

2009 Conference  
on  
**POLYMERS AND IONIC LIQUIDS:  
From Synthesis to Performance**

October 5<sup>th</sup> to 7<sup>th</sup>, 2009  
ATA Conference Center  
Arlington, Virginia

Conference Chairs: Yossef Elabd and Lou Madsen

Monday, October 5 <sup>th</sup> , 2009	
1:15 pm	Welcome and Introductory Remarks, <i>Yossef Elabd and Lou Madsen</i>
1:30-5:00 pm	Oral Session
1:30 pm	Imidazoles and Imidazoliums as a Focal Point for Interdisciplinary Research <i>Timothy Long</i> Virginia Tech
2:00 pm	Precision Polyolefins Possessing Organic Acid and Ionic Liquid Functional Groups <i>Kenneth Wagener</i> University of Florida
2:30 pm	Charges & Countercharges, Rings & Things: Ionic Liquids, Polyelectrolytes & Self-Assembly <i>Harry Gibson</i> Virginia Tech
3:00 pm	Coffee Break
3:30 pm	Ionic Liquids for Controlled Synthesis of Functional Materials <i>Sheng Dai</i> Oak Ridge National Laboratory
4:00 pm	New Ionic Liquid-Based Materials for Toxic Chemical Vapor and CWA Simulant Separation and Sorption <i>Richard Noble</i> University of Colorado
4:30 pm	Ion Transport and Storage in Ionomer Composite Actuators: Dependence on Composite Morphology and Ionic Liquids <i>Qiming Zhang</i> Pennsylvania State University
5:00-7:00 pm	Poster Session

**Tuesday, October 6<sup>th</sup>, 2009**

<b>8:15 am</b>	<b>Conference Announcements, <i>Lou Madsen</i></b>
<b>8:30 am- 12:00 pm</b>	<b>Oral Session</b>
<b>8:30 am</b>	<b>Room Temperature Ionic Liquids (RTILs) as Thermal Latent Initiators for Epoxy Resins</b> <b><a href="#">Giuseppe Palmese</a> Drexel University</b>
<b>9:00 am</b>	<b>Polymeric Ionic Liquid Solvogels, Membranes, Nanolatexes, Core/Shell Nanoparticles, and Ionic Liquids</b> <b><a href="#">John Texter</a> Eastern Michigan University</b>
<b>9:30 am</b>	<b>Electrically Conductive, Protein Compatible Poly(ionic liquids)</b> <b><a href="#">Millicent Firestone</a> Argonne National Laboratory</b>
<b>10:00 am</b>	Coffee Break
<b>10:30 am</b>	<b>Dendrimer-Based Electro-Optic Terahertz Source</b> <b><a href="#">Anis Rahman</a> Applied Research and Photonics</b>
<b>11:00 am</b>	<b>Effect of Anion Selection on Thermal and Solution Properties of Poly(dimethylamino ethyl methacrylate)-Based Polyelectrolytes</b> <b><a href="#">Matthew T. Hunley</a>, <a href="#">Timothy E. Long</a> Virginia Tech</b>
<b>11:20 am</b>	<b>Effect of Side-Chain Length and Counterion Size in Ion-Containing Polymers with Ammonium-Based or Imidazolium-Based Ionic Groups</b> <b><a href="#">David Salas-de la Cruz</a>, <a href="#">Matt D. Green</a>, <a href="#">Matt Hunley</a>, <a href="#">Jae-Hong Choi</a>, <a href="#">Minjae Lee</a>, <a href="#">Hong Chen</a>, <a href="#">Ye Yuesheng</a>, <a href="#">Timothy E. Long</a>, <a href="#">Harry Gibson</a>, <a href="#">Yossef A. Elabd</a>, <a href="#">Karen I. Winey</a> University of Pennsylvania, Virginia Tech, Drexel University</b>
<b>11:40 am</b>	<b>Ionic Liquids and Multifunctional Performance</b> <b><a href="#">Jim Snyder</a> U.S. Army Research Laboratory</b>
<b>12:00-1:30 pm</b>	<b>Lunch</b>

<b>1:30-5:00 pm</b>	<b>Oral Session</b>
<b>1:30 pm</b>	<b>Polymerisation and Device Application of Conducting Polymers in ILs</b> <b>Douglas MacFarlane</b> Monash University, Australia
<b>2:00 pm</b>	<b>Ionic Liquids as Electrolytes from Lithium Batteries: Insights from Molecular Simulations</b> <b>Grant Smith</b> University of Utah
<b>2:30 pm</b>	<b>Designing Ion-Containing Polymers for Facile Ion Transport</b> <b>Ralph Colby</b> Pennsylvania State University
<b>3:00 pm</b>	Coffee Break
<b>3:30 pm</b>	<b>Characterizing Polymer Dissolution in a Hydrophilic Ionic Liquid</b> <b>David Hoagland</b> University of Massachusetts
<b>4:00 pm</b>	<b>Ion Gels from Block Polymers and Ionic Liquids</b> <b>Timothy Lodge</b> University of Minnesota
<b>4:30 pm</b>	<b>Ordered Morphologies and Ion Conduction in Binary Mixtures of a Diblock Copolymer and an Ionic Liquid</b> <b>Karen Winey</b> University of Pennsylvania
<b>5:00-7:00 pm</b>	<b>Poster Session</b>

