



# 2015 APS/CNM Users Meeting



## COMPREHENSIVE PROGRAM





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## Monday, May 11

- 8:00 – 5:00 Exhibits  
*Bldg. 402, Gallery (lower level), outside E1100/1200 and Bldg. 402, Atrium*
- 7:30 – 5:00 Registration  
*Bldg. 402, Atrium*
- 12:00 – 1:30 Lunch  
*Tents outside of lower level Gallery*
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### Opening Session—Morning Bldg. 402, Lecture Hall

**Session Chair: Eric Landahl (DePaul University) APSUO Steering Committee Chair**

- 8:50 – 9:00 Eric Landahl, APSUO Chair  
*Welcome*
- 9:00 – 9:20 Peter Littlewood, ANL Director  
*Welcome from the Laboratory*
- 9:20 – 9:40 Harriet Kung, DOE Office of Basic Energy Sciences  
*The DOE Perspective*
- 9:40 – 9:45 Seungbum Hong, CNM UEC Chair  
*Introduction of Keynote Speaker*
- 9:45 – 10:25 Keynote Speaker: John Rogers, University of Illinois Urbana-Champaign  
*A Thousand Points of Light – Microscale Light-emitting Diodes for Applications Ranging from Information Display to Optogenetics*
- 10:25 – 11:00 Coffee Break (Gallery, outside E1100/1200 and Atrium)
- 11:00 – 11:25 Stephen Streiffer, Director, APS  
*Update on the Advanced Photon Source*
- 11:25 – 11:45 Andreas Roelofs, Interim Director, CNM  
*Update on the Center for Nanoscale Materials*
- 11:45 – 12:00 Susan Strasser, APS User Office  
*Update on NUFO/ARIA*
- 12:00 Lunch

## Parallel Facility Plenary Sessions—Afternoon

### APS Session

Bldg. 402, Lecture Hall

**Session Chair: Don Brown (Los Alamos National Laboratory),  
APS Users Organization Steering Committee Vice Chair**

- 1:15 – 1:55 Keynote Speaker  
Wenlu Zhu (University of Maryland)  
*Evolving Rock Structure*
- 1:55 – 2:35 Presentation of the 2015 Arthur H. Compton Award  
*Gene Ice, Bennett Larson, and Cullie Sparks (posthumously)*
- 2:35 – 2:55 Invited Student Talk: Andrew Ulvestad (University of California, San Diego)  
*Operando Investigation of the Hydriding Phase Transformation in Single Palladium Nanocubes*
- 2:55 – 3:25 Break
- 3:25 – 3:55 Robert Leheny (Johns Hopkins University)  
*Connecting Nanoscale Dynamics and Mechanical Properties of Disordered Soft Materials*
- 3:55 – 4:25 Reeju Pokharel (Los Alamos National Laboratory)  
*Utilizing High-energy X-rays for Microstructural Characterization of Nuclear Fuel Materials*
- 4:25 – 4:55 David Vine (Argonne National Laboratory)  
*Ptychography 2025*
- 4:55 Adjourn
- 5:15 Buses leave APS and Guest House for the banquet at 5:15 sharp!
- 6:15 Banquet
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## Parallel Facility Plenary Sessions—Afternoon

### CNM Session

Bldg. 402, Room E1100-1200

**Session Chair: Seungbum Hong (MSD, Argonne National Laboratory) and Steve Smith (NANO SE and South Dakota School of Mines and Technology)**

- 1:30 – 2:15 Keynote Speaker  
Vlad Shalaev (Purdue University, The Robert and Anne Burnett Professor of Electrical and Computer Engineering)  
*New Material Platform for Plasmonics*
- 2:15 – 2:45 Teri Odom (Northwestern University, Board of Lady Managers of the Columbian Exposition Professor of Chemistry, Executive Editor, ACS Photonics)  
*Room-temperature Lasing from Nanoparticle Arrays*
- 2:45 – 3:15 Heinrich Jaeger (The University of Chicago, William J. Friedman and Alicia Townsend Professor of Physics)  
*Ion Transport Controlled by Nanoparticle-functionalized Membranes*
- 3:15 – 3:35 Break
- 3:35 – 3:45 Update from CNM Users Executive Committee
- 3:45 – 4:15 Alex Martinson (Argonne National Laboratory, Materials Science Division)  
*Photoexcited Carrier Dynamics in Cu<sub>2</sub>S Thin Films*
- 4:15 – 4:45 Jonathan J. Foley, IV (Argonne National Laboratory, Nanoscience & Technology Division)  
*Looking Out for The Tiniest Lights: Controlling Light with Plasmons Across Metal Interfaces*
- 4:45 – 5:00 Invited student talk: Vuk Brajuskovic (Northwestern University)  
*Origins of Anisotropy in the Magnetic Structure of Artificial Spin Ice Lattices*
- 5:00 Adjourn
- 5:15 Buses leave APS and Guest House for the banquet at 5:15 sharp!
- 6:15 Banquet
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## Tuesday, May 12

