189th Technical Meeting
April 18-21, 2016
Hilton Palacio del Rio; San Antonio, TX

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Upcoming Events

October 10 - 13, 2016

2016 International Elastomer Conference
International Rubber Expo, 190th Technical Meeting & Educational Symposium

Our International Elastomer Conference is the premier place where customers, suppliers of materials, equipment, tools and services, and educators come together. This event is one place, one time of year, where you find the best of the best of our industry all under one roof. It provides a forum for the exchange of ideas, observations, regulatory reforms and emerging scientific technologies, as well as learning, networking, seeing current customers and making new ones.

2016 Upcoming Training Opportunities
- Carbon Black Training & Tour – April 27 & 28; Addis, LA
- Essentials of Rubber Technology – May 3; Akron, OH
- Silicone Rubber Chemistry and Technology – May 3; Akron, OH
- Compound Mixing and Consistency – May 4; Akron, OH
- Establishing a Rubber Molding Process – May 4; Akron, OH
- Design of Experiments – May 9 & 10; Akron, OH
- Dynamic Rubber Design – May 11 & 12; Akron, OH
- Introduction to Rubber Technology for Non-Technologists – May 13; Akron, OH
- Internal Mixers and Mixing Parameters – June 13; St. Simons Island, GA
- Understanding Raw Materials, the Building Blocks of Rubber Compounding – August 23; Akron, OH
- Compounding for Performance – August 24 & 25; Akron, OH
- Solving Problems in Rubber Compounding and Processing – August 26; Akron, OH

Technical Meeting Topics:
- Rubber Reinforcement • New Commercial Developments • Cure Systems & Networks • Regulations for Rubber Industry • Synthetic Rubber & Synthetic Rubber-based Products • Tire Traction, Handling & Tire Performance Prediction • Contributed Session • Aging & Degradation • Natural Rubber & Bio Materials for Rubber • Adhesion • Mechanics & Modeling of Rubber • Silicon Materials for Rubber

Educational Symposium Courses:
- Introduction to Rubber Technology for Non-Technologists • Internal Mixers and Mixing Parameters • Molding of Rubber • Silicone Basics • Introduction to Rubber Bonding

This is an ideal conference/expo for companies involved with:
Machinery and Equipment, Chemical Suppliers, Rubber Processing, Natural and Synthetic Rubber, Raw Materials Suppliers, Testing and Research, Mold Release Agents, Molding, Extrusion and Parts Production, Custom Services, Compounding and Mixing Services, Manufacturing or Distribution, Recycling, Advanced Materials in Healthcare, TPEs

Visitors Include:
Chemists, Product Manufacturers, Distributors and Suppliers, Machinery Manufacturers, Machinery and Testing Equipment Users and Manufacturers, Raw Materials Suppliers, Manufacturers Looking For Component Suppliers and Rubber Products, Quality Assurance Specialists, End Users, Technical Service Representatives, Research and Development Engineers, Product Design Engineers, Sales and Marketing Professionals

Visit rubberiec.org for details.

David L. Lawrence Convention Center • Pittsburgh, PA USA

Rubber Division
American Chemical Society
www.rubber.org

View all 2016 training opportunities, including course descriptions & pricing at rubber.org/upcoming-training.
- Videotaping or photographing any portion of a technical presentation is strictly prohibited. Violators of this policy will be asked to leave and will not be allowed back into the meeting.

- Complimentary presentations download from this meeting: You will receive an email around April 29th with instructions for downloading the papers presented at this meeting.

