X60: Inaugural Pre-Meeting Congress
For Students, Postdocs, and Early Career Professionals

William J. Bowman, Massachusetts Institute of Technology, Program Chair
Janet L. Gbur, Case Western Reserve University, Program Co-Chair
A. Cameron Varano, Virginia Tech, Program Co-Chair
Ethan L. Lawrence, Arizona State University, Social Chair

Saturday, August 5, 2017

Welcome
7:30-8:30 am Breakfast
8:20-8:30 am Welcome from Organizers

Plenary Session
8:30-10:15 am Early Career Major Award Winners

Poster Session
10:15-12:00 pm Poster session and coffee break

Career Development Luncheon
12:15-1:15 pm Pinshane Y. Huang, University of Illinois
James P. Kilcrease, Hitachi High Technologies America
Christopher J. Russo, MRC Laboratory of Molecular Biology
Rengasayee Veeraraghavan, Virginia Tech

Parallel Technical Sessions
1:30-3:00 pm Biological Sciences
Real Sciences
3:00-3:30 pm Coffee break

Joint Biological/Physical Sciences Session
3:30-5:00 pm Student/Postdoctoral Scholar Award Winners

Closing
6:00-9:00 pm Reception and Dinner
### Plenary Session - Early Career Major Award Winners

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Affiliation</th>
<th>Title</th>
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<tbody>
<tr>
<td>8:30-9:10 am</td>
<td>Christopher J. Russo</td>
<td>MRC Laboratory of Molecular Biology, 2017 Burton Medal Winner</td>
<td>“Determining and Approaching the Physical Limits of Electron Microscopy in Biology”</td>
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<tr>
<td>9:10-9:40 am</td>
<td>Rengasayee Verraraghavan</td>
<td>Virginia Tech, 2017 George Palade Award</td>
<td>“Integrating Imaging Tools from the Single Molecule Scale to the Whole Organ to Investigate Structure and Function in the Heart”</td>
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### Parallel Technical Session - Biological Sciences

<table>
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<tr>
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<tbody>
<tr>
<td>1:30-2:00 pm</td>
<td>Priyamvada Acharya</td>
<td>National Institute of Allergy and Infectious Diseases</td>
<td>“Conformational Changes in HIV-1 Env Trimer Induced by a Single CD4 as revealed by Cryo-EM”</td>
</tr>
<tr>
<td>2:00-2:15 pm</td>
<td>S. M. Bukola Obayomi</td>
<td>Arizona State University</td>
<td>“Imaging Live Uterine Tissue Modulation using Confocal Microscopy”</td>
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<tr>
<td>2:15-2:30 pm</td>
<td>Katherine A. Spoth</td>
<td>Cornell University</td>
<td>“Dose-efficient Cryo-STEM Imaging of Whole Cells using the Electron Microscope Pixel Array Detector”</td>
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<tr>
<td>2:30-2:45 pm</td>
<td>Alexandra Machen</td>
<td>University of Kansas Medical Center</td>
<td>“Single Particle CryoEM of the Anthrax Toxin Initial Engagement Complex”</td>
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<td>2:45-3:00 pm</td>
<td>TBD</td>
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### Parallel Technical Session - Physical Sciences

<table>
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<th>Time</th>
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<tr>
<td>1:30-2:00 pm</td>
<td>Canhui Wang</td>
<td>National Institute of Standards and Technology</td>
<td>“In-situ Characterization of Catalytic Reactions Promoted by Localized Surface Plasmon Resonance Energy”</td>
</tr>
<tr>
<td>2:00-2:15 pm</td>
<td>Everett Grimley</td>
<td>North Carolina State University</td>
<td>“Compositional Ordering and Polar Nano-regions: Physical Effects of Sn Alloying in SrTiO$_3$ Thin Films”</td>
</tr>
<tr>
<td>2:15-2:30 pm</td>
<td>Joseph Tessmer</td>
<td>Carnegie Mellon University</td>
<td>“Automated Acquisition and Analysis of Selected Area Electron Channeling Patterns in an FEG-SEM”</td>
</tr>
<tr>
<td>2:30-2:45 pm</td>
<td>Aakash M. Varambhia</td>
<td>University of Oxford</td>
<td>Quantitative STEM of Catalyst Nanoparticles using ADF Imaging with Simultaneous EDS and EELS Spectroscopy</td>
</tr>
<tr>
<td>2:45-3:00 pm</td>
<td>Saransh Singh</td>
<td>Carnegie Mellon University</td>
<td>“Applications of Forward Modeling to Refinement of Grain Orientations”</td>
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Presentations

