

Interagency Nanotechnology Implications Grantees Workshop— EPA, NSF, NIH/NIEHS, NIOSH, and DOE

Embassy Suites Hotel
Las Vegas, NV
November 9-10, 2009

Draft Agenda (Metals and Carbon-Based)

Day 1: Monday, November 9, 2009

- 8:00 a.m. – 8:30 a.m. Registration
- 8:30 a.m. – 8:35 a.m. Welcome
Nora Savage, National Center for Environmental Research (NCER), U.S. Environmental Protection Agency (EPA)
- 8:35 a.m. – 8:40 a.m. Introduction
Gail Bentkover, Director, Technology and Engineering Division (TED), NCER, EPA
- 8:40 a.m. – 8:50 a.m. Opening Remarks
William Sanders III, Director, NCER, EPA
- 8:50 a.m. – 9:20 a.m. EPA Las Vegas Research Overview

Session 1B: Metals/Metal Oxide Toxicity

- 9:20 a.m. – 9:45 a.m. Characterization of the Potential Toxicity of Metal Nanoparticles in Marine Ecosystems Using Oysters
Amy Huffman Ringwood, University of North Carolina at Charlotte, Wake Forest University
- 9:45 a.m. – 10:10 a.m. Correlation Among Physicochemical Properties, Photochemical Fate, and Toxicity of TiO₂ Nanoparticles
Nianqiang Wu, National Science Foundation (NSF), West Virginia University
- 10:10 a.m. – 10:35 a.m. Modulation of Quantum Dot Nanoparticle Toxicity by Glutathione in GCL Transgenic Mice
Terrance Kavanaugh (NIEHS), University of Washington
- 10:35 a.m. – 10:50 a.m. Break

Session 2B: Metals/Metal Oxides Fate and Transport

- 10:50 a.m. – 11:15 a.m. The Effect of Surface Coatings on the Environmental and Microbial Fate of Nanoiron and Feoxide Nanoparticles
Gregory V. Lowry, Carnegie Mellon University, Chapman University, Rice University
- 11:15 a.m. – 11:40 a.m. The Fate and Effects of Nanosized Metal Particles Along a Simulated Terrestrial Food Chain Invested Using Genomic and Microscopic Techniques
Jason M. Unrine, University of Georgia
- 11:40 a.m. – 12:05 p.m. An Integrated Approach Toward Understanding the Environmental Fate, Transport, Toxicity, and Occupational Health Hazards of Metal and Metal Oxide Nanoparticles
Vicki H. Grassian, University of Iowa
- 12:05 p.m. – 1:30 p.m. Lunch
- 1:30 p.m. – 1:45 p.m. National Institute for Occupational Safety and Health (NIOSH)
William (Allen) Robison, NIOSH (tent.)
- 1:45 p.m. – 2:00 p.m. National Institute of Environmental Health Sciences (NIEHS)
Srikanth Nadadur, Program Administrator, NIEHS

Session 3B: Metals/Metal Oxides Fate and Transport (cont.)

- 2:00 p.m. – 2:25 p.m. Environmental Transport, Biodegradation, and Bioaccumulation of Quantum Dots and Oxide Nanoparticles
Diana S. Aga, University of Buffalo
- 2:25 p.m. – 2:50 p.m. Functionalized Metal Oxide Nanoparticles: Environmental Transformations and Ecotoxicity
Joel A. Pedersen, University of Wisconsin
- 2:50 p.m. – 3:15 p.m. Physicochemical Characterization, Transport, Biological Response, and Occupational Exposure of Engineered Nanometal Oxides
Shyam Bsiwal, (NSF), Johns Hopkins University
- 3:15 p.m. – 3:40 p.m. Platinum-Containing Nanomaterials: Sources, Speciation, and Transformation in the Environment
Martin Shafer, University of Wisconsin–Madison
- 3:40 p.m. – 4:05 p.m. Bioavailability and Fates of CdSe and TiO₂ Nanoparticles in Eukaryotes and Bacteria
Patricia Holden, University of California, Santa Barbara, McGill University
- 4:05 p.m. – 4:20 p.m. Break

Session 4B: Metals/Metal Oxide Exposure

- 4:20 p.m. – 4:45 p.m. Nanoparticle Stability in Natural Waters and Its Implication for Metal Toxicity to Water Column and Benthic Organisms
James Ranville, Colorado School of Mines, Dartmouth College
- 4:45 p.m. – 5:10 p.m. Bioavailability of Metallic Nanoparticles and Heavy Metals in Landfills
Zhiqiang Hu, University of Missouri–Columbia

