

International Workshop on Documentary Standards for Measurement and Characterization in Nanotechnologies

Richard Kayser

*Deputy Director (Acting)
National Institute of Standards and Technology*

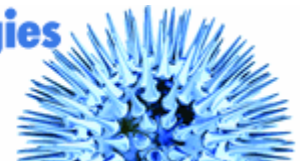
February 26-28, 2008



NIST



Nanotechnologies
International Workshop
26-28 February 2008



NIST Mission

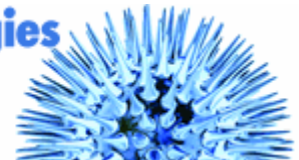
- To promote U.S. innovation and industrial competitiveness by advancing
 - measurement science, standards, and technologyin ways that enhance economic security and improve the quality of life



NIST



Nanotechnologies
International Workshop
26-28 February 2008



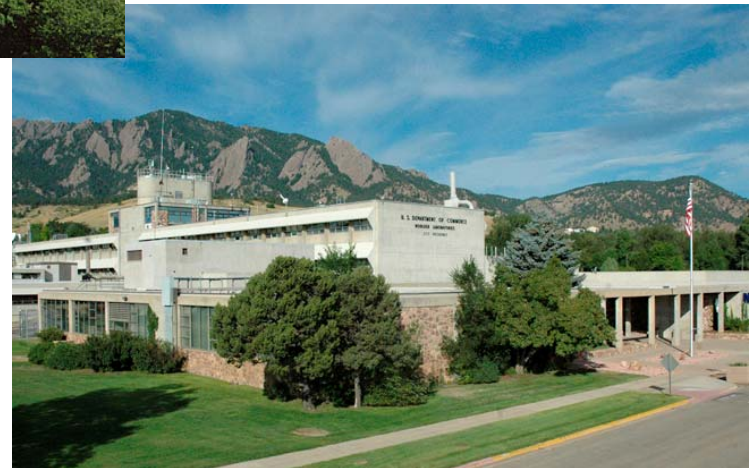
Two Main Campuses

Gaithersburg, MD



Courtesy HDR Architecture, Inc./Steve Hall ©Hedrich Blessing

Boulder, CO

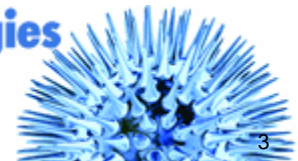


NIST



©Geoffrey Wheeler

Nanotechnologies
International Workshop
26-28 February 2008



Four Joint Institutes



JILA

NIST + University of Colorado

**University of Maryland
Biotechnology Institute**



Joint Quantum Institute

NIST + University of Maryland + NSA

Hollings Marine Laboratory

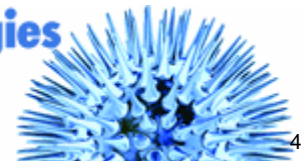
NIST + NOAA + South Carolina + College
of Charleston + Medical University of
South Carolina



NIST

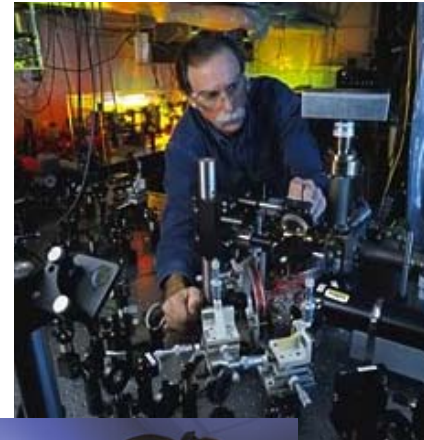


Nanotechnologies
International Workshop
26-28 February 2008



NIST at a Glance

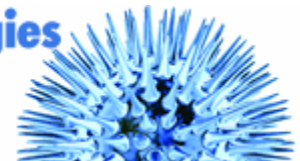
- Major Assets
 - ~ 2,800 employees
 - ~ 2600 associates and facilities users
 - ~ 1,600 field staff in partner organizations
 - ~ 400 NIST staff serving on 1,000 national and international standards committees
- Major Programs
 - NIST Laboratories
 - Baldrige National Quality Program
 - Technology Innovation Program
 - Manufacturing Extension Partnership



©Robert Rathe



Nanotechnologies
International Workshop
26-28 February 2008



NIST Interest in this Workshop

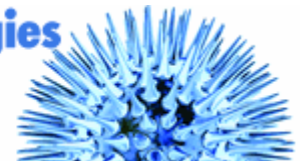
- As a participant in the development of documentary standards
- As a provider of critical measurement solutions
- As the coordinator of Federal and of Federal, State, and local standards activities
- As the leader of the U.S. Measurement System
... all of which intersect significantly with nano



