9:00 a.m.  Monica Olvera de la Cruz  
**Director’s Overview**

**Session I: Synergistic Linear and Nonlinear Phenomena in Multifunctional Oxide Ceramic Systems**

9:30 a.m.  Vinayak Dravid (Session Chair)  
**Patterning and Microscopy of Multifunctional Oxides**

9:50 a.m.  Bruce Wessels  
**Ferroic and Multiferroic Oxide Heterostructures and their Properties**

10:02 a.m.  Donald Ellis  
**Theory and Modeling of Complex Oxides: Recent Progress, Future Perspectives**

10:14 a.m.  Thomas Mason  
**Progress and Promise of ZITO-Based (Zn-In-Sn-O) Transparent Conductors and Semiconductors**

10:26 a.m.  break

**Session II: Novel Processing Methods for Nanostructured Polymer Blends, Composites and Supramolecular Structures**

10:46 a.m.  Kenneth Shull (Session Chair)  
**Design Principles for the Synthesis of Self-Healing Hydrogels with High Mechanical Toughness**

11:06 a.m.  Linda Broadbelt  
**Predicting the Topology of Copolymers Using Mechanistic Modeling**

11:18 a.m.  SonBinh Nguyen  
**Surface Properties of Functionalized Polymers**

11:30 a.m.  Samuel Stupp  
**Self-Assembly of Biomolecular Structures**

11:42 a.m.  Lunch break

NU-MRSEC Faculty and Industrial Guests: Norris Center, Big Ten room
Session III: Molecular Plasmonics: Fundamentals, New Tools, and Devices

1:12 p.m.  Richard Van Duyne (Session Chair)
Molecular Plasmonics: Overview of IRG3, Exploring the Plasmonic Periodic Table, Plasmon Microscopy, and Plasmon Switches

1:32 p.m.  Chad Mirkin
Surface Plasmon Mediated Nanoparticle Synthesis

1:44 p.m.  Teri Odom
Screening Plasmonic Materials using Nanopyramidal GRATINGS

1:56 p.m.  George Schatz
Electrodynamics of Silver and Gold Nanostructures

2:08 p.m.  R. P. H. Chang
Materials Processing for Plasmonic Studies

2:20 p.m.  break

Session IV: Hybrid Organic-Inorganic Nanoelectronic Materials from Molecules to Printable Thin Films

2:40 p.m.  Tobin Marks (Session Chair)
Hybrid Organic-Inorganic Nanoelectronic Materials from Molecules to Printable Thin Films

3:00 p.m.  Mark Ratner
Single-Molecule Transport: Spectroscopic Aspects and Raman Behavior

3:12 p.m.  Tamar Seideman
Current-Driven Dynamics in Molecular-Scale Electronics

3:24 p.m.  Mark Hersam
Fabrication and Characterization of Hybrid Nanoelectronic Materials

3:36 p.m.  Lincoln Lauhon
The Influence of Interfaces on Charge Carrier Transport in Nanostructured Materials

3:48 p.m.  break

4:00 p.m. – 6:00 p.m.  Poster Session, Pancoe Second Floor Café
Poster Titles:

1. **Hydrothermal Synthesis of Multifunctional Oxides**  
   Evan Stampler, Cathleen Hoel and Kenneth Poeppelmeier

2. **Studies of Sputter Deposited Oxide Semiconductor Thin Films**  
   Blake L. Stevens, David J. Cohen and Scott A. Barnett

3. **Electronic Structure of TCO's and Multiferroics**  
   Jung-Hwan Song, Giancarlo Trimarchi and Arthur Freeman

4. **Writing Invisible Nanoscale Oxide Circuitry**  
   N. Cortes, J. Liu, C. Chen, M. Hersam, T.J. Marks

5. **Nickel Oxide Hole-Extraction/Electron-Blocking Layers for Organic Photovoltaic Cells**  

   Fei Yi, Boyang Liu, Xiangyu Li, Zhenyu Hou and Seng-Tiong Ho

7. **Advances in Nanostructured and Nanoscale Polymeric Materials: Nanocomposites, Blends, Copolymers, and Ultrathin Films**  
   Soyoung Kim, Connie Roth, Katsuyuki Wakabayashi, Jun'ichi Masuda, Cynthia Pierre, Perla Rittigstein, T. Ramanathan, L. Catherine Brinson, Robert Sandoval, Michelle Mok, Wesley Burghardt, SonBinh Nguyen and John M. Torkelson

8. **Polymer and Carbon Nanotube Composite Networks**  
   Andrew B. Schoch, Marc J. Palmeri, Karl W. Putz, Ramanathan Thillaiyan, Kenneth R. Shull, L. Catherine Brinson

9. **Shear Induced Alignment of Multi-walled Carbon Nanotube Dispersions via Small Angle X-ray Scattering and Optical Microscopy**  

10. **X-ray Computed Tomography of Porous Alumina Produced by Thermoreversible Gelcasting**  
    N.O. Shanti, S.R. Stock, J.L. Fife and K.T. Faber

11. **Self-Organization of Macroions in Aqueous Media**  
    Pedro Gonzalez-Mozuelos, Dongsheng Zhang, Prateek Kumar Jha, Min Sun Yeom and Monica Olvera de la Cruz

12. **Resonant Plasmon Gratings**  
    Weiqiang Mu, Joon Jang, Shahin Mani, John Ketterson, Donald Buchholz, Robert Chang, Maxim Sukharev and Tamar Seideman

13. **TEM Study of Ag Nanoparticles with Applications in LSPR and SMSERS**  
    Yingmin Wang, Leif J. Sherry, Jon P. Cadman, Jon A. Dieringer, Jon A. Dieringer, Richard P. Van Duyne, George C. Schatz and Laurence D. Marks

14. **New Isotope-Edited Chromophores for Single Molecule SERS**  
    Jon Dieringer, Kristin Wustholz, Sam Kleinman, Eric M. Phillips, Karl A. Scheidt and Richard P. Van Duyne

15. **Coherent and Optimal Control of Light at the Nanoscale**  
    Maxim Sukharev and Tamar Seideman
Matthew G. Reuter, Maxim Sukharev and Tamar Seideman

17. Current-induced Excitation and Bath-induced Decoherence in Molecular Junctions
Ryan Jorn and Tamar Seideman

18. Charge Transport in Organic and Inorganic Systems
Sara DiBenedetto, Christopher George, Tobin Marks, and Mark Ratner

19. X-Ray Characterization of Hybrid Nanoelectronic Materials
Jonathan Emery, Young-Geun Ha, Antonio Facchetti, Mark Hersam, Tobin Marks and Michael Bedzyk

20. Light-Directed Assembly of Nanostructured Materials
Rafal Klajn, Paul Wesson, Kyle Bishop and Bartosz Grzybowski

21. Nanoporous Biodegradable Elastomers for Delivery of Macromolecules
Ryan A. Hoshi, Saloni Behl and Guillermo A. Ameer

22. Structure and Dynamics of the Bacterial Chromosome
Nastaran Hadizadeh, Janet R Cranfield, Calin Guet, Philippe Cluzel, Reid C. Johnson and John F. Marko

23. Kinetic Studies of Metabolic Reaction Networks
Joo Sang Lee and Adilson E. Motter