1:30 pm - 4:00 pm

New Technology Forum - Innovation in Packaging
White River C/D
Moderator: Mark Spalding
Driving Sustainability Through Value Chain Collaboration and Packaging Innovations
Rajen Patel, Fellow, Dow Chemical Company

1:30 pm - 2:00 pm

Innovation and Trends in Rigid Plastic Packaging
Laurie Goetz, Director of Product Development, Amcor

2:00 pm - 2:30 pm

Trends in Modified Atmosphere Packaging
Eva Almenar, Associate Professor, Michigan State University

2:30 pm - 3:00 pm
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>3:00 pm - 3:30 pm</td>
<td>Modeling to Predict Application Performance of Polyethylene Films</td>
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<tr>
<td>Pavan Valavala, Mechanical Designer, Dow Chemical Company</td>
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<tr>
<td>3:30 pm - 4:00 pm</td>
<td>Trends in Flexible Packaging</td>
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<td>James McKirahan, Assistant Professor, Indiana State University</td>
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<td>1:30 pm - 5:30 pm</td>
<td><strong>Extrusion- Process Modeling I</strong></td>
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<tr>
<td>JW Grand Ballroom 7</td>
<td>Moderator: Deep Samanta</td>
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<tr>
<td>1:30 pm - 2:30 pm</td>
<td><strong>Keynote: Overview of Numerical Engineering contributions on Extrusion processes optimisation</strong></td>
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<td>Philippe david, General Manager, SCC</td>
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<td>2:30 pm - 3:00 pm</td>
<td>Simulation of Co-Rotating Fully Intermeshing Twin-Screw Compounding Extruders: Alternatives for Process Design</td>
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<td>Paul Andersen, Coperion</td>
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<tr>
<td>3:00 pm - 3:30 pm</td>
<td>Effect of Extensional Viscosity, Elasticity and Die Exit Stress State on Neck-In Phenomenon During Extrusion Film Casting: Theoretical Study</td>
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<td>Martin Zatloukal, Professor, Tomas Bata University in Zlin</td>
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<td>3:30 pm - 4:00 pm</td>
<td>The Effect of Flow Channel Aspect Ratio on Layer Uniformity in Flat Extrusion Dies</td>
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<td>Sam Iuliano, Chief Technologist, Nordson EDI</td>
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<tr>
<td>4:00 pm - 4:30 pm</td>
<td>Automatic Optimization of Extrusion Dies</td>
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<td>Mahesh Gupta, Plastic Flow, LLC</td>
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<tr>
<td>4:30 pm - 5:00 pm</td>
<td>Effects of Viscoelasticity on Film Die Flow Uniformity</td>
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<td>Hyunwoo Kim, The Dow Chemical Company</td>
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<td>1:30 pm - 5:30 pm</td>
<td><strong>Extrusion- Pharmaceutical Extrusion</strong></td>
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<td>JW Grand Ballroom 8</td>
<td>Moderator: Michael Thompson</td>
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<td>1:30 pm - 2:30 pm</td>
<td><strong>Keynote: Polymers and Polymer Processing as Enablers of Drug Delivery</strong></td>
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<td>Graciela Terife, Senior Scientist, Merck</td>
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<td>2:30 pm - 3:00 pm</td>
<td>Rheology Optimized Processing Temperature for Preparation of Amorphous Solid Dispersion Via Hot Melt Extrusion(HME)</td>
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<td>Fengyuan Yang, Merck</td>
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<tr>
<td>3:00 pm - 3:30 pm</td>
<td><strong>MEASUREMENT OF HOT MELT EXTRUSION THERMAL RESIDENCE DISTRIBUTIONS</strong></td>
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3:30 pm - 4:00 pm
Francis Flanagan, Merck & Co. Inc.
STUDY OF KETOPROFEN’S DISSOLUTION IN POLYETHYLENE OXIDE FORMULATIONS PREPARED BY HOT MELT EXTRUSION

Laura Restrepo Uribe, Instituto de Capacitación e Investigación del Plástico y del Cauchy - ICIPC
MODELING OF DISPERSIVE MIXING IN A TWIN-SCREW EXTRUDER WITH THREE PARAMETER RESIDENCE STRESS DISTRIBUTION

4:00 pm - 4:30 pm
Benjamin Dryer, University of Maryland
HEAT ACTIVATED DRY GRANULATION WITHIN THE TWIN SCREW GRANULATOR

