



Nanomaterials and the Environment & Instrumentation, Metrology, and Analytical Methods

October 6-7, 2009 – Holiday Inn Rosslyn at Key Bridge

1900 North Fort Myer Drive, Arlington, VA 703-807-2000

Metro: blue or orange line to Rosslyn Station

www.nano.gov/html/meetings/environment/

Monday, October 5, 2009

7:00 p.m. **Nanotechnology Primer** – Carl Batt, Cornell University (*location: Boardroom, 1st floor*)

Tuesday, October 6, 2009

7:30 a.m. **Registration** (*location: Promenade*)

Plenary Session (*location: Rosslyn Ballroom*)

8:00 **Welcome** – Travis Earles, White House Office of Science & Technology Policy

8:15 **Charge to Participants** – Phil Sayre, EPA

8:30 ***How to make decisions under conditions of uncertainty in nanotechnology from your perspective***

8:30 ***Industry Perspective*** – David Arthur, CEO Southwest Nanotechnologies

8:45 ***Insurance Perspective*** – John Monica, Porter Wright Morris & Arthur LLP

9:00 ***States' Perspective*** – Leonard Robinson, California EPA

9:15 ***Public Stakeholders' Perspective*** – J. Alan Roberson, AWWA

9:30 ***EPA Titanium Dioxide Case Study; A Perspective*** – David Andrews, EWG

9:45 **BREAK**

10:00 ***Case Scenario*** – Paul Westerhoff, Arizona State University

Responses to the Case Scenario

Current assessment of state of the science, gap analysis, and future priorities

Environmental Effects Presentation – Richard Handy

Fate & Transport Presentation – Mark Wiesner

Instrumentation, Metrology, and Analytical Methods – Hendrik Emons

11:00 ***Science in the round: What is your perspective on the #1 need in nanotechnology research?***

– Rebecca Klaper, Great Lakes WATER Institute

- What is your perspective on the #1 need in nanotechnology EHS research?
- Table review of perspectives from plenaries and scenario
- Post perspectives

12:00 **Charge for afternoon technical sessions** – Dianne Poster, NIST

12:15 **LUNCH**



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Concurrent Technical Sessions (*location: varies, see promenade for latest information*)

General Structure of Technical Sessions:

1. Panel presentation by invited experts
2. Discussion of research among invited experts
3. Open discussion on research needs

1:30 1. *Fundamental interactions of nanomaterials with organisms: basic science principles and application to needs of regulatory agencies*

Moderator: Paul Westerhoff, Arizona State University

Panelists – Steve Diamond, [William Johnson](#), Rebecca Klaper, [Rajan Menon](#), [Robert Tanguay](#)

2. *Transport of nanomaterials in the environment*

Moderator: John Gannon, DuPont

Panelists – [Dan Herr](#), [Jae-Hong Kim](#), [Greg Lowry](#), Alex Star, Paul Tratnyek, Ron Turco, Mark Wiesner

3. *Measuring and predicting levels of exposure of nanomaterials for various species in the environment*

Moderator: John Cowie, American Forest & Paper Association

Panelists – Don Baer, [Gary Casuccio](#), [Shaun Clancy](#), [Horacio Espinosa](#), [Greg Meyers](#), [Mike Postek](#)

4. *Developing standard measurements to allow comparisons across experiments*

Moderator: Alan Roberson, American Water Works Association

Panelists – [Hendrik Emons](#), [Howard Fairbrother](#), [Vince Hackley](#), [Steve Wilson](#)

5. *How environmental exposures occur and change under different environmental conditions*

Moderator: Dave Andrews, Environmental Working Group

Panelists – [Pedro Alvarez](#), [William Ball](#), [Richard Handy](#), [Lisa DeLouise](#), [R.D. Holbrook](#), [Ann Miracle](#),
Keith Swain

5:00 **Public Comment Period**—(*location: Rosslyn Ballroom*)