8:00 – 5:00	Exhibits <i>Bldg. 402, Gallery (lower level), outside E1100/1200 and Bldg. 402, Atrium</i>
8:00 – 5:00	Registration <i>Bldg. 402, Atrium</i>
12:00 – 2:00	Poster setup <i>(shuttle buses and vans provided throughout the lunch hour to provide transportation between APS, the Guest House, and TCS Bldg. 240)</i>
12:00 – 1:30	Lunch <i>Tents outside lower level Gallery</i>
12:00 – 1:30	CNM Users Executive Committee Meeting <i>Bldg. 401, Room B5100</i>
12:00 – 1:30	APS Partner User Council Meeting <i>Bldg. 401, Fifth Floor Gallery</i>
5:00	Dynamic Compression Tour – (Preregistration required) <i>Sector 35</i>
5:30 – 8:00	Poster Session <i>TCS Building 240</i>

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### Parallel Facility-specific Workshops\*

- CNM** – Workshop 1 (full day) – Bldg. 401, Room A5000  
*Nanophotonic Structures, Surfaces, and Composites for Radiative Control (see page 17)*
- APS** – Workshop 2 (full day) – Bldg. 402, Lecture Hall  
*High-energy-resolution Inelastic X-ray Scattering (see page 22)*
- APS** – Workshop 3 (full day) – Bldg. 401, Room A1100  
*Developing Synchrotron Sample Environments to Study Next-generation Field-driven Device Physics (see page 28)*
- CNM** – Workshop 4 (full day) – Bldg. 402, Room E1100/E1200  
*Exploring the Flatland of 2D Materials for Tribological Manipulation (see page 37)*

\*Workshop 5 was withdrawn.



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## Wednesday, May 13

- 8:00 – 5:00 Exhibits  
*Bldg. 402 Gallery, outside E1100/1200 and Bldg. 402 Atrium*
- 8:00 – 12:00 Registration  
*Bldg. 402, Atrium*
- 12:00 – 1:30 Lunch  
*Tents outside lower level Gallery*
- 12:00 – 1:30 APSUO Steering Committee Meeting  
*Bldg. 401, Fifth Floor Gallery*
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### Parallel Facility-specific Workshops

- APS** – Workshop 3 continued (morning) – Bldg. 432, Conference Room C010  
*Developing Synchrotron Sample Environments to Study Next-generation Field-driven Device Physics (see page 28)*
- APS** – Workshop 6 (morning) – Bldg. 402, Lecture Hall  
*APS Upgrade: Planning the First Experiments (see page 43)*
- APS/CNM** – Workshop 7 (full day) – Bldg. 401, Room A1100  
*Experimental and Computational Challenges of in situ Multimodal Imaging of Energy Materials (see page 45)*
- APS** – Workshop 8 (morning) – Bldg. 401, Room A5000  
*In situ X-ray Characterization of Microstructure during Manufacture (see page 52)*
- APS** – Workshop 9 (morning) – Bldg. 402, Room E1100/E1200  
*Workshop on Sn-119 Nuclear Resonant Scattering at the APS (see page 55)*
- APS** – Workshop 10 (afternoon) – Bldg. 401, Room A5000  
*Application of Synchrotron X-ray Scattering Techniques to Nuclear Materials (see page 59)*
- APS** – Workshop 11 (afternoon) – Bldg. 402, Room E1100/E1200  
*Tracking Electronic and Structural Dynamics in Proteins and Materials at Sector 14 (see page 62)*

## Thursday, May 14

### CNM Short Courses (Preregistration is required)

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|--------------|---|
| 8:30 – 12:00 | Course A: Introduction to Transmission, Scanning Transmission, and Analytical Electron Microscopy |
| 1:30 – 5:00  | <i>Bldg. 212, Room A157</i>   |
| 8:30 – 12:00 | Course B: Introduction to Confocal Raman Microscopy   |
|              | <i>Bldg. 440, Main Lobby</i>  |
| 8:30 – 12:00 | Course C: Using the Hard X-ray Nanoprobe  |
|              | <i>Bldg. 440, Main Lobby</i>  |
| 1:30 – 5:00  | Course D: Atomic Layer Deposition: Theory and Novel Applications                                  |
|              | <i>Bldg. 440, Main Lobby</i>  |