NIST



Nanotechnologies
International Workshop
26-28 February 2008



Participant in Development of Documental Standards

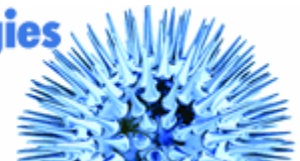
- 400 NIST staff members, > 25% of the technical staff, participate in 100 voluntary standards organizations and ANSI standards policy committees
- Approximately 30 NIST staff members participate in recently initiated nanotechnology documental standards activities
 - ISO TC 229, IEC TC 113, ASTM E56, IEEE-NESR
- Numerous staff members participate in pre-standardization activities
 - Versailles Project on Advanced Materials and Standards (VAMAS) (Steve Freiman)



NIST



Nanotechnologies
International Workshop
26-28 February 2008



Provider of Critical Measurement Solutions

- Measurement Research
 - ~ 2,200 publications per year
 - ~ 8,000 attendees at 69 technical workshops/conferences
- Standard Reference Data
 - ~ 100 different types
 - ~ 6,000 units sold per year
 - ~ 130 million data downloads per year
- Standard Reference Materials
 - ~ 1,300 products available
 - ~ 33,000 units sold per year
 - ~ 10, 30, and 60 nm gold nanoparticles



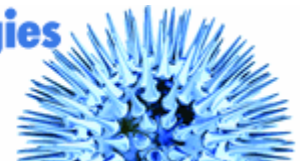
- Calibration Tests
 - ~ 16,000 tests per year
- Laboratory Accreditation
 - ~ 800 accreditations of testing and calibrations laboratories per year



NIST



Nanotechnologies
International Workshop
26-28 February 2008



Coordinator of Standards Activities

The National Technology Transfer and Advancement Act of 1995 (NTTAA) directs NIST

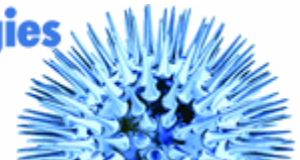
- “to coordinate the use by Federal agencies of private sector standards, emphasizing where possible the use of standards developed by private, consensus organizations”
 - NIST ([Mary Saunders](#)) chairs Interagency Committee on Standards Policy
- “to coordinate Federal, State, and local technical standards activities and conformity assessment activities, with private sector technical standards activities and conformity assessment activities, with the goal of eliminating unnecessary duplication and complexity in the development and promulgation of conformity assessment requirements and measures”



NIST



Nanotechnologies
International Workshop
26-28 February 2008



Coordinator of Standards Activities (continued)

The NTTAA directs that all Federal agencies and departments

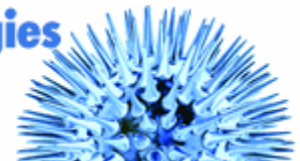
- “shall [barring stated exceptions] use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments”
- “shall consult with voluntary, private sector, consensus standards bodies and shall, when such participation is in the public interest and is compatible with agency and departmental missions, authorities, priorities, and budget resources, participate with such bodies in the development of technical standards”



NIST



Nanotechnologies
International Workshop
26-28 February 2008



U.S. Measurement System

Clare Allocca, Chief, USMS Office

The USMS:

- The set of measurement-solution providers and users, and the relationships between them

Mission of the USMS Program:

- To promote U.S. innovation and industrial competitiveness
 - By increasing the effectiveness and efficiency of the USMS in developing and deploying measurement solutions
 - By identifying and fostering efforts to address unmet measurement needs

To enhance economic security and improve the quality of life

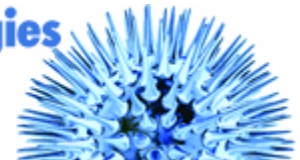
... and nano is a major focus area



- Documents 723 measurement barriers to innovation
- Covers 11 industry sectors
- Over 1000 contributors from industry, academia, and other government agencies



Nanotechnologies
International Workshop
26-28 February 2008



Desired Outcomes

- Identify short- and medium-term documentary standards needs (1-2 y and 3-5 y, respectively)
- Identify measurement solutions needed to support the development of the identified documentary standards
- Consider who will work on what
- Identify mechanisms for continued information sharing and coordination



NIST



Nanotechnologies
International Workshop
26-28 February 2008