- You are required to wear your badge for entrance to the technical sessions.
<table>
<thead>
<tr>
<th>Day/Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td><strong>Monday, April 18</strong></td>
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<tr>
<td>8:00 a.m. – 9:00 a.m.</td>
<td>Steering Committee Breakfast*</td>
<td>The River’s Edge, -2 River Level</td>
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<tr>
<td>9:00 a.m. – 12:00 p.m.</td>
<td>Steering Committee Meeting*</td>
<td>La Reina, Mezzanine Level</td>
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<tr>
<td>12:00 p.m. – 5:00 p.m.</td>
<td>Registration</td>
<td>Salon del Rey Foyer, Mezzanine Level</td>
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<tr>
<td>1:30 p.m. – 3:00 p.m.</td>
<td>Membership Committee Meeting</td>
<td>La Reina, Mezzanine Level</td>
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<tr>
<td>2:00 p.m. – 5:00 p.m.</td>
<td>Program Planning Committee Meeting</td>
<td>La Duquesa, Mezzanine Level</td>
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<tr>
<td>3:00 p.m. – 4:00 p.m.</td>
<td>S&amp;T Committee Meeting*</td>
<td>La Reina, Mezzanine Level</td>
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<tr>
<td>3:30 p.m. – 4:30 p.m.</td>
<td>Area Directors Caucus*</td>
<td>La Condesa, Mezzanine Level</td>
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<tr>
<td><strong>Tuesday, April 19</strong></td>
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<tr>
<td>7:30 a.m. – 4:30 p.m.</td>
<td>Registration</td>
<td>Salon del Rey Foyer, Mezzanine Level</td>
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<tr>
<td>8:00 a.m. – 10:45 a.m.</td>
<td>Technical Session</td>
<td>Salon del Rey BC, Mezzanine Level</td>
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<tr>
<td>9:00 a.m. – 11:00 a.m.</td>
<td>Partnership Development Committee Meeting</td>
<td>La Condesa, Mezzanine Level</td>
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<td>10:00 a.m. – 11:00 a.m.</td>
<td>Marketing Committee Meeting</td>
<td>La Princesa, Mezzanine Level</td>
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<tr>
<td><strong>11:00 a.m. – 12:00 p.m.</strong></td>
<td><strong>Keynote Address</strong></td>
<td>Salon del Rey BC, Mezzanine Level</td>
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<tr>
<td>12:00 p.m. – 1:30 p.m.</td>
<td>25-Year Club Reception &amp; Luncheon</td>
<td>Stetson’s, Stetson’s Level</td>
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<tr>
<td>1:00 p.m. – 3:00 p.m.</td>
<td>Exhibits &amp; Meeting Sites Committee Meeting</td>
<td>La Princesa, Mezzanine Level</td>
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<tr>
<td>1:30 p.m. – 5:15 p.m.</td>
<td>Technical Session</td>
<td>Salon del Rey BC, Mezzanine Level</td>
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<tr>
<td>5:15 p.m. – 7:00 p.m.</td>
<td><strong>Welcome Reception</strong> – All are invited!</td>
<td>Salon del Rey A, Mezzanine Level</td>
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<tr>
<td><strong>Wednesday, April 20</strong></td>
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<td>5K Walk/Run - Presented by H.M. Royal, Inc.</td>
<td>Meet in Hilton Palacio del Rio Lobby</td>
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<td></td>
<td>Registration</td>
<td>Salon del Rey Foyer, Mezzanine Level</td>
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<td></td>
<td>Technical Session</td>
<td>Salon del Rey BC, Mezzanine Level</td>
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<td></td>
<td>Finance &amp; Budget Committee Meeting*</td>
<td>La Condesa, Mezzanine Level</td>
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<tr>
<td>12:00 p.m. – 2:00 p.m.</td>
<td><strong>Science &amp; Technology Awards Banquet</strong></td>
<td>La Vista, 22nd Floor</td>
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<tr>
<td>2:15 p.m. – 6:00 p.m.</td>
<td>Technical Session – S&amp;T Presentations</td>
<td>Salon del Rey BC, Mezzanine Level</td>
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<tr>
<td>3:30 p.m. – 4:30 p.m.</td>
<td>Area Directors Meeting*</td>
<td>La Condesa, Mezzanine Level</td>
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<tr>
<td><strong>Thursday, April 21</strong></td>
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<tr>
<td>7:30 a.m. – 12:00 p.m.</td>
<td>Registration</td>
<td>Salon del Rey Foyer, Mezzanine Level</td>
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<tr>
<td>8:00 a.m. – 9:00 a.m.</td>
<td>Steering Committee Meeting*</td>
<td>La Reina, Mezzanine Level</td>
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<tr>
<td>8:00 a.m. – 11:00 a.m.</td>
<td>Technical Session</td>
<td>Salon del Rey BC, Mezzanine Level</td>
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<tr>
<td>9:00 a.m. – 10:45 a.m.</td>
<td>Executive Committee Meeting</td>
<td>Salon del Rey A, Mezzanine Level</td>
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<tr>
<td>11:00 a.m. – 12:00 p.m.</td>
<td>Business &amp; Awards Meeting</td>
<td>Salon del Rey A, Mezzanine Level</td>
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</table>

* Closed Meeting

Rubber Division, ACS members are welcome to attend all open committee meetings.
DYNAMIC PROPERTIES AND RHEOLOGY OF RUBBER
Chair: Dr. Christopher G. Robertson, Cooper Tire & Rubber Company

8:00 a.m.  Effects on Filler Dispersion and Mechanical Properties Due to Branching in Rubber Compounds – Madhu Namani, TA Instruments – Waters LLC

8:30 a.m.  Testing the Kovacs’ Signatures in Colloids: Thermoresponsive Colloidal Dispersions – Gregory McKenna, Texas Tech University

9:00 a.m.  Dynamics of Confined Polymers – C. Michael Roland, Naval Research Lab

9:30 a.m.  Break

9:45 a.m.  Rational Control of Polymer Glass Formation and Mechanical Properties with Molecular Additives – David Simmons, The University of Akron

10:15 a.m.  Interplay Between NP Assembly, Polymer Chain Conformation and Mechanical Properties in Polymer Nanocomposites: From Model to Industrial Systems for Innovative Functional Materials – Jacques Jestin, CNRS

11:00 a.m. – 12:00 p.m.  KEYNOTE ADDRESS (Open To All Attendees):  Global Energy Outlook

  Bruce March is senior vice president, global operations of ExxonMobil Chemical Company, Houston, Texas. In this position, he is responsible for the integrated manufacturing operations in North America and Latin America, Europe, Middle East/Africa and Asia Pacific. In addition, he is responsible for the Engineering and Manufacturing Support and the Safety/Health/Environmental organizations. A native of Middleport, New York, Mr. March is a graduate of the Rochester Institute of Technology. He joined Mobil Oil at the Buffalo Refinery as a project engineer in 1980 and advanced through increasingly responsible management positions in domestic and foreign operations, including manager of the ExxonMobil Baton Rouge Refinery, project executive in ExxonMobil’s Development Company, and refining director, Europe/Africa/Middle East. In 2008, he was named chairman, president and chief executive officer of Imperial Oil Limited and was a director of Imperial until 2013 when he assumed his current responsibilities.

