on scholarships and grants has encouraged many young people to enter the plastics-industry workforce. Her efforts to expand the PlastiVan® program continue to 'change the perception of plastics one classroom at a time.' Thanks to the generosity of Detroit SPE, in January 2021 the PlastiVideo™ program was launched to bring PlastiVan® program to a wider audience including home-schooled students. By March of 2021 PlastiVideo™ reached over 1,000 students in Detroit. It has now reached beyond classrooms in the US to classrooms in Africa.

Her leadership on SPE's new diversity, equity and inclusion programs is leading SPE towards a more representative Society and industry.

Eve holds a BSME from Oakland University and a MSE with a concentration in manufacturing from Kettering University.

FANG WANG, PHD IS RECIPIENT OF THE SPE DETROIT CHAPTER STAR AWARD & FIRST VP



Fang Wang, PhD is recipient of the SPE Detroit Chapter Star Award. She currently is First VP.

Fang Wang is a Business Development Manager of Pigments for Plastics, Colors Materials at Sun Chemical in Southfield, Michigan.

She was born in China and came to the US to attend Wayne State University in Detroit, graduating with a Ph.D. in Chemistry in December 1997.

Fang began her career with BASF in the Automotive Coatings Resin Group in Southfield, MI in May 1997. Over the years, she has worked in the polymer, pigments, and compounding businesses in R&D, operation, CapEx, quality, sourcing, tech service and marketing functions at Honeywell, Shaw Inc., INVISTA, ACT, and Sun Chemical. These led her to live in NC, SC, GA, DE, TN, and MI and to work with people from varied backgrounds. The experience gave her an appreciation for diverse perspectives and our collective strength which shows every day in her work for SPE. She also has served on American Chemical Society local chapters and SPE Color & Appearance Division.

NETWORKING EDUCATION PLASTICS



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4SPE.ORG/ANTEC



WONDERS OF PLASTICS ESSAY CONTEST

In May 2021 Detroit SPE President, Laura Shereda, and Educational Chair, Sandra McClelland awarded checks to the Southern Area winners of the “Wonders of Plastics” essay contest at TechTown on Wayne State University’s campus. Thanks to the partnership with Keith Young from Ecotek Science at Work Lab and the SPE Foundation, the contest had over 100 entries, a record number.

SOUTHERN AREA WINNERS 8TH - 12TH GRADE

1ST - ABBY SEYBERT, South Lyon HS
Plastics in a Pandemic: Protecting Lives Every Day

2ND - JOVAUGHN DEFORREST, Robichaud HS
The Future of 3D Printing in Additive Manufacturing

3RD - DRUE KEYS, Ecotek Lab
Plastics Lightweighting in Autonomous Vehicles

4TH - ALEXANDER GRAHAM, Ecotek Lab
3D Printing on the International Space Station

5TH - LAYLA WHEELER, University Prep Science and Math HS
*Increased Disposability of Masks During COVID19 Pandemic
Can Reduce Landfill Waste and Environmental Pollution*

6TH - CHLOE DUNCAN, Detroit Edison PSA
Plastics Usefulness in Society

SOUTHERN AREA WINNERS 4TH - 7TH GRADE

1ST - AYANA CHAUVIN, Detroit Edison PSA
Wonders of Plastic: Plastics in the Medical Field

2ND - ANECIA SHANKS, Ecotek Lab
Strategies for Recycling Marine Fishing Nets

3RD - AYOMIDE KEMP-HARRIS, Detroit Edison PSA
Creative Uses of Recycled Plastic: The Second Life of Plastics

4TH - JAMEL BRYSON, Detroit Edison PSA
Ubiquitous Plastics - Where Exactly are They?

5TH - LUNDYN LEWIS, Detroit Edison PSA
Plastics Can Help

6TH - DARELL CAMPBELL, Detroit Edison PSA
Plastics Effects on Marine Life and Human Health



Abby Seybert, South Lyon HS, receives 1st Place Southern Area Award from Laura Shereda.

NORTHERN AREA WINNERS

1ST – LOGAN TRAXLER, Freeland HS
Plastics in Modern Warfare

2ND – BRANDON FRITZ, Freeland HS
Plastics: Advancing the Final Frontier

3RD – JACK QUACKENBUSH, Freeland HS
*Plastics: The Unsung Hero in the Fight Against
Coronavirus-19*

4TH – ISABELLA DEY, Freeland HS
Biodegradable Plastics: The Future is Now

5TH – CONNOR MCBRIDE, Dow HS
How Plastics Benefit Humankind



Ayana Chauvin, Detroit Edison PSA, receives 1st Place HS Southern Area Award, pictured here with her mother.



