US EPA ARCHIVE DOCUMENT
Nanotechnology and OSWER Meeting Panel

Barbara Karn, PhD
US EPA/Office of Research and Development
Woodrow Wilson International Center for Scholars/
Emerging Nanotechnologies Project

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6 Thrusts for EPA Nano research program

• Build and sustain a community of researchers in nanotech and the
  environment—both applications and implications.

• Promote nanotechnology within EPA and its mission.

• Assure consideration of the environment and human health in
  government research programs related to nanotechnology.

• Work with industry to assure environmentally responsible development
  of nanotechnology and products containing nanomaterials.

• Provide leadership in international activities involving environment and human
  health and nanotech.

• Provide education and outreach to the public to promote understanding
  of nanotechnology with respect to environment and human health.
### International Activities

*Proposed joint RFA with EC and US partners, NSF, NIOSH, NIEHS*

**International Dialogue for Responsible Nanotechnology**

OECD  IREC  GIN  ICON

“Evidence” for reports

*Invited talks:*
Taiwan, Singapore, Thailand, India,
Hong Kong,
China, Japan, Belgium

### Green Nanotechnology Framework

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<th>1. Production</th>
<th>of nanomaterials and products does not harm the environment</th>
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<td><strong>Making NanoX “green”</strong></td>
<td>e.g., Green chemistry, Green engineering, DfE, Smart business practices</td>
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<td><strong>Using NanoX to “green” production</strong></td>
<td>e.g., Nanomembranes, nanoscaled catalysts</td>
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<td><strong>Pollution Prevention Emphasis</strong></td>
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<th>2. Products</th>
<th>of nano help the environment</th>
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<td><strong>Direct Environmental Applications</strong></td>
<td>e.g., Environmental remediation, sensors</td>
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<tr>
<td><strong>Indirect Environmental Applications</strong></td>
<td>e.g., saved energy, reduced waste</td>
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**NEXT STEPS:** Policies that offer incentives for developing greener nanoproducts and manufacturing techniques
The objectives of this symposium are to highlight the latest research results in nanotechnology that address pollution prevention at its source through green synthesis of nanomaterials and products and use of nanotechnology to reduce pollutants in current processes.

Session topics:
- Overview of nanotechnology programs and issues
- Environmental benign synthesis of nanomaterials
- Bio-inspired nanotechnology
- Use of nanotechnology leading to cleaner production
- Nanotechnology for environmental clean-up
- Nanomaterials for use in energy applications
- Nanotechnology related to the hydrogen economy

Co-Chairs: Barbara Karn, U.S. EPA; James E. Hutchison, University of Oregon; Florian Chattenmeyer, General Electric; Nana Savage, U.S. EPA

Dr. Barbara Karn -- Presentation Slides

Be ready for waste streams caused by nanotechnology

Materials/substance flow analysis
A Back of the Envelope MFA calculation: Switching to nano

Each EPA employer has 1 computer with 1 CRT monitor

20,000 employees replace their CRTs with flat screen LCDs

0.45 kg Pb/17 inch CRT (D E Report, US EPA)

9 tonnes of Lead to be disposed of from EPA monitors!

0.8 M³ Lead ~ volume of 7 oil barrels

Can Nanotechnology change this waste picture?
Nanotechnology and the Environment: Where we've come from and where we're going

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American Chemical Society
4th Nano and the Environment Symposium
Atlanta, Georgia March 26, 2006

GET INVOLVED

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NanoMeeters
Agency & Academic Contacts

Use Expertise in Agency