



Pollution Prevention through Nanotechnology Conference

September 25-26, 2007, Arlington, VA

Draft Agenda

(as of September 10, 2007)

Holiday Inn Rosslyn at Key Bridge

1900 Fort Myer Drive, Arlington, VA 22209

Telephone: (703) 807-2000



Day One – Tuesday, September 25, 2007

9:00 AM **Registration**

9:30 AM **Introductions And Setting The Stage**

Moderator: Clive Davies, *Chief, Design for the Environment Branch (DfE), U.S. EPA*

Priorities and Perspectives

James Gulliford, *Assistant Administrator*

Office of Prevention, Pesticides, and Toxic Substances (OPPTS), U.S. EPA

Science and Research

Dr. George Gray, *Assistant Administrator*

Office of Research and Development (ORD), U.S. EPA

Nanotechnology and Pollution Prevention Overview

Dr. Clayton Teague, *Director*

National Nanotechnology Coordination Office

Conference Framework, Goals, and Desired Outcomes

Charles Auer, *Director*

Office of Pollution Prevention and Toxics (OPPT), OPPTS, U.S. EPA

Discussion

10:55 AM **Break**

11:15 AM **Nanotechnology Life-Cycle Considerations**

Moderator: Jeff Morris, *Associate Director for Science, Office of Science Policy, ORD, U.S. EPA*

Life-Cycle Thinking for Sustainable Nanotechnology

Dr. Lauren Heine, *Director of Applied Science*

GreenBlue

Identifying Life-Cycle Issues for Nanotechnologies

David Rejeski, *Director*

Project on Emerging Nanotechnologies, Woodrow Wilson International Center

Applying Green Chemistry Principles to Nanotechnology

Professor James Hutchison, *Department of Chemistry, University of Oregon and Director, ONAMI Safer Nanomaterials and Nanomanufacturing Initiative (SNNI)*

Discussion



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12:15 PM **Lunch**

1:15 PM **Nanotechnology Products**

Moderator: Dr. Jeffery Steevens, *Research Toxicologist, U.S. Army Corps of Engineers*

Alternatives to Chrome VI Coatings

Dr. Greg Engleman, *Coating Technologies*
Powdermet, Inc.

Easy-to-Clean Surfaces and the Underlying Nanoscale Materials

Dr. Fred Klaessig, *Business Director, Aerosil Business Line*
Degussa Corporation

Energetics, Including Safer Non-Lead Primers to Prevent Pollution

Professor Shubhra Gangopadhyay, *LaPierre Chair Professor*
Department of Electrical and Computer Engineering,
University of Missouri at Columbia

Nanoscale Thermoelectric Materials and Devices

Dr. Rama Venkatasubramanian, *Senior Research Director*
Center for Solid State Energetics, RTI International

2:40 PM **Break**

3:00 PM **Nanotechnology Processes**

Moderator: Dr. Dennis Utterback, *Office of Science Policy, ORD, U.S. EPA*

Nanoengineering Materials for Pollution Prevention: Concrete and Reduced CO₂ Emissions

Professor Franz-Josef Ulm, *Department of Civil and Environmental Engineering*
Massachusetts Institute of Technology

Stereoselective Green Chemistry Strategies Using Crystal-to-Crystal Reactions: The Advantages of Molecular Nanocrystals

Professor Miguel Garcia-Garibay, *Department of Chemistry and Biochemistry*
University of California, Los Angeles

Nanotechnology as a Tool to Advance Pollution Prevention in the Semiconductor/IT Industry

Dr. Arthur Fong, *Corporate Environmental Affairs*
IBM Corporation



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4:05 PM **Energy or Resource Efficiency**

Moderator: Jeffrey Burke, *Executive Director, National Pollution Prevention Roundtable*

Nanomaterials for Low-Cost, High-Efficiency Solar Cells

Professor Peter Peumans, *Department of Electrical Engineering*
Stanford University

Pores without Walls for Clean Energy

Professor Omar Yaghi, *Department of Chemistry and Biochemistry*
University of California, Los Angeles

