195th Technical Meeting Program

Tuesday, April 30th

Interfaces & Adhesion
Chair: Yusheng Chen, Cooper Tire

7:45 a.m. Adhesive Nanoparticles as Glue for Soft Gel-like Materials - Ryan Sayko, University of Akron

8:15 a.m. Developing a Mechanistic Understanding of How Eastman's Duralink Can Replace Cobalt Salts for Tire Cord Adhesion - Leandro Forciniti, Eastman Chemical Company

8:45 a.m. Enhancing the Dispersion and Adhesion of Short Aramid Fibers in Bromobutyl Rubber Using Maleated Polybutadiene Resin - Changwoon Nah, Chonbuk National University

9:15 a.m. Surface Modification of Thermoset Elastomers to Achieve Anti-fouling and Low Coefficient of Friction Properties - Logan Sanow, Minnesota Rubber and Plastics

9:45 a.m. Break & Table Top Exhibits

Dynamic Properties of Elastomers
Chair: Chris Robertson, Endurica LLC

10:00 a.m. Causes of Payne Effect Missing High Harmonics - Xiaorong Wang, Tongji University, Shanghai

10:30 a.m. Impact of an Emergent Hierarchical Filler Network on Nanocomposite Dynamics - Mindaugas Rackaitis, Bridgestone Americas

11:00 a.m. KEYNOTE ADDRESS: Kim de Groh, NASA Glenn Research Center - Durability of Polymers in the Space Environment

12:00 p.m. Lunch Break & Table Top Exhibits

1:15 p.m. Molecular Weight Dependence of the Viscosity of Highly Entangled Polyisobutylene - Timothy C. Ransom, Naval Research Laboratory

1:45 p.m. Extensional Responses of Polyisoprene and SBR - Shi-Qing Wang, University of Akron

2:15 p.m. Thixotropic Flocculation Processes in Carbon Black Filled Rubbers - Lewis Tunnicliffe, Birla Carbon

2:45 p.m. Tire Rolling Resistance and Heat Build Up Calculations with Endurica’s Microkinematic Kraus Model - William V. Mars, Endurica LLC

3:15 p.m. Break & Table Top Exhibits

*Schedule is subject to change.*
3:30 p.m. Characterization of Mechanical Properties of Rubber/Elastomer by High Force DMA - Yanxi Zhang, NETZSCH Instruments North America LLC

4:00 p.m. Dynamic Properties of Nitrile Elastomers - Nick Langmesser, Zeon Chemicals L.P.


5:00 p.m. A Non-Equilibrium Model for Particle Networking in Filled Elastomers - Christopher Robertson, Endurica LLC

Wednesday, May 1st

Industrial Rubber Products
Chair: Lena Nguyen, Dow Chemical Company

7:45 a.m. Application of Statistical Tools in Industrial Rubber Product Manufacturing - Tapan Das Gupta, Institute of Rubber Industry, India

8:15 a.m. Mill Processing Behavior of EPDM Rubber Compounds - Greg Li, Dow Chemical Company

Nano-Scale Tools for Rubber Analysis
Chair: Anna Kepas-Suwara, Tun Abdul Razak Research Centre (TARRC)

8:45 a.m. AFM Nanomechanics for Viscoelastic Contact - Ken Nakajima, Tokyo Institute of Technology

9:15 a.m. Atomic Force Microscopy Characterization of the Relationship between Nanostructure and Nanomechanical Properties of Elastomers - Darja Klat, Continental Tires Germany

9:45 a.m. Break

10:00 a.m. Atomic Force Microscopy of Carbon Black Dispersion at the Micro-scale in Basic SBR Compounds - Seth L. Young, Birla Carbon

10:30 a.m. Loss Tangent Mapping for Filler-filled SBR Vulcanizate with Nano-Rheological Atomic Force Microscope - Eijun Ueda, Nippon Zeon

11:00 a.m. Molecular Microscopy for Analysis of Rubber and Plastic - Fred Fraser, Freudenberg-NOK

11:30 a.m. Nanoscale Approach to Rubber Reinforcement Using AFM - Anna Kepas-Suwara, Tun Abdul Razak Research Centre (TARRC)

12:00 p.m. Science & Technology Awards Banquet
Science & Technology Award Winner Presentations
Chair: Dr. Maria D. Ellul, ExxonMobil Chemical Co. (Retired)