JoVaughn De Forrest, Robichaud HS, receives 2nd Place HS Southern Area Award from Laura Shereda.



Layla Wheeler, University Prep Science and Math HS, receives 5th Place HS Southern Area Award, pictured here with her mother.



Drue Keys, Ecotek Lab, receives 3rd Place HS Southern Area Award from Laura Shereda.



Anecia Shanks, Ecotek Lab, receives 2nd Place Middle School Southern Area Award, pictured here with her mother.



Alexander Graham, Ecotek Lab, receives 4th Place HS Southern Area Award, pictured here with his father.



Ayomide Kemp-Harris, Detroit Edison PSA, receives 3rd Place Middle School Southern Area Award from Laura Shereda and Sandra McClelland.



Lundyn Lewis, Detroit Edison PSA, receives 5th Place Middle School Southern Area Award, pictured here with her father.



Mr. Keith Young, Ecotek Science at Work Lab

1ST PLACE NORTHERN AREA – LOGAN TRAXLER

Plastics in Modern Warfare

The United States has the largest military in the world with over three million personnel, 4,800 defense sites staged on seven continents, and an annual budget of over \$700 billion. This advanced, coordinated network has been fine-tuned to run like a well-oiled machine, but there is always room for improvement: specifically, the impact plastics have in modern warfare.

The science of plastics remains relatively new when compared to other fields of research yet can be utilized in ways few people could ever imagine. The ability to mold polymers into different shapes, sizes, and colors completely revolutionized the art of war. Plastics have improved massive machines such as the B-29 Superfortress back in 1942, but they also made meals easier to preserve and distribute through the use of MREs in the late 1970s. Whether they are for big machinery or small packaging, plastics have the requirements covered.

For starters, the aviation industry has greatly benefited from the incorporation of plastics into aircraft of all sorts. ABS side panels and acrylic/polycarbonate plastic seals have served to overhaul modern airliners, but high-tech military planes can hypothetically take matters a step further. Not only can the jets be designed to push the barrier of modern innovation, but the weapons can be as well. The GP (general purpose) bombs used by the United States are 4 models ranging in size from 250lbs to 2000lbs and are 37% and 46% explosive by weight, respectively. If a bomb were to be made from polycarbonate instead of cast iron, each ordnance would weigh a mere fraction of its original weight. These technological advances can help protect the United States in times of conflict, all while preserving the original weight constraints and capacity of a bomber-style aircraft. Modern bombs have yet to be improved since the Gulf War, but propellers have been receiving design upgrades since the first composite ones were made in 1944 by Hartzell Propellers. Modern versions of the composite propeller help to reduce the weight significantly when compared to aluminum designs and reduces cockpit noise and aircraft vibration. Less weight and fewer disruptions to aircraft result in more range, allowing for flights to travel

further to reach their destinations, whether it be a short hop over to another airbase or a long-distance stealth mission to get a sound observation as to what an enemy may be planning. Of course, several more parts in the average airplane can still be redesigned and improved upon. Weapons are only the tip of the revolutionary plastics iceberg. With aerial combat being redesigned, development can now take place in other areas.

Ground control is one of the most important resources in combat. It's how troops get placed into position, how resources are distributed across the front lines, and how an army can twist the fate of battle based on a prime location. Not only has the world seen IEDs and Claymore mines for anti-personnel defense, but also witnessed near unstoppable tanks to guard the front lines and tank-busting Javelin missiles for an added countermeasure. Some of these vehicles even have reactive armor to take their defenses a step further, which involves a plastic explosives "sandwich" between two metal plates. If an anti-tank missile hits, it can be neutralized with minimal damage to the tank. Busting through an enemy defense can be challenging, but there is certainly a solution: innovative anti-tank mines. A small, remotely operated vehicle packed with plastic explosives like C4 can eliminate virtually all risk of an allied soldier becoming injured and allows for the operator to control when and where the weapon goes off to ensure no one on the United States' side is put in a bad situation. However, major engineering would need to happen to reduce the cost and risk of each mobile mine, likely by considering options such as the range of the device, construction materials, and what kind of explosive. A durable plastic housing (polycarbonate or high-density polyethylene) could allow for an inexpensive yet sturdy shell to protect the important equipment, and soft plastic (acrylic or polypropylene) may serve as wheels with a robust grip and built-in suspension to further decrease part count, weight, and cost. Another valuable commodity in ground troops are consumables such as food and medical supplies. With the invention of MREs, troops can be stationed away from bases for days at a time, all thanks to a meal sealed in a plastic bag.

