



## QEEN II: 2<sup>nd</sup> Quantifying Exposure to Engineered Nanomaterials from Manufactured Products Workshop

*Sponsored by the Consumer Product Safety Commission (CPSC) and co-hosted by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) and the National Nanotechnology Initiative (NNI)*

October 9–10, 2018

U.S. Department of Labor, Frances Perkins Building  
200 Constitution Ave., NW, Washington, D.C.

### Tuesday, October 9, 2018: Taking Stock: Nanomaterial Exposure Science in 2018

8:00-8:30	<b>Registration</b>
8:30-8:45	<b>Plenary Session (1), Workshop Opening and Welcoming Remarks.</b> <i>Treye Thomas</i> (CPSC, NNI Coordinator for Environmental, Health, and Safety Research) <i>Lisa Friedersdorf</i> (Director, National Nanotechnology Coordination Office—NNCO)
8:45-10:15	Advances and Knowledge Gains Since QEEN I. <b>Chuck Geraci</b> (NIOSH) What Have We Learned About Environmental Realism with Respect to Nanomaterial Exposure? <b>Paul Westerhoff</b> (Arizona State U.)
10:15-10:30	<b>Break</b>
10:30-12:00	<b>Concurrent Breakout Session (1)</b> Session A. Quantifying Potential Acute and Chronic Exposure from 3D Printing/Additive Manufacturing. <b>Co-chairs: Tim Nurkiewicz</b> (W. Virginia U.) <b>and Alyson Johnson</b> (NIOSH) <b>Speakers: Peter Byrley</b> (EPA); <b>Justin Gorham</b> (NIST); <b>Sandra Pirela</b> (SafeBridge Consultants, Inc.); <b>Souhail al-Abed</b> (EPA) Session B. Assessing Exposure and Health Effects for Nanomaterial Workers: Epidemiologic and Biomarker Approaches. <b>Co-chairs: Gabriele Windgasse</b> (CA Dept. of Public Health) <b>and Paul Schulte</b> (NIOSH) <b>Speakers: Paul Schulte</b> (NIOSH); <b>John Beard</b> (Brigham Young U.); <b>Robin Keeler</b> (Dept. of Energy); <b>Mike Kleeman</b> (UC Davis); <b>Gabriele Windgasse</b> (CA Dept. of Public Health)

	<p>Session C. Integrating Exposure and Toxicity Assessments of Nanomaterials at Different Stages of the Life Cycle. <b>Co-chairs: Aaron Erdely (NIOSH) and Christie Sayes (Baylor U.)</b></p> <p><b>Speakers: Aaron Erdely (NIOSH); Kim Rogers (EPA); Jenny Roberts (NIOSH); Mark Wiesner (Duke U.); Christie Sayes (Baylor U.)</b></p> <p>Session D. Exposure to Nanomaterials in Agroecosystems and Agricultural Production. <b>Co-chairs: Jason White (Connecticut Agricultural Experiment Station—CAES) and Arturo Keller (UC Santa Barbara—UCSB)</b></p> <p><b>Speakers: Greg Lowry (Carnegie Mellon U.); Juan Pablo Giraldo (UC Riverside); Swadeshmukul Santra (U. Central Florida); Mathews Paret (U. of Florida); Carmen Gomes (Iowa State U.); Wade Elmer (CAES); Leanne Gilbertson (U. Pittsburgh)</b></p>
12:00-1:30	<b>Lunch Break (on your own)</b>
1:30-2:30	<p><b>Plenary Session (2), Roundtable Discussion. Chair: Igor Linkov (U.S. Army Engineer Research and Development Center—ERDC)</b></p> <p>Connecting the Pieces: Linking Manufacture and Use of Nanomaterials or Nanotechnology-Enabled Products with Exposure, Outcome, and Risk.</p> <p><b>Roundtable Panel: Benjamin Trump (U.S. Army ERDC); Will Boyes (EPA); Mark Wiesner (Duke U.); Wu-Sheng Shih (Brewer Science)</b></p>
2:30-2:45	<b>Break</b>
2:45-4:15	<p><b>Concurrent Breakout Session (2)</b></p> <p>Session A. Exposure Scenario: Workplace Exposure. <b>Co-chairs: Laura Hodson (NIOSH) and Scott Brown (Chemours)</b></p> <p><b>Speakers: Kevin L. Dunn (NIOSH); Delphine Bard (Health and Safety Laboratory, Health and Safety Executive United Kingdom); Michele Shepard (Colden Corp.); Marilyn Black (UL)</b></p> <p>Session B. Exposure Scenario: Consumer Exposure (General Products). <b>Co-chairs: Joanna Matheson (CPSC) and Sandra Pirela (SafeBridge Consultants, Inc.)</b></p> <p><b>Speakers: Gedi Mainelis (Rutgers U.); Sandra Pirela (SafeBridge Consultants, Inc.); Joanna Matheson (CPSC)</b></p> <p>Session C. Nanomaterial Exposure in Ecological Systems. <b>Co-chairs: Elijah Petersen (NIST) and Monika Mortimer (UC Santa Barbara—UCSB)</b></p> <p><b>Speakers: Paul Westerhoff (Arizona State U.); Adeyemi Adelaye (UC Irvine); Monique Johnson (NIST); Elijah Petersen (NIST); Monika Mortimer (UCSB)</b></p> <p>Session D. Emerging Technologies and Advanced Materials: Stakeholder Perspectives on Exposure, Hazard, and Risk Assessment. <b>Co-chairs: Shaun Clancy (Evonik-retired) and Silvia Maberti (ExxonMobil)</b></p> <p><b>Speakers: Bruce Lippy (CPWR—The Center for Construction Research and Training); Angela Hight Walker (NIST); Rick Canady (Neutral Science); Trey Thomas (CPSC); Ken Moss (EPA)</b></p>
4:15-5:00	<b>Plenary Session (3), Reporting Out from the Day’s Breakout Sessions. Chair: Deborah Burgin (Agency for Toxic Substances and Disease Registry)</b>
5:00-6:00	<b>Evening Poster Session (Auditorium Lobby Area)</b>