2:15 p.m. Charles Goodyear Medal - Dr. Roderic Quirk, The University of Akron – Anionic Polymerization and Functionalized Elastomers

3:15 p.m. Melvin Mooney Award for Distinguished Technology - Dr. Manfred Klüppel, German Institute for Rubber Technology (DIK) – An Advanced Thermomechanical Approach for the Evaluation of Strain-Induced Crystallization of Natural Rubber Composites

3:45 p.m. Sparks-Thomas Award - Dr. Pamela Martin, Tun Abdul Razak Research Centre (TARRC) – An Improved Understanding of Tread Wear and its Prediction

4:15 p.m. Break

4:30 p.m. George Stafford Whitby Award for Distinguished Teaching and Research – Dr. Ulrich Giese, German Institute for Rubber Technology (DIK) – Thermal-oxidative Degradation and Stabilization of Elastomers

5:00 p.m. Chemistry of Thermoplastic Elastomers Award – Dr. Timothy Long, Virginia Polytechnic Institute and State University – Taking Advantage of Tailored Intermolecular Interactions in Polymer Design: From Ion-Containing 3D Printed Objects to Multi-Hydrogen Bond Containing Triblock Copolymers

5:30 p.m. Fernley H. Banbury Award, Dr. Charles R. Herd, Birla Carbon – presentation title forthcoming

Thursday, May 2nd

Flammability and Thermal Stability of Elastomers
Chair: Ed Terrill, ARDL, Inc.

7:45 a.m. Determining the Thermal Stability of Peroxide Cure Fluoroelastomers with and without Zinc Oxide - Karen Hopperstad, 3M, Inc.

8:15 a.m. Improving the Thermal Stability of a Non-Black Rubber Compound - Nicki Hershberger, ARDL, Inc.

Self-Healing Polymers
Chair: Lewis Tunnicliffe, Birla Carbon

8:45 a.m. Reversible Network at the Interface of Rubber and Filler and the Development of Self-healing Composites - Amit Das, Leibniz Institute of Polymer Research, Dresden

9:15 a.m. Tough, Self-healing Elastomers - Liheng Cai, University of Virginia

9:45 a.m. Break
Science, Technology & Applications of Rubber
Co-Chairs: John Dick, Alpha Technologies (Retired); C. Jeffrey Lin, Eastman Chemical Co.

10:00 a.m. Evaluation of Sulfur Dispersion Using Population Survival Analysis - Dominica Wong, Eastman Chemical Company

10:30 a.m. Experimental Validation of Crystallizing and Noncrystallizing Models of Rubber Fatigue Behavior - Anantharaman Ramachandran, Caterpillar, Inc.

11:00 a.m. High Performance Liquid Rubber Used in the Production of Winter Tires - Erich Klein, Kuraray America

11:30 a.m. Single Wall Carbon Nanotube Technology Expands Mechanical and Electrical Properties of Elastomers - Erick Sharp, Ace Products LLC

12:00 p.m. Lunch Break

1:15 p.m. Futuristic Elastomeric Material for Reduction of Carbon Footprint - Subhra Mohanty, Reliance Industries, Ltd.

1:45 p.m. General Considerations in Failure Analysis of Rubber and Plastics - Jason Poulton, ARDL Inc.

2:15 p.m. The Application of Natural Rubber to Toughen Bioplastic Through Reactive Extrusion with Synergic Use of Peroxide and Coagent - Xiaoying Zhao, The Ohio State University

2:45 p.m. Kinetically Controlled Phase Separation and Crystallization in SSBR/TPI Blends - Chenguang Liu, Qingdau University of Science & Technology (QUST), China

3:15 p.m. Break

3:30 p.m. Castor Oil Extended Modified Natural Rubber: A Novel Bio-Based Material with Low Rolling Resistance - Suchismita Sahoo, Indian Institute of Technology-Kharagpur

4:00 p.m. Crystallization Behavior of Trans-1,4-Polyisoprene Rubber, Huarong Nie, Qingdao University of Science & Technology (QUST), China

4:30 p.m. Comparisons of Physical Properties Between Concrete Paver vs Rubber Cement Composite Paver - Ratnadip Bhoi, Abstract Displays, Inc.

5:00 p.m. Improving OEE Scores in Rubber Mold Cleaning using Dry Ice - Steve Wilson, Cold Jet LLC