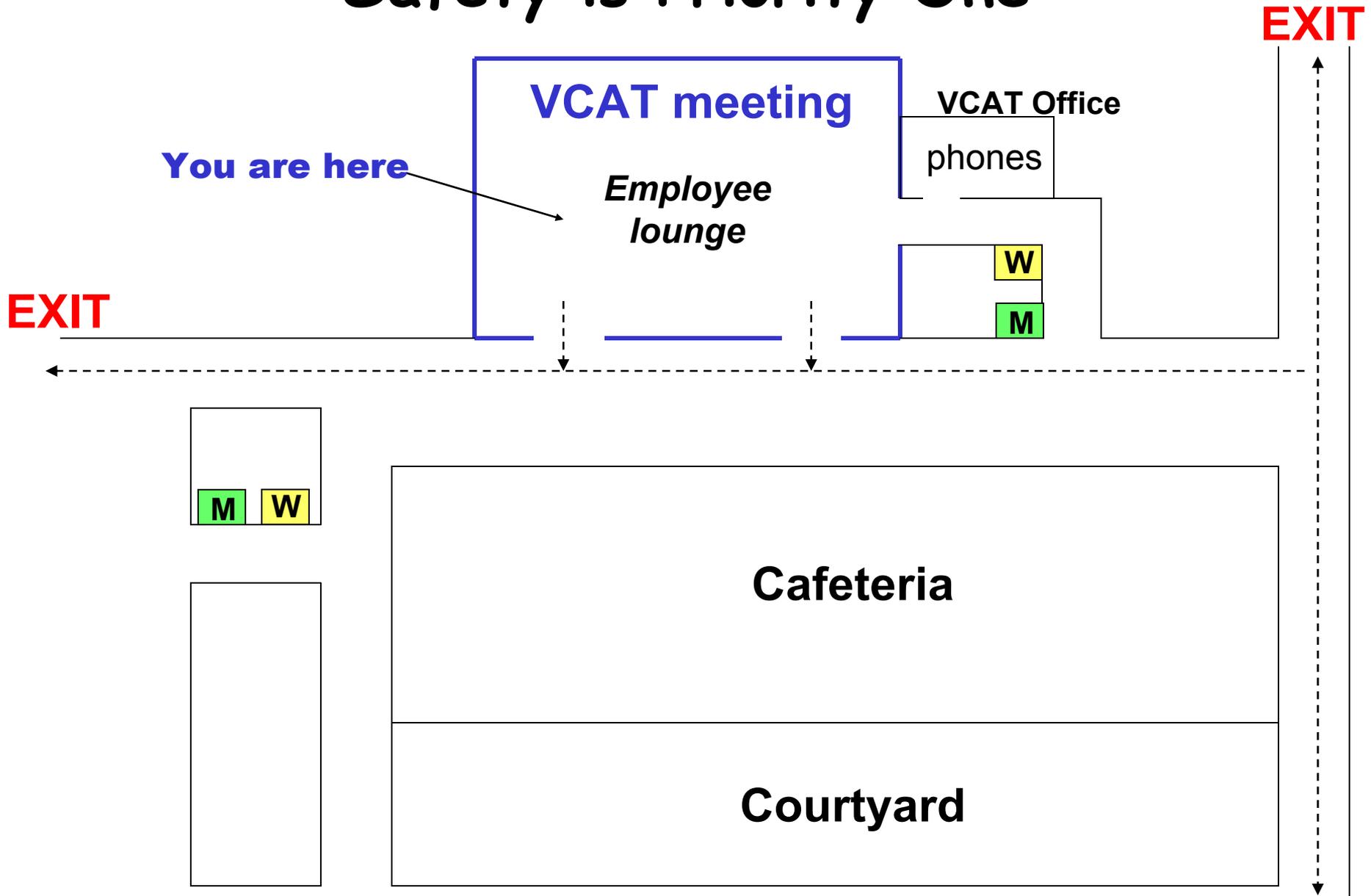


Safety is Priority One



NIST Update

Hratch G. Semerjian

Acting Director, NIST

Visiting Committee on Advanced Technology

June 14, 2005

Outline of VCAT Agenda

June 14, 2005

- NIST Update
- USMS Status Report
- Setting Priorities in the Federal R&D Portfolio
(Michael Holland/OSTP)
- Laboratory Tours
 - Ultra-High Accuracy CMM, MEL
 - Mechanics, Adhesion, and Friction at Nanoscale, MSEL
- R&D Spending Trends in the Federal Government
(Kei Koizumi/AAAS)
- VCAT Panel on Best Practices for Organizational
Development

NIST Update Agenda

- Administration Changes
- Staff Recognition
- Safety
- Accomplishments
- Budget Status
- Strategic