4:30 pm - 5:00 pm
Michael Thompson, McMaster University
THE EFFECT OF HOT MELT EXTRUSION OPERATING CONDITIONS ON DEGRADATION AND WATER CONTENT OF A PHARMACEUTICAL SOLID DISPERSION

5:00 pm - 5:30 pm
Benjamin Dryer, University of Maryland
JOINING OF PLASTICS AND COMPOSITES- ADHESIVE JOINING
Room 102
Moderator: Sergio Amancio
Bonding of Plastics

2:00 pm - 2:30 pm
George Ritter, EWI
Advances In Adhesive Technology for Bonding Liquid Silicone Rubbers to Plastics and Metals

3:00 pm - 3:30 pm
Paul Wheeler, Technology Leader, In-Mold Bonding Products, LORD Corporation
Time is Money: High Speed Adhesive Solutions for Instant Bonding

3:30 pm - 4:00 pm
Christof Schlitt, Ph.D Student, University of Kassel/ Germany
THE ULTIMATE THERMAL TRANSITIONS AND ISOTHERMAL CURING BEHAVIORS OF A TWO-PART EPOXY-AMINE ADHESIVE SYSTEM: EFFECTS OF DIFFERENT MIXERS

1:30 pm - 4:00 pm
Product Design and Development Session
1:30 pm - 2:00 pm
Application of Triz Tools To Develop a New Plastic Chemical Dispenser
Ivan Lopez, ICIPC

2:00 pm - 2:30 pm
Injection Molded Asymmetric Spur Gear Tooth Deflection: Numerical and Experimental Investigation
Johnney Mertens, Ph.D Student, Indian Institute of Technology

2:30 pm - 3:00 pm
Eye Opening Impact of Simple Design Errors on Product Costs
Vikram Bhargava, Consultant and Author

3:00 pm - 3:30 pm
CASE STUDY OF UTILIZING ROUND-TABLE PLASTIC DESIGN REVIEWS TO PROMOTE PLASTICS ENGINEERING EXCELLENCE
David Tucker, HP

3:30 pm - 4:00 pm
Development of an Injection Molded Automotive Hoop Spoiler
Zhihao Zuo, Autodesk

4:00 pm - 4:30 pm
INVESTIGATION ON WARPAGE AND SINK MARK FOR INJECTION MOULDED PARTS USING TAGUCHI METHOD
Omar Mohamed, Swinburne University of Technology

4:30 pm - 5:00 pm
Experimental Co-relation of Vibration Welded Bead’s Burst Pressure using Finite Element Techniques
Praveen S R, IIT, Chicago

1:30 pm - 3:00 pm
Thermoplastic Elastomers Session
White River I
Moderator: Armando Sardanopoli
Thermoplastic Elastomers in Sporting Goods
Jeffrey Wiggins, Director, School of Polymers and High Performance Materials, University of Southern Mississippi
Development of a New Styrenic Elastomer Using Renewable Monomer
Hoan Tran, Kuraray America Inc.

2:30 pm - 3:00 pm
Highspeed tensile testing of polymer materials considering force-oscillations and its origin
Jan Klein, Institute of Plastics Processing at RWTH Aachen University

3:00 pm - 3:30 pm
SCRATCH BEHAVIOR OF POLYURETHANE ELASTOMERS WITH VARIATION IN
3:30 pm - 4:00 pm

**SOFT SEGMENT TYPE**

Shuang Xiao, Texas A&M University

**THERMOPLASTIC POLYURETHANE CHITOSAN / CELLULOSE NANOCRYSTALS COMPOSITES FOR WOUND HEALING APPLICATIONS**

Diego Pedrazzoli, Research Associate, Case Western Reserve University

4:00 pm - 4:30 pm

Tutorial: Fundamentals of Styrenic Block Copolymer TPEs

Mark Berard, Dow Chemical Company

1:30 pm - 4:00 pm

**Applied Rehology-Flow analysis and Rheometry**

Room 309/310

Flow of Molten Plastics: Puzzles and Problems

John Dealy, Professor Emeritus, McGill University

2:00 pm - 2:30 pm

A new evolution equation for polymer coils With non-affine rotation

Donggang Yao, Georgia Tech

2:30 pm - 3:00 pm

Evaluation of Branched Polypropylene Degradation By Using Different Constitutive Equations

