**MONDAY / MARCH 30**

<table>
<thead>
<tr>
<th>1:13 PM</th>
<th>1:30-2 PM</th>
<th>2:20-3 PM</th>
<th>3:30-4 PM</th>
<th>4:40-5 PM</th>
<th>4:50-5:50 PM</th>
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</thead>
<tbody>
<tr>
<td><strong>EXTRUSION</strong></td>
<td><strong>MOLD TECHNOLOGIES</strong></td>
<td><strong>THERMOPLASTIC ELASTOMERS</strong></td>
<td><strong>BIOPOLYMERS AND RENEWABLE TECHNOLOGIES</strong></td>
<td><strong>FAILURE ANALYSIS AND PREVENTION</strong></td>
<td><strong>ADDITIVE MANUFACTURING</strong></td>
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<td><strong>ADDITIVE MANUFACTURING</strong></td>
<td><strong>COMPOSITES: EFFECT OF NANO SCALE INCLUSIONS AND ADDITIVES</strong></td>
<td><strong>EPSD: FUNDAMENTAL PROPERTY/STRUCTURE RELATIONSHIPS</strong></td>
</tr>
<tr>
<td>Extrusion Technologies for Low Temperature Compounding / Travis Menapace</td>
<td>Simulation of Deformation of Hot Runner Manifold / Sun Kyoung Kim</td>
<td>A Green Polyurethane from Lignin: Moving Beyond Disocyanates with 100% Non-toxic Reagents / James Sterberg</td>
<td>Failure Analysis of Polymer Coating Systems / Gaurav Nagalia</td>
<td>The Influence of Laser Power Variation on SLS printed PA6 Parts and their Long term Properties / Tobias Heckner</td>
<td>The Effect of Boundary Conditions on Curing and Adhesion in Frontal Polymerization / Daniel Camarda</td>
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<tr>
<td>An All Silicone Thermoplastic Elastomer Curable through the Hard Block Phase / Steven Swier</td>
<td>Submicron Texturing of Injection Molds Using Femtosecond Laser / Leonardo Piccolo</td>
<td>Degradation Behavior of Aliphatic and Aromatic Biomass-Based Copolyesters for Agriculture / Margaret Sobkowicz</td>
<td>Plastic Failure Analysis and Forensics with SEM- EDX and Confocal Laser Microscopy / Francis Rodrigues</td>
<td>Compressibility in Fused Filament Fabrication / David Kazmer</td>
<td>The Use of Novel Biomaterials for Affordable Packaging / Kamir Tarverdi</td>
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<tr>
<td>Pushing the Limits to the Next Level: A New Mould Steel for Demanding Plastics and Biocomposites Dies / Magnus Brännbacka</td>
<td>Overmolding of Thermoplastic Elastomers onto Hard Substrate Materials / Ernest Kuhm</td>
<td>Bio-renewable Polyester/Graphene Nanocomposites / Muhammad Jibali</td>
<td>Mechanical Properties of Lignin-Based Polymers / Tai Lin</td>
<td>Preparing Cellulose Nanocrystal-Polypropylene Masterbatches by Water-Assisted Thermokinetic Mix / Craig Clemens</td>
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<tr>
<td>Failure Analysis of an Outdoor Instrument Housing / Jeff Jensen</td>
<td>Improving Thermal Conductivity of CoContinuous Ternary Composites using Double Percolation Structure / Molin Guo</td>
<td>Thermoplastic Composite System Using Polymer Blend and Fillers / Mohammed Alighandi</td>
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</tr>
<tr>
<td>From Self-Assembly Structure to Mesoporous and Microporous Materials / Shao-Wei Kuo</td>
<td>A Review of Impact Modification Technologies for Different Thermoplastics Using Ethylene Copolymer / Jeff Munro</td>
<td>Transition Metal-Catalyzed Degradation of Polymers: Review and Future Perspectives / Andrew Worthen</td>
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## TUESDAY / MARCH 31