Keeping calories preserved in an airtight container that isn't bulky helps keep supplies high without needing to do much waste management. Spoiling is also no longer an issue since nothing will go to waste when it's rationed out. Vacuum sealing plastic bags also provide a strong container to avoid accidental punctures or leakage from products.

Plastics are consistently reforming our national security, making the preservation of the United States ever easier. Their versatile nature has helped bring about several modern advancements from silverware to storage bins. The military is no exception, and the evidence speaks for itself. Plastics in warfare deliver bigger and lighter payloads, help to preserve food and other materials, and can assist in winning battles when used properly. Plastics are the next game-changing tool, and the most advanced military in the world should be willing to delve more into the capabilities a little polymer holds.

Logan Traxler Works Cited

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- April 11-12, 2022
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- June 13-14, 2022
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- November 2022 (TBD)
Minneapolis, MN

1ST PLACE SOUTHERN AREA – HIGH SCHOOL DIVISION

ABBY SEYBERT,

Plastics in a Pandemic: Protecting Lives Every Day

For the past year, the world has gone through many changes due to the Coronavirus Pandemic. Millions of healthcare and essential workers have put their own lives on the line to keep society functioning. Civilians have adapted to new but necessary lifestyle changes to prevent the spread of COVID-19. However, society's actions can only go so far without proper safety measures. Plastic has been crucial in the protection, prevention, and development of the virus. This material's role in personal protective equipment, testing kits, and vaccines has protected lives every day in the COVID-19 pandemic, outweighing any potential costs.

Many people have seen or heard about the N95 masks being the best for reducing COVID-19 transmission, but what exactly makes them so protective? The answer lies in the construction and properties of the plastic inside. N95 masks are made from the plastics polypropylene and polyester, which make up the four layers of the mask. Polyester's durability and chemical resistance are important in the structure of the mask itself while polypropylene serves as a lightweight, breathable filter ("The best material for protective...", 2020). The combination of different plastics is why N95 masks have a 95% filtration rate, hence the name. This plastic protection is important for healthcare workers who interact with COVID-19 patients every day, and it allows them to still care for the people who need it most.

In addition to the well-known N95 mask, plastic also has useful properties in face shields, gowns, and gloves. Acrylic sheets, a form of plastic, are the primary material in face-shields. When medical workers are working with patients, they must be able to see their environment and be protected from particles emitted when speaking to others. Acrylic has this necessary transparent property as well as being antimicrobial, flexible, and cost-effective ("Best clear plastic materials," 2020). While the facial area poses the highest risk for infection, the body must be covered as well. Surgical gowns protect workers from outside fluids that could potentially infect them. Plastic is considered the best material since it is synthetic, and these types of materials work better at blocking other fluids ("How

to evaluate and select...", 2021). As a result, most healthcare workers wear plastic from head to toe to prevent contraction of Coronavirus and other diseases.

Outside of the hospital, testing kits are responsible for tracking the virus and determining resource distribution. Unsurprisingly, the kits are plastic. This is because plastic eliminates any chance of cross-contamination or biological risks (Celis, et al., 2020). The other significant benefit is the cost of these plastic tests. To track the virus, it is necessary to track who is infected. There are hundreds of thousands tested daily, which does not come cheap. Therefore, plastic has the benefit of being the most cost-effective material in addition to hygienic. Governments can then continue to track the virus, and hospitals in higher-risk areas can receive more support.

Another increasingly important aspect of the pandemic is the vaccine. Pfizer, one of the companies that invented one vaccine, has its distribution plant in Michigan's very own Kalamazoo. However, it is meaningless with no ability to transport it. Pfizer requires a -70 degrees Celsius storage container, which initially was an issue. Styrofoam, another type of plastic, resolved the problem. The vaccine itself is in glass vials, but the Styrofoam surrounding them keeps them insulated. This unique plastic has strong insulating properties and is lightweight and easily shaped (Seaholm, 2020). In the words of Houston Mills, "Every package is a person we always say, and in this instance, the lifesaving vaccine can make a difference in someone's life" (Seaholm, 2020).

