

11TH ANNUAL

AUTO EPICON

MAY 10, 2016

ENGINEERING PLASTICS IN HIGH GEAR

CO-SPONSORED BY
SOCIETY OF PLASTICS ENGINEERS
Detroit Section and Automotive Division



SEE PAGES 8-11 FOR MORE INFO



TRENDS & TOPICS

Volume 60 ▼ Number 6

DETROIT SECTION - SOCIETY OF PLASTICS ENGINEERS - "THE CHARTER CHAPTER"

May 2016

President's Message

Dr. Adrian Merrington
Midland Compounding and Consulting
President



Tick Tock

At this point in an SPE President's term, about three quarters of the way through, all of the larger undertakings one would hope to accomplish have been initiated and people are working towards getting those responsibilities completed. SPE, being the organization that it is, also chooses this time to recognize the accomplishments of Sections and Divisions with awards. I want to take the time to walk you through what I had hoped to see achieved this year, where we are, and recognize Section members for some of the awards that we've received.

Technology innovation is often said to follow a "tick-tock" cycle; a period of innovation followed by a period of implementation and stabilization. If you were to consider cell phone development, for instance, you'd see voice control or new screen sizes added one year ("tick") followed by a year when the way security was handled internally was introduced ("tock"). Following the rapid growth in services that the Detroit Section added over the last couple of years since Detroit and mid-Michigan merged to form the new Detroit Section, I saw a need for my term to be more of the "tock" variety (whilst still allowing for the occasional "tick").

One of the larger undertakings this year that should be completed soon after you read this message is the implementation of new Section By-Laws and Standard Operating Procedures. To most of you, these will remain invisible but it's the way that those who volunteer on

the Board and in Committees will work to accomplish what needs to be done. We have been working without by-laws since the merger and we've reached a point where that can't go on any more. This massive undertaking was the responsibility of three Board members: our last two Section Presidents, Pete Grelle and Sassan Tarahomi, and our President-Elect, Wayne Hertlein. All have worked together to produce a pair of documents that will clearly delineate responsibilities and duties. This team, once the documents have been ratified, will morph into the Compliance Committee to ensure that we all abide by the rules. The Compliance Committee will be manned by the previous two Section Presidents and the President-Elect in the hope of aiding in a smooth transition from one term to the next. Pete, Sassan and Wayne have my sincere thanks for all of the effort they have spent on this project.

Another undertaking that I wanted to see initiated this year was to establish our region as a premiere location for SPE Conferences. I am strongly of the belief that if a conference is held in our backyard, the ability of our members to attend the conference increases. If you are an active SPE Division member and are looking for a place to hold your next annual Conference, consider the assistance your Division might enjoy by hosting that conference in our home state. The first activity we've managed to bring will be a 3D Workshop that will be co-located with AutoEpcon this year.

The Detroit Section runs an incredibly successful TPO conference annually. So much so that we were asked to help put on a similar conference

in China this year. Sassan Tarahomi, Norm Kakarala and Karen Rhodes-Parker left late last month to host the first TPO China conference in Shanghai where over 200 people attended. The team managed an excellent program that will be handed to SPE International or the local SPE Section as they continue the newly created conference series.

Even with the massive increase we saw in new Student Sections over the last couple of years, we still continue to grow. We are currently petitioning for a new Section to be established at Mid Michigan Community College. These Student Sections continue to be our best route to attracting younger members so we will maintain a strong level of activity here.

However, I still strongly believe that we need to do better with our Student Chapters. Their very nature means that there is often a lack of coherent transition from one year to the next. A Section that might be very active can lose that level of activity once a senior class graduates. We must do better to act as the intermediates that keep the Student Chapters active. The same is true with our Next Gen members. With those new to the work force and all that that entails, it is often hard for our younger members to carve out the time to be active within the Section. We will continue to do our best to introduce programs that are attractive enough that they force our Next Gen members to want to become more active. I don't think that we're there yet, but with the added resources of Laura Shereda and Sassan Tarahomi leading the Next Gen Committee, I have to believe that we're setting ourselves up for success.

And talking about success, the activities of all of the volunteers at the Board and Committee levels has ensured that the Detroit Section is once again a recipient of the SPE Pinnacle Award. The Pinnacle program was established in 2005 to recognize Sections and Divisions

that successfully create and deliver member value during year. Sections and Divisions are reviewed in four categories of achievement: organization, technical programming, membership and communication. Two levels of achievement are possible: Silver and Gold. Once again, your Detroit Section achieved the Gold standard. In addition, Irv Poston and his Communications team were also recognized with SPE's Communications Award. Bill Windscheif has been recognized for his services to SPE with the Honored Service Member award. To be elected an Honored Service Member, a candidate has to have demonstrated long-term, outstanding service to, and support of, the Society and its objectives, and Bill certainly meets those criteria. Congratulations to all.



Coming Events

May 10, 2016
Auto EPCON
Detroit Marriott, Troy, MI

May 23-25, 2016
Antec
Indianapolis, IN

June 21, 2016
Annual Golf Outing
Bay Pointe GC, W. Bloomfield

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Letter from the Editor Series One

Eve Vitale

If you're reading this, I want to thank you for taking the time to keep yourself abreast of all the wonderful things that Detroit SPE supports and facilitates through committed effort, most of which is volunteer.

This will be the last issue of my first year as newsletter editor. Please send me a quick email at eve.vitale@series1one.com if you are a reader letting me know what you find most valuable. The newsletter is here to serve the Detroit Section, and I would love to hear from you.

Over the past year I have gained a better understanding of all the hard work by Detroit SPE that goes into supporting the plastics industry throughout the value chain. We start with educational support and opportunities in middle school, high school and college. We follow through by offering significant networking and learning opportunities of interest for Next Gen, mid-career and seasoned professional members, not just in our neck of the woods, but worldwide. I think SPE is one of the most important, if not the most important organization on the planet for developing qualified plastics workforce.

When this issue was in development I thought it would be the shortest yet, but boy was I wrong. This is the biggest by far, mostly because we tacked on the full proceedings of the Shanghai TPO Conference. Take a look. It is a beautiful piece which only begins to tell the story of the work and dedication of Detroit SPE volunteers, specifically Dr. Sassan Tarahomi and Dr. Norm Kakarala, and, of course, our beloved Karen Rhodes-Parker. There's also a save-the-date for an SPE Quebec conference, a look at what's going on at Schoolcraft College in plastics, and much, much more.

When production of the newsletter resumes in September you'll find a table of contents to help you navigate more easily. As always, your input and comments are welcome.

Until September, have a great summer. In Michigan one never knows how long we'll have to enjoy the sunshine!

Warm regards,

Your Editor

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Chase Plastics – Providing “Outrageous” Customer Service, Inside and Out

In recent years, Chase Plastics has made its way into the forefront of the plastics distribution industry, recently ranking #1 on the Plastics News “Best Places to Work” list. Out of a culture that has remained steadfast since Kevin and Carole Chase started the company nearly 25 years ago, expansive growth has ensued and the industry is starting to take notice of Chase’s ability to consistently take internal and external customer service to new and “outrageous” levels.

Chase Plastics is a stocking distributor of more than 6,400 varieties of specialty, engineering and commodity thermoplastics from the industry’s leading manufacturers and global suppliers. Chase delivers engineering expertise, technical service, application development support, blending, repacking, inventory management and logistics services via a network of distribution centers, warehouses and sales locations throughout North and Central America.

Founded by husband-and-wife team Kevin and Carole Chase in 1992, Chase Plastics is rooted in a culture of excellence and entrepreneurship, and in providing service so “outrageous,” customers can’t help but take notice. Chase is unique in its ability to respond with the flexibility and urgency that plastic processors require, due to its philosophy to consciously eliminate bureaucracy and red tape. For instance, Chase sellers are empowered to make pricing decisions without management approval. In an effort to be more responsive, all calls are returned within two hours as part of a robust callback policy. Chase has earned a positive reputation in the industry for responsiveness, technical know-how and customer focus, which has put the company on a long-term growth trajectory.

Chase Plastics has seen growth in most segments in the past few years, but is starting to see the automotive market make positive strides thus far in 2016. According to Jeff Shutz, Michigan-based regional sales manager, “We are experiencing tremendous growth in our automotive segment. Due to the strength of the automotive industry, our customers are well positioned to benefit from our comprehensive automotive product line. We represent manufacturers who make everything from highly engineered high-heat nylons to glass-reinforced polypropylene.” Shutz added, “Our technical service/application development engineers have the unique ability to work alongside our technical sellers and the customer to help them source the right product for their application early in the process, slashing time and cost out of the production cycle, which is imperative in the automotive industry.”

To accommodate its aggressive growth, Chase Plastics is finalizing expansion projects at its Clarkston, Michigan headquarters, and at its central distribution center in South Bend, Indiana.

Construction of the organization’s new \$6 million state-of-the-art South Bend central distribution center was recently completed. The new facility boasts additional bulk storage space and expanded loading dock capacity, and is strategically located in the city’s main freight hub, allowing the latest shipping cutoff times available.

In Clarkston, Team Chase is putting the finishing touches on a newly built \$1.3 million customer-support headquarters that boasts a modern, open and collaborative workspace, and industry-leading customer service and supply chain management technology.

Chase was recently named as a recipient of Plastics News' "Best Places to Work" award. This program surveyed employees at top organizations in the plastics segment in the U.S. and Canada, asking them about employer benefits, practices, philosophies, demographics and policies, as well as employee engagement, experience and satisfaction at the organizations.

Chase's commitment to providing "outrageous" customer service doesn't stop with external customers; it is a core value also advocated for internal customers – Chase employees. Alongside more typical benefits, Chase Plastics prides itself on being a fun and happy place to work. The company provides a collegial work environment with basketball

competitions, chili cook-offs, barbecues and potlucks, business huddles, cornhole tournaments, a volleyball league and even best-decorated cubicle contests for Halloween and Christmas. Chase started a robust Adopt-a-Soldier program 15 years ago, in which employees collect and send care packages to troops abroad who are protecting our country. Some have visited the Clarkston headquarters upon returning home to thank employees for their support, giving those employees an opportunity to personally thank the soldiers for their service as well.

To learn more about Chase Plastics and how it's redefining resin distribution, visit ChasePlastics.com.



With over 30 years of experience in the automotive industry, we are here to supply you with the highest quality resin from the most diverse supply base in the industry.

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Keynote Speakers

Accelerate the Future use of Engineered Plastics

David Compeau

FCA US LLC, Development Responsible, Advanced Development Engineering-Plastics and Advanced Materials



What can we do as the leaders in the application of Engineered Plastics in Automotive do to accelerate their use in the architecture of future vehicles? There is a lot going on currently in the areas of alternate fibers to the traditional glass fibers

as well as numerous processing improvements that are set to accelerate the use of Engineered Plastics. But us as leaders in this area have much to do to make sure this potential becomes a reality. We must develop tools to be able to accurately predict manufacturing processes. We must develop tools that accurately predict the behavior of the parts including fatigue and crash behavior. Additionally we need to develop significantly more engineers and designers that know how to properly design engineered plastic components. The future looks bright, but there is much work to be done.

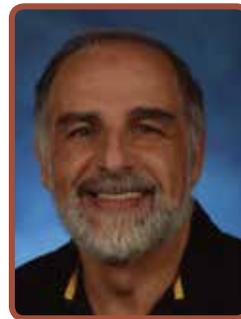
David Compeau is currently leading the Advanced Development Engineering-Plastics and Advanced Materials group at FCA US LLC. He has responsibility for the advanced development of all non-metallic systems within the Interior, Body, Chassis, Electrical/Electronics and Engine Systems areas. Compeau has been with FCA US for five years, where he was previously responsible for leading the Interior Engineering Design Integrity team of engineers. His 32 years of work experience includes: roles in Advanced Development at General Motors in Electro-Mechanical Components, president of Smart Product Design, Senior Development Engineer at Innatech (a multi-

shot injection molder), Director of Research and Development at Engineered Plastic Components. Compeau holds a BSME from University of Michigan and a MSME from Stanford University. He holds 27 patents including the first production composite door module and the first production power van door closer. In addition to his extensive experience in the automotive industry, Compeau also has experience in high speed packaging, consumer products and furniture products. He is recognized as an industry leader in injection mold processing, tooling and plastic part design.

Structural Composites Opportunities and Challenges

Dr. Saad Abouzahr

FCA US LLC, Head of Organic Materials Engineering, Materials Engineering Group



The Automotive industry effort to meet regulatory requirements for fuel economy and emissions has created new opportunities for plastic and composite applications and have prompted exciting new developments

in materials and processes. The goal is to achieve weight savings with no compromise in quality at minimum cost penalty. However, the implementation of structural composites and plastics using advanced materials like carbon fiber will depend on the resolution of issues such as economics, manufacturing, vehicle assembly, design, vehicle performance, environmental, legal, as well as customer perceived value. The presentation will discuss these issues and some of the potential new applications for plastic and composite materials.

Dr. Saad Abouzahr has a B.S. in chemical engineering from Oklahoma state University

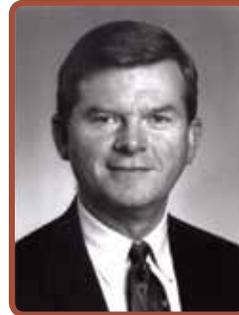


and a PHD in chemical engineering from Virginia Tech. He joined Mobay corporation in 1981 and developed the first RIM application for body panels on the Pontiac Fiero. Saad joined Chrysler in 1986 and was responsible for the development of various plastic and composite applications that included plastic fenders (Intrepid), composite hoods and decklids (JX hood and decklid), intake manifolds, composite pick up box, and a composite vehicle. In 1990, Saad led the development of an aluminum intensive vehicle (Neon Lite) which was over 600 pounds lighter than the all steel car. Saad became the Materials executive for the Prowler roadster which had an aluminum body, frame, and suspension. In 2000, Saad became the SRT CAE and Materials senior manager after which he moved to Materials Engineering where he is responsible for all composite, plastic, glazing, coating and adhesive applications.

