



# 199<sup>th</sup> Technical Meeting Program

\*Schedule is subject to change.

## Tuesday, April 27<sup>th</sup>

9:00 a.m. KEYNOTE ADDRESS: Development of Sustainable Natural Rubber Ecosystem Toward Creation of New Industry; **Seiichi Kawahara**, Department of Materials Science and Technology, Nagaoka University of Technology

### Failure of Rubber Materials

Co-chairs: **Bill Stahl**, Rainbow Master Mixing and **Lewis Tunncliffe**, Birla Carbon

10:30 a.m. General Considerations in Failure Analysis of Rubber and Plastics - **Jason T. Poulton**, Akron Rubber Development Laboratory

11:00 a.m. Wear Mechanisms of Rubber Tyre Materials under Low Severity: a Model Study - **Paul Sotta**, Centre National de la Recherche Scientifique

11:30 a.m. Infinite Life Design Principles for Rubber Structures - **William V. Mars**, Endurica LLC

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

1:00 p.m. Strain-induced Crystallization Effects in Carbon Black Reinforced and Unfilled Natural Rubber - William Amoako **Kyei-Manu**, Queen Mary University of London

1:30 p.m. Accelerated Degradation of Aircraft Propeller Sealing Elements in Synthetic Hydraulic Fluid - **Richard Pazur**, Department of National Defence

2:00 p.m. Determining the Loading Mode Dependence of the Proportionality Parameter for the Tearing Energy of Embedded Flaws in Elastomers Under Multiaxial Deformations - **Richard Windslow**, Schlumberger Ltd.

2:30 p.m. The Fatigue Threshold of Rubber and its Characterization Using the Cutting Method - **Christopher Robertson**, Endurica LLC

3:00 p.m. Break & Table Top Exhibits

3:30 p.m. New Insights into the Fracture of Carbon Black Reinforced Natural Rubber - **Lewis B. Tunncliffe**, Birla Carbon

### Structure and Dynamics of Polymer Nanocomposites and Filled Rubber

Co-chairs: **Christopher Robertson**, Endurica LLC and **Cindy Barrera**, Ford Motor Co.

4:00 p.m. Investigation of Dielectric Properties of Rubber Compounds by Simultaneous High Force DMA and DEA - **Yanxi Zhang**, Netzsch Instruments

4:30 p.m. NR-Silica Nanocomposites for Improved Polymer-Filler Interaction in TBR Tread Compounds - **Tom Rosenmayer**, Silpara Technologies LLC

## Wednesday, April 28<sup>th</sup>

### Structure and Dynamics of Polymer Nanocomposites and Filled Rubber

Co-chairs: **Christopher Robertson**, Endurica LLC and **Cindy Barrera**, Ford Motor Co.

- 8:00 a.m. Some Aspects of Nanoparticle Assembly and Polymer Dynamics in Rubber Systems - **Anne-Caroline Genix**, University of Montpellier, France
- 8:30 a.m. Triboelectric Generators Derived from Commercial Rubbers for Sustainable Energy Harvesting Solutions - **Amit Das**, Leibniz Institute of Polymer Research Dresden
- 9:00 a.m. Thixotropic Flocculation Effects in Particle Reinforced Rubbers and Model Materials - **Lewis B. Tunncliffe**, Birla Carbon
- 9:30 a.m. Flocculation of Carbon Black Monitored by Rheology - **Clement Robin**, Hutchinson
- 10:00 a.m. Break & Table Top Exhibits
- 10:30 a.m. In situ Nanofiller Formation in Rubber Composites - **Justin Robert Barone**, Virginia Tech, Biological Systems Engineering
- 11:00 a.m. Highly Efficient Renewable Anisotropic Fillers for Advanced Properties - **Ulrich Giese**, German Institute of Rubber Technology (DIK)
- 11:30 a.m. Testing of Radiation Modified Silicone Elastomer Based High Damping Materials by Free Oscillating Dynamic Mechanical Oscillograph (ASTM D945-16) DMYO-5 - **Davut Aksut**, Hacettepe University
- 12:00 p.m. Lunch Break & Table Top Exhibits