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>1:15-1:30 PM</td>
<td>ABS/PC/ABS Composites: Circular Economy (Emerging Technology Forum)</td>
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<tr>
<td>1:30-2 PM</td>
<td>Process / Tooling</td>
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<tr>
<td>2-2:30 PM</td>
<td>Polymer Analysis Division - Polymer Characterizations</td>
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<td>2:30-3:30 PM</td>
<td>Joining of Plastics &amp; Composites Experiment and Simulation</td>
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<tr>
<td>3:30-4 PM</td>
<td>Chemical Recycling and The Polyethylene Circular Economy (Emerging Technology Forum)</td>
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<tr>
<td>4-4:30 PM</td>
<td>Composites / Coating, Membranes and Thin Films</td>
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<tr>
<td>4:30-5 PM</td>
<td>Additive Manufacturing</td>
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</tbody>
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### EXTRUSION - MIXING

- **Design of a Novel Free-Rotating Mixing Sleeve for Single-Screw Extrusion** / Mirco Janßen
- **Simulation of a Saxton-Mixer in High-Performance Extruders Using the Immersed Boundary Method** / Jochen Kettelmann
- **Synthesis of Ultrasoft, Consolidation, and Ballistic Performance of Composite Armor** / Avraham Benatar
- **Study of the Effects of Plasticization Condition on Ultra-Long-GF Reinforced PP Injection Molding** / Hsin-Shu Peng
- **Comparison of Additive and Conventional Tooling on Injection Molded Part Properties** / Maria Camila Montoya
- **Circumference Economy: New Challenges and Opportunities for the Plastics Industry** / Michael Rodin
- **Polymers/PLA Composites Monolith Fabricated by Thermally Induced Phase Separation** / Ziyang Pu
- **Surface Modification of Cellulose Nanocrystals by grafting Polyacrylic Acid via Polymerization from T** / Horoz Ertay
- **Effect of Maleic Anhydride on Cellulose Acetate Fiber Reinforced Thermoplastic Polyurethane** / Hamad Al-Turoll
- **Design and Evaluation of Bicomponent Composite Sheet: Sheath for 3D Printed Filament Feedstock Co-extrusion** / Babu Ruckshesh

### JOINING OF PLASTICS & COMPOSITES EXPERIMENT AND SIMULATION

- **Modeling of Heat Generation in Spin Welding** / Miranda Marcus
- **Effects of Ultrasonic Consolidation and Ballistic Performance of Composite Armor** / Avraham Benatar
- **The Influence of Surface Roughness on the Mechanical Performance of 3D-Printed ABS/Aluminum Joins** / Sergio Gandolfo
- **Optimization of Friction-Induced Joining Processes Using Artificial Neural Networks** / Lucian-Attila Blaga
- **Long and Short Term Tensile Strength and Morphology of Jointed Beta-Nucleated Polypropylene Parts** / Andrea Wukzke
- **Experimental Study of the Three-Phase Structure of Semi-Crystalline Polymers and its Simulative Approach** / Dario Heidrich

### CHEMICAL RECYCLING AND THE POLYETHYLENE CIRCULAR ECONOMY (EMERGING TECHNOLOGY FORUM)

- **Recyclable Drop-In Solution to Standard Epoxy Resins** / Selvim (Brian) Pillay
- **Plastic Should Never be a Single-use Material.** With Chemical Recycling, it Never Has to be / Tim Dell
- **The Future is Garbage: Converting Organic Waste into Polymers for the Circular Economy** / Tony Bova
- **Solving the Recycled Content Supply Gap using Alternative Feedstocks and Disruptive Technology** / David Bedner
- **Effect of Maleic Anhydride on Cellulose Acetate Fiber Reinforced Thermoplastic Polyurethane** / Hamad Al-Turoll
- **Design and Evaluation of Bicomponent Composite Sheet: Sheath for 3D Printed Filament Feedstock Co-extrusion** / Babu Ruckshesh

