



James S. Murday
Keynote Speaker

James S. Murday received a BS in physics from Case Western Reserve in 1964 and a PhD in solid state physics from Cornell University in 1970. He joined the Naval Research Laboratory (NRL) in 1970 and has been superintendent of its Chemistry Division since 1988. From 1974 to 1987 he served as program officer and consultant to the physics program of the Office of Naval Research (ONR), with a focus on surface/interface physics and nanoscience/nanotechnology. From May to August 1997 he served as Acting Director of Research for the Department of Defense, Research and Engineering. He is a member of the AVS, the Science and Technology Society, the American Physical Society, the American Chemical Society, and the Materials Research Society. For the AVS, he served as trustee from 1981 to 1984, director from 1986 to 1988, representative to the American Institute of Physics Governing Board from 1986 to 1992, president from 1991 to 1993, and representative to the Federation of Materials Societies. Under his direction, both the AVS and the International Union for Vacuum Science, Technology and Applications have created a Nanometer Science/Technology Division. His personal research interests include interface analysis, surface modification technology, and science/technology of nanometer structures.

Registration

Registration is required and will be confirmed by email. There is no fee for registrants, but seating is limited so please register early. Register online at <http://kermit.cen.uiuc.edu/cnst.htm>

Workshop Location

Levis Faculty Center
919 West Illinois Street, Urbana, IL
(217) 333-6241

For directions to the Levis Faculty Center at the University of Illinois at Urbana-Champaign visit www.levis.uiuc.edu/parking.htm

For More Information

For more information about the Nanotechnology Industry Workshop, contact Kathy Harper at **(217) 333-3097** or email nano@cnst.uiuc.edu

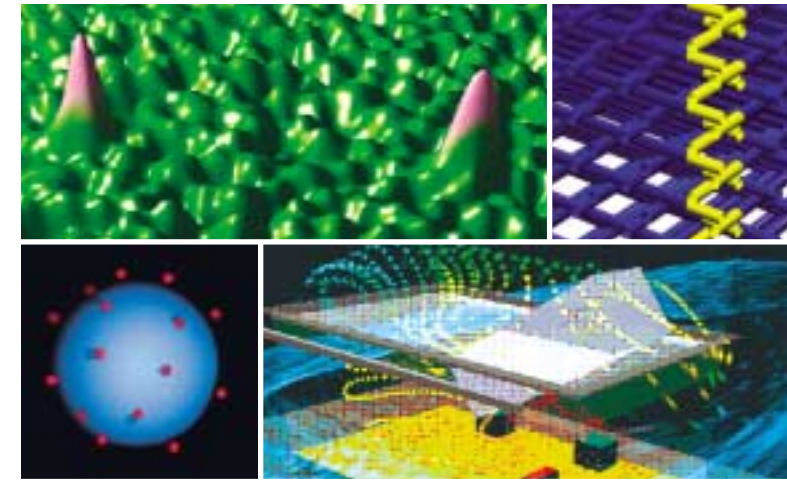
Workshop Organizing Committee

- Ilesanmi Adesida; Professor, Electrical & Computer Engineering/ Director CNST (Chair)
- Irfan Ahmad; Assistant Director, CNST
- Dennis Andersh; Vice President and Operations Manager, SAIC
- Steve Bishop; Associate Vice President, Corporate Relations and Economic Development
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- Jennifer Eardley; Assistant Vice Chancellor for Research
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- Sean Murdock; Executive Director, Atomworks
- Keith Singletary; Professor, Food Science and Human Nutrition
- Elizabeth Stovall; Director External Affairs, College of Engineering
- Brenda Wilson; Associate Professor, Microbiology
- Ali Yazdani; Assistant Professor, Physics

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Nanotechnology Industry Workshop



**Sponsored by the Center for
Nanoscale Science and Technology**
at the University of Illinois
at Urbana-Champaign

www.cnst.uiuc.edu

Friday May 9, 2003
7 a.m. – 5:15 p.m.
Levis Faculty Center
University of Illinois at Urbana-Champaign



Nanotechnology applications will lead to fundamental changes in how we live and interact with our environment. Academia, industry, and policy makers must collaborate on fundamental research and the commercialization of patentable ideas, processes, and products to harness nanotechnology's full potential.