Wednesday, October 7<sup>th</sup>, 2009

8:15 am	Conference Announcements, <i>Yossef Elabd</i>
8:30-11:15 am	Oral Session
8:30 am	<b>Ion Conduction in Polymerized Ionic Liquids</b> <i>Yossef Elabd</i> Drexel University
9:00 am	<b>Relating Transport and Anisotropy in Ionomer-IL Membranes and Actuators</b> <i>Lou Madsen</i> Virginia Tech
9:30 am	Coffee Break
10:00 am	<b>Ionic Liquid / Polymer Electromechanical Actuators with Self-Assembled Metallic Nanoparticle Conductive Network Composites</b> <i>Randy Heflin</i> Virginia Tech
10:30 am	<b>Characterization of Ionomeric Electromechanical Transducers based on Branched Sulfonated Polysulfones</b> <i>Donald Leo</i> Virginia Tech
11:00 am	Concluding Remarks, <i>Yossef Elabd and Lou Madsen</i>

## Posters

1	<b>PolyVinazenes: A Family of Polymers Readily Functionalized into Ionic Materials</b> <a href="#">Paul G. Rasmussen</a> , <a href="#">Jeffrey G. Meyer</a> University of Michigan
2	<b>Synthesis of Imidazolium-Based Ionomers by Acyclic Diene Metathesis and Polymerization (ADMET)</b> <a href="#">B. Aitken</a> , <a href="#">K. Wagener</a> , <a href="#">H. Gibson</a> , <a href="#">M. Lee</a> University of Florida, Virginia Tech
3	<b>Imidazolium Polyesters</b> <a href="#">Minjae Lee</a> , <a href="#">H. Gibson</a> Virginia Tech
4	<b>Polymer Electrolytes Based on Crosslinked Polymethacrylate for Applications in Rechargeable Lithium Ion Batteries</b> <a href="#">Xiao-Guang Sun</a> , <a href="#">Je Seung Lee</a> , <a href="#">Sheng Dai</a> Oak Ridge National Laboratory
5	<b>Conversion of Sugars to Carbon Membranes in a Protic Ionic Liquid</b> <a href="#">Je Seung Lee</a> , <a href="#">Sheng Dai</a> Oak Ridge National Laboratory
6	<b>Photopolymerization Kinetics of Alkylammonium-Based (Meth)acrylate</b> <a href="#">Hui Zhou</a> , <a href="#">Zulma Jiménez</a> , <a href="#">John A. Pojman</a> , <a href="#">Mark S. Paley</a> , <a href="#">Charles E. Hoyle</a> University of Southern Mississippi
7	<b>Understanding Ion Transport in Imidazolium-Based Polymers using Dielectric Spectroscopy</b> <a href="#">U. Hyeok Choi</a> , <a href="#">Wenjuan Liu</a> , <a href="#">Ralph Colby</a> , <a href="#">Hong Chen</a> , <a href="#">Yuesheng Ye</a> , <a href="#">Yossef A. Elabd</a> , <a href="#">Minjae Lee</a> , <a href="#">Harry W. Gibson</a> Penn State University, Drexel University, Virginia Tech
8	<b>1-Vinylimidazole-Based Block Copolymer Membranes for Electroactive Devices</b> <a href="#">Matthew D. Green</a> , <a href="#">Joseph M. Dennis</a> , <a href="#">Timothy E. Long</a> Virginia Tech
9	<b>Terahertz Dielectric Spectroscopy of Room-Temperature Ionic Liquids</b> <a href="#">Matthias Krueger</a> , <a href="#">Erik Bruendermann</a> , <a href="#">Stefan Funkner</a> , <a href="#">Hermann Weingaertner</a> , <a href="#">Martina Havenith</a> Ruhr University Bochum, Germany
10	<b>Key Issues to Improve Performance of Ionic Polymer Conductive Network Composite Actuators: Conductive Filler Morphology and Ionic Liquid Types</b>