### COMPOSITES / COATING, MEMBRANES AND THIN FILMS

- **Light Weight Sheet Molding Compound** / Edward DiLoreto
- **Elastomer Modification of Self-Reinforced Composites (SRC) Via the Film Stacking Method** / Fabian Jakob
- **Study of the Effects of Plasticization Condition on Ultra-Long-GF Reinforced PP Injection Molding** / Hsin-Shu Peng
- **The Properties of PCL/PLA Composites Monolith Fabricated by Thermally Induced Phase Separation** / Ziyang Pu
- **High Definition PC/ABS Blend for Automotive Interior** / Marina Novogoroda
- **Polymers/PLA Composites Monolith Fabricated by Thermally Induced Phase Separation** / Ziyang Pu
- **Surface Modification of Cellulose Nanocrystals by grafting Polyacrylic Acid via Polymerization from T** / Horoz Ertay
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- **Design and Evaluation of Bicomponent Composite Sheet: Sheath for 3D Printed Filament Feedstock Co-extrusion** / Babu Ruckshesh

### ADDITIVE MANUFACTURING

- **Innovation of Glass Bubbles IM 16K Polyamide 12 Composites for Selective Laser Sintering** / James Klett
- **Development of an Agile, Battlefield Additive Manufacturing Plant for Recycled PET** / Prahat Krishnaswamy
- **Determination of Physical Properties of Fused Filament Fabrication Parts as Influenced by the nozzle** / Justin Limkaichong
- **Competition of Additive and Conventional Tooling on Injection Molded Part Properties** / Maria Camila Montoya
- **Circumference Economy: New Challenges and Opportunities for the Plastics Industry** / Michael Rodin
- **High Definition PC/ABS Blend for Automotive Interior** / Marina Novogoroda
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- **Design and Evaluation of Bicomponent Composite Sheet: Sheath for 3D Printed Filament Feedstock Co-extrusion** / Babu Ruckshesh

### AUTOMOTIVE

- **Recent Innovations in Materials and Applications of Automotive Plastics** / Suresh Shah
- **Advanced Thermoplastic Material Solutions to Improve Fuel Economy and Emissions Performance** / Rodrigo Novo
- **Innovations to Reduce Odor in Filled Polypropylene Materials** / Lily Liu
- **Time-Dependent Mechanical Behavior of Spatially Confined Polymer Nanorod Nanostructures** / Lu Jyun
- **Polymers/PLA Composites Monolith Fabricated by Thermally Induced Phase Separation** / Ziyang Pu
- **High Definition PC/ABS Blend for Automotive Interior** / Marina Novogoroda
- **Polymers/PLA Composites Monolith Fabricated by Thermally Induced Phase Separation** / Ziyang Pu
- **Effect of Long-Chain Branching on Scratch Behavior of Polypropylene** / Chia-Ying Tsai

### PLASTIC PIPE & FITTINGS FAILURE ANALYSIS AND PREVENTION SESSION / VINYL

- **Transition from Ductile Failure to Brittle Fracture of High Density Polyethylene Under Creep Conditions** / Na Tan
- **Morphology and Mechanical Performance of Pipe Grade HDPE Exposed to Chlorinated Water** / Susan Mantell
- **Numerical Simulation of Slow Crack Growth Mode Transition of HDPE Using Modified Crack Theory** / Yu Ping-Ho Choi
- **Reduced Order Kinetic Model for Corrosion of High-Density Polyethylene in Bleach Solutions** / Susan Mantell
- **Degradation of CPVC Sprinkler Piping Material by Simulated Sunlight and UVB Light** (Vinyl) / Rupak Majumdar
- **Foaming of PVC Using Ultra High Molecular Weight Acrylic Processing Aids** / Manoj Nerkar

### APPLIED RESEARCH III

- **Polymer Melt Rheology: What is It and Why is It Critical For Extrusion?** / Olivier Catherine
- **Modelling of Shear and Uniaxial Extensional Viscometric Behavior Using Numerical Simulations** / Elena Zaitseva
- **Rheokinetics of Thermal-induced Gelation of Liquid Polymers** / Sany Madhavan
- **Anomalous Viscosity Drop by Addition of Immiscible Polyesters** / Masayuki Yamaguchi
- **Minimizing Interfacial Orientation during Processing of Immiscible Blends** / Dongyang Yao
- **High Temperature Extensional Rheology Measurements to Understand Anti-Drip Properties** / Maria Camila Montoya
- **Enhanced Filling of Injection Molds by Microstructured Cavity Surfaces** / Magnus Orbeck

### INJECTION MOLDING PROCESS TOOLING INNOVATIONS I

- **Intelligent Hybrid Hot Runner System for Optimized Polymer Products** / Khalid Alsabti
- **Creating a Skin-Core Structure with Foamed Phenolic Resins in an Injection Molding Process** / Martin Mayer
- **Method for Determining Cooling Time in Injection Molding Using Infrared Thermography** / Eric Boud
- **Towards Multi-Tiered Quality Control in Manufacturing of Plastics and Composites Using Industry 4.0** / Saeed Farahani
- **Additive Manufacturing of Large, Temperature-Controlled Injection Molding Tools Using Arc Welding An** / Johannes Ullrich
- **Effect of Ultrasonic Extrusion on Properties of Colloids Containing Epoxidized Soybean Oil and Clay** / Avraham Benatar
- **Application of Self-Reinforced Elastomer Modification of Ultra-Long-GF Reinforced PP Injection Molding** / Hsin-Shu Peng
- **Effect of Maleic Anhydride on Cellulose Acetate Fiber Reinforced Thermoplastic Polyurethane** / Hamad Al-Turoll
- **Design and Evaluation of Bicomponent Composite Sheet: Sheath for 3D Printed Filament Feedstock Co-extrusion** / Babu Ruckshesh

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WEDNESDAY / APRIL 1

INJECTION MOLDING PROCESS / TOOLING INNOVATIONS 2

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Dynamic Variable Gate of Mold and its Application to Injection Molding Part Quality / Min-Chi Chiu
Blending Scholarly Knowledge and Practitioner Know-How to Injection Mold a Composite Part / Jeremy Dowshak
Experimental Wear Data Acquisition for Condition Monitoring in Injection Molding Machines / Sebastian Fruth
Improving Surface Quality Of An Injection Molded Part By Adapting Rapid Heating And Cooling Technology / Somasekhar Bobba
Injection Mold Cooled with Additive Manufactured Heat Pipe Core / Stephan Kartelmeier
Development of the Vent Clogging Monitoring Process in Injection Molding / Joun Kim
A Valid Design Prediction Approach of 3D Metal-Printed Mold Manufacturing / Wen Hsin Weng

EXTRUSION

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Use of Gradually Changing Profile Shape in Extrudate Sizers for Simplification of Design / Mahesh Gupta
Profile Extrusion Die Balancing Using Polymer Extrusion Simulation Software / Jinyang Xing
Flow Simulation of a Microcapillary Cast Film Die / Kurt Koppi
Viscosity Considerations in Multilayer Coextrusion / Deepak Langhe
Improving The Morphological Stability of IPP Through Multilayer Coextrusion / Alia Jordan
Using a Micro Blown Film Line for Formulation Screening / Jin Wang
Extrusion Division Awards Meeting

APPLIED RHEOLOGY / POLYMER ANALYSIS JOINT SESSION

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Tricks and Shortcuts for Dealing with the Rheological Characterization of Polymer Systems and Solids / Montgomery Shaw
Improvement of Processability and Mechanical Toughness of PLA Addition of EVA / Daishuki Kugimoto
Polymer Nanocomposites Containing 1D and 2D Hybrid Nanofilms for Microwave Absorption / Uddutamban Sondalraj
The Use of Multi-Wave Oscillation to Expedite Testing and Provide Key Rheological Information / Gregory Kamkowski
Characterization of Polymeric Pellets in Injection Molding Using Magnetic Levitation / Jun Xie
Slot requested for session on "Polymer Analysis" / TBD
Slot requested for session on "Polymer Analysis" / TBD

BIOPLASTICS AND RENEWABLE TECHNOLOGIES - INNOVATIONS IN BIOCOMPOSITES

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Influence of moisture absorption (w/o radiation) on the mech. properties of cellulose nanocrystal and cellulose reinforced PBT / Nicole Gemmeke
Novel Method of Compounding Cellulose Nanocrystal Suspensions into Polypropylene and Polyvinyl Acetate Blends / Ronald Sabo
Durability of Cellulose Nanomaterials under Industry Relevant Shear Stresses / Bradley Sutfill
Antioxidant Activity Effect of Isosorbide Durability to Flexible Polyurethane Foams / Gwangsook Song
Vibration Welding of Aqueous Fibers / Curtiss Covelli
Degradable Plastics / Wood Hybrids for Sustainable Packaging Solutions / Simon Wurzbacher
Slot requested for session on "Bioplastics" / TBD

AUTOMOTIVE

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Advanced Olefinic Material for the Interior of Autonomous and Electric Vehicles / Sasan Taramah
Compounding Techniques for Recycled Thermoplastic Composites Subjected to Various Hygrothermal Conditions / Paul Andersen
Mechanical Properties Characterization of Injection Molded Thermoplastic Composites / Kennedy R. Bociek
Advances in Simulation of Discontinuous Fiber Composite Materials: Molding of Bulk Form / Umesh Gandhi
Fibre Reinforced Polyolefin Materials for Lightweight Constructions / Kevin DeGrood
Process Development and Monitoring Using Advanced Hot Runner System and Cavity Sensors / Kuangyi Liu
Slot requested for session on "Fibre Reinforced Polyolefin Materials for Lightweight Constructions" / TBD

RECYCLING - SUSTAINABILITY

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Sustainability and the Need for a Framework / Narayan Ramesh
Stabilization of Polymers for a More Circular Economy / Ian Quay
Bottle-to-Bottle Recyclability for Barrier Packaging Enabled by Surface Modified HDPE / Zhenhui Liu
Recycling PET into Plastic Lumber as a Forward Operating Base / Prabhat Krishna
Recycling PET into New Styrene Polymer Processing Concepts / Cassie Bradley
Circular Economy - New Styrene Polymer Processing Concepts / Cassie Bradley
Slot requested for session on "Recycling" / TBD

PLASTIC PIPE AND FITTINGS

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

The Complexity of Service Life Prediction for Polyolefins in Chlorinated Disinfectants / Karin Jacobson
Technical Basis for Maximum Allowable Scratch Depths in HDPE Pipes Made with High Pent Values for N / Prabhat Krishna
Thermal Derating Factors for Fused PVC / Tom Marti
Tailoring Composite Architecture to Improve the Toughness of Pipe Grade Materials / Johannes Wiener
Multi-layer Co-extruded Anular Structures Burst Pressure Performance / Erik Steinmetz
Best Paper Award Presentation / Plastic Pipe and Fittings SIG
Slot requested for session on "Plastic Pipe and Fittings" / TBD

INJECTION MOLDING SIMULATION / FLOW ORIENTATION

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Investigation on the Coupling Effects Between Flow and Fibers on FRP Injection Parts / Chao-Tsai Huang
Study on the Fiber Orientation Distributions and their Variation Between the Single and Co-injection / Chao-Tsai Huang
Workflow for Enhanced Fiber Orientation Prediction of Short Fiber Reinforced Thermoplastics / Susanne Kugler
Predicting Fiber Orientation in Short Fiber Reinforced Injection Molding Process Using DEM / Ravi Mayavaram
Comparison of Fiber Orientation Results for a Moldflow®-Implemented pARD-ISC model to µCT Scans / Sandra Saad
Analyzing the Machine-Specific Process Behavior for Automated Adaptation of Setting Parameters / Pascal Bilow
Simulative Representation of an LSR Injection Molding Process / Kevin Klier
Slot requested for session on "Injection Molding Simulation / Flow Orientation" / TBD

EPSY - NOVEL CHARACTERIZATION TECHNIQUES

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Applications of Spectroscopic Techniques to Elucidate Aging Process of Bio-based Polymers / Shaw Ling Hsu
Characterization of the Non-uniform Compression Behavior and the Internal Morphology in Flexible Polyurethane Foams Using Digital Image Correlation and X-ray Microtomography / Hieu Truong McLoey
Optical 3D Metrology: The Ultimate Biomechanics Tool / Justin Bucienski
Spreading Coefficient: A Simple Tool for Predicting Failure in Adhesives / Ica Manas-Zloczower
Characterization of Impact Toughness of Thin Plastics Films / Sanjib Brawas
Quantitative Determination of Interfacial Strength of Multilayer Films Using an Instrumented Machine / Kwanghee Noh
Simulation of Structure Development during Thermo-crystallization of Semi-crystalline Polymers / Tobias Daniel Horn
Slot requested for session on "Color and Appearance" / TBD

COLOR AND APPEARANCE

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Characterization of Polycarbonate - Using Thermoset Rheology and Color Science / Dr. Damjan Al Sadi
Design for Sustainability - A Case Study with Appearance Nylon / Bruce Muholand
Introduction to Color Theory - Part 1 / Bruce Muholand
What Materials, Design, Processing and Tooling Affect the Aesthetics of Plastic Parts - Part 1 / Vikram Bharagava
What Designers Need to Know about the Science of Color and Appearance of Plastic Parts - Part 2 / Vikram Bharagava
Slot requested for session on "Color and Appearance" / TBD

COMPOSITES III - MODELING, SIMULATION AND ANALYSIS

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Mechanical Behavior Modelling of Braided Yarns and Elasticomic Core Composite Under Tension / Avis Bar
Analysis of Conducive Forces in Intralaminar Shear of Continuous Fiber Reinforced Thermoplastics / Tobias Mattner
Experimental vs. Numerical Buckling/Post-Buckling Response of Carpenter Orthotropic Web Beams Under / Abdul Halim
The Design-induced Fiber Orientation and Influences on Warpage in Injection Fiber Reinforced Plastic / Chao-Tsai Huang
Slot requested for session on "Composites" / TBD
Slot requested for session on "Composites" / TBD

INJECTION MOLDING UNDERSTANDING & IMPROVING PART QUALITY

1:30 PM - 2:30 PM 2:30 PM - 3:30 PM 3:30 PM - 4:30 PM 4:30 PM - 5:30 PM

Permanent Quality Assurance In the Plastic Injection Molding With A Focus On Self-Learning Algorithm / Michael Werner
In-mold and Machine Sensing, Feature Extrusion, and Parameter Settings for Optimized Injection Molding / Ming-Shyan Huang
Real-time PRESS MEAS during Plasticization and Injection Process and its Effect on Part WT Variation / Hisin-Shu Peng
The Effect of Clamping Force on Product Quality: A Study on Platen Deformation / Hisin-Shu Peng
Machine Calibration Effect on the Optimization through Design of experiments (DOE) in Injection Molding / Chao-Tsai Huang
Experimental and Numerical Studies On Sink-Marks During Thermoplastics Injection Molding Processes / Sejin Han
Design and Analysis of Frenzel Microstructure for Contact Lens / Vivek Khillsagar
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