The Center for Nanoscale Science and Technology (CNST) in the College of Engineering, University of Illinois at Urbana-Champaign, was created to advance nanotechnology research and commercialization of processes and products. **CNST** initiatives are campuswide and multidisciplinary. They span the Colleges of Engineering; Agricultural, Consumer and Environmental Sciences; Liberal Arts and Sciences; Medicine; and Veterinary Medicine and involve 75 faculty members working on joint initiatives. **CNST** identified five focus areas for nanotechnology research: agriculture and food, atmosphere and environment, communications and electronics, computation, and medicine and pharmacy.

CNST fosters a multidisciplinary collaborative environment to support the development and application of new nanoscale technologies in the formation, fabrication, and characterization of nanoscale materials for applications in agricultural and medical biotechnology, electronics, and optics.

The overall objectives of this CNST Nanotechnology Industry Workshop are to

- introduce **CNST** and its interdisciplinary approach to nanotechnology research—from materials to devices to systems—
- and provide a forum for industry interactions and collaborations.

AGENDA

Nanotechnology Industry Workshop
Friday May 9, 2003
Levis Faculty Center
University of Illinois at Urbana-Champaign

7–8 a.m.
REGISTRATION AND CONTINENTAL BREAKFAST

8–9:15 a.m.
PLENARY SESSION
Chair: Ilesanmi Adesida, CNST / Micro & Nano Lab

Welcome Remarks

- Richard Herman, Provost
- David Daniel, Dean, College of Engineering
- Robert Easter, Dean, College of Agricultural, Consumer, and Environmental Sciences

8:30 a.m.
KEYNOTE ADDRESS
The Many Nanotechnology Initiatives and their Potential Impact to Science and Technology
Jim Murday, Director, National Nanotechnology Coordination Office, and Acting Chief Scientist, Office of Naval Research

Research Focus Areas
(CNST Research and Industry Needs/Assessment)

9:15–10:15 a.m.
SESSION I
Chair: Pierre Wiltzius, Beckman Institute

Nanotechnology-From Materials Science to Industrial Applications
Judith Stein, Nanotechnology AT Team, GE Global Research

Opportunities at the Nanoscale for the Heavy Equipment Industry
Mark Andrews, Advanced Materials Technology Division, Caterpillar

Nanoparticle Stabilization and Assembly
Jennifer Lewis, Materials Science and Engineering

10:15–10:30 a.m.
BREAK

10:30–12
SESSION II
Chair: Ralph Nuzzo, FS Materials Research Lab

Using Simple Theoretical Tools in the Interpretation of Electron Conductance in Molecular Bridges
Carlos Gonzalez, Computational Chemistry, NIST

Silicon Nanobiotechnology
Greg Timp, Electrical and Computer Engineering

Nanocapillary Arrays for Neurotoxin Detection
Paul Bohn, Chemistry

Microfluidics in Assisted Reproduction
Matt Wheeler, Animal Sciences

12–2 p.m.
LUNCH AND POSTER SESSIONS (second floor)

2–3:20 p.m.
SESSION III
Chair: Jonathan Sweedler, Biotechnology Lab

Manipulating and Sorting Carbon Nanotubes using the Selective Recognition of Polypeptides and ss-DNA
Timothy Gierke, DuPont

Nanotechnology for Cracking the Problems of Membrane Proteins
Steve Sligar, Biochemistry, University of Illinois, and Nanodisc (TM) LLC

New Concepts in Droplet- Nanoengineering and Nanoencapsulation
Manuel Marquez, Kraft Foods and Los Alamos Lab

Silicon Nano Particles: New Generation of Biomedical Markers
Munir Nayfeh, Physics, and Tom Eurell, Veterinary Bioscience

3:20–3:35 p.m.
BREAK

3:35–4:45 p.m.
SESSION IV
Chair: Ned Hahn, College of Veterinary Medicine

Technology Commercialization and Economic Growth: A System of Partnerships
David Chicoine, Vice President, Economic Development & Corporate Relations, University of Illinois

Research Park and Enterprise Works at Urbana-Champaign
John Parks, University Research Park, University of Illinois

Colorimetric Array Sensing of Volatile Organic Compounds
Ken Suslick, Chemsensing (local startup)

Nano Business in Illinois: Atomworks Perspectives
Sean Murdock; Atomworks

4:45–5:15 p.m.
Discussion Session
Stephen Bishop, Office of the Vice President

Concluding Remarks
Chip Zukoski, Vice Chancellor for Research

5:30 p.m.
Micro and Nanotechnology Laboratory Tour