Using Global Megatrends at GM

Richard Holman

General Motors, LLC, Sr. Manager Global Foresight and Trends



This talk will provide an overview of several of the Mega trends used by GM Innovation teams to help them better understand the future and determine where to spend innovation resources.

Richard Holman is Senior Manager Global Foresight and Trends for General Motors. He has spent the last 20 years leading innovation teams and advising businesses about the future. Currently, he leads a global network of GM employees that watch, study and act on future trends. Recent projects include: Urban Mobility, The Connected World, The Power of Women, The Sharing Economy, and Autonomous Vehicles.



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May 10, 2016 Troy, Michigan

Agenda

- 7:00 **Registration & Continental Breakfast**
- 8:15 **Opening remarks:** Dr. Gary Kogowski, Ravago Holdings Americas, Conference Chair
- 8:25 David Compeau, FCA US LLC Senior Manager Advanced Development Engineering, Plastics and Advanced Materials, Conference Executive Chair
- 8:40 **Technical Program:** Sandra McClelland, Solvay Specialty Polymers, Conference Technical Chair
- 8:50 **KEYNOTE: Accelerate the Future use of Engineered Plastics**
David Compeau, FCA US LLC, Development Responsible, Advanced Development Engineering-Plastics and Advanced Materials

	Salon ABC	Salon D	Dennison Salon
	I. Materials	II. Light Weighting	III. Enabling Technologies
	Moderator:	Moderator:	Moderator:
	Dward Kue	Dana Warnez	Daniel Balavitch
9:35 - 10:00	Material Solutions for Turbo-Charged Engine Applications	Polymotor 2: Development of All-Plastic Engine	New optimized PC/ABS solutions for high quality painted exterior components
	Stephen Mok, Program Manager, DuPont Performance Materials	Brian Stern, Senior Technical Development Engineer, Solvay Specialty Polymers	Steve Rogers, Senior Research Scientist, Trinseo Automotive
10:00 - 10:25	Automotive Lightweighting and reduced Density Nylons	Lightweight components for Automotive Applications	Efficient Assembly and Joining: Reversible Bonded Joints Using Nano-Ferromagnetic Particles
	Jason Humble, Product Manager, A. Schulman Inc.	Scott Bykowski, Manager R&D North America, ContiTech Vibration Control	Dr. Mahmoodul Haq, Asst Professor MSU, ACC, Michigan State University, and Center for Automotive Research (CAR)
10:25 - 10:50	Break		
10:50 - 11:15	Durethan® XTS: Next Generation of High Heat PA6 and PA66 Grades	Carbon Composite Grille Opening Reinforcement	Vehicle Lightweighting and Improved Crashworthiness - Plastic/Metal Solutions for BIW
	Jose Chirino, Technical Director High Performance Materials, LANXESS Corporation	Gari Schalte, Engineering Manager Front End Systems, Magna Exteriors	Dhanendra Nagwanshi, Sr. Business Manager, Automotive Body and Chassis, SABIC
11:15 - 11:40	New Polyamides for High Heat Applications	Recycled Nylon for Air Intake Manifolds	DURACON H140-57AR can be Applied for any Application that Requires High Acid Resistance
	Bernd Henkelmann, Application Development Manager Automotive, EMS-GRIVORY America	Jim Vanderveen, Advanced Product Development, Mahle Filter Systems	Takanori Ueda, Snr. R&D Manager Polyplastics USA, Inc.
12:00 - 12:45	Lunch		

12:50 - **KEYNOTE: Structural composites opportunities and challenges**
 1:20 Saad Abouzahr, FCA US LLC, Head of Organic Materials Engineering, Materials Engineering Group

	Salon ABC	Salon D	Dennison Salon
	IV. Materials	V. Injection Molding	VI. 3D Printing
	<i>Moderator:</i>	<i>Moderator:</i>	
	Dward Kue	Eve Vitale	
1:25 - 1:55	Introduction of Super High Heat Stable Leona™ PA66/GF	How Processing is Affecting the Performance of Your Injection Molded Part	Workshop: 3D Printing of Engineered Thermoplastics
	Kazuhiko Hashimoto, Technical Director of Engineering, Asahi Kasei	Erik Foltz, Certified Moldflow Consultant, The Madison Group	Carol Barry, Prof. Plastics Engineering, Chris Hansen, Prof. Mechanical Engineering, David Kazmer, Prof. Plastics Engineering, Nese Orbey, Prof. Chemical Engineering, UMass Lowell
1:55 - 2:20	Enhanced Hydrolysis & Thermal Resistant PA66 for Automotive Engine Cooling Applications	Creating Internal Geometries in Injection Molded Parts Using Water Soluble Polyvinyl Alcohol (PVOH) Inserts	Workshop Continued
	Ryan Hensarling, Automotive Technology Leader, Ascend Performance Materials	Jason McNulty, Sr. Molding Engineer, 3M Corporate Research	
2:20 - 2:45	Growth of Biobased Engineering Polymers in Automotive	Mapping the Injection Molding Behavior of Plastics	Workshop Continued
	Rick Bell, Development Manager, DuPont Performance Materials	John P. Beaumont, President, Beaumont	
2:45 - 3:00	Break - Sponsored by UMass Lowell		
3:00 - 3:30	KEYNOTE: Using Global Megatrends at GM Richard Holman, General Motors, LLC, Sr. Manager Global Foresight and Trends		
3:35 - 4:00	Additives for Gloss Reduction without Sacrificing Performance	Aluminum Tooling - An Industry Game Changer	Workshop Continued
	Jason Lyons, Manager Plastic Additives, Arekma	David Okonski, Staff Research Engineer, General Motors Research and Development Center	
4:00 - 4:30	New Exciting Developments with Branched Polyamides for Automotive Applications	Solving the Mystery of Melt Temperature	Workshop Continued
	Dr. Ashok Adur, Global Commercial Development Director, Vertellus Specialites, Inc.	Michael F. Durina, President, MD Plastics, Inc.	
4:30 - 6:00	Networking Reception: Sponsored by SPE Detroit Section, Injection Molding Division, & Automotive Division		

JUNE

21



SPE DETROIT Annual Golf Outing

June 21, 2016

Bay Pointe Golf Club

4001 Haggerty Rd. West Bloomfield, MI

When: June 21, 2016

Time: 11:00am - Shot Gun Start!

Format: Four person scramble, best ball.

Cost: \$110/person, \$525/Foursome includes Hole Sponsor, Optional Hole Sponsor Only \$100.

Includes: 18 Holes & Cart, Door Prize, Lunch (Wrap, Chips, Pop), & Dinner (Full Service sit down), Contest and Prizes!

Reserve Your Spot: Contact Karen Rhodes-Parker
karen@spedetroit.com Phone: 248-244-8993

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Technical Meeting Programs

Bob Petrach – Safety Technology International

Vantage Plastics – Thermoforming Specialists Technical Dinner Meeting Highlights

The Vantage Plastics tour was well attended with 26 members and non-members including one University of Michigan student, and six students, with their instructor Steve Fosgard, of Mid Michigan Community College.



We began the meeting with a great meal and some valuable networking time. Then we were given a good overview of Vantage's history and current business. Vantage Plastics started in 1996 with 3 thermoformers and 6 employees in a 49,000 sq. ft. building, and generated \$1,600,000 of sales that year.



Following a stated mission of "Forming Solutions, Forming Better Lives, and Forming a Sustainable Future" has resulted in consistent growth.

In 2015 Vantage Plastics experienced consistent sales growth and now has 12 thermoformers, 2 robots and 2 CNCs run by over 125 employees working 24/7 in a 95,000 sq. ft. building.

Vantage Plastics believes in vertical integration, sustainability, and green initiatives.

In 2007 they started Airpark with one extrusion line and 10 employees to supply sheet stock to the Vantage thermoforming operation and produced 5,000,000 pounds of material in a 25,000 sq. ft. building.

By 2015 this had grown to 4 extrusion lines and over 25 Employees producing 25,000,000 pounds in a 36,000 sq. ft. building which is now physically connected to the Vantage Plastics production facility. Airpark conservatively has a potential output of over 45,000,000 pounds a year.

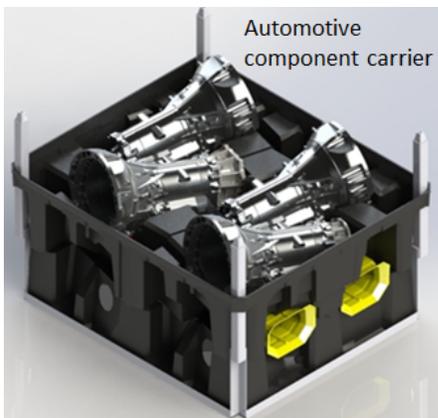
The Vantage Plastics platform offers a full line of services giving it the ability to complete a project from concept to manufacture to delivery. Some specific elements of this platform include:

Design
 Estimating
 Tooling
 Scheduling
 Thermoforming Production

Finished Drawings
 Engineering
 Purchasing Services
 Production Planning

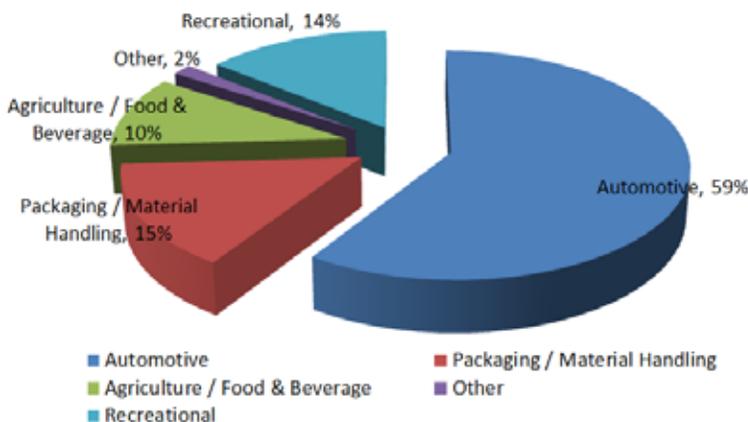
Finite Element Analysis
 Prototypes/3D Printing
 Resin Contracts
 Quality and Reliability
 Custom Sheet Extrusion

Vantage/Airpark serves a variety of industries as shown by the pie chart below and can extrude plastic sheet to customer specifications; manages both virgin resin and recycled resin to produce sheet; manages variables in the manufacturing process including shrink, orientation, gauge, etc. They also apply additives, finishes, colors, laminate, etc. to the sheet.



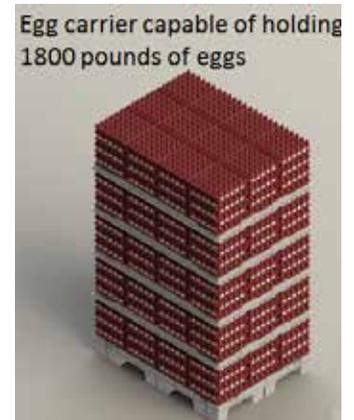
They cut sheet to customer specifications and manage process variables including shrink and warp. They manage material distribution, assembly of finished products including CNC/robotic trim, kitting, custom urethane and other components and capture off fall and other plastic waste to be reused.

Industry Breakdown



The preceding just scratches the surface. If you want to learn more or missed the tour and presentation, check out Vantage Plastics at <http://www.vantageplastics.com/>

I want to personally thank the team of Vantage employees that gave up their evening to be such gracious hosts: Paul Aultman, George D. Aultman, Andy Wiess, Dan Ryan, Glen Bowling, and Matt Brisson.



As always, if you have ideas for a presentation and or tour or an event or would like to host a tour or give a presentation, please let me know robertpetrach@aol.com or send the information to Karen at karen@spedetroit.com and she will forward it.



GREAT ATTENDANCE, SOLID SPONSORSHIP & EXHIBITOR SUPPORT, AND SUPERB KEYNOTE SPEECHES AND TECHNICAL PRESENTATION

Dr. Sassan Tarahomi



Dear SPE Detroit members,

The first SPE TPO Shanghai Conference just wrapped up in Shanghai, China at Marriott City Center on March 24th. This was a first time for the Detroit Section to sponsor, plan and launch an event outside of North America. Objectives of this event were to promote TPO use in the automotive industry in the Far East by having OEM, Tiers, Resin and Additive Suppliers and others from the local area attend the event. We hope to spark enough interest to continue this conference annually, similar to the North American TPO Conference in Troy, Michigan and also generate enough income to make the conference self-sustaining. If it becomes profitable we will invest in educational and similar activities. This event was planned for 200 participants and 23 technical papers for two and half days. The planned budget for such an event was established and the core TPO Shanghai Committee members Ms. Yan Chen – VinTech Industries Inc.; Dr. Tom Turng – University of Wisconsin – Madison; Dr. David Kusuma – Tupperware Corp.; Dr. Norm Kakarala – Retired Inteva Products LLC; Ms. Karen Rhodes Parker – Detroit SPE; and Dr. Sassan Tarahomi, IAC Group, started recruiting sponsors to cover the considerable cost of the event. Due to the hard work of this core group, we were able to recruit 24 superb sponsors and several media organizations in the span of 4 months.



Inaugural sponsors of the 2016 Shanghai TPO Conference

It is with a great joy and pleasure that I would like to announce that the event was executed as planned without a glitch, and the overall outcome was very positive and a financial success for the Detroit Section. Our team met and surpassed all objectives with flying colors: over 240 attendees, 27 sponsors, 2 keynote speakers, 28 technical presentations from a dozen countries and lots of networking. The event was so highly anticipated that the reserved block of rooms at the Marriott City Center were sold out one month prior to the conference. There were so many people behind the scenes responsible for making this event successful. These individuals and their duties are listed in the following page. To recognize the committee members and sponsors, the entire conference proceedings are included at the end of this newsletter.