Joint Biological/Physical Session - Student/Postdoctoral Scholar Award Winners
3:30-4:00pm  Yue Zhou, University of Illinois at Urbana-Champaign
“Label-free Imaging of Stem Cell Adhesion and Dynamic Tracking of Boundary Evolution using Photonic Crystal Enhanced Microscopy (PCEM)”

4:00-4:15 pm  Vahid R. Adineh, Monash University, Australia
“Metallic Nanoshell for Three-dimensional Chemical Mapping of Low Conductivity Materials with Pulsed-voltage Atom Probe Tomography”

4:15-4:30 pm  Vinal Menon, University of South Carolina
“Molecular Consequences of Cardiac Valve Development as a Result of Altered Hemodynamics”

4:30-4:45 pm  Pei Zhang, University of Wisconsin-Madison
“Atomic-scale Relaxation Dynamics in the Super-cooled Liquid State of Metallic Glass Nanowire by Electron Correlation Microscopy”

4:45-5:00 pm  TBD

Poster Session
Najat Alharbi, Rochester Institute of Technology
“EDS-based Phase Analysis of Alkali Activated Slag”

Muyuan Chen, Baylor College
“Going Deeper in Cryo Electron Tomography with Neural Networks”

Indra N. Dahmke, Leibniz Institute for New Materials

Jie Feng, University of Wisconsin-Madison
“Bayesian Statistical Model for Imaging of Single La Vacancies in LaMnO₃”

Subrahmanyam Gopinath, Sandia National Laboratories
“Liquid-cell TEM Observations of Sn Lithiation Reactions: A Temperature Case Study”

Brendan Haas, Washington University, St. Louis
“FIB/SEM Investigation of Four Impact Craters from the Stardust Comet Sample Return Mission Foils”

Diane Haiber, Arizona State University
“Revealing the Structure of Graphitic Carbon Nitride through Low-Dose TEM using a Direct Electron Detector”

Seungyeol Lee, University of Wisconsin-Madison
“Study on Nanophase Materials and their Associated Trace Elements in Freshwater Ferromanganese Nodules from Green Bay, Lake Michigan”
**Poster Session - Continued**

Jay Tarolli, Pacific Northwest Laboratory

Joshua Vincent, Arizona State University
“Atomic-Resolution Characterization of Surface Structures and Metal-Support Interfaces on Nanostructured Pt/CeO₂ Catalysts Performing CO Oxidation”

Jie Yang, Boston University
“Cryo-electron Tomography Analysis of Infectious Extracellular Vesicles from a Non-enveloped RNA Virus”

Wilco Zuidema, Delft University of Technology
“10kfps Transmission Imaging in a 196 Beam SEM”

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**M&M 2017 Activities At-A-Glance**

Check out these additional activities during M&M 2017!

**Friday**
6:00-9:00 pm  PMC Social at Morgan Street Brewery*

**Monday**
12:15-1:15 pm  MAS Meal with a Mentor*
5:30-7:00 pm  MSA Student Mixer

**Tuesday**
5:30-6:30 pm  MSA Student Council Meeting
5:30-6:30 pm  MSA Post-Doctoral Researchers’ Reception

**Wednesday**
12:15-1:15 pm  MSA Members Meeting (boxed lunches provided to first 100 people)
7:00-10:00 pm  MSA Student Council Baseball Outing*

*Advance registration required
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Joshua Silverstein, Miami University, President
Janet L. Gbur, Case Western Reserve University, President-Elect
James P. Kilcrease, Hitachi, Past President
A. Cameron Varano, Virginia Tech, Secretary
Ethan L. Lawrence, Arizona State University, Treasurer
William J. Bowman, MIT, Program Committee Chair