

2006 U.S. EPA STAR Nanotechnology Environmental Applications and GRO Progress Review Workshop

Crowne Plaza Washington - National Airport
1480 Crystal Drive
Arlington, VA 22202

November 8–9, 2006

TENTATIVE AGENDA

Day 1, Wednesday, November 8, 2006

- 8:30 – 8:40 a.m. Welcome and Introduction
- 8:40 – 9:00 a.m. Applications of Nanotechnology: An EPA Perspective
- Session I: NCER Nanotechnology STAR Grants for Remediation and Treatment**
- 9:00 – 9:20 a.m. Novel Nanostructured Catalyst for Remediation of Chlorinated Solvents
Lu Yunfeng, Tulane University
- 9:20 – 9:40 a.m. Nanostructured Catalytic Materials for NO_x Reduction Using
Combinatorial Methodologies,
Michael Kahn, University of California-Los Angeles
- 9:40 – 10:00 a.m. Graft Polymerization as a Route To Control Nanofiltration Membrane
Surface Properties To Manage Risk of EPA Candidate Contaminants and
Reduce NOM Fouling
James Kilduff, Rensselaer Polytechnic Institute
- 10:00 – 10:20 a.m. **BREAK**
- 10:20 – 10:40 a.m. Nanostructured Membranes for Filtration, Disinfection, and Remediation
of Aqueous and Gaseous Systems
Kevin Kit, University of Tennessee
- 10:40 – 11:00 a.m. Synthesis and Application of a New Class of Stabilized Nanoscale Iron
Particles for Rapid Destruction of Chlorinated Hydrocarbons in Soil and
Groundwater
Don Zhao, Auburn University

Day 1, Wednesday, November 8, 2006 (Continued)

- 11:00 – 11:20 a.m. Nanotechnology: A Novel Approach To Prevent Biocide Leaching
Patricia Heiden, Michigan Technological University
- 11:20 – 11:40 a.m. Use of Ozonation in Combination With Nanocrystalline Ceramic Membranes for Controlling Disinfection By-Products
Simon Davis, Michigan State University
- 11:40 a.m. – 12:00 noon m-Integrated Sensing System (m-ISS) by Controlled Assembly of Carbon Nanotubes on MEMS Structures
Somenath Mitra, New Jersey Institute of Technology
- 12:00 noon – 1:20 p.m. **LUNCH**
- 1:20 – 2:20 p.m. **Session II: Panel Discussion — Nanotechnology and Research Needs of EPA**
Marti Otto, Jon Josephs, Warren Layne, and Mike Gill, EPA
- 2:20 – 2:40 p.m. **BREAK**
- Session III: STAR Research Grants on Persistent, Bioaccumulative Chemicals**
- 2:40 – 3:00 p.m. Pathways of Mercury Evasion From Contaminated Wetlands: A Globally Important Source of Atmospheric Mercury?
Stephen Peters, Lehigh University
- 3:00 – 3:20 p.m. Defining and Predicting PCB Fluxes and Their Ecological Effects in Stream and River Systems for Risk Characterizations
Jennifer Ren, Texas A&M University
- 3:20 – 3:40 p.m. An Integration of Copepod-Based BAFs, Lifecycle Toxicity Testing, and Endocrine Disruption Methodologies for Rapid Population-Level Risk Assessment of Persistent Bioaccumulative Toxicants
Thomas Chandler, University of South Carolina
- 3:40 – 4:00 p.m. Transformation of Halogenated PBTs With Nanoscale Bimetallic Particles
Wei-xian Zhang, Lehigh University
- 4:00 – 4:20 p.m. Concentrations and Enantiomeric Fractions of Chlordane in Sediments From Long Island Sound
Pengfei Zhang, City University of New York

Day 1, Wednesday, November 8, 2006 (Continued)

4:20 p.m. **ADJOURN**

4:30 p.m. *Happy Hour (possibly at the Crown Plaza Hotel)*

Day 2, Thursday, November 9, 2006

Session IV: NCER Nanotechnology STAR Grants for Detection and Monitoring

8:20 – 8:40 a.m. Nanosensors for Detection of Saxitoxin
Robert Gawley, University of Arkansas

8:40 – 9:00 a.m. Nanomaterial-Based Microchip Assays for Continuous Environmental Monitoring
Joseph Wang, Arizona State University

9:00 – 9:20 a.m. Compound Specific Imprinted Nanospheres for Optical Sensing
Barry Lavine, Clarkson University

9:20 – 9:40 a.m. Microbial Impacts of Engineered Nanoparticles
Pedro Alvarez, Rice University

9:40 – 10:00 a.m. Metal Biosensors: Development and Environmental Testing
Anne Anderson, Utah State University

10:00 – 10:20 a.m. **BREAK**

10:20 – 10:40 a.m. Structure-Function Relationships in Engineered Nanomaterials
Vicki Colvin, Rice University

10:40 – 11:00 a.m. Conducting-Polymer Nanowire Immunosensor Arrays for Microbial Pathogens
Ashok Mulchandani, University of California-Riverside

11:00 – 11:20 a.m. Developing Functional Fe(0)-Based Nanoparticles for *In Situ* Degradation of DNAPL Chlorinated Organic Solvents
Gregory Lowry, Carnegie Mellon University

11:20 – 11:40 a.m. Solvent-Free Production of Alkaline Earth Metal Titanates for Electronic Applications
David Jones, NanoScale Materials, Inc.

Day 2, Thursday, November 9, 2006 (Continued)

- 11:40 a.m. – 12:00 noon Development of a Reliable, Low-Cost and User-Friendly Spot Test Kit
for Leaded Paint and Dust Based on Recent Advances of
Bionanotechnology
Juewen Liu, DzymeTech, Inc.
- 12:00 noon – 12:20 p.m. Sequestration of Subsurface Elemental Mercury (Hg^0)
Mark Barnett, Auburn University
- 12:20 – 12:30 p.m. Wrap-Up
- 12:30 p.m. **Adjourn**