2016 Planning Committee

Conference Chair & Sponsorship / Exhibit Chair
Dr. Sassan Tarahomi, International Automotive Components (IAC) Group

Technical Program Chair
Dr. Norm Kakarala, retired-Inteva Products LLC

Conference Registration
Karen Rhodes-Parker, SPE® Detroit Section

Session Chairs

DAY 1

Soft TPO Applications

Dr. Sam He, Inteva Products LLC

Coatings for Automotive Interiors

Dr. Sam He, Inteva Products LLC

Rigid TPO Compounds

Dr. Tom Turng, University of Wisconsin-Madison

DAY 2

Lightweight TPO Technologies - Part 1

Dr. Tom Turng, University of Wisconsin-Madison

Lightweight TPO Technologies - Part 2

Jack Zhang, Inteva Products LLC

Materials Development - Part 1

Jack Zhang, Inteva Products LLC

DAY 3

Process Developments

Yan Chen, Vintech Industries, Inc.

Modeling and Measurement of Scratch Resistance

Yan Chen, Vintech Plastics

Surface Enhancements

Jack Zhang, Inteva Products LLC

Materials Development - Part 2

Dr. David Kusuma, Tupperware Corp.

Sponsorship

Yan Chen, Vintech Plastics

Dr. Norm Kakarala, retired-Inteva Products LLC

Karen Rhodes-Parker, SPE Detroit Section

Dr. Sassan Tarahomi, IAC Group

Technical Program

Yan Chen, Vintech Plastics

Dr. Norm Kakarala, retired-Inteva Products LLC

Prof. Tom Turng, University of Wisconsin-Madison

Dr. Sassan Tarahomi, IAC Group

Dr. David Kusuma, Tupperware Corp.

Dr. S.T. Lee, Sealed Air Corp.

Committee Members at Large

Prof. W.M. Yang, SPE Beijing Section and Injection Molding Division

Dongsheng Liu, SPE Vinyl Plastics Division

Gaopin Yang, DuPont Automotive

Prof. L.S. Xie, SPE Extrusion Division

Dr. Jin Sha, East China

University of Science and Technology

OEM Participation

Jim Keller, United Paint & Chemicals Corp

Karen Rhodes-Parker, SPE Detroit Section

Dr. Sassan Tarahomi, IAC Group

Keynote Speakers

Dr. Sassan Tarahomi, IAC Group

Staff Support

Karen Rhodes-Parker, SPE Detroit Section

Treasurer

Tom Powers, retired-Delta Polymers

House

Dr. Sassan Tarahomi, IAC Group

Advertising/PR

Peggy Malnati, Malnati & Associates LLC

Karen Rhodes-Parker, SPE Detroit Section

Signs/Posters

Jill Gorter, JPI Creative Group

Dr. Sassan Tarahomi, IAC Group

Peggy Malnati, Malnati & Associates LLC

Website

Marc Bahm, BASF Corp.

Peggy Malnati, Malnati & Associates LLC

USB Drives

Neil Fuenmayor, LyondellBasell Industries

Plaques / Awards

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April Fools at the Material Auction



Another great time was had for all those who attended this year's Detroit Section SPE Materials Auction. It was held on Friday, April 1st, at the Detroit MGM Grand Hotel & Casino. The night was filled with food, fun and friends. The guest emcee this year was WWJ Morning Drive anchor, Tom Jordan, and our special celebrity guest was former Detroit Piston and recent Michigan Sports Hall of Fame

inductee, John Long. We were also entertained by the spectacular illusions provided by Patrick the Magician.



Bidding was a little lighter this year than in the past. Bidders had 62 items totaling about 300,000 pounds of material to bid on, as well as ticket packages for the Detroit Tigers, Pistons and Red Wings. The total amount invoiced was \$31,117.12, and over \$1,300 was raised with event registration, table sponsors and 50/50 sales. We will report the final contribution to the Education Fund once all accounts are settled.

Adrian Merrington, current president of the Detroit Section, passed out awards for the 2015 Top Donors and Top Bidders. Dann Deaver of the RTP Company was on hand to accept the award for 2015 Top Donor. The award for 2015 Top Bidder was won by Alloy Exchange.



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Use the SPE Events app at AutoEPCON!

SPE International has developed a new SPE Events app which is a great improvement over the app used last year. It can be downloaded on Apple and Android smartphones and tablets. It is a “*must have*” if you are attending an SPE Conference, but it is also useful to checkout conferences before you decide to go. This new app will be used for our May 10 AutoEPCON in Detroit, the May 23-25 ANTEC in Indianapolis, and many other SPE Events in the future. You can also look at past SPE Events.



Download the free app “Events by SPE” from your app store or use the QR Code below to go directly to the app.

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Select AutoEPCON from the Upcoming Events menu and you will be able to find specific information about the conference presentations, speakers, and exhibits.



Questions, Comments, Suggestions?

If you have any questions, comments, or suggestions about e-communications, please contact Irv Poston, 248-646-9574, ieposton@juno.com.



2016 SPE Detroit Section Scholarship

Tom Miller – BASF Engineering Plastics

The purpose of the Society of Plastics Engineers Detroit Section Scholarship is to provide funding for students attending an eligible Michigan college or university while demonstrating a high level of career interest in the Plastics Industry.

To be considered for a SPE Detroit Section Scholarship, applicants must submit a complete application package (electronic copy preferred) by August 8th, 2016. Application and all checklist documents must be sent together via hard copy or e-mail to the 2016 Scholarship Committee Chairperson, Tom Miller at thomas.miller@basf.com.

For full details please see the scholarship page on the Detroit SPE website: SPE Detroit Scholarships [Please link to http://spedetroit.org/?page_id=52]



Schoolcraft College Thanks SPE Detroit Section

Armando Sardanopoli
Sardanopoli Specialty Elastomer Consultant



Robert Leadley, Dean of Schoolcraft College's Occupational Programs, made a special appearance at the SPE Detroit Section Board meeting to thank the group for approving a \$50,000 donation to the school's Plastic's Technology program. Along with addressing the monetary donation, Dr. Leadley announced that a local company has donated a 110 ton Kraus Maffei injection molding machine as well. The money donated by the Detroit SPE will be used for necessary auxiliary equipment and will help pay for alterations to the newly combined plastics processing and testing lab. The donation will also allow Schoolcraft to purchase a compression molding machine to complement a lab-size thermoforming machine already in place.

The addition of an injection molding machine, compression molding machine and thermoformer allows the school to offer hands-on processing classes and to show off their programs to middle school and high school students during annual open house visits.

The program at Schoolcraft College started in 2012 with a non-credit class that covered an overview of plastic materials and plastic processing; it targeted individuals already working in the industry. In the last four years this course has enrolled over 100 students, many who work in industry as machine operators, sales and marketing staff, technical representatives, account managers, and customer service representatives.

In 2014 Schoolcraft College added a 16-credit skill certificate to their program. The certificate consists of a plastic materials and a plastic processing course that goes deeper into the subjects than the non-credit course. Also included are technical math, basic machining and quality improvement programs. The courses are targeted for those interested in manufacturing.

Schoolcraft College is planning to introduce a one year 31-credit certificate and an Associate's Degree in the Fall of 2017. The program is designed to help meet the growing need for skilled and educated candidates for the many job opportunities available in plastics today and in the future.

The instructors for the current programs are all very active members of Detroit SPE, including Sassan Tarahomi; Peter Grelle; and Armando Sardanopoli. They have also played a very active role in planning the program along with an Advisory Committee that consisted of: Jason Hamilton of Rhetech Inc., Mark Kunitz of Roush Manufacturing, Greg Homann of NYX Inc., and Steve Leonard of US Farathane.



From left to right: Thea Greenshields and Dr. Robert Leadley, Schoolcraft College, Sassan Tarahomi and Armando Sardanopoli, Detroit SPE.

Winners of the 20th Annual SPE Detroit Section “Wonders of Plastics” essay contest

We are pleased to announce the winners of our 20th Annual SPE Detroit Section, “Wonders of Plastics” essay contest. We received over 50 essays this year between the Northern and Southern Divisions. Winning essays from each division will be published in the next edition of our newsletter, and the writers will receive \$500 each. Second and third place essays will receive \$250 and \$100 respectively. All participants will receive a certificate of participation and \$5 gift card.

Northern Contest Winners:

1st place (\$500): “Plastics as an Art Medium,” Shane Hogan, 9th grade, Herbert H. Dow High School

2nd place (\$250): “How Plastics Improve Human’s Lifestyle,” Kameron Haag, 8th grade, Clare Middle School

3rd place (\$100): “Plastics in Medical Practices,” Cameron Reid, 12th grade, Freeland High School

Southern Contest Winners:

1st Place (\$500): “Plastics and Safety in Automobiles”, Nathan Williams, 7thGrade, St. Clair Middle School (essay attached)

2nd Place (\$250): “Plastics are a Medical Miracle”, Samantha Satawa, 10thGrade, South Lyon East High School

3rd Place (\$100): “Thanks to Plastics”, Melanie McKenna, 12th Grade, South Lyon High School

Thank you for your participation in this year’s contest!





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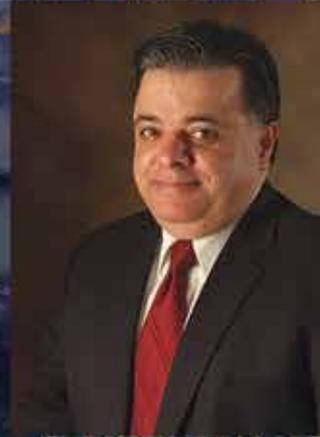
Welcome

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Shanghai

C O N F E R E N C E



Thank you for attending the 1st *SPE® TPO Automotive Engineered Polyolefins Conference in Shanghai, the world's leading automotive polyolefins forum*. On behalf of our hardworking planning committee and all of SPE, we welcome you to the show and wish you a very successful event.

Whether you're here to present a paper, exhibit your company's products and/or services, or to find solutions to pressing engineering challenges, we hope you find what you're looking for at this year's show.

This is an exciting year for all of us because we decided to bring you the very first TPO Conference in Shanghai this year and it looks like we'll have a great attendance from OEM, Tier-1, and resin suppliers.

- We expect more than 200 guests from around the world.
- We have planned for 28 presentations in 10 technical track throughout the event.
- We have a great exhibition planned for you, thanks to the support of our over 30 sponsors and exhibitors.

Additionally, we have two exciting keynote speakers who are going to help you better understand the complex web of trends and market forces at work in our industry today and that even now are shaping our tomorrow. Not only will you leave here better informed than when you arrived — assuming you visit our sponsors and catch our technical program — but you also should leave with lots of new contacts. That's because we've built numerous networking opportunities into our program.

In addition to two receptions (Tuesday and Wednesday evenings), and lunches (Tuesday and Wednesday), we've also built morning and afternoon breaks into the program so you can ask questions, meet new people, grab a beverage, and avail yourselves of the tremendous amount of collective automotive-plastics knowledge assembled at this venue.

We'd like to acknowledge all the effort our committee of volunteers have expended helping bring this program to you. Our team was hard at work on this conference for the last 12 months. If there's something we could do better, please don't hesitate to tell a member of our committee so we can discuss it in our *postmortem*. If there's something we did right, please don't hesitate to tell us that too. We're always striving to make our events better year after year.

Sincerely,

Dr. Sassan Tarahomi

Dr. Sassan Tarahomi
Conference Chair
International Automotive Components (IAC) Group

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DAY 1

Soft TPO Applications

Dr. Sam He, Inteva Products LLC

Coatings for Automotive Interiors

Dr. Sam He, Inteva Products LLC

Rigid TPO Compounds

Dr. Tom Turng, University of Wisconsin-Madison

DAY 2

Lightweight TPO Technologies - Part 1

Dr. Tom Turng, University of Wisconsin-Madison

Lightweight TPO Technologies - Part 2

Jack Zhang, Inteva Products LLC

Materials Development - Part 1

Jack Zhang, Inteva Products LLC

Session Chairs

DAY 3

Process Developments

Yan Chen, Vintech Industries, Inc.

Modeling and Measurement of Scratch Resistance

Yan Chen, Vintech Plastics

Surface Enhancements

Jack Zhang, Inteva Products LLC

Materials Development - Part 2

Dr. David Kusuma, Tupperware Corp.

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2016 Keynote Speaker

Dr. Rose Ryntz

Vice-President, Advanced Engineering & Material Development
International Automotive Components (IAC) Group

The Changing Landscape for Plastics Use in Interior Automotive Applications



Dr. Rose Ryntz, vice-president, Advanced Development & Material Engineering, International Automotive Components (IAC) Group (Southfield, Mich., U.S.A.) will give a keynote talk entitled *The Changing Landscape for Plastics Use in Interior Automotive Applications* on Tuesday, March 22, 2016 at 8:45 a.m. As background on her topic, she explains that plastics use in automotive applications is expected to represent approximately 18% of total vehicle weight by 2020 and contribute roughly \$110-billion USD to global plastics sales. During that same time period, global sales of automotive interior components (in all materials) is expected to reach \$325-billion USD, offering suppliers “great incentives to participate.” However, the functional requirements and usage of plastic materials are changing rapidly due to factors like economics and governmental mandates. With increased demand for lighter, more competitively priced vehicles, and current challenges by vehicle-interior suppliers in meeting growing production demands, it is more important than ever to select plastics and design parts efficiently and correctly if a company wishes to become the supplier of choice for a given automaker.