Even though plastic has been vital throughout the entire pandemic, many critics are concerned about the environmental impact. Many people wanted Styrofoam banned before COVID-19, and there has been a significant increase in single-use plastics with personal protective equipment and testing kits. In reality, the majority of single-use waste comes from improper disposal of the material (Danielli Bastos de Sousa, 2020). For example, individuals often drop gloves and masks on the ground outside, which leads to accumulation in waterways. This issue can easily be fixed if people dispose of their protective gear properly, which will significantly reduce the amount of

plastic waste found in nature. As for Styrofoam, it accounts for less than one percent of municipal waste by weight (Friend, 2005). Therefore, the life-saving properties that Styrofoam can provide are far more important than the environmental effects. Vaccine distribution for the Pfizer vaccine would not be possible without this plastic, and it is protecting lives around the world every day.

The COVID-19 pandemic has undoubtedly caused many challenges, but plastic has been the primary defender for frontline medical staff and has been crucial for ending the virus once and for all. Plastic's versatility and properties are truly an innovative invention that protects lives every day. Without the plastic in personal protective equipment, healthcare and essential workers would be far more susceptible to this virus, putting our whole healthcare system at risk. Additionally, plastic has paved the way for Pfizer's vaccine, which has already started distribution throughout the United States. The environmental drawbacks are minuscule compared to the millions of people protected every day with this material. While the pandemic still carries a lot of uncertainty, it is certain that plastic will continue to protect many people's lives in the future.

Abbey Seybert Works Cited

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1ST PLACE SOUTHERN AREA – MIDDLE SCHOOL DIVISION

AYANA CHAUVIN,

Plastics in the Medical Field

INTRODUCTION

Plastic is something that we use every day, even without noticing. Over the course of many years, plastic has had a drastic impact on humans, the environment, society, and the world as a whole. Each and every day, new scientific advancements are made that allow us to truly see the wonders of plastic. Plastic even saves lives. Oftentimes, the use of plastic in the medical field is often looked over, but it helps to save millions of patients and also helps to keep health care professionals safe. Without the use of plastic healthcare, many hospitals and medical institutions would not be able to run. That is why while considering the many wonders of plastic, we should recognize how important it is in the medical field.

PLASTIC IN HEALTHCARE

There are many ways in which plastic has helped to save the lives of many. To start, the use of plastic in the medical field is so efficient because it is cheap and also makes healthcare simpler and less painful. According to Craft Tech Industries, “Traditionally, metals, glass and ceramics were used for medical implants, devices and supports. However, polymers are better suited to these applications as they offer lighter weight, better biocompatibility and lower cost.” The main type of plastic used in healthcare is polyvinyl chloride, or PVC. Other plastics used include polypropylene (PP), polyethylene (PE), polystyrene (PS), and polyethylene terephthalate (PET). PVC is so useful due to its sterility, as it’s used to create tools that don’t hold or collect bacteria. The metal instruments that were once used in the medical field were prone to collecting bacteria, and also prone to wear and tear. The use of plastic in medical care helps hospitals to save money and save lives.

As far as the specific uses of plastic in the healthcare field, there are almost too many to name. According to Medical Product Outsourcing, plastic is used in the medical field for tools such as surgical gloves, syringes, insulin pens, IV tubes, catheters, tube fittings, plastic cups and pitchers, eye patches, inflatable splints, inhalation masks, disposable gowns, wipes, droppers, and urine

containers. Because almost all these items are disposable, it helps to keep patients and doctors safe, as plastic items that are contaminated can easily be thrown away and replaced. Plastic is also used to create medical tools that keep patients safer and more comfortable. These include tamper proof caps on medical packaging, blister packs, waste disposal bags. Most plastics used for medical purposes are shatter-proof and hypoallergenic.

More recently, plastic has been used in healthcare to specifically help improve the lives of patients, especially in the area of prosthetics. Whereas metal was previously used to create prosthetics, researchers and healthcare professionals have found ways to use plastic to create them. According to Craft Tech Industries, the 3D printing of plastic prosthetics has been especially useful for children who may constantly need different sized prosthetic devices as they grow. Researchers have even found ways to create prosthetics from recycled water bottles, which saves lives and the environment, according to the World Economic Forum. Plastic is also used in many surgical procedures, as far as the use of plastic for bone and hip replacements. It has also been known to be used to help those with severely impaired hearing, as now plastic implants can be inserted that allow them to hear again.