1:30 p.m.  Physical Ageing in Highly Filled Rubbers: Role of Particle Flocculation and the Filler Network – James Busfield, Queen Mary University of London

2:00 p.m.  Glass-like Phenomena in the Rubbery State of Reinforced Polymers Due to Particle Jamming – Dr. Christopher G. Robertson, Cooper Tire & Rubber Company

2:30 p.m.  Influence of Particle Size Statistics and Test Specimen Shape on Lifetime Prediction for Reinforced Elastomers – Jens Meier, German Institute of Rubber Technology (DIK)

3:00 p.m.  Fatigue Characterization of a Thermoplastic Elastomer – William V. Mars, Endurica LLC

3:30 p.m.  Break

3:45 p.m.  Effect of Silane Coupling Agent Loading on the Intrinsic Tear Strength and Crack Propagation of Silica-Filled SBR – Toby Samples, Akron Rubber Development Laboratory, Inc.

4:15 p.m.  Computational Fluid Dynamics (CFD) Analysis of Rubber Mixing in Intermeshing vs. Non-Intermeshing Rotors – Suma Rani Das, The University of Akron

4:45 p.m.  A Combined Rheological and Dielectric Analysis of Filler Flocculation and Reinforcement of Elastomer Nano-Composites – Manfred Klüppel, German Institute of Rubber Technology (DIK)
CHARACTERIZATION OF POLYMERS/RUBBER
Chair: Christopher C. Scilla, Eastman Chemical Company

9:00 a.m.  PBR and SSBR in Synthesis of High Gloss-High Impact Polystyrene by Continuous Process – Daniel Elizarrarás, Dynasol Elastomers

9:30 a.m.  Mechanical Properties and Crosslinking Structures of Vulcanized Natural Rubber – Seiichi Kawahara, Nagaoka University of Technology

10:00 a.m. Characterization of Spatial Evolution in Thermal-Oxidative Aging of Rubbers – Ulrich Giese, Deutsches Institut für Kautschuktechnologie e. V.

10:30 a.m. Atomic Force Microscope Nanomechanics on Rubbery Materials – Ken Nakajima, Department of Organic and Polymeric Materials, Tokyo Institute of Technology

SCIENCE & TECHNOLOGY AWARD WINNERS
Chair: Dr. Maria D. Ellul, ExxonMobil Chemical Co.

2:15 p.m.  Highlights of My Diverse Rubber Science and Rubber Processing Endeavors; Charles Goodyear Medalist – Dr. Georg Bohm

3:15 p.m.  Select Advances in Rubber Technology: Past and Future; Melvin Mooney Distinguished Technology Award Recipient – Dane Parker

3:45 p.m.  Sensors, Actuators and Self-Healing Rubbers; Sparks-Thomas Award Recipient – Dr. Amit Das

4:15 p.m.  Break

4:30 p.m.  Rubber: from the Nanoscale to Material Properties; George Stafford Whitby Award for Distinguished Teaching & Research Recipient – Professor Maurizio Galimberti

5:00 p.m.  Sustainable Rubber Based Block Polymers; Chemistry of Thermoplastic Elastomers Award Recipient – Dr. Frank Bates

5:30 p.m.  The History and Development of The Banbury® Mixer; Fernley H. Banbury Award Recipient – Frank Borzenski
CONTRIBUTED SESSION
Chair: C. Jeffrey Lin, Momentive Performance Materials, Inc.
8:00 a.m. Comparison of Abient vs. Cryogenically Ground Micronized Rubber Powder – Glenn Denstaedt, Lehigh Technologies
8:30 a.m. Advancement in Reinforcing Resins – Alexandra Krawicz, SI Group, Inc.
9:00 a.m. LSR Material Measurement for Virtual Liquid Injection Molding – Rick Ziebell, R.D. Abbott Company, Inc.
9:30 a.m. The Effect of Thermo-Oxidation on the Permeation Resistance of Bromobutyl Compounds – Richard Pazur, Department of National Defence

FILLERS
Chairs: Sy Mowdood, Pirelli Tyre SpA (retired); Robert H. Schuster, Deutsches Institut für Kautschuktechnologie
10:00 a.m. Surface Modification of Ground Tire Rubber by Mechanochemical Modification and Its Application in SBR/NR Blends – Petar Djekic, University of Niš, Faculty of Mechanical Engineering
10:30 a.m. Discrete, Surface Modified Carbon Nanotube-Rubber Materials for Improved Mechanical Properties – Sateesh Peddini, Molecular Rebar Design LLC

Visit rubber.org/technical-meeting2 for more information about the presenters and award winners at this meeting.