“My presentation will focus on the changing geographic and demographic landscape for vehicle interiors and the effect of those changes on plastic material selection,” explains Ryntz. “As the interaction between car and driver becomes, paradoxically, more complex, the key to supplier success will be focused product segments and technology differentiation. Lifestyle demands, such as the desire for personalization, use of illuminated surfaces, and the focus on occupant comfort and convenience, as well as acoustic performance, environmental stewardship, and safety all will be discussed in relation to polymer selection. Additionally, the advent of the autonomous car and increased human-machine interactions also will be discussed relative to how they affect both the industry and its requirements.”

Ryntz holds a Ph.D. degree in Polymer / Organic Chemistry from the University of Detroit and an M.B.A. degree from Michigan State University. During her career she has worked at Dow Chemical, DuPont Automotive, Ford Motor Co., Akzo Nobel N.V., and Visteon Corp. before assuming her current role at IAC. She is a sought-after speaker at domestic and international events, is a prolific writer with over 180 publications, 30 patents, and four books, and is a recipient of many prestigious awards. Last year she was named as one of the 100 Leading Women in Automotive, and in 2014 was awarded the SPE Detroit Section’s prestigious Outstanding Member award. Additionally, she has been the recipient of the International Biographical Center *Who’s Who in the World*, has received Best Paper and Best Speaker awards from both the Federation of Societies for Coatings Technology (FSCT) and SPE, the FSCT Women in Coatings’ Management Achievement Award, the George B. Heckel Award and Matiello Award, the American Chemical Society’s (ACS’s) Roy Tess Award, the Women Automotive Association’s International Professional Achievement Award, the Engineering Society of Detroit’s (ESD’s) Outstanding Leadership Award and Gold Award, the University of Southern Mississippi’s Elias Singer Best Paper Award, a Roon Award from FSCT, and the Henry Ford Technology award presented by the Ford Motor Co. for outstanding technical contributions to the company. Ryntz has been very active as a society volunteer. She served as president of FSCT from 2005-2007, and was elected as a Fellow in SPE in 2006. She also has served on the board of directors of the Detroit Section of SPE, and is currently a member of the Engineering Dean’s Advisory Board at the University of Detroit.

Dr. Rose Ryntz

瑞兹博士是位于美国密西根州的国际汽车部件集团公司的副总裁，主管尖端材料工程的开发。她的主题报告题目是“塑料在汽车内饰应用的演变。”

瑞兹博士预计到2020年塑料在汽车上的应用将会达到百分之十八的汽车重量，导致一千一百亿美元的全球塑料销售量。同时，所有的汽车内部材料的全球销售量将达到三千二百五十亿美。这些增长的数量给部件供应商带来很大的吸引力。但是，由于多种因素，比如经济影响及政府政策规定，塑料材料的功能要求和应用正在快速变化。目前对更轻更经济的汽车的需求量正在不断增长，汽车生产量的上升对汽车内部部件供应商也成为一个问题。面临这些挑战性的问题，正确的塑料材料挑选和部件设计来产生更高效率是非常重要的。

瑞兹博士报告着重点是地理和人口统计的演变以及它们对汽车内部塑料材料选择的影响。目前的趋势是驾驶员和汽车的互相合作和影响变得越来越复杂。对部件供应商来说，成功的诀窍就是将注意力集中在部件分类配套和技术优势。她会讨论如下因素：新的生活方式需求，比如个人化，表面照明，司机和乘客的舒服和方便，音响效果，环境影响，以及安全对高分子材料选择的影响。她也会讨论正在发展中的自动驾驶汽车和不断增长的人与机器的互相合作，以及它们对汽车工业和需求的影响。

瑞兹博士是从底特律大学获得高分子/有机化学博士学位的。她还从密西根州立大学得到管理学硕士学位。她曾在下列公司工作过；陶氏化学公司，杜邦汽车，福特，阿克苏诺贝尔和伟世通。瑞兹博士经常被邀请去国内和国际会议做报告。她已发表了180篇论文，有30份专利，还出了4本书，得到过许多有声望的奖章。去年她被命名为汽车工业内前一百名杰出女带头人。在2014年她得到了SPE底特律分会的杰出会员奖。她被选入国际传记中心的世界名人录。瑞兹博士的奖章还包括：FSCT和SPE的最佳论文奖以及最佳演讲奖，FSCT的杰出女士涂层管理成就奖，George B. Heckel奖和Matiello奖，美国化学学会Roy Tess奖，女子汽车协会的国际专业成就奖，底特律工程协会的杰出领导能力奖和全奖，南密西比大学的Elias Singer最佳论文奖，FSCT ROON奖，福特科技奖。瑞兹博士一直在为各种科技协会义务做事。2005-2007年，她曾担任FSCT总裁。在2006年她被选为SPE委员。她还担任SPE底特律分会的理事。她现在还是底特律大学工学院的顾问。

Dr. Stéphane Quilliet

Engineering Manager-Injection Molding Team
RocTool

On the Road to a New Standard: High-Definition Plastics

Dr. Stéphane Quilliet, engineering manager-injection molding team, RocTool (Le Bourget du Lac, France) will give a keynote talk entitled *On the Road to a New Standard: High-Definition Plastics* on Wednesday, March 23, 2016 at 8:45 a.m. RocTool's technologies for rapid mold heating and cooling provide plastic processors with practical solutions that increase productivity — via faster molding cycles, lower energy usage, better thickness control, and enhanced part complexity — as well as improve post-mold part quality — via optimized surface quality (whether matte or glossy) and invisible weldlines. These features are wanted and needed by molders in all major market segments, but especially in the high-volume, cost-sensitive, aesthetically demanding automotive industry.

"The plastic industry is constantly working to offer better process solutions in order to respond to design challenges from automakers. My presentation will focus on the ongoing evolution of several such process enhancements. I also will share our vision of the next key steps to reach a new quality and performance standard" explains Quilliet. "I will share with the attendees our vision and explain what we believe are the conditions needed to reach a new standard in the industry. In addition, I will discuss the importance of the fact that we now can accurately simulate the inductive heating and cooling technique via AutoDesk, Inc.'s MoldFlow® software, which helps improve the accuracy of moldfilling and warpage analyses as well as shows the benefits of our induction technology during the initial design phase, long before tooling is cut. We think of these as 'high-definition plastics' solutions for OEMs and their manufacturers."

Quilliet has worked at RocTool for almost seven years, the last six of which he spent designing 3itech® technology and conducting moldflow analyses for customers. Before joining RocTool, he spent a decade working for several service companies, including five years at MAPEA, which he founded and where he worked as a development engineer. These companies were involved with a variety of plastics processes, including injection molding, extrusion, and compounding, and gave him experience in simulation, materials science, and training — all of which provided broad knowledge in the field of plastics processing. Quilliet holds a Ph.D. degree in Dynamique des transferts (Transfer Dynamics) from Université de Nantes, where his thesis topic was on modeling the heat-transfer conductance between part and tool during injection molding. He also earned a Diplôme d'ingénieur, Thermique - Energétique (Engineering Diploma - Thermal Energy) degree from Polytech 'Nantes.

Dr. Stéphane Quilliet

桂莱特博士是法国ROCTOOL公司注射型部门的工程经理。他的主题报告题目是"走向新的标准：高保真度塑料。"

ROCTOOL公司的快速模具加热和冷却技术使得那些做塑料加工成型的能很实际的解决提高生产力问题-通过更短的成型周期，低能源消耗，更好的厚度控制，和能做更复杂的部件-同时也提高已成型部件的质量-通过最佳化的表面质量（不管是无光泽或光面）以及看不见的接缝。以上那些特色能满足加工成型的需求在所有的市场，但特别是对高产量，成本敏感，审美要求高的汽车工业。

塑料工业总是想找到更好的工艺过程去满足汽车制造业的设计挑战。桂莱特博士的报告的重点将是目前正在进化的几种工艺改革和优化。他会提到所需要的关键步骤去达到新的质量和性能的标准。他会解释他相信所要具备的条件去达到这个新的工业标准。以外，桂莱特博士还会讨论能够精确模拟感应加热和冷却技术的重要性。这种模拟是用Autodesk的MoldFlow软件，它能帮助提高成型度和变型分析精确度。同时它能显示感应加热技术的好处远在很贵的模具制造之前。他认为这些就是"高保真度塑料"能解决很多汽车制造工业的问题。

桂莱特博士在ROCTOOL工作了将近七年。在过去的六年里他设计了3itech技术为用户做模流量分析。在ROCTOOL之前，他在几个服务公司做了十年，包括五年在MAPEA公司他帮助建立起来。在那里他做过开发工程师。那些公司做了许多塑料工艺流程。包括注射成型，挤压成型和塑料改性。这给了他很多在模拟，材料科学，培养和训练的经验所有这些给了他很广的知识在塑料工艺领域。他的转换动力学博士学位是从Nantes大学获得的。他的博士论文的课题是模拟注射成型时部件和模具之间的热传导和转换。他还从Nantes科技学院得到过热能学士学位。

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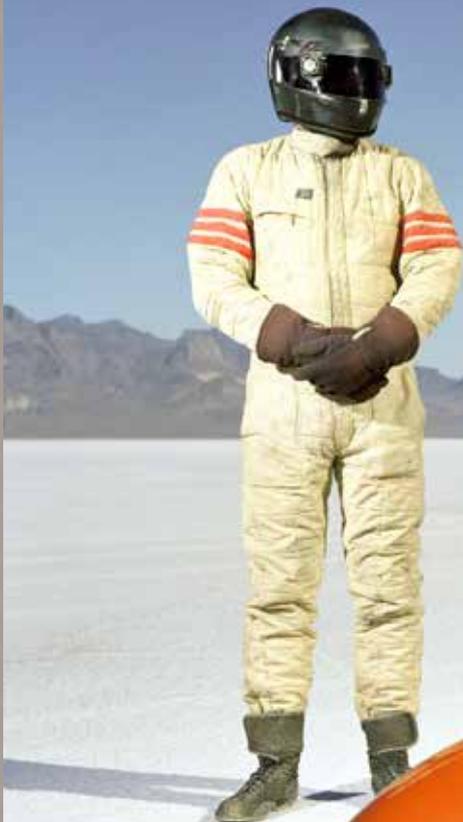


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7:30-8:00 /
0730-0800

REGISTRATION

8:00-8:30 /
0800-0830

OPENING REMARKS: Dr. Sassan Tarahomi, 2016 SPE Shanghai TPO Event Chair

8:30-9:00 /
0830-0900

KEYNOTE SPEAKER #1: Dr. Rose Ryntz
Vice-President, Advanced Engineering & Material Development, International Automotive Components Group
The Changing Landscape for Plastics Use in Interior Automotive Applications

瑞兹博士是位于美国密西根州的国际汽车部件集团公司的副总裁，主管尖端材料工程的开发。她的主题报告题目是“塑料在汽车内饰应用的演变。”

9:00-9:15 /
0900-0915

3 Short Videos on SPE & Speech from Official at SPE Shanghai

9:15-9:30 /
0915-0930

TECHNICAL PROGRAM HIGHLIGHTS: Dr. Norm Kakarala, 2016 SPE Shanghai TPO Technical Program Chair

9:30-10:30 /
0930-1030

BREAK - Grand Ballroom Foyer-Level 5 (Sponsored by SPE®) / EXHIBITS - Grand Ballroom

SESSION 1: SOFT TPO APPLICATIONS

会议 1: 软热塑性聚烯烃弹性体(TPO) 的应用

10:30-11:00 /
1030-1100

Presentation #1/Plenary Talk: Ken Gassman, Inteva Products LLC (USA)
Trends in Automotive Interiors

报告#1/大会报告: Ken Gassman, Inteva Products LLC (USA)
汽车内饰的发展趋势

11:00-11:30 /
1100-1130

Presentation #2: Roger Young, Robert Eller Associates LLC (USA)
Current and Future Prospects for TPOs and TPEs in Interiors

报告 #2: Roger Young, Robert Eller – Robert Eller Associates LLC (USA)
热塑性聚烯烃弹性体和热塑性弹性体在汽车内饰领域的当前应用和发展前景

11:30-12:00 /
1130-1200

Presentation #3: Dan Feeney, Haartz Corporation (USA)
New Innovations in Moldable TPO Laminates for Automotive Interiors

报告 #3: Dan Feeney, Haartz Corporation (USA)
TPO 层压制品在汽车内饰件领域的创新应用

12:00-1:30 /
1200-1330

LUNCH - Shanghai City Bistro-Level 3 (sponsored by SPE®) / EXHIBITS - Grand Ballroom

SESSION 2: COATINGS FOR AUTOMOTIVE INTERIORS

会议 2: 汽车内饰涂层

1:30-2:00 /
1330-1400

Presentation #4: Jim Keller, United Paint & Chemical Corporation (USA)
Design of Automotive Interior Coatings

报告 #4: Jim Keller, United Paint & Chemical Corporation (USA)
汽车内饰涂层设计

2:00-2:30 /
1400-1430

Presentation #5: John Millea, The Haartz Corporation (USA)
Overcoming the Challenges Posed By Consumer Products Used In Automotive Interiors

报告 #5: John Millea, Dr. Pravin Sitaram, Kristine Togneri – The Haartz Corporation (USA)
克服汽车内饰件消费品带来的挑战

2:30-3:00 /
1430-1500

Presentation #6: Martin van den Berg, Stahl (USA)
Development of Global Emission Compliant Topcoats and Primers for TPO Materials

报告 #6: Martin van den Berg – Stahl (USA)
TPO 材料顶漆和底漆全球排放标准的发展

3:00-3:30 /
1500-1530

BREAK - Grand Ballroom Foyer - Level 5 (sponsored by SPE®) / EXHIBITS - Grand Ballroom

SESSION 3: RIGID TPO COMPOUNDS

会议 3: 硬性 TPO 共混物

3:30-4:00 /
1530-1600

Presentation #7: Dr. Laura Shereda, Asahi Kasei Plastics North America, Inc. (USA)
Understanding Emissions of PP-Based Resin Compositions