Carbon-Based Exposure

- 5:10 p.m. – 5:35 p.m. Influence of Water Quality on the Bioavailability and Food Chain Transport of Carbon Nanoparticles
Stephen J. Klaine, Clemson University
- 5:35 p.m. Adjourn

Dinner *Lawry's The Prime Rib (Time TBA)*
4043 Howard Hughes Parkway
Las Vegas, NV 89169
(702) 893-2223

Day 2: Tuesday, November 10, 2009

- 8:00 a.m. – 8:30 a.m. Registration
- 8:30 a.m. – 8:35 a.m. Welcome and Announcements
- 8:35 a.m. – 8:50 a.m. National Science Foundation Small Business Innovation Research (SBIR) Overview
James Rudd (tent.)

Session 1B: Carbon-Based Exposure (cont.)

- 8:50 a.m. – 9:15 a.m. Behavior of Carbon Nanomaterials in Aqueous Suspensions of Natural Organic Matter
Stephen J. Klaine, Clemson University

Carbon-Based Fate and Transport

- 9:15 a.m. – 9:40 a.m. Cross-Media Environmental Transport, Transformation, and Fate of Manufactured Carbonaceous Nanomaterials
Linsey Marr (NSF), Virginia Polytechnic Institute and State University
- 9:40 a.m. – 10:05 a.m. Aggregation and Deposition Behavior of Carbon Nanotubes in Aquatic Environments
Manachem Elimelech (NSF), Yale University
- 10:05 a.m. – 10:30 a.m. Interactions of Natural Organic Matter With C60 Fullerenes and Their Impact on C60 Transport, Bioavailability, and Toxicity
Qilin Li, Rice University
- 10:30 a.m. – 10:45 a.m. Break

Session 2B: Carbon-Based Fate and Transport

- 10:45 a.m. – 11:10 a.m. Photochemical Fate of Manufactured Carbon Nanomaterials in the Aquatic Environment
Chad T. Jafvert, Purdue University–Main Campus
- 11:10 a.m. – 11:35 a.m. Environmental Behaviors of Solubilized Carbon Nanotubes in Aquatic Systems: Transformation, Sorption, and Toxicity Exposure
Qingguo Huang, University of Georgia
- 11:35 a.m. – 12:00 p.m. Analysis and Fate of Single-Walled Carbon Nanotubes and Their Manufacturing Byproducts in Estuarine Sediments and Benthic Organisms
P. Lee Ferguson, University of South Carolina at Columbia
- 12:00 p.m. – 12:25 p.m. Effects of Surface Oxides on the Behavior of Carbon Nanotubes and Their Influence on the Mobility of Contaminants in Aquatic Environments
William P. Ball, Johns Hopkins University
- 12:25 p.m. – 1:30 p.m. Lunch
- 1:30 p.m. – 2:30 p.m. ORD Labs Presentation

Session 3B: Carbon-Based Fate and Transport (cont.)

- 2:30 p.m. – 2:55 p.m. Quantum Dot Weathering and Its Effects on Microbial Communities
Shaily Mahendra, University of California, Los Angeles
- 2:55 p.m. – 3:20 p.m. Carbon Nanotubes: Environmental Dispersion States, Transport, Fate, and Bioavailability
Walter J. Weber, University of Michigan
- 3:20 p.m. – 3:45 p.m. Biological Fate and Biocompatibility of Dendritic and Silica-Based Nanoconstructs
Hamid Ghandehari (NIDCR), University of Utah

Carbon-Based Toxicity

- 3:45 p.m. – 4:10 p.m. Aquatic Toxicity of Carbon-Based Nanomaterials at Sediment-Water Interfaces
Baolin Deng, University of Missouri–Columbia, Columbia Environmental Research Center, United States Geological Survey (USGS)
- 4:10 p.m. – 4:25 p.m. Break

Session 4B: Carbon-Based Toxicity (cont.)

- 4:25 p.m. – 4:50 p.m. Fate and Toxicity of Metallic Nanoparticles in Aquatic Organisms
David Barber (NSF), University of Florida
- 4:50 p.m. – 5:15 p.m. Chemical, Structural, and Superstructural Determinants of Nanocarbon Toxicity
Agnes Kane (NIEHS/NHGR), Brown University

- 5:15 p.m. – 5:40 p.m. Cardiovascular Impact of Inhaled Multi-Wall Carbon Nanotubes
Christopher Wingard (NIEHS), East Carolina University
- 5:40 p.m. – 6:05 p.m. Ecotoxicology of Underivatized Fullerenes (C60) in Fish
Theodore B. Henry, University of Tennessee–Knoxville
- 6:05 p.m. Adjourn