	<p><a href="#">Sheng Liu</a>, <a href="#">Reza Montazami</a>, <a href="#">Vaibhav Jain</a>, <a href="#">Wenjuan Liu</a>, <a href="#">Hulya Cebeci</a>, <a href="#">Roberto Guzman de Villoria</a>, <a href="#">Jun-Hong Lin</a>, <a href="#">James R. Heflin</a>, <a href="#">Ralph H. Colby</a>, <a href="#">Brian L. Wardle</a>, <a href="#">Qiming Zhang</a> Penn State University, Virginia Tech, Massachusetts Institute of Technology</p>
11	<p><b>Magnetic-Field-Induced Phase Dynamics in Nafion: Time Evolution of Anisotropic Water Diffusion and Diffraction via Pulsed-Field-Gradient NMR</b>  <a href="#">Jianbo Hou</a>, <a href="#">Louis A. Madsen</a> Virginia Tech</p>
12	<p><b>Ionic Liquids Based on Mixed Fluoroborate Anions</b>  <a href="#">Christian Schreiner</a>, <a href="#">Sandra Zugman</a>, <a href="#">Marius Amereller</a>, <a href="#">Heiner J. Gores</a>, <a href="#">Timothy E. Long</a> University of Regensburg, Germany, Virginia Tech</p>
13	<p><b>Precisely Incorporating Highly Polar and Acidic Functionality into Polyethylene</b>  <a href="#">Kathleen L. Opper</a>, <a href="#">Kenneth B. Wagener</a>, <a href="#">Francisco Buitrago</a>, <a href="#">Karen I. Winey</a>, <a href="#">Rick Beyer</a> University of Florida, University of Pennsylvania, Army Research Laboratory, Aberdeen</p>
14	<p><b>Orientation and Transport in Charged Micellar Solutions Probed by Rheo-NMR and Diffusion NMR</b>  <a href="#">Kyle G. Wilmsmeyer</a>, <a href="#">Richao Zhang</a>, <a href="#">Zhiyang Zhang</a>, <a href="#">Louis A. Madsen</a> Virginia Tech</p>
15	<p><b>Nonlinear Electrode Polarization in Single-Ion Conductors</b>  <a href="#">Reuben Bushnell</a>, <a href="#">Qiming Zhang</a>, <a href="#">Ralph H. Colby</a> Penn State University</p>
16	<p><b>Imidazole-Containing Polymers using Complementary Free Radical and Ring-Opening Polymerization Strategies</b>  <a href="#">Michael H. Allen</a>, <a href="#">Philippe Bissel</a>, <a href="#">Sean Ramirez</a>, <a href="#">Timothy E. Long</a> Virginia Tech</p>
17	<p><b>Protein Structure and Stability in Neat Ionic Liquids</b>  <a href="#">Malvika Bihari</a>, <a href="#">Thomas P. Russell</a>, <a href="#">David A. Hoagland</a> University of Massachusetts Amherst</p>
18	<p><b>Introduction of Ionic Liquid Cations into Anionic Polyurethane Ionomers</b>  <a href="#">Shih-Wa Wang</a>, <a href="#">Wenjuan Liu</a>, <a href="#">Ralph H. Colby</a> Pennsylvania State University</p>
19	<p><b>Electrical Impedance Study in Composite Electrodes of Ionic Polymer Conductive Network Composite Actuators</b></p>

	<p><a href="#">Yang Liu</a>, <a href="#">Sheng Liu</a>, <a href="#">Jun-Hong Lin</a>, <a href="#">Reza Montazami</a>, <a href="#">Vaibhav Jain</a>, <a href="#">Wenjuan Liu</a>, <a href="#">Hulya Cebeci</a>, <a href="#">Roberto Guzman de Villoria</a>, <a href="#">James R. Heflin</a>, <a href="#">Ralph H. Colby</a>, <a href="#">Brian L. Wardle</a>, <a href="#">Qiming Zhang</a> Pennsylvania State University, Virginia Tech, Massachusetts Institute of Technology</p>
20	<p><b>Effect of Monomer Concentration on the Performance of Metal – Conducting Polymer Composite Actuators</b>  <a href="#">Colin Smith</a>, <a href="#">Yonas Tadesse</a>, <a href="#">Timothy Long</a>, <a href="#">Shashank Priya</a> Virginia Tech</p>
21	<p><b>Ionic Liquids Selection Criteria</b>  <a href="#">Wenjuan Liu</a>, <a href="#">U Hyeok Choi</a>, <a href="#">Shih-Wa Wang</a>, <a href="#">Gregory J. Tudryn</a>, <a href="#">Michael J. Janik</a>, <a href="#">Ralph H. Colby</a> Pennsylvania State University</p>
22	<p><b>Electromechanical Transduction in Ionic Polymer Transducers Designed with Architecturally Controlled Ionomers and Ionic Liquids</b>  <a href="#">Andrew Duncan</a> Virginia Tech</p>
23	<p><b>Effect of Ionic Liquid Uptake on Mechanical Properties and Performance of Zwitterionic Copolymer Membranes</b>  <a href="#">Erin B. Murphy</a>, <a href="#">Rebecca H. Brown</a>, <a href="#">Andrew J. Duncan</a>, <a href="#">Tianyu Wu</a>, <a href="#">Timothy E. Long</a> Virginia Tech</p>
24	<p><b>Morphologies in Block Copolymer and Ionic Liquid Mixtures</b>  <a href="#">Jae-Hong Choi</a>, <a href="#">Liang Gwee</a>, <a href="#">Yossef A. Elabd</a>, <a href="#">Karen I. Winey</a> University of Pennsylvania, Drexel University</p>
25	<p><b>Multi-Scale Morphologies of Poly(ethylene glycol)-Based Sulfonated Ionomers</b>  <a href="#">Wengin Wang</a>, <a href="#">Gregory J. Tudryn</a>, <a href="#">Sheichen Dou</a>, <a href="#">Ralph H. Colby</a>, <a href="#">Karen I. Winey</a> University of Pennsylvania, Penn State University</p>
26	<p><b>Ionic Liquid-Block Copolymer Solid-State Films: The Effect of Ionic Liquid Composition on Ion Conduction and Morphology</b>  <a href="#">Liang Gwee</a>, <a href="#">Jae-Hong Choi</a>, <a href="#">Karen I. Winey</a>, <a href="#">Yossef A. Elabd</a> Drexel University, University of Pennsylvania</p>
27	<p><b>In-Situ Time-Resolved FTIR-ATR Spectroscopy Measurements of Polymer-Ionic Liquid Actuators under an Applied Electric Field</b>  <a href="#">Liang Gwee</a>, <a href="#">Yossef A. Elabd</a> Drexel University</p>