报告 #7: Laura Shereda 博士 – Asahi Kasei Plastics North America, Inc.
理解 PP 树脂成分的排放

4:00-4:30 /
1600-1630

Presentation #8: Emily Fu, Reliable Analysis (Shanghai) Inc. (China) Continuous Optimization of Interior Air Quality

报告 #8: Emily Fu, Alec Lang – Reliable Analysis (Shanghai) Inc. (China)
持续优化车内空气质量

4:30-5:00 /
1630-1700

Presentation #9: Dr. Linda Havermans, SABIC (The Netherlands)
Meeting the Challenge of Delivering Global PP Compound Solutions

报告 #9: Linda Havermans 博士 – SABIC (The Netherlands)
实现 PP 共混物全球运输的解决方案

5:00-6:00 /
1700-1800

BREAK - Grand Ballroom Foyer - Level 5 (sponsored by SPE®) / EXHIBITS - Grand Ballroom

6:00-7:00 /
1700-1900

RECEPTION / DINNER - Shanghai Bistro-Level 3 (sponsored by SPE®)

7:00 /
1900

CONFERENCE ENDS FOR THE DAY

All Presentations are in Grand Ballroom-Salon 1A/1B

7:30-8:00 /
0730-0800

REGISTRATION

8:00-8:30 /
0800-0830

OPENING REMARKS: Dr. Sassan Tarahomi, 2016 SPE Shanghai TPO Event Chair

8:30-9:00 /
0830-0900

KEYNOTE SPEAKER #2: Dr. Stéphane Quilliet
Engineering Manager-Injection Molding Team, RocTool
On the Road to a New Standard: High-Definition Plastics

桂莱特博士是法国ROCTOOL公司注射型部门的工程经理。他的主题报告题目是"走向新的标准：高保真度塑料。"

9:00-9:15 /
0900-0915

TECHNICAL PROGRAM HIGHLIGHTS: Dr. Norm Kakarala, 2016 SPE Shanghai TPO Technical Program Chair

9:15-10:30 /
0915-1030

BREAK - Grand Ballroom Foyer-Level 5 (Sponsored by IMI Fabi SpA) / EXHIBITS - Grand Ballroom

SESSION 4: LIGHTWEIGHT TECHNOLOGIES - Part 1

会议 4：轻质技术-第 1 部分

10:30-11:00 /
1030-1100

Presentation #10: Marco Pan,
Trinseo Automotive (France)
Enable Lighter Designs: The Renault Espace Full TPO Liftgate

报告 #10: **Marco Pan –**
Trinseo Automotive (France)
启用更轻的设计: **Renault Espace 全 TPO 掀背式车门**

11:00-11:30 /
1100-1130

Presentation #11: Dr. Linda Havermans,
SABIC (The Netherlands)
Achieving Weight Reduction and a Balance of Properties with PP Compounds in Both Interior and Exterior Applications

报告 #11: **Linda Havermans 博士,**
Bhuvneesh Kumar – SABIC (The Netherlands)
实现聚丙烯复合物内饰和外饰产品的减重与性能的平衡

11:30-12:00 /
1130-1200

Presentation #12: Dr. Laura Shereda,
Asahi Kasei Plastics North America, Inc. (USA)
New Developments in Talc and Cellulose Fiber-Reinforced PP for Automotive Interior Trim Weight Savings

报告 #12: **Laura Shereda 博士, Vaibhav (Vive)**
Apte - Asahi Kasei Plastics North America, Inc. (USA)
应用滑石粉和纤维素增强并轻量化聚丙烯内饰产品的最新发展

12:00-1:30 /
1200-1330

LUNCH - Shanghai City Bistro-Level 3 (Sponsored by SPE®) / EXHIBITS - Grand Ballroom

SESSION 5: LIGHTWEIGHT TECHNOLOGIES - Part 2

会议 5：轻量化技术-第二部分

1:30-2:00 /
1330-1400

Presentation #13: Dr. David Brands,
SABIC (The Netherlands)
Weight Reduction Technologies for Long Glass-Reinforced Polypropylene

报告 #13: **David Brands 博士, Angel Yanev –**
SABIC (The Netherlands)
长玻纤增强 PP 体系的减重技术

2:00-2:30 /
1400-1430

Presentation #14: Dr. Laura Shereda,
Asahi Kasei Plastics North America, Inc. (USA)
Welding Improvements with a Focus on High Strength Glass-Reinforced Polypropylene

报告 #14: **Laura Shereda 博士, Tom Howie -**
Asahi Kasei Plastics North America, Inc. (USA)
高强度玻纤增强 PP 体系焊接技术的改进

2:30-3:00 /
1430-1500

Presentation #15: Piergiorgio Ercoli Malacari
IMI Fabi SpA (Italy)
HVT Extra: Introducing a New Talc for Best Performance Tradeoffs

报告 #15: **Piergiorgio Ercoli Malacari –**
IMI Fabi SpA (Italy)
HVT Extra: 一种平衡基体最佳性能的新型滑石粉填料

3:00-3:30 /
1500-1530

BREAK - Grand Ballroom Foyer-Level 5 (Sponsored by SPE®) / EXHIBITS - Grand Ballroom

SESSION 6: MATERIAL DEVELOPMENTS - Part 1

会议 6：材料发展-第 1 部分

3:30-4:00 /
1530-1600

Presentation #16: Dr. Sam He, Inteva Products LLC (USA)
Discussion of Thermoplastic Concentrates / Additives and Automotive Interior Applications

报告 #16: **Sam He 博士 –**
Inteva Products LLC (USA)
热塑性填料/添加剂在汽车内饰产品中的应用

4:00-4:30 /
1600-1630

Presentation #17: Jungdu Kim,
Songwon Industrial (South Korea)
UV Product Developments for TPO Automotive Applications

报告 #17: **Jungdu Kim, J. Mara, T. Schmutz, HeeJung Kwon,**
K. Keck, and B. Iyer – Songwon Industrial (South Korea)
紫外光处理 TPO 汽车制品的研究进展

4:30-5:00 /
1630-1700

Presentation #18: Şerif Erdoğan, Elastron Kimya (Turkey)
Mechanical-Physical and Weathering Properties of New 'MATT SEBS' Series for Weatherseal Applications

报告 #18: **Şerif Erdoğan – Elastron Kimya (Turkey)**
新型 "MATT SEBS" 复合物的机械-物理和
耐候性能以及其在汽车密封条上的应用

5:00-7:00 /
1700-1900

RECEPTION / DINNER - Shanghai Bistro-Level 3 (Sponsored by SPE®)

7:00 /
1900

CONFERENCE ENDS FOR THE DAY

Thursday, March 24, 2016

All Presentations are in Grand Ballroom-Salon 1A/1B

7:30-8:00 /
0730-0800

REGISTRATION

8:00-8:30 /
0800-0830

OPENING REMARKS: Dr. Sassan Tarahomi, 2016 SPE Shanghai TPO Event Chair

SESSION 7: PROCESS DEVELOPMENTS

会议 7: 加工工艺的发展

SESSION 9: SURFACE ENHANCEMENTS

会议 9: 表面强化

8:30-9:00 /
0830-0900

Presentation #19: Professor Lih-Sheng (Tom) Turng, University of Wisconsin-Madison (USA)
Recent Developments of Microcellular Injection Molding

报告 #19: Lih-Sheng (Tom) Turng 教授, University of Wisconsin-Madison (USA)
微孔发泡注射成型的发展近况

Presentation #25: Jerry Luo, Kingfa Science & Technology Co. Ltd. (China)
Innovative Compounded TPO Materials for Automotive Applications

报告 #25: Jerry Luo, Kingfa Science & Technology Co. Ltd. (China)
应用于汽车行业的创新复合 TPO 制品

9:00-9:30 /
0900-0930

Presentation #20: Wu Jie, JSR (Shanghai) Co. Ltd. (China)
Bonding Properties & Structure between TPVs and EPDM Vulcanizates for Automotive Profiles

报告 #20: Wu Jie - JSR (Shanghai) Co. Ltd. (China)
热塑性硫化橡胶 (TPVs) 和 EPDM 硫化胶汽车制品的粘接性能与结构

Presentation #26: Voly Wang, Dow Corning (China) Holding Co. Ltd. (China)
Next-Generation Additives for Scratch Improvements of Auto Interior Talc-Filled Polypropylene Parts

报告 #26: Voly Wang, Dow Corning (China) Co. Ltd. (China)
增强滑石粉/PP 内饰制品抗刮性能的新一代添加剂

9:30-10:30 /
0930-1000

Presentation #21: Dr. Shih-Po (Tober) Sun, CoreTech System Co., Ltd. (China)
Simulating Composite Manufacturing with Moldex3D

报告 #21: Shih-Po (Tober) Sun 博士- CoreTech System Co., Ltd. (China)
Moldex3D 软件在复合材料加工过程模拟中的应用

10:00-10:30 /
1000-1030

BREAK - Grand Ballroom Foyer-Level 5 (sponsored by SPE®) / EXHIBITS - Grand Ballroom

SESSION 8: MODELING & MEASUREMENT OF SCRATCH RESISTANCE

会议 8: 耐划伤性能模型构建及测试表征

SESSION 10: MATERIAL DEVELOPMENTS - Part 2

会议 10: 材料的发展-第二部分

10:30-11:00 /
1030-1100

Presentation #22: M. Jamali, Parsa Polymer Sharif Co. (Iran)
Correlating Scratch Visibility with Mechanical Behavior of TPO Compounds

报告 #22: M. Jamali, R. Bagheri, O. Dadgari, and A. Ghasemi - Parsa Polymer Sharif Co. (Iran)
TPO 复合材料的耐划伤可见性和力学性能之间的关系

Presentation 27: Roger Liu, LyondellBasell Industries (China)
Recent Advances in Soft-Touch Feeling Material

报告 #27: Roger Liu, LyondellBasell Industries (China)
软触觉材料的最新进展

11:00-11:30 /
1100-1130

Presentation #23: Dr. Sassan Tarahomi, International Automotive Components Group (USA)
TPO Scratch & Mar Predictability - Part 1: Simulation

报告 #23: Sassan Tarahomi 博士- International Automotive Components Group (USA)
TPO 耐划伤和擦伤性能预测 - 第一部分: 模拟

Presentation 28: Colin Chen, LyondellBasell Industries (China)
Low VOC Automotive Interior with New Developments on PP Compounds

报告 #28: Colin Chen, LyondellBasell Industries (China)
低挥发性有机化合物汽车内饰 PP 混合物的新发展

11:30-12:00 /
1130-1200

Presentation #24: Dr. Sassan Tarahomi, International Automotive Components Group (USA)
TPO Scratch & Mar Predictability - Part 2: Building the Surface Characteristic Database

报告 #24: Sassan Tarahomi 博士- International Automotive Components Group (USA)
TPO 耐划伤和擦伤性能预测 - 第二部分: 构建表面-性能数据库

12:00 /
1200

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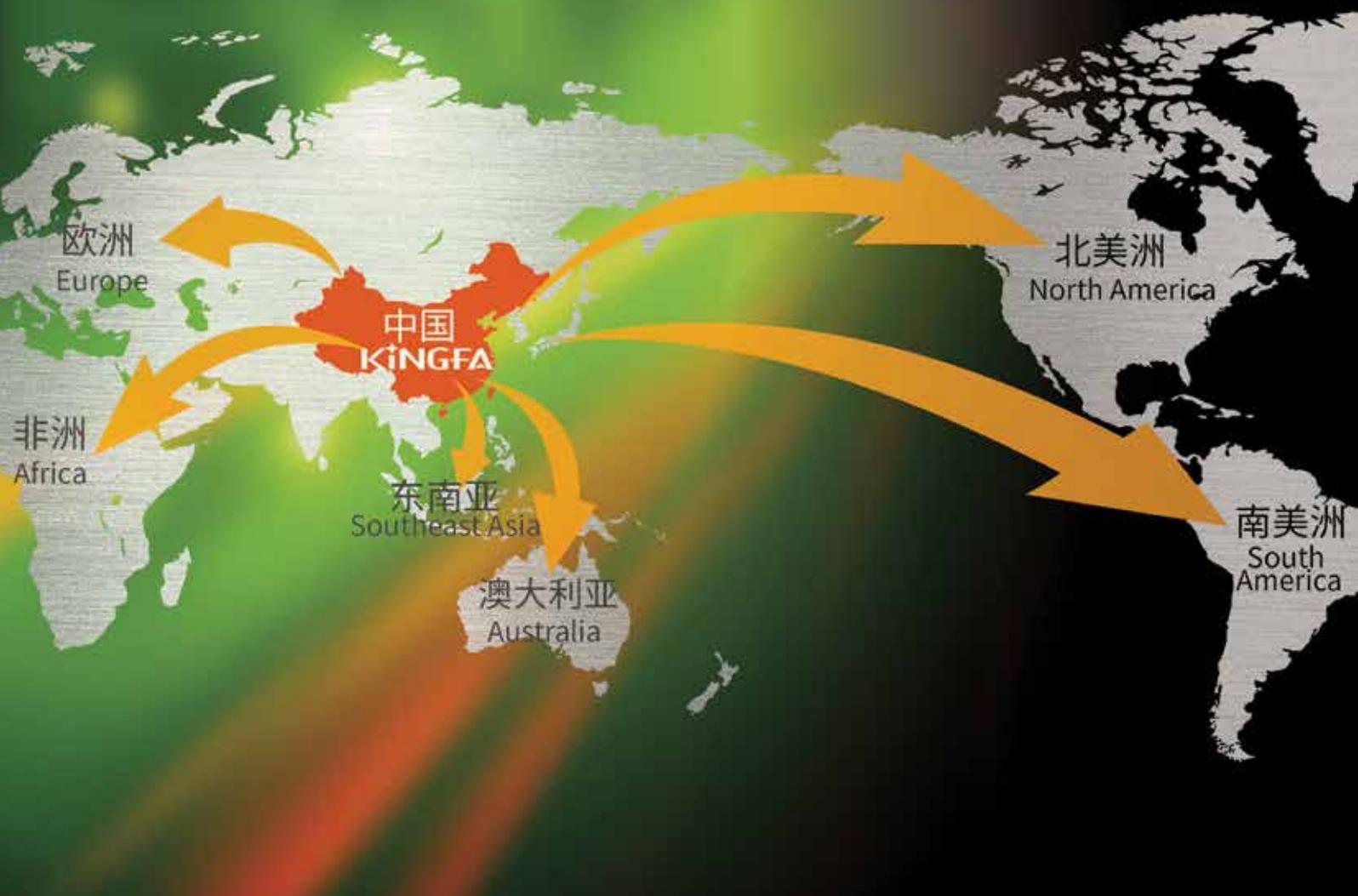
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Soft TPO Applications

会议 1: 软热塑性聚烯烃弹性体 (TPO) 的应用

Presentation #1/ Plenary Talk: Ken Gassman,
Inteva Products LLC (USA)

Trends in Automotive Interiors

In today's automotive industry, OEMs and suppliers are working hard to set themselves apart. During this talk, we will discuss how vehicle interiors are influenced by everything from nature to fashion and how manufacturers and suppliers are addressing these trends.