## Wednesday, October 10: Tackling the Challenges in Nanomaterial Exposure Science

8:30-10:15	<p><b>Plenary Session (4), Exposure-Driven Risk Assessment for Nanosafety Research.</b>  <b>Chair: William Boyes (EPA)</b>                  Exposure-driven risk assessment of engineered nanomaterials released from nano-enabled products across their life cycle: Lessons learned from case studies. <b>Phil Demokritou (Harvard TH Chan School of Public Health)</b>  <b>Roundtable panel: Alison Elder (U. Rochester); Gedi Mainelis (Rutgers U.)</b></p>
10:15-10:30	<p><b>Break</b></p>
10:30-12:00	<p><b>Concurrent Breakout Session (3)</b></p> <p>Session A. Dosimetry Modeling and Computational Approaches to Evidence Integration. <b>Chair: Annie Jarabek (EPA)</b>  <b>Speakers: Gunter Oberdoerster (U. Rochester); Jordan Smith (Pacific Northwest National Lab); Christine Hendren (Duke U.); Holger Behrsing (Institute for In Vitro Sciences, Inc.)</b></p> <p>Session B. Consumer Exposure: Food, Food Contact, and Personal Care Products.  <b>Co-chairs: Hongda Chen (USDA/NIFA) and Jo Anne Shatkin (Vireo Advisors)</b>  <b>Speakers: Hang Xiao (U. of Mass. Amherst); Cristina Sabliov (Louisiana State U.); Tim Duncan (FDA); Yanyun Zhao (Oregon State U.); Maria Rubino (Michigan State U. School of Packaging)</b></p> <p>Session C. Characterization and Quantification. <b>Co-chairs: Todd Luxton (EPA) and Keana Scott (NIST)</b>  <b>Speakers: Kirk Scheckel (EPA); James Ranville (Co. School Mines); Justin Clar (Elon U.); Ryan Beams (FDA); Jason Unrine (U. of Kentucky); Jana Navratilova (EPA); Matt Bangert (NanoComp Technologies)</b></p> <p>Session D. Meet the New Investigators: Fresh Perspectives on the Breakthroughs They are they Hoping to Make and the Challenges They Face. <b>Co-chairs: Dilpreet Singh (Harvard TH Chan School of Public Health) and Lisa Friedersdorf (NNCO)</b>  <b>Speakers: Nancy Monteiro-Riviere (Kansas State U.); Lila Thornton (Duke U. and Young Nano Scientists); Zach Shepard (U. Rhode Island); Kevin L. Dunn (NIOSH)</b></p>
12:00-1:00	<p><b>Lunch (on your own)</b></p>
1:00-2:30	<p><b>Plenary Session (5). Chair: Janet Carter (OSHA)</b>                  Fostering U.S.-International Collaboration in Integrating Exposure in Nanomaterial Risk Evaluation. <b>Vladimir Murashov (NIOSH)</b>  <b>Roundtable Panel: Christof Asbach (The Institute of Energy and Environmental Technology); Anil Patri (FDA); Rick Canady (Neutral Science); Nora Savage (National Science Foundation); Cathy Fehrenbacher (EPA)</b></p>
2:30-3:00	<p><b>Workshop Wrap-Up: Lessons Learned and Next Steps Chair: Janet Carter (OSHA)</b>  <b>Concluding Remarks</b></p>