With all the uses of plastic in the medical field, it is also important that we consider the effect that all this plastic use has on the environment. However, many hospitals have already considered this. According to This Is Plastics, the Healthcare Plastics Recycling Council promotes the recycling of plastic in hospitals. Their main guide, HospiCycle, was developed “to help hospitals successfully integrate recycling practices into a patient care setting, and better understand the economic, regulatory, resourcing and infrastructure nuances that come with it.” After a while, if hospitals follow the step-by-step approach, they will have a plastic recycling program that benefits the hospital, its patients, and the environment.

CONCLUSION

Although we don't often notice it, there are numerous wonders of plastic, including its use in the field of medicine and healthcare. Plastic, specifically PVC, has been used in healthcare for over 50 years to help save many patients and protect health care professionals. In this current day, we see the ever-present need for plastic in the medical field, as face shields are used by doctors to prevent them from catching and spreading infectious diseases. Plastic is essential in the field of health care, as it helps to keep millions healthy and safe. The area of medicine truly shines the light on the wonders of plastic and will continue to do so for many years to come.

Ayana Chauvin Works Cited

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2021 SPE Detroit Section Scholarship Report

	Michaela Gibson \$2,500 <i>Robert G. Dailey Scholar</i>
	Elizabeth DeFazio \$2,500 <i>Norm Kakarala Scholar</i>
	Aparna Agrawal \$2,500 <i>Irv Poston Scholar</i>
	Brooke Lenhardt \$2,500 <i>Thomas E. Powers Scholar</i>

Dear SPE Detroit Section,

The SPE Foundation is pleased to share a report of the 2021 SPE Detroit Section Scholarships, including the Robert G. Dailey, Norm Kakarala, Irv Poston, and Thomas E. Powers Scholarships. Thank you for your support of some of our industry's most outstanding scholars. Together, we awarded 83 scholarships to 50 individuals totaling nearly \$200,000. We invite you to view the entire list of our 2021 scholars at www.4spe.org/scholarships.

As we continue through the pandemic, students still face mounting challenges, and your support is especially generous and timely.

Thank you for making a difference for Michaela, Elizabeth, Aparna, and Brooke. We are grateful for your investment and commitment to our future plastics professionals and hope you enjoy reading about their interest in plastics and future career plans.

Sincerely,

Eve Vitale, Chief Executive
SPE Foundation



Past SPE Detroit Section Scholars

2020 \$10,000	Alessandro Perego <i>Irv Poston Scholar</i>
	Sophia Hagans <i>Norm Kakarala Scholar</i>
	Justin Salyers <i>Thomas E. Powers Scholar</i>
	Kizazeal Forsyth <i>Robert G. Dailey Scholar</i>
2019 \$10,000	Elizabeth DeFazio <i>Norm Kakarala Scholar</i>
	Jordan Howell <i>Robert G. Dailey Scholar</i>
	Laryssa Meyer <i>Thomas E. Powers Scholar</i>
2018 \$7,500	Erik Stitt <i>Irv Poston Scholar</i>
	Demetri Blackwood <i>Norm Kakarala Scholar</i>
	Nicholas Post <i>Robert G. Dailey Scholar</i>
	Erik Steinmetz <i>Thomas E. Powers Scholar</i>

2017 \$9,000	Andrew Puck <i>Norm Kakarala Scholar</i>
	Nicholas Moore <i>Robert G. Dailey Scholar</i>
	Erik Steinmetz <i>Thomas E. Powers Scholar</i>
2016 \$9,000	Andrew Puck <i>Robert G. Dailey Scholar</i>
	Christina Sheng <i>Thomas E. Powers Scholar</i>
	William Miller <i>Norm Kakarala Scholar</i>

\$55,500
2016-2021
Total Detroit Section Awards



MICHAELA GIBSON

2021 Detroit Section Robert G. Dailey Scholar
\$2,500

"I am honored to be selected as a recipient of the SPE Foundation Detroit Section Robert G. Dailey Scholarship. Thank you for your support and dedication to helping packaging students further their education. As a Packaging Science major at Clemson University, I cannot tell you how much it means to me to see so many individuals and companies graciously support the future of packaging! Going into the last semester of my undergraduate studies with a smaller financial burden will allow me to better focus on my course work and get a jump start on my research for my master's degree. I also hope to be able to attend, possibly in person this year, industry events such as Pack Expo and ANTEC. Thank you again for committing to the future of packaging. Seeing so many people come together to make this scholarship a reality makes me even more excited for a career in the packaging industry!"