Wednesday, October 7, 2009

Opening session, Day 2 (*location: Rosslyn Ballroom*)

8:00 **Welcome**—Phil Sayre, EPA

8:15 **Report Out from Sessions 1, 2, 3, 4, and 5**—Session Moderators / Selected Panelists

9:10 **Charge for Breakout Sessions** —Dianne Poster, NIST



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9:15 6. *Transformation in the organism and in the environment: what do we measure and how do we develop testing strategies*

to measure impacts of particles that may be transformed over time in the environment

Moderator: Paul Westerhoff, Arizona State University

Panelists – [Lisa DeLouise](#), Dan Herr, [Rebecca Klaper](#), [Jae-Hong Kim](#), [Ann Miracle](#), Robert Tanguay

7. *Transformation of nanomaterials in the environment*

Moderator: John Gannon, DuPont

Panelists – [Howard Fairbrother](#), Greg Lowry, [Alexander Star](#), Paul Tratnyek, [Ron Turco](#), Mark Wiesner

8. *Developing methods to detect nanomaterials and determine exposure routes*

Moderator: Dave Andrews, Environmental Working Group

Panelists – [Steve Diamond](#), [William Johnson](#), [Rajan Menon](#), [Keith Swain](#)

9. *Developing standards for nanomaterial properties*

Moderator: John Cowie, American Forest & Paper Association

Panelists – [Don Baer](#), Gary Casuccio, Shaun Clancy, Hendrik Emons, Vince Hackley, Greg Meyers, Mike Postek, Steve Wilson, Horacio Espinosa

10. *How environmental exposures occur and change under different environmental conditions*

Moderator: Alan Roberson, American Water Works Association

Panelists – Pedro Alvarez, William Ball, Richard Handy, [R.D. Holbrook](#)

12:15 **LUNCH**

Closing Session (*location: Rosslyn Ballroom*)

1:15 **Report Out from Sessions 6, 7, 8, 9, and 10** – Session Moderators / Selected Panelists

2:15 **Synthesis Session**

Discussion of the most important research needs based on technical sessions on Days 1 and 2, and how the identified

research priorities compare to the priorities and timing from the Federal Strategy

3:45 **Public Comment Period** – (*location: Rosslyn Ballroom*)

4:00 **Closing Remarks** – Dianne Poster, NIST and Phil Sayre, EPA



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Invited Speakers

Pedro Alvarez, Rice University
David Arthur, SWeNT
Don Baer, PNNL
William Ball, Johns Hopkins University
Gary Casuccio, RJ Lee Group
Shaun Clancy, Evonik
Lisa DeLouise, University of Rochester
Steve Diamond, EPA
Hendrik Emons, European Commission/Joint Research Centre/Institute for Reference Materials and Measurements
Horacio Espinosa, Northwestern University
Howard Fairbrother, Johns Hopkins University
Vince Hackley, NIST
Richard Handy, University of Plymouth
Dan Herr, Semiconductor Research Corp.
R.D. Holbrook, NIST
William P. Johnson, University of Utah
Jae-Hong Kim, Georgia Institute of Technology
Greg Lowry, Carnegie Mellon University
Rajan Menon, TSI
Greg Meyers, Dow
Ann Miracle, PNNL
John Monica, Porter Wright Morris & Arthur LLP
Michael Postek, NIST
Leonard Robinson, California EPA
Alexander Star, University of Pittsburgh
Keith Swain, DuPont
Robert Tanguay, Oregon State University
Paul Tratnyek, Oregon Health & Science University
Ron Turco, Purdue University
Mark Wiesner, Duke University
Steve Wilson, US Geological Survey

Workshop Planning Team

David Andrews, Environmental Working Group
John Cowie, American Forest & Paper Association
John Gannon, DuPont
Rebecca Klaper, Great Lakes WATER Institute
Dianne Poster, NIST
J. Alan Roberson, American Water Works Association
Phil Sayre, EPA
Paul Westerhoff, Arizona State University