- The exterior grabs you, the interior holds you. Consumers now expect luxuriously designed interiors to match the highly designed exterior, no matter the vehicle segment.
- Designers are driven by insightful and ingenious ideas. Defining new standards in vehicle interior design, style, performance, and comfort is the result of a multitude of influences and inspiration.
- The fashion industry is bringing forward new elements of design in textiles, textures, patterns, and stitching. Learn how automotive designers can integrate that industry's best practices into well-crafted interiors.
- The vehicle's interior is becoming an outlet for personalization and creativity. It is helpful to look outside the automotive industry to stay on top of trends, apply uncommon expertise, and develop new product and process ideas.
- Not only do today's interiors look and feel like fashion showpieces, they can meet and even surpass our industry's needs in terms of cost, form, and function, durability, low weight and low mass. All require technical ingenuity.

报告#1/大会报告: Ken Gassman, Inteva Products LLC (USA)

汽车内饰的发展趋势

在如今的汽车工业领域,设备制造商和供应商们正在不断努力使产品与众不同。在这个报告中,我们将讨论从自然到时尚的众多不同因素对汽车内饰的影响,并且突出制造商和供应商们是如何迎合这些趋势的。

- 外饰吸引你,内饰捕获你。无论是汽车的哪个部分,现在的消费者期望更加奢华的内饰设计以符合高质量的外部设计。
- 设计师们受独创的、精巧的想法所驱动。多种影响因素和灵感的融合,正在不断诠释汽车内饰设计,风格,性能和舒适等方面的新的标准。
- 时尚产业正在不断推出新的设计元素,如质地、纹理、图样、缝法等。汽车设计师探索如何应用产业界的最新成果来完善内饰件的设计。
- 汽车内饰正在成为个性化和创造力的展现。这有利于汽车工业开拓视野,紧跟流行前沿,应用新技术,开发新产品和新工艺。
- 不仅今天的内饰外观看起来像时尚典范,而且他们在成本,形式和功能,耐用性、减轻重量等方面可以满足甚至超越我们行业的需求。所有的这些都需要技术创新。

Soft TPO Applications

会议 1: 软热塑性聚烯烃弹性体 (TPO) 的应用

Presentation #2: Roger Young, Robert Eller,
Robert Eller Associates LLC (USA)

Current and Future Prospects for TPOs and TPEs in Interiors

Compound technology and fabrication methods are enlarging the performance profiles for TPOs and TPEs in interiors. This presentation explores enabling technologies, targets and paths to innovation in interiors, including foams, soft-touch technology, skins, body/glazing seals, mats, and acoustics within the context of a shifting supply chain, globalization, and shifting performance requirements.



报告 #2: Roger Young, Robert Eller – Robert Eller Associates LLC (USA)

热塑性聚烯烃弹性体和热塑性弹性体在汽车内饰领域的当前应用和发展前景

共混技术和制备工艺极大的改善了 TPOs 和 TPEs 作为汽车内饰件的性能。本报告探讨了通过技术、目标和路径创新,在供应链不断变化、全球化、及产品性能需求的不断变化的大背景下,实现内饰件的技术创新,如发泡材料,软触技术、皮肤、身体/光滑面密封,垫子,和音响等技术。

Presentation #3: Dan Feeney,
Haartz Corporation (USA)

New Innovations in Moldable TPO Laminates for Automotive Interiors

Automotive Interior skin technologies are constantly evolving to meet the many and ever-changing industry requirements. Innovation has focused on TPO-based materials with a soft haptic, while meeting the increased challenges of chemical resistance and remaining environmentally friendly. Haartz has been at the forefront developing new TPO laminate constructions as solutions to this challenge. By using years of manufacturing expertise, we have created a portfolio of highly engineered materials to form over even the most complex shapes.



报告 #3: Dan Feeney, Haartz Corporation (USA)

TPO 层压制品在汽车内饰件领域的创新应用

汽车内饰表皮技术不断发展以满足多样和不断变化的行业需求。创新主要集中在改善 TPO 材料的触觉体验,但是却不断遇到耐化学性和保持环保友好的挑战。Haartz 公司率先开发出新的 TPO 层压结构技术来解决这一问题。基于多年的加工经验,我们的工程材料产品可以满足制品的复杂形状要求。

Coatings for Automotive Interiors

会议 1：软热塑性聚烯烃弹性体 (TPO) 的应用

Presentation #4: Jim Keller,
United Paint & Chemical Corporation (USA)

Design of Automotive Interior Coatings

Coatings for automotive interiors provide improved aesthetics (color harmony, uniform gloss), haptics or tactile sensation (soft touch, smooth and slippery feel), durability (weatherability, scratch and wear resistance), and chemical resistance. This presentation explains why coatings are used and the special challenges in developing coatings for TPOs and engineered polypropylenes. Function of different components of the coatings will be explained in the context of meeting specific end-use property requirements.



报告 #4: Jim Keller, United Paint & Chemical Corporation (USA)

汽车内饰涂层设计

汽车内饰涂层增加了美学(颜色和谐、均一的光泽), 触觉或质感(柔软的触摸, 光滑和湿滑的感觉), 耐用性(耐气候性、划痕、耐磨性)和耐化学性。本报告解释了为什么使用涂层以及应用 TPOs 和工程聚丙烯材料作为涂层过程中遇到的特殊挑战。我们将在满足特定性能需求的背景下探讨不同成分在涂层中的功能。

Presentation #5: John Millea,
Dr. Pravin Sitaram, Kristine Togneri,
The Haartz Corporation (USA)

Overcoming the Challenges Posed by Consumer Products used in Automotive Interiors

As consumers try to resist microbes, the sun, and more, they are transferring chemicals from such products as hand sanitizer and sunscreen to the surface of their vehicle's interior. The molded soft-trim materials in automotive interiors have a new challenge to resist these chemical attacks. To combat the challenge, extensive R&D efforts at Haartz have led to new TPO formulations and lacquers that achieve greater chemical resistance while maintaining a balance between performance, processing, haptics, and environmental responsibility.



报告 #5: John Millea, Dr. Pravin Sitaram, Kristine Togneri – The Haartz Corporation (USA)

克服汽车内饰件消费品带来的挑战

由于消费者试图避免微生物, 阳光, 和其它因素, 他们正在把诸如洗手液和防晒霜等化工产品转移到他们汽车里面。汽车内饰中的模塑软制品在抵抗这些化工产品时面临了新的挑战。为了应对这些挑战, Haartz 公司经系统研发, 平衡产品性能、加工、触觉和环境的责任之间的关系, 开发出领先的, 具有耐化学性的 TPO 配方和涂料。

Coatings for Automotive Interiors

会议 1: 软热塑性聚烯烃弹性体 (TPO) 的应用

Presentation #6: Martin van den Berg,
Stahl (USA)

Development of Global Emission-Compliant Topcoats and Primers for TPO Materials

Days of a “new car smell” are over. VOC emissions are no longer tolerated because of legislation, OEM-specific car interior guidelines (based on toxicology), and consumers. Stahl, a leading manufacturer of coatings for car interior-trim applications, is launching anew series of coating products that not only comply



with the most stringent OEM requirements for emissions and aesthetic and technical performance, but also takes it one step further by introducing coatings with an ongoing and increasing content of renewable raw materials.

报告 #6: Martin van den Berg – Stahl (USA)

TPO 材料顶漆和底漆全球排放标准的发展

对于“新车味道”喜爱的时期已经结束。由于法律，原始制造商遵循的特定汽车内饰件指南(基于毒理学), 和消费者的要求, 对挥发性有机化合物 (VOC) 的排放量必须加以控制。Stahl 作为汽车内饰涂料的主要制造商, 推出了一个新的涂料系列产品, 不仅符合最严格的原始制造商的排放要求, 以及美学和技术特性要求, 而且进一步应用了可再生的原材料。

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Rigid TPO Compounds

会议 3: 硬性 TPO 共混物

Presentation #7: Dr. Laura Shereda,
Asahi Kasei Plastics North America, Inc. (USA)

Understanding Emissions of PP-Based Resin Compositions

As the world becomes more concerned with air quality and carbon footprint, in the automotive industry OEMs have begun to add emissions criteria to their parts and prints. These tests generally include measurements of odor, fog, and VOCs. Asahi Kasei has performed extensive testing to determine how the results of each test are related to changes in formulation, processing, and molding. This presentation will provide an overview of emissions in polypropylene compounds.



报告 #7: Laura Shereda 博士 – Asahi Kasei Plastics North America, Inc.

理解 PP 基树脂成分的排放

随着空气质量和温室气体的排放引起了更多的关注，汽车行业的原始设备制造商（OEM）对于他们自己的产品部件和印刷过程已经开始推行排放标准。这些测试一般包括测量气味、雾和挥发性有机化合物（VOCs）。Asahi Kasei 公司已通过广泛的试验研究，以确定每个试验结果，材料配方，加工过程和模塑成型之间的关系。本报告将概述聚丙烯材料体系的排放。

Presentation #8: Emily Fu, Alec Lang,
Reliable Analysis (Shanghai) Inc. (China)

Continuous Optimization of Interior Air Quality

As we all know, more and more people are paying attention to vehicle interior air quality. In order to improve the vehicle interior air quality, protect human health, and promote the automobile industry's technical progress, the Chinese government decided to revise the standard GB/T 27630-2011 and convert it to a compulsory standard. The new draft, published on Jan. 2016 shows much stricter requirements. This presentation will focus on the different emission tests and the change in emission requirements over time.



报告 #8: Emily Fu, Alec Lang – Reliable Analysis (Shanghai) Inc. (China)

持续优化车内空气质量

越来越多的人开始关注车厢内空气质量。中国政府为了改善车内空气质量，保护乘驾车人员的健康，并且改进汽车工业的生产工艺，重新制定了新的国家标准（GB/T 27630-2011），并强制执行。2016年1月，新出台的草案更为严格。本报告将关注不同的排放测试和排放标准的变化。

Rigid TPO Compounds

会议 3: 硬性 TPO 共混物

Presentation #9: Dr. Linda Havermans,
SABIC (The Netherlands)

Meeting the Challenge of Delivering Global PP Compound Solutions

Today, automotive OEMs demand higher performance from PP compounds to successfully address key challenges (i.e., enhanced aesthetics, safety, and weight reduction). OEMs also demand global grades that are readily available locally. Global grade design is complex and challenging because of regional differences



in raw material profiles. However, globally unified PP compound performance profiles can be achieved, as this presentation will demonstrate, by focusing not only on material compositions, but also properties critical to success.

报告 #9: Linda Havermans 博士- SABIC (The Netherlands)

实现 PP 共混物全球运输的解决方案

今天, 汽车的原始设备制造商对 PP 共混物的性能提出了更高的要求(例如, 既要注重美观, 改善安全性, 也要考虑产品减重)。原始设备制造商也要求实现在当地购买全球化的原材料。由于原材料的地区差异性, 实现全球产品等级的设计是复杂的和具有挑战性的。然而, 正如本报告所展示的, 通过关注材料组成和产品性能, 可以在全球范围内实现 PP 共混物性能的统一标准。

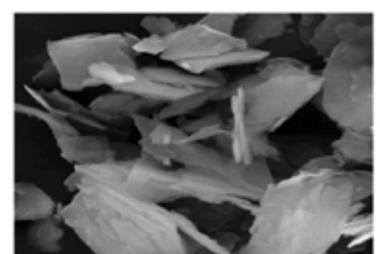


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Lightweight Technologies - Part 1

会议 4: 轻质技术-第 1 部分

Presentation #10: Marco Pan,
Trinseo Automotive (France)

Enable Lighter Designs: The *Renault Espace* Full TPO Liftgate

In a joint project, Renault and Trinseo developed a full thermoplastic liftgate solution, which was commercialized and implemented on the serial production of the 2015 *Renault Espace*. The solution involved replacing metal with plastic on a key vehicle component. The innovative aspect was the use of a single thermoplastic material with different fillers for a mono-material liftgate. The final design achieved optimal dimensional stability, which had been considered the main challenge.



