

## Mesoscale Science Workshop

### Breakout Panel 3: Directed Assemblies and Collective Phenomena at the Mesoscale B170 R1092

#### August 13<sup>th</sup>, 2013

2:40 p.m. Overview of the breakout session (Co-chairs)

*Theme: Synthesis and assembly of particles*

3:00 p.m. Nano-Assembly by Design: from Structural Diversity to Tailored Materials, **O. Gang** (Brookhaven National Laboratory)

3:30 p.m. Rapid Synthesis, Functionalized and Assembly of Materials, **Y. Han** (LLNL)

3:40 p.m. TBD **C. Orme** (LLNL)

3:50 p.m. What does the Mesoscale have to do with Nanomagnets? **G. Strouse** (Florida State University)

4:20 p.m. Electrophoretic Deposition of Materials, **A. Pascall** (LLNL)

4:30 p.m. **Discussion**

5:00 p.m. *Adjourn*

#### August 14<sup>th</sup>, 2013

*Theme: Collective Phenomena*

9:00 a.m. Three-Dimensionally Mesostructured Current collectors for High Power and Energy Density Secondary Batteries and Supercapacitors, **P. Braun** (University of Illinois, Urbana Champaign)

9:30 a.m. Hierarchical Graphene-based Assemblies, **M. Worsley** (LLNL)

9:40 a.m. Challenges and Opportunities for Mesoscale Modeling of Electrochemical Systems, **B. Wood** (LLNL)

9:50 a.m. Investigating Short-Pulse Shock Initiation in HMX-Based Explosives with Reactive Meso-Scale Simulations, **K. Springer** (LLNL)

10:00 a.m. **Discussion/Break**

*Theme: Characterization at the Mesoscale*

10:30 a.m. Challenges (and Some Solutions) to Mesoscale Materials Characterization, **M. Toney** (Stanford Synchrotron Radiation Lightsource)

11:00 a.m. Characterization of Engineered Mesoscale Materials using Ultra-Small Angle X-ray Scattering, **T. Willey** (LLNL)

11:10 a.m. Probing Instability and Assembly Dynamics Using Ultrafast *In-Situ* Transmission Electron Microscopy, **J. Mckeown** (LLNL)

11:20 a.m. **Discussion**

*Theme: Optimizing material properties at the Mesoscale*

11:50 a.m. Nanomaterials- Polymers Coupling in Multiscale Architectures for High-Performance Membranes, **F. Fornasiero** (LLNL)

12:00 p.m. Bioelectronics and Molecular Transport with Self-assembled Structures on Nanowire and Nanotube Templates, **A. Noy** (LLNL)

12:10 p.m. **Discussion**

12:30 p.m. **Lunch**

2:00 p.m. Breakout to prepare to report out

3:30 p.m. Report Out

**August 15<sup>th</sup>, 2013**

9:00 a.m. Write Reports (Co-chairs, and panelists)

12:00 p.m. Adjourn