28	<p><b>Anion Effect on the Ionic Conductivity of Imidazolium-Based Polymerized Ionic Liquids</b></p> <p><a href="#">Yuesheng Ye</a>, <a href="#">David Salas-de la Cruz</a>, <a href="#">Karen I. Winey</a>, <a href="#">Yossef A. Elabd</a> Drexel University, University of Pennsylvania</p>
29	<p><b>Morphology of Linear Polyethylenes Containing Precisely Spaced Acid Groups</b></p> <p><a href="#">C. Francisco Buitrago</a>, <a href="#">Kathleen L. Opper</a>, <a href="#">Kenneth B. Wagener</a>, <a href="#">Karen I. Winey</a> University of Pennsylvania, University of Florida</p>
30	<p><b>Synthesis of Novel Imidazole-Containing Epoxides for Ring Opening Polymerization</b></p> <p><a href="#">Philippe Bissel</a>, <a href="#">Sean M. Ramirez</a>, <a href="#">Michael H. Allen</a>, <a href="#">John M. Layman</a>, and <a href="#">Timothy E. Long</a> Virginia Tech</p>
31	<p><b>Improvement of the Performance of Ionic Liquid Electro-Active Polymer Actuators via Tuning the Porosity of the Conductor Network Composite Layer</b></p> <p><a href="#">Reza Montazami</a>, <a href="#">Sheng Liu</a>, <a href="#">Vaibhav Jain</a>, <a href="#">Yang Liu</a>, <a href="#">Minren Lin</a>, <a href="#">Qiming Zhang</a>, <a href="#">Dong Wang</a>, <a href="#">J.R. Heflin</a> Virginia Tech, Penn State University</p>
32	<p><b>Structural Polymer Gel Electrolytes</b></p> <p><a href="#">Brian Capaldo</a>, <a href="#">Jim Snyder</a> U.S. Army Research Laboratory</p>
33	<p><b>Synthesis of Ionic Liquid Containing Di-Stimuli Responsive Diblock Copolymers</b></p> <p><a href="#">Nancy Weber</a>, <a href="#">John Texter</a>, <a href="#">Admir Masic</a>, <a href="#">Klaus Tauer</a> Max Planck Institute for Colloids and Interfaces, Germany, Eastern Michigan University</p>
34	<p><b>Ordering of Triblock Copolymer Surfactants by Blending with a Room Temperature Ionic Liquid</b></p> <p><a href="#">Daniel Miranda</a>, <a href="#">James Watkins</a>, <a href="#">Thomas Russell</a> University of Massachusetts</p>
35	<p><b>Modification of Poly(vinyl alcohol) in Chemically Inert Ionic Liquids</b></p> <p><a href="#">Scott A. Eastman</a>, <a href="#">Alan J. Lesser</a>, <a href="#">Thomas J. McCarthy</a> University of Massachusetts</p>
36	<p><b>Synthesis and Characterization of Phosphonium-Containing Cationic Poly(styrene) Polymers</b></p> <p><a href="#">Kristoffer K. Stokes</a>, <a href="#">Fredrick L. Beyer</a>, U.S. Army Research Laboratory</p>