报告 #10: Marco Pan – Trinseo Automotive (France)

启用更轻的设计: Renault Espace 全 TPO 掀背式车门

在一个联合项目中, 雷诺和 Trinseo 开发了一个全热塑性塑料掀背式车门的解决方案, 这个方案已经商业化并应用在 2015 雷诺埃斯佩斯系列产品上。该方案在车辆一个关键部件上实现用塑料替代金属。创新点在于应用含有不同填料的热塑性塑料实现了制备单一材料的掀背式车门。最终的设计突破挑战, 实现了产品的尺寸稳定性。

Presentation #11: Dr. Linda Havermans,
Bhuneesh Kumar,
SABIC (the Netherlands)

Achieving Weight Reduction and a Balance of Properties with PP Compounds in Both Interior and Exterior Applications

The automotive industry is challenged to remove weight to improve fuel efficiency and reduce tailpipe emissions. Smart design, like ribbing, can get weight out in semi-structural plastic parts, but not in less structural parts produced from PP compounds. For some interior parts, a challenge is to achieve low temperature impact resistance while maintaining (or even increasing) stiffness without processing penalties. This presentation provides innovative approaches to save weight, with minimal tradeoffs, and an excellent property balance.



报告 #11: Linda Havermans 博士, Bhuneesh Kumar – SABIC (The Netherlands)

实现聚丙烯复合物内饰和外饰产品的减重与性能的平衡

汽车工业正在试图通过减少车重来提高燃料的利用率, 同时减少尾气排放。一些针对聚丙烯复合物的巧妙设计, 如肋板, 能够有效减轻半结构件的质量, 但是在结构件上却无法实现。对于一些内饰产品, 在保持甚至提高产品强度的同时提高其抗低温冲击能力依然是一项难题。本研究提供了一种创新方法, 以极少的成本达到了减重和优良性能的平衡。

Lightweight Technologies - Part 1

会议 4: 轻质技术-第 1 部分

Presentation #12: Dr. Laura Shereda, Vaibhav (Vive) Apte,
Asahi Kasei Plastics North America, Inc. (USA)

New Developments in Talc and Cellulose Fiber-Reinforced PP for Automotive Interior Trim Weight Savings

Asahi Kasei Plastics has recently developed several new PP compounds based on cellulose fiber and/or that also include high flow, strength and stiffness talc-filled PP grades. These provide equivalent performance at reduced weight. The use of



these new PP compounds that provide an equivalent level of stiffness with lower carbon footprint will be discussed in the context of material replacement to achieve a value / performance proposition.

报告 #12: Laura Shereda 博士, Vaibhav (Vive) Apte - Asahi Kasei Plastics North America, Inc. (USA)

应用滑石粉和纤维素增强并轻量化聚丙烯内饰产品的最新发展

近期 Asahi Kasei 塑料公司利用纤维素改性生产出一些新型 PP 共混物，其中包括滑石粉填充的高流动、高强度和刚度的 PP。这些材料能够在减重的同时提供与普通 PP 同样的性能。本文从如何替代传统材料这一观点出发，研究了这种高性能、低碳释放量的 PP 的强度。



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Lightweight Technologies - Part 2

会议 5: 轻量化技术-第二部分

**Presentation #13: [Dr. David Brands,](#)
[Angel Yanev,](#)
SABIC (The Netherlands)**

Weight Reduction Technologies for Long Glass-Reinforced Polypropylene

Semi-structural plastic parts, such as front-end module carriers, are typically designed using complex geometrical shapes and ribbing to help take weight out. For less structural parts (i.e., instrument-panel carriers, door modules, etc.), mass reduction is usually achieved by reducing lowering wall thickness or density (such as by using foamed parts). This study compares different weight reduction technologies — chemical foaming, physical foaming, and thin-wall compact injection molding — applied to a long-glass fiber-reinforced PP composite resin to help define optimal performance.



**报告 #13: [David Brands 博士,](#) [Angel Yanev –](#)
[SABIC \(The Netherlands\)](#)**

长玻纤增强 PP 体系的减重技术

一些半结构塑料部件，如车前端模块载体，通常利用复杂的几何外形设计和肋板来减轻重量。而对于少数结构件（如仪表板和车门等）则是利用减少壁厚和降低密度（如利用发泡制品）来达到减重的目的。本研究对比了不同减重方法（化学发泡，物理发泡和薄壁注塑成型）在长玻纤增强 PP 共混物体系中的优化效果。

**Presentation #14: [Dr. Laura Shereda,](#)
[Tom Howie,](#)
Asahi Kasei Plastics North America, Inc. (USA)**

Welding Improvements with a Focus on High Strength Glass-Reinforced Polypropylene

Historically, welding of semi-crystalline polymers is more difficult than with amorphous polymers. When we determine the total strain energy of the material, we can greatly increase the strength of the weld. Strain energy optimization will be investigated by looking at several welding parameters and the composition of the material.



**报告 #14: [Laura Shereda 博士,](#) [Tom Howie -](#)
[Asahi Kasei Plastics North America, Inc.](#)
[\(USA\)](#)**

高强度玻纤增强 PP 体系焊接技术的改进

半结晶高分子的焊接一般比非结晶高分子要困难。当确定了材料的总应变能，我们就能够大幅度提高材料的焊接强度。本文通过研究不同的材料组分和焊接参数，进而优化材料的总应变能。

Lightweight Technologies - Part 2

会议 5: 轻量化技术-第二部分

Presentation #15: Piergiovanni Ercoli Malacari,
IMI Fabi SpA (Italy)

HVT Extra: Introducing a New Talc for Best Performance Tradeoffs

IMI Fabi has developed a new product (HVT Extra), which is a highly delaminated talc that provides outstanding stiffness when compared to standard micronized talc normally used in TPO compounds. Large platy particles ensure very-high rigidity in polyolefins using the new filler, while retaining other mechanical properties.



The innovative compaction process used to produce the new product enables a truly free-flowing, dust-free powder in every condition and does not show any bridging or funneling during handling. Performance results with the new product in conventional TPO compounds will be compared with standard talc solutions to demonstrate potential applications.

报告 #15: Piergiovanni Ercoli Malacari – IMI Fabi SpA (Italy)

HVT Extra: 一种平衡基体最佳性能的新型滑石粉填料

IMI Fabi 生产出一种高度分层的滑石粉 (HVT Extra), 与复合在 TPO 中的传统微粒滑石粉相比, 这种材料能够提供更好的强度。利用这种大颗粒的滑石粉, 聚烯烃能够在维持其他力学性能的同时达到非常高的强度。生产该产品所应用的创新压缩方法也保证了整个生产过程无流动、无粉尘且便于操作, 并且该型填料不易形成架桥。通过对常用滑石粉改性的 TPO 的性能进行比较, 进一步证实了 HVT Extra 的潜在应用价值。



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Material Developments - Part 1

会议 6: 材料发展-第 1 部分

Presentation #16: Dr. Sam He,
Inteva Products LLC (USA)

Discussion of Thermoplastic Concentrates / Additives and Automotive Interior Applications

Thermoplastic concentrates / additives are needed for material properties and processing, and for product functions and performance. This presentation discusses some key requirements and essential expectations for concentrates / additives and their suppliers. The discussion includes additives, processing aids, color and colorants, surface appearance quality of final components, and the end-user's experience. The presentation covers the expectations of automotive-interior business trends, innovation, cooperation in development, supply quality, and delivery, etc.



报告 #16: Sam He 博士 – Inteva Products LLC (USA)

热塑性填料/添加剂在汽车内饰产品中的应用

热塑性填料/添加剂常用来改善原材料和制品的性能和加工条件。本研究讨论了针对热塑性添加剂的关键要求，除了添加剂本身和供应商，还包括加工助剂，色母料，制品表面质量和用户体验。此外，本研究也展示了汽车内饰制品的趋势、创新、供应链质量和运输等方面的发展。

Presentation #17: Jungdu Kim, J. Mara, T. Schmutz, HeeJung Kwon, K. Keck, B. Iyer,
Songwon Industrial (South Korea)

UV Product Developments for TPO Automotive Applications

This presentation will begin by providing an overview of the photo-degradation and light stabilization of polyolefins and the chemistry and structure-activity relationships in hindered amine light stabilizers (HALS). It will end with the introduction of new synergistic UV stabilizer packages developed in partnership with Sabo to achieve increasing performance demands in the outdoor weathering of polyolefin-based applications, particularly automotive TPO components for interior and exterior.



报告 #17: Jungdu Kim, J. Mara, T. Schmutz, HeeJung Kwon, K. Keck, and B. Iyer – Songwon Industrial (South Korea)

紫外光处理 TPO 汽车制品的研究进展

本文首先回顾了聚烯烃制品的光降解性和光稳定性，以及使用阻氨光稳定剂 (HALS) 后 TPO 化学性能和结构活性的关系。最后展示了与 Sabo 合作开发的新型紫外光稳定剂满足聚烯烃在户外的应用条件，特别适用于汽车内外饰制品。

Material Developments - Part 1

会议 6: 材料发展-第 1 部分

Presentation #18: Şerif Erdoğan,
Şebnem Tayyar, Can Ozer,
Elastron Kimya (Turkey)

Mechanical-Physical and Weathering Properties of New "MATT SEBS" Series for Weatherseal Applications

This presentation discusses the mechanical-physical, rheological, and weathering properties of non-crosslinked "MATT SEBS" compound, which is designed as an alternative to EPDM/PP and crosslinked TPE-S. EPDM/PP-based thermoplastic vulcanizate is mainly used as a material for different types of automotive weatherseal applications, including beltline seals and glass-run channel seals. The new high-performance MATT SEBS-based compounds have competitive properties, including lower compression set at higher temperature, low gloss value, good weathering resistance, higher physical and mechanical properties, and similar flow properties with EPDM/PP.



报告 #18: Şerif Erdoğan, Şebnem Tayyar,
Can Ozer –Elastron Kimya (Turkey)

新型 "MATT SEBS" 复合物的机械-物理和耐候性能以及其在汽车密封条上的应用

为了替代 EPDM/PP 和交联 TPE-S, 本文研究了非交联 MATT SEBS 复合物的机械-物理、流变和耐候性能。基于 EPDM/PP 的热塑性硫化橡胶主要用于汽车密封方面 (包括密封条和玻璃运行通道密封), 而与其加工流动性能类似的新型 MATT SEBS 复合物则拥有更多优势, 如高温成型压力较低, 低光泽值, 更好的耐候性以及物理-机械性能等。



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Process Development

会议 7: 加工工艺的发展

Presentation #19:

Professor Lih-Sheng (Tom) Turng,
University of Wisconsin–Madison (USA)

Recent Developments of Microcellular Injection Molding

Injection molding with microcellular plastics is capable of producing parts with excellent dimensional stability while using less material and energy, lower injection pressure, and a shorter cycle time. As a result, microcellular injection molding has found broad applications in automotive products, business equipment, and various industrial applications and is applicable to TPO materials. In spite of these advantages, however, wider adoption of this promising process has been limited due to its inherent drawbacks, such as surface defects and inferior mechanical properties compared to conventional solid injection molded parts. This talk will present recent



developments of microcellular injection molding that employs gas-laden and ready-to-foam pellets to realize mass production of foamed injection molded parts and co-blowing agents as well as microcellular nanocomposites and blends that offer improved mechanical properties or ductility using the microcellular injection molding process.

报告 #19: Lih-Sheng (Tom) Turng 教授, University of Wisconsin–Madison (USA)

微孔发泡注射成型的发展近况

微孔发泡注射成型技术能够利用较少的材料和电能、较低的注射压力以及较短的成型时间生产出具有良好尺寸稳定性的发泡产品。因此，微孔注射成型技术在汽车制品、商业设备和许多工业应用中得到应用，该技术同样适用于TPO材料。尽管优点突出，但与固体注塑制品相比，微孔发泡制品固有的表面缺陷和较弱的力学性能在某种程度上限制了该技术的广泛应用。本报告将探讨最新的预发泡粒料技术，多种物理发泡剂技术，以及纳米复合材料技术在微孔发泡注射成型过程中的应用，极大地改善了发泡制品的机械性能和延展性。

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Process Development

会议 7: 加工工艺的发展

Presentation #20: Wu Jie,
JSR (Shanghai) Co. Ltd. (China)

Bonding Properties & Structure between TPVs and EPDM Vulcanizates for Automotive Profiles

Compared with cured rubber, olefinic-based thermoplastic vulcanizate (TPV) elastomers offer both cost savings (using less labor at higher process efficiency) as well as environmental benefits (due to lower carbon emissions and low mass). A new TPV grade (EXCELLINK) has been developed by optimizing the polypropylene matrix to have lower crystallinity and higher molecular weight. In this presentation, test results will be reviewed to show that the new material provides excellent adhesion to cured rubber, compression set, friction durability, and soft feel in an automotive door weather seal application.



报告 #20: Wu Jie – JSR (Shanghai) Co. Ltd. (China)

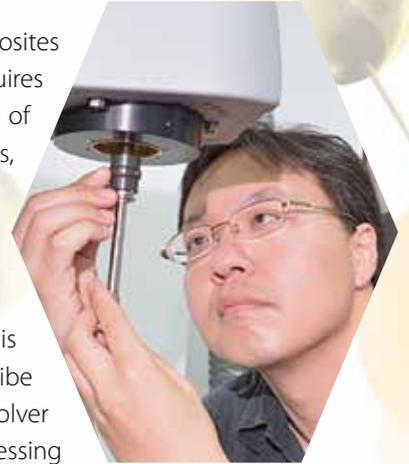
热塑性硫化橡胶 (TPVs) 和 EPDM 硫化胶汽车制品的粘接性能与结构

与固化橡胶相比，烯烃基热塑性硫化橡胶弹性体 (TPVs) 成本低廉 (使用较少的劳动力便能达到较高的生产效率) 且环保 (碳排放总量较低)。通过优化聚丙烯基体的低结晶度和高分子量，一种新级别的 TPV (EXCELLINK) 已经被生产出来。研究数据表明，这种 TPV 生产的车门用密封条产品，与固化橡胶具有优良的附着力，抗压缩变形，耐磨性和触觉感良好。

Presentation #21: Dr. Shih-Po (Tober) Sun -
CoreTech System Co., Ltd. (China)

Simulating Composite Manufacturing with Moldex3D

The success of composites simulation requires an understanding of material properties, process mechanisms, and simulation integration between design, analysis, and manufacturing tools. This presentation will describe how the Moldex3D solver tackles different processing techniques, and how the lab characterizes thermal and flow properties of the materials.