### Science & Technology Awards Symposium

Chair: **Dr. Maria D. Ellul**, ExxonMobil Chemical Co. (Retired)

- 1:00 p.m. Charles Goodyear Medal – **Dr. Nissim Calderon**, Goodyear Tire & Rubber Co. (Memorial Address by **Adel Halasa**, The University of Akron)
- 2:00 p.m. Melvin Mooney Award for Distinguished Technology - **Dr. Kenneth Gillen**, Sandia National Laboratories (Retired)
- 2:30 p.m. Sparks-Thomas Award - **Dr. David Simmons**, University of South Florida
- 3:00 p.m. George Stafford Whitby Award for Distinguished Teaching and Research - **Dr. Chrys Wesdemiotis**, The University of Akron
- 3:30 p.m. Break & Table Top Exhibits
- 3:45 p.m. Chemistry of Thermoplastic Elastomers Award - **Dr. Lewis Fetters**, Cornell University (Presentation by **Roderic Quirk**, The University of Akron, Emeritus)

- 4:15 p.m. Fernley H. Banbury Award - **Dr. Ken Nakajima**, Tokyo Institute of Technology
- 4:45 p.m. Bioelastomer Award - **Dr. Colleen McMahan**, United States Department of Agriculture
- 6:00 p.m. **Science & Technology Awards Banquet**

## **Thursday, April 29<sup>th</sup>**

### **Elastomers as Biomaterials**

Co-chairs: **Leandro Forciniti**, Becton Dickinson and **Carin Helfer**, The Ohio State University

- 8:00 a.m. Electrospun Polyisobutylene-based Fiber Mats for Personal Protective Equipment Applications - **Judit Puskas**, The Ohio State University
- 8:30 a.m. Stimuli-Responsive Antifouling Polyisobutylene-Based Biomaterials via Modular Surface Functionalization - **Lingyun Liu**, The Ohio State University
- 9:00 a.m. Butyl Rubber for Medical Applications - **Kevin Kulbaba**, ARLANXEO
- 9:30 a.m. Break

### **Modelling & Simulation**

Co-chairs: **William Mars**, Endurica LLC and **Nihat Isitman**, Goodyear Tire & Rubber Co.

- 10:15 a.m. Simulating the Effects on Post-impact Durability of Tire Ageing- **William V. Mars**, Endurica LLC
- 10:45 a.m. Capitalize on Historical Data in the Rubber Industry with Multivariate Analysis - **Marlene Cardin**, ProSensus Inc.
- 11:15 a.m. Dynamical Mechanical Analysis (DMA) of Polybutadiene using Molecular Dynamics Simulations - **Sdollah Ebrahimi**, Dassault Systèmes, and Universit'e de Sherbrooke
- 11:45 a.m. Lunch Break

### **Advances in Rubber Processing & Additives**

Co-chairs: **Edward Terrill**, Akron Rubber Development Laboratory Inc. and **John Dick**, Consultant

- 1:00 p.m. Devulcanizate as a Functional Additive - **Rounak Ghosh**, University of Twente
- 1:30 p.m. Applications of Fine Mesh Straining in Rubber Processing - **Manuel Bessler**, UTH GmbH
- 2:00 p.m. Continuous Processing of Rubber-Bitumen Formulations - **Michael Wayne Batton**, Entex Rust & Mitschke GmbH
- 2:30 p.m. Novel Bio-based Elastomer for Rubber Compounds, Sealants and Adhesives - **Erich Klein**, Kuraray
- 3:00 p.m. Break

- 3:15 p.m. Development of Sustainable Rubber Composites using Tapioca Flour as Filler for Automobile Applications - **Selvakumar Murugesan**, National Institute of Technology Karnataka Surathkal
- 3:45 p.m. Development of a Separation Process of NBR/HNBR Rubber from Metal Substrate - **Sarah Scardelatto**, Fundação Santo André