Michaela Gibson is a combined Bachelor's/Master's Packaging Science major at Clemson University. She will graduate with her Bachelors in December 2021 and will remain at Clemson University to continue working on her Masters. Throughout her undergraduate career, Michaela has focused her studies on flexible packaging and has worked as a student research assistant at one of the on-campus labs. She plans to concentrate her future research on improving the mechanical properties of biodegradable films used for packaging. Outside of school Michaela enjoys spending time outdoors, preferably at the lake or hiking trail.



ELIZABETH DEFAZIO

2021 Detroit Section Norm Kakarala Scholar
\$2,500

"Thank you, SPE Detroit Section! I have been attending Rutgers University for the last year, and I am currently a senior. The award that I was given has lifted an enormous burden from my shoulders. I have always wanted to go to graduate school, and this dream feels a bit more attainable with each scholarship I receive. Lessening the amount of my student loans gives me more flexibility to pursue a higher degree upon completion of my bachelor's. I am an active member of the Society of Women Engineers and the Society of Plastic Engineers at Rutgers University. Both organizations give back to the community by volunteering and inspiring young students to pursue their engineering interests. This scholarship gives me more flexibility to be involved with these organizations in this upcoming school year. Thank you again for this generous scholarship. I am incredibly grateful for this opportunity, and I hope to continue helping new students navigate their way through college."

Elizabeth DeFazio is a senior studying chemical engineering at Rutgers University. Her interest in plastics began when she was required to utilize 3-D printing to design a device that improved a local laboratory's efficiency. She is an active member of the Society of Plastic Engineers collegiate chapter and the Society of Women Engineers' Rutgers section President this upcoming year. Her favorite part about being in these organizations is inspiring young students to pursue STEM education through different games and demonstrations.



APARNA AGRAWAL

2021 Detroit Section Irv Poston Scholar
\$2,500

"My name is Aparna Agrawal and I am sincerely honored to be a recipient of the prestigious SPE Detroit Section Irv Poston Scholarship. I would like to express my sincere gratitude to the SPE Detroit Section as well as the scholarship committee. I am very thankful for the financial aid provided that will help me with my graduate coursework. In addition, I am very glad that the committee found my ideas and my ambitions toward the polymer industry credible. This gives me the required push to keep striving towards fulfilling my career goals. I deeply appreciate the SPE Foundation for providing numerous opportunities to students like me and providing them the required encouragement and motivation to excel in their fields."

Aparna Agrawal is a Ph.D. candidate in Polymer Engineering at the University of Akron under the guidance of Dr. Sadhan C Jana. She acquired her Bachelor of Technology degree in Surface Coating Technology from the prestigious Institute of Chemical Technology in Mumbai, India. As an undergraduate researcher, she studied various bio-based additives for epoxy coatings to enhance their anticorrosive performance. In her Ph.D. work, she is studying additive manufacturing aided aerogel metamaterials and advanced aerogel composites for applications like smart bandages, water filtration and filtration of airborne nanoparticle impurities. Her career goal is to contribute toward novel polymer sustainability and recycling technologies.



BROOKE LENHARDT

2021 Detroit Section Thomas E. Powers Scholar
\$2,500

"Thank you for the generous scholarship; it is incredibly beneficial for a senior student such as myself. This scholarship will help fund the last of my classes needed for me to graduate and enter the plastics engineering industry. As a senior paying my own way through college, the costs add up and this scholarship helps lessens the burden on me and allows me to spend more time on my studies and extracurricular activities. I hope to use the connections I am making to get a job post-graduation that will allow me to work on decreasing the waste in the polymer industry. It is important to me to help slow down the effect of waste in the environment and I believe I can do that in the field that I have chosen. Once more, thank you for your generous contribution to my studies. It is greatly appreciated and I am excited to see how it will help me grow into an amazing engineer."

Brooke Lenhardt is a senior at Penn State Behrend, majoring in Plastics Engineering Technology. Outside of classes, Brooke has participated in Behrend's student SPE group and the NWPAs SPE chapter, where she has helped with the annual golf outings. Brooke has also participated in the Behrend SWE student chapter, including holding networking, fundraising, and presidential positions. Last year, Brooke completed a Co-op at Apple as a Manufacturing Design Intern where she worked on developing new standard operating procedures and assisted with the design and testing of new research molds. Brooke would like to focus her career on sustainability in plastics.

FIND, FOCUS, AND FLOURISH:

HOW THE SPE FOUNDATION IS WORKING TO SOLVE OUR INDUSTRY'S WORKFORCE SHORTAGE



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.

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."



SPE STEM Club – Modeling polymer chains

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



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

Exhibition in Novi, MI in 2020. 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.

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



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