报告 #21: Shih-Po (Tober) Sun 博士- CoreTech System Co., Ltd. (China)

Moldex3D 软件在复合材料加工过程模拟中的应用

成熟的复合材料模拟需要理解材料的性能，加工机理，以及设计、分析和加工设备间的一体化模拟。本报告将介绍 Modex3D 软件是如何处理不同加工工艺和如何确定材料的热和流动性能的。

Modeling & Measurement of Scratch Resistance

会议 8: 耐划伤性能模型构建及测试表征

Presentation #22: M. Jamali, R. Bagheri
O. Dadgari, A. Ghasemi,
Parsa Polymer Sharif Co. (Iran)

Correlating Scratch Visibility with Mechanical Behavior of TPO Compounds

Goal of the current research is to better understand the role of the plastic matrix on scratch visibility in common formulations for interior trim. Two different compounds including a PP-elastomer and a PP-elastomer-filler were utilized. These materials could represent automotive door-panel and instrument-panel compounds, respectively. Scratch visibility on the grained surface was evaluated and correlated with the observations made in tensile, bending, and hardness testing of the compounds. Scratch path was analyzed using optical and scanning-electron microscopes. Strain at yield and stress whitening of the polymer were found to have considerable effects on scratch visibility.



报告 #22: M. Jamali, R. Bagheri, O. Dadgari, and A. Ghasemi – Parsa Polymer Sharif Co. (Iran)

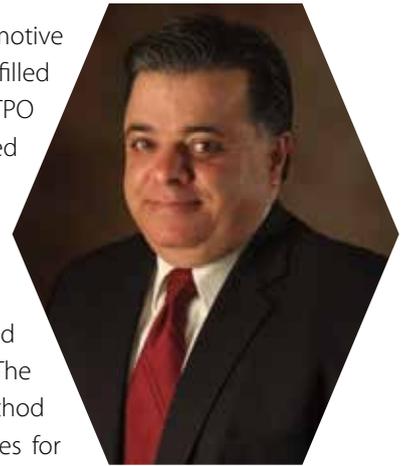
TPO 复合材料的耐划伤可见性和力学性能之间的关系

当前研究的主要目标是为了更好地理解汽车内饰通常所用的材料配方中聚合物基质对其耐划伤性能的影响。研究了聚丙烯弹性体和聚丙烯弹性体填料两种复合材料体系，它们分别是汽车门板和仪表盘所常用的材料体系。通过拉伸、弯曲和硬度测试，对纹饰表面的耐划伤可见性进行表征。通过光学显微镜和电子显微镜观察分析了划痕的发展过程。结果发现聚合物屈服应变和应力发白过程对材料的耐划伤性能有极其重要的影响。

Presentation #23: Dr. Sassan Tarahomi,
International Automotive Components Group (USA)

TPO Scratch & Mar Predictability - Part 1: Simulation

Materials used in automotive interiors include many filled and unfilled PP and TPO grades. With increased competition and materials improvement, customers expect much better performance for the interior materials used in their cars. The traditional method of testing grained plaques for scratch and mar does provide directional performance data but is very time consuming. This presentation discusses scratch and mar predictability for PP and TPO products by utilizing CAE analysis.



报告 #23: Sassan Tarahomi 博士- International Automotive Components Group (USA)

TPO 耐划伤和擦伤性能预测 - 第一部分: 模拟

汽车内饰所用的材料包括有填料或者纯的聚丙烯和 TPO。随着日益加剧的竞争和材料的日新月异，客户对汽车内饰所用材料的性能要求越来越高。传统的测试划伤和擦伤的方法确实能够提供指导性的性能数据，但是却极其耗时。该报告研究了如何通过 CAE 软件分析 PP 和 TPO 产品的耐划伤和擦伤性能。

Modeling & Measurement of Scratch Resistance

会议 8：耐划伤性能模型构建及测试表征

Presentation #24: Dr. Sassan Tarahomi,
International Automotive Components Group (USA)

TPO Scratch & Mar Predictability - Part 2: Building the Surface-Characteristic Database

This presentation is a continuation of the information presented as Part 1: Simulation. The FEA method is used to analyze surface damage by scratch and mar. The scope of this presentation is to present the extensive work completed in building the database. Scan



and discretization of interior automotive surface textures and further discussion in the accuracy of simulation versus physical testing with confirmation runs are discussed in this paper.

报告 #24: Sassan Tarahomi 博士- International Automotive Components Group (USA)

TPO 耐划伤和擦伤性能预测 - 第二部分：构建 表面-性能数据库

本报告是第一部分：模拟部分的延续，通过 FEA 方法分析表面划伤和擦伤。报告的主要内容是展示在构建数据库过程中的大部分工作。本文主要对汽车内饰表面纹理进行扫描和离散分析，并通过实验和模拟结果的对比来验证分析模拟的准确性。



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Surface Enhancements

会议 9: 表面强化

Presentation 25: Jerry Luo,
Kingfa Science & Technology Co. Ltd. (China)

Innovative Compounded TPO Materials for Automotive Applications

A series of innovative polypropylene material solutions have been developed to meet automotive lightweight and environmental-protection requirements. These technologies include high-flow grades for thin-wall applications, low-density, long-fiber-reinforced, low-emission, anti-scratch, bloom-free, and tacky grades, soft-touch materials, imitation-flocking grades, and paint-free materials among others. This presentation will discuss validation of these materials on automotive parts with a focus on part-design optimization, CAE analysis, process capability, and part testing.



报告 #25: Jerry Luo, Kingfa Science & Technology Co. Ltd. (China)

应用于汽车行业的创新复合 TPO 制品

为了解决汽车的轻量化问题和环保需求，一系列针对 PP 材料的改进的工艺应运而生。这些改进的性能包括：生产薄壁制品的高流动性，长玻纤增强，低密度、低碳排放量、抗刮性，触感好，以及免喷漆等性能。本文从结构优化，CAE 分析，成型能力和性能检测等方面，验证新型 PP 在汽车制品中的应用。

Presentation 26: Voly Wang,
Dow Corning (China) Co. Ltd. (China)

Next-Generation Additives for Scratch Improvement of Auto Interior Talc-Filled Polypropylene Parts

The automotive industry continues to push for parts that are more durable yet environmentally friendly. This presentation discusses the next generation of siloxane masterbatch additives for talc-filled polypropylene compounds designed for automotive interior parts. The technology provides excellent scratch performance at lower dosage levels than previously achieved while minimizing impact on mechanical properties. Additionally they offer the best combination of properties including excellent scratch resistance, long-term heat and UV stability, low fogging, and low VOC generation.



报告 #26: Voly Wang, Dow Corning (China) Co. Ltd. (China)

增强滑石粉/PP 内饰制品抗刮性能的新一代添加剂

汽车工业始终致力于更耐用的环保制品的开发。本文讨论了针对滑石粉填充 PP 复合汽车内饰制品的新一代硅氧烷母粒添加剂。少量该添加剂就能够使制品具备良好的抗刮性能，且对制品本身的力学性能影响极低。该添加剂同时也增强了制品在高温和紫外线下的稳定性、抗雾化和 VOC 沉积能力。

Material Developments - Part 2

会议 10: 材料的发展-第二部分

Presentation 27: Roger Liu,
LyondellBasell Industries (China)

Recent Advances in Soft-Touch Feeling Material

Soft-touch feeling material (Softell) provides high quality finished part surfaces with soft touch and matte surface without painting, as well as excellent scratch resistance and surface robustness. The parts made of these material feature very good noise-dampening properties, and better VOC emission performance on interior parts.



Recent advances in the grades demonstrated further improvements in the soft-touch feeling.

报告 #27: Roger Liu, LyondellBasell Industries (China)

软触觉材料的最新进展

软触觉材料 (softell) 提供了高质量精巧的制件表面, 使得制件表面具有柔软触觉和没有着色的无光泽的表面, 同时具有优秀的耐刮伤性和表面坚固性。用这些软触觉材料制成的制件有着非常好的噪音抑制特性, 并且对于汽车内饰件有着非常好的挥发性有机化合物排放特性。最新的发展证明了这种软触觉材料已经得到了很大的改善。

Presentation 28: Colin Chen,
LyondellBasell Industries (China)

Low VOC Automotive Interior with New Developments on PP Compounds

After the updated regulation release of GB 27630 in early 2016 for automotive cabin hazardous VOC emission control, more and more attention is being given by key tiers and OEMs to this topic. New technology developments in PP compounds for reduction of hazardous VOC emission on interior applications will be discussed in this presentation.



报告 #28: Colin Chen, LyondellBasell Industries (China)

低挥发性有机化合物汽车内饰 PP 混合物的新发展

2016年初发布更新对于汽车驾驶室内有害挥发性有机化合物排放控制 GB 27630 新规则后, 这个话题引起关键的供应商和原始设备制造商们越来越多的关注。关于 PP 混合物在减少汽车内饰有害挥发性有机化合物的排放新技术的发展将在本报告中讨论。



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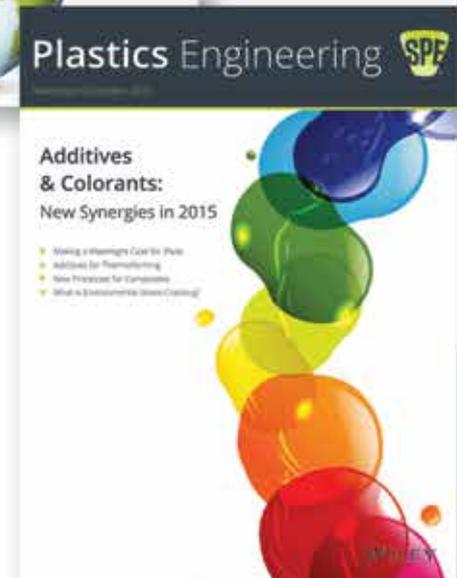
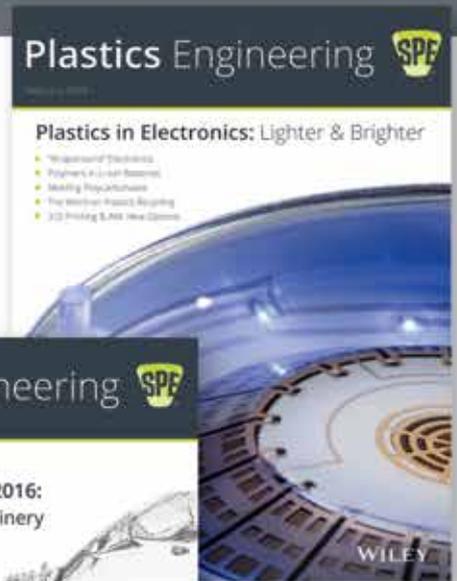
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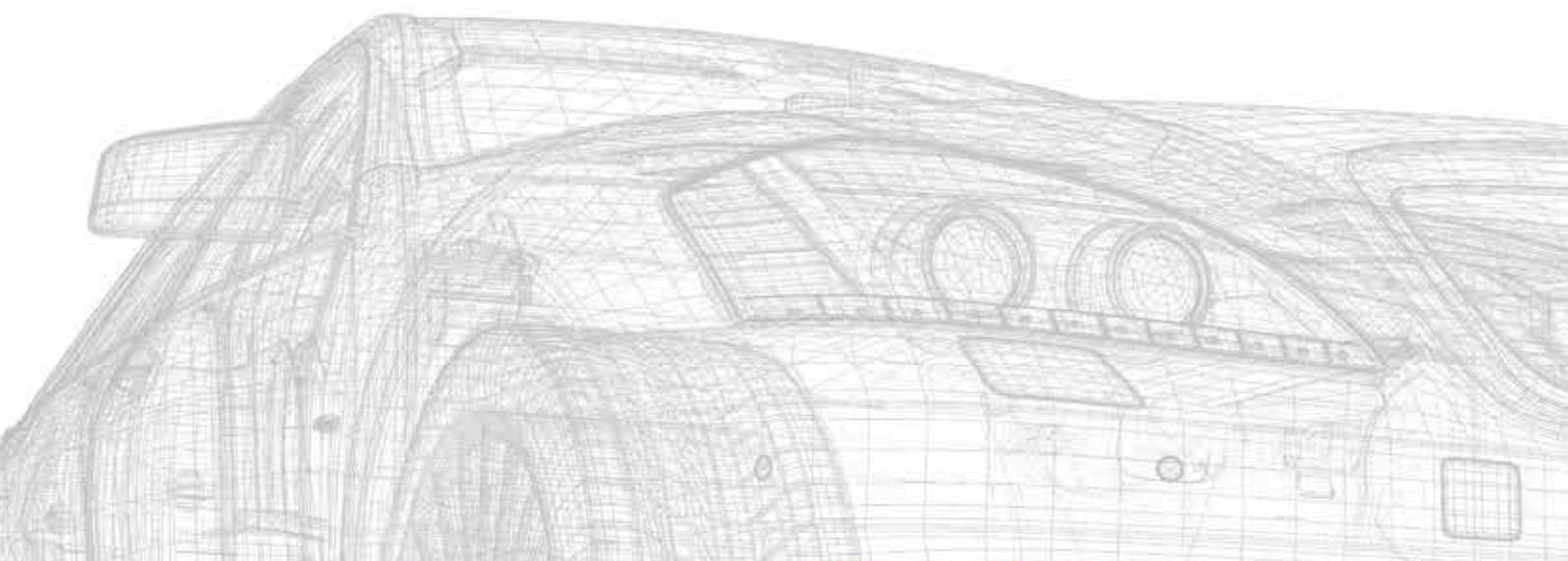
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