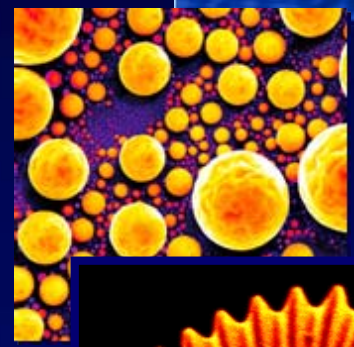
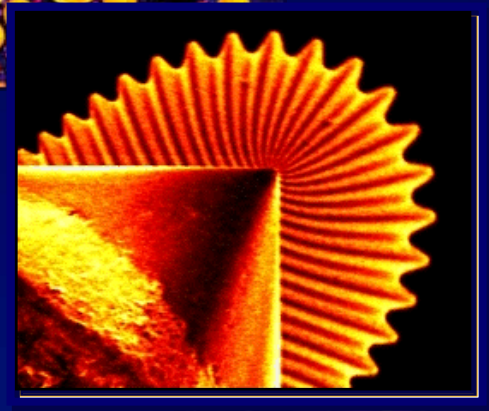
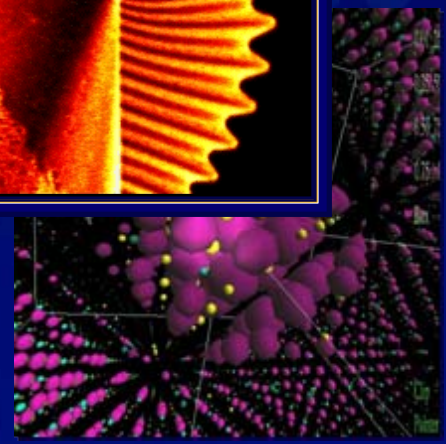
Workshop on Standards for EHS Research Needs for Engineered Nanoscale Materials







NIST

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NIST
National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce

www.nist.gov
www.nano.gov

Standards for Nano-EHS

- **Purpose**:
  - **To identify standard materials needed to address toxicology and risk assessments of engineered nanoscale materials and technical challenges**
- **NIST (www.nist.gov)**
- **National Nanotechnology Initiative (www.nano.gov)**

Organizing Committee

Name	*Affiliation*
Nora Savage	U.S. EPA
Justin Teeguarden	Pacific Northwest National Laboratory
Dianne Poster	NIST
John Small (Chair)	NIST
Nigel Walker	NIEHS
Scott McNeil	NCL
Richard Canady	U.S. FDA
Laurie Locascio	NIST
Vladimir Murashov	NIOSH
Cate Alexander Brennan	NNCO
Mark Wiesner	Duke University
Michael Postek	NIST
Eric Amis	NIST
Angie Hight-Walker	NIST
Kalman Migler	NIST
David Warheit	Dupont
Vicki Colvin	Rice University, ICON
Debbie Kaiser	NIST

Standards for Nano-EHS

- **Product an NNI report to:**
  - **assist with developing standards to address toxicology and risk assessments of engineered nanoscale materials**
  - **recommend priority materials**
    - **enable investment in the development of such materials**
    - **materials for a number of sectors**
- **Additional information:**
  - **http://www.nist.gov/ENMworkshop**

Standards for Nano-EHS

- **Goals:**
  1. **Develop Approaches for Identifying Standard Materials Critical for Risk Assessment and Risk Management**
  2. **Nomination of Materials Specific to User and Community Needs**
  3. **Identify Critical Materials Characterization Parameters**
  4. **Identify Priority Reference Materials**
     1. **Characterizations**
     2. **Time-scales for Development**

Workshop Organization

Four Break-out groups

A. Cross Cut Issues in Development of Standard Materials

B. Materials for Occupational Exposure

C. Materials for Environmental Fate and Transport

D. Materials for Human & Ecological Health

Standards for Nano-EHS

- **Group A: Cross Cut Issues in Development of Standard Materials**
  - ***areas that impact multiple users and communities***
    - **challenges in material considerations**
      - **experimental methods**
      - **production (sources, volumes)**
      - **time scales or cost**
    - **policy, international standards cooperation, interagency collaboration and coordination, inter-laboratory comparisons**
  - **materials to support such activities**

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- **Group B: Materials for Occupational Exposure**
  - **materials for risk assessment, risk management, and characterization of nanoparticle exposure in the workplace**
    - **materials for inhalation, ingestion, skin absorption, other routes**
    - **materials to support international consensus standards for nanoparticle exposure**

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- **Group C: Materials for Environmental Fate and Transport**
  - **materials to assess environmental exposure to nanomaterials in air, water and soil**
    - **determine fate and transport once released into the environment**
    - **understand their subsequent behavior and fate**
      - **mixing and dispersing**
      - **concentrating and agglomerating**
      - **reactions and transformations (biological, physical)**
      - **decomposition**

Standards for Nano-EHS

- **Group D: Materials for Human & Ecological Health**
  - **materials to assess biological response to engineered nanoscale materials**
    - **environmental or non-incidental exposure to humans and other living systems (aquatic, plants, animals)**
  - **materials to understand effects on subcellular components, cells, tissues, organs, organ systems, and whole organisms**
    - **supports bioaccumulation, toxicity studies**