Nanotechnology Enabled Materials for Energy Conservation

Dr. Daniel Rardon, *Manager Advanced Technologies*
PPG Industries

5:10 PM **Adjourn**

5:30 PM **Reception and Poster Session**



Day Two – Wednesday, September 26, 2007

8:45 AM **Day Two Welcome**

Clive Davies, *Chief, DfE, OPPT, OPPTS, U.S. EPA*

9:00 AM **Case Study #1: Nanotechnology Processes – Catalysts**

Moderator: Dr. Jeremiah Duncan, *American Association for the Advancement of Science (AAAS) Environmental Fellow, OPPT, OPPTS, U.S. EPA*

Green Catalytic Processes: Substitution of Volatile Liquid Acids with Solid Acids

Professor Israel Wachs, *G. Whitney Snyder Professor
Rossin College of Engineering & Applied Science, Lehigh University*

Business Potential of Nano Catalysts for Clean Energy

Pankaj Dhingra, *President and Chief Executive Officer
Nanostellar, Inc.*

Nano-Enabled Catalysts for the Commercially Viable Production of H₂O₂

Dr. Bing Zhou, *Vice President and Chief Technology Officer
Headwaters Technology Innovation Group*

Green Chemistry and Life-Cycle Thinking

Professor Terrence Collins, *Thomas Lord Professor of Chemistry and Director
Institute for Green Oxidation Chemistry, Carnegie Mellon University*

Discussion

10:20 AM **Break**

10:40 AM **Case Study #2: Nanotechnology Products – Flame Retardants**

Moderator: Lynn L. Bergeson, Esquire, *Managing Director, Bergeson & Campbell, P.C.*

Nanocomposite-Based Flame Retardants Research at NIST

Dr. Jeffrey W. Gilman, *Leader, Materials and Products Group, Fire Research Division
National Institute of Standards and Technology*

Environmentally Friendly, Nano-Based Polyurethane Fire Retardant Systems

Professor Richard A. Pethrick, *Department of Pure and Applied Chemistry
University of Strathclyde*

Commercialization of Nanoclays for Use as Fire Retardants

Dr. Tie Lan, *General Manager
Nanocor, Inc.*

Learning from Chemical Flame Retardants: The Life-Cycle Questions We Need to Answer

Dr. Mark Rossi, *Research Director
Clean Production Action*

Discussion



12:00 PM **Lunch**

1:00 PM **Case Study #3: Energy / Resource Efficiency – Lithium-Ion Batteries**

Moderator: Kathleen Vokes, *DfE, OPPT, OPPTS, U.S. EPA*

The Enabling Role of Nanomaterials in Lithium Battery Technology for Improved Energy Utilization and Conservation

Professor Yet-Ming Chiang, *Department of Materials Science
Massachusetts Institute of Technology and Co-Founder of A123 Systems*

Nano-Based Lithium-Ion Batteries for Electric Vehicles

Dr. Evan House, *Director, Lithium Titanate Battery Program
Altair Nanotechnologies, Inc.*

Keeping Pace with Nanotechnology: A Proposal for a New Approach to Environmental Accountability

Lee Paddock, *Associate Dean for Environmental Law Studies, The George Washington University Law School*

Discussion

2:15 PM **Break**

2:30 PM **Perspectives and Next Steps**

Moderator: Dr. Ken Geiser, *Co-Director, Lowell Center for Sustainable Production
University of Massachusetts Lowell*

Terry Medley, *Global Director of Corporate Regulatory Affairs
DuPont Environmental and Sustainable Growth Center*

Beverley Thorpe, *International Director
Clean Production Action*

David Rejeski, *Director
Project on Emerging Nanotechnologies, Woodrow Wilson International Center*

3:15 PM **EPA Perspectives and Closing Remarks**

Jeff Morris, *Associate Director for Science
Office of Science Policy, ORD, U.S. EPA*

Jim Willis, *Director
Chemical Control Division, OPPT, OPPTS, U.S. EPA*

3:30 PM **Adjourn**