

## **CNM Workshop 9: Nanomaterials and Sustainability**

### **Thursday, May 4, Morning**

9:00 – 9:10   Renaud Bachelot (University of Technology at Troyes) and Gary Wiederrecht (Argonne National Laboratory)  
*Introduction*

### **Session 1: Nanomaterials and Nanoscale Phenomena for Sustainable Energy Solutions**

9:10 – 9:40   Libai Huang (Purdue University)  
*Image Exciton and Charge Transport with Ultrafast Microscopy in the Quantum Regime*

9:40 – 10:10   Claire Xiong (Boise State University)  
*Implications of Nanoscale Amorphous Metal Oxide Electrode Materials for Lithium-ion Batteries*

10:10 – 10:40   Konstantinos Termentzidis (University of Lyon, INSA Lyon, and CNRS)  
*Thermal Transfer Management using Nanomaterials*

10:40 – 11:00   Break

11:00 – 11:30   Alexandre Nomine (University of Lorraine)  
*Nanotechnologies and Twin Transitions: Insight into Critical Materials Challenge*

11:30 – 12:00   Jier Huang (Boston College)  
*Charge Transport Mechanism in Photoconductive Metal Organic Frameworks*

12:00 – 12:30   Prashant Kamat (University of Notre Dame)  
*Transforming Next Generation Photovoltaics with Semiconductor Nanostructures*

12:30 – 1:30   Lunch

### **Thursday, May 4, Afternoon**

### **Session 2: Biomaterials for Sustainability**

1:30 – 2:00   John Rogers (Northwestern University)  
*Semiconductor Nanomaterials for Bio/ecoresorbable Electronics*

2:00 – 2:30   Elena Rozhkova (Argonne National Laboratory)  
*Artificial Photosynthesis through Purple Membrane Re-engineering with Nanomaterials*

### **Session 3: Sustainable Manufacturing with Nanomaterials**

- 2:30 – 3:00 Anirudha Sumant (Argonne National Laboratory)  
*Towards Developing Green Nanolubricants for Automotive and Oil-gas Industries*
- 3:00 – 3:30 Michele Ostraat (Pajarito Powder, LLC)  
*Industrial Perspectives on Nanomaterials and Sustainability: Opportunities and Challenges*
- 3:30 – 3:50 Break
- 3:50 – 4:20 Prashant Jain (University of Illinois at Urbana-Champaign)  
*Manufacturing Fuels and Chemicals using Plasmonically Concentrated Light*
- 4:20 – 4:50 Chris Heckle, Jie Lie, and Kris Pupek (Argonne National Laboratory)  
*Nanomaterials, Manufacturing, and the Science of Scale-up*
- 4:50 – 5:00 Renaud Bachelot (University of Technology at Troyes) and Gary Wiederrecht (Argonne National Laboratory)  
*Closing Statements*