Martin Zatloukal, Professor, Tomas Bata University in Zlin

3:00 pm - 3:30 pm

Analytical Solutions of Nonlinear Constitutive Equation for Large Amplitude Oscillatory Shear (LAOS) Flow

Jung-Eun Bae, Kyungpook National University

3:30 pm - 4:00 pm

**USING INFRARED TEMPERATURE SENSORS TO STUDY TEMPERATURE CHANGES OF PVC DURING FLOW WITH THE INCORPORATION OF MELT ROTATION TECHNOLOGY**

Stacey Johnson, Penn State Erie

1:30 pm - 4:00 pm

**Color & Appearance Session II**

Room 302/303

Moderator: Mark Freshwater

Keynote: Innovations and Trends in Coloration

Diane Langer, Technical Manager for Transportation, Industrial Coatings & Plastics Technical Service, BASF

2:30 pm - 3:00 pm

Accelerated Weathering Test Standards for Plastics: Why Don't They Work?

Sean Fowler, Q-Lab Corporation

3:00 pm - 3:30 pm

High Gloss "Piano Black" Acetal Copolymer
3:30 pm - 4:00 pm  
Bruce Mulholland, Celanese  
High Performance Inorganic Pigments

1:30 pm - 4:00 pm  
Mark Ryan, Marketing Manager, Shepherd color  
**Injection Molding + Mold technologies Joint Session**  
White River A  
Moderator: Glenn Starkey

1:30 pm - 2:00 pm  
Inversed Cooling Channel Design for Injection Moulds based on local Cooling Demand and Material Properties

2:00 pm - 2:30 pm  
Philipp Nikoleizig, Institute of Plastics Processing at RWTH Aachen University  
Evaluation of Methodologies Utilized to Determine the Pressure Drop Throughout an Injection Mold

2:30 pm - 3:00 pm  
David Hoffman, Senior Instructor, Plastics Education & Training, American Injection Molding Institute  
Keynote

3:00 pm - 3:30 pm  
Kym Conis  
3D Printing Offers a Giant Step for Short Run Injection Molds

3:30 pm - 4:00 pm  
Gil Robinson, Senior Applications Engineer, Stratasys  
Automated generation of venting system in plastic injection mold

1:30 pm - 5:00 pm  
**Composites-Innovation**  
White River G  
Moderator: Dale Brosius

1:30 pm - 2:30 pm  
Composites: Holding our World Together with Plastics – New Challenges and Opportunities

2:30 pm - 3:30 pm  
Kenneth Reifsnyder, University of Texas Arlington  
Design, Modeling and Simulation in Composites Manufacturing

3:30 pm - 5:00 pm  
R. Byron Pipes  
IACMI (Institute for Advanced Composites Manufacturing Innovation) Progress to Date

Dale Brosius, Chief Commercialization Officer, IACMU  
Ray Boeman, Oak Ridge National Laboratory  
Michael Connolly, Program Manager, Huntsman  
Ron Steuterman
Polymer Modifiers and Additives Session

1:00 pm - 1:30 pm
Development and Application Studies on a Novel Kind of Low Alkaline Hindered Amine Light Stabilizer encapsulated in Porous Polypropylene

Chunrui Sheng, R&D Engineer, Sunshow (Yantai) Specialty Chemicals Co. Ltd

1:30 pm - 2:00 pm
Impact of Processing Method and Loading of Active scavenger (Linoleic Acid) on Properties of Polyethylene Terephthalate

Michael Miranda, utoledo

2:00 pm - 2:30 pm
Evaluation of LCP as an additive for PBT to improve processing and properties

Anshuman Shrivastava, Resin Development Engineer, Delphi Packard

2:30 pm - 3:00 pm
New Synergisitc GRAS Stabilizer for Polylefins

Robert Sherman, Polymer Stabilization Scientist, Baerlocher

3:00 pm - 3:30 pm
Using ZeMac® Copolymers To Increase Performance and Processibility of High RV Nylons

Mike Drzewinski, Vertellus

3:30 pm - 4:00 pm
Improving PLA-based Material for 3D-Printers Using Fused Deposition Modeling (FDM)

Saied Kochesfahani, IMERYS

4:00 pm - 4:30 pm
EFFECTS OF SMALL RANGE COLOR (PIGMENT) CONCENTRATION LEVELS ON PLASTIC INJECTION MOLDED PARTS

Akhilesh Nimmagadda, Mechanical Engineer, Roche Diagnostics-eTeam Inc,

4:30 pm - 5:00 pm
The effect of high solvating plasticizers on fusion behavior and mechanical properties of pvc-based luxury floor tiles.

Brad Farrell, R&D applications Intern, Emerald Performance Materials

Engineering Properties and Structure: Composites

1:30 pm - 2:00 pm
Recent developments in nano composite materials

Satish Kumar, Georgia Institute of Technology
High Performance Organic/Inorganic Hybrid Nanocoatings
Luyi Sun, University of Connecticut

Study on Orientation and Distribution of Metal Fiber in Epoxy Substrate by Using Electromagnetic Control
Kuan-Hua Lee, Chung Yuan Christian University

Graphene Nanoplatelet Polymer Composites: Challenges and Opportunities
Lawrence Drzal, Michigan State University

Fabrication, Morphological Evaluation, and Characterization of Semiconducting Oxide Nanofibers from Gas Jet Fiber Spinning
Monoj Ghosh, The University of Akron

Electrical conductivity and humidity sensing properties of PVA/CNT nanocomposites
Mohammadmejadi Aghelinejad, York University

Thermoplastics Materials and Foams: New applications of thermoplastics and foams
White River J

Moderator: Hani Naguib

Fabrication of Hybrid Polymeric-Metallic Foams As Scaffolds for Bone Tissue Engineering
Anil Mahapatro, Wichita State University

Design, Fabrication and Characterization of Highly Active Piezoelectric Foams Based on a Honeycomb Structure
Changchun Zeng, Florida State University

On the Successful Fabrication of Auxetic Polyurethane Foams: Key Insights From Materials Science and Polymer Processing Perspectives
Changchun Zeng, Florida State University

Effect of Void Fraction on Dielectric Properties of Injection-Molded Polypropylene/MWCNT Foams
Amir Ameli, Washington State University

Standard Reference Materials for the Polymers Industry
Walter McDonough, NIST

Reducing Thermal Conductivity of Polymeric Foams with High Volume Expansion Made From Polystyrene/Expanded Graphite
1:30 pm - 5:30 pm
Minh Phuong Tran, Post-Doctoral, University of Toronto
Failure Analysis & Prevention and Plastic Pipe & Fittings: Failure Prevention and Slow Crack Growth
White River H
Moderator: Brian Ralston
Limitations of Existing Standards in Assessment of PE Pressure Pipe Lifetime in Brittle Fracture

1:30 pm - 2:30 pm
Alexander Chudnovsky
Simulation of Fatigue Crack Growth of HDPE Using Crack Layer Theory; Effect of Loading Frequency

2:30 pm - 3:00 pm
Jung-Wook Wee, Korea University, Seoul, Republic of Korea
SLOW CRACK GROWTH FRACTURE RESISTANCE PARAMETER EVALUATION OF PARENT AND JOINT HDPE MATERIALS

3:00 pm - 3:30 pm
Yunior Hioe, Engineering Mechanics Corporation of Columbus
Failure Analysis of a Plastic Toy Helicopter

3:30 pm - 4:00 pm
Dale Edwards, Senior Managing Consultant, ESI
CASE STUDIES OF PLASTIC FAILURES ASSOCIATED WITH METAL FASTENERS

4:00 pm - 4:30 pm
Jeffrey Jansen, Senior Managing Engineer and Partner, The Madison Group
EVALUATING THE EFFECT OF NANOCLAY AND RECYCLED HDPE ON STRESS CRACKING IN HDPE USING J-INTEGRAL APPROACH

4:30 pm - 5:00 pm
Suk Joon Na, Drexel University
Presentation of the Myer Ezrin Best Paper Award (FAPSIG)

5:15 pm - 5:30 pm
Additive Manufacturing/3D Session II
Room 101
AM Pres/Future -Keynote

1:30 pm - 4:30 pm
Todd Grimm, President, T.A. Grimm & Associates
Qualifications / Training

2:30 pm - 3:00 pm
Chris Krampitz, Lead, Innovation and Strategy Development, Underwriters Laboratories, Inc.
Part Quality / Inspections

3:00 pm - 3:30 pm
Rob Hassold, Founder and CEO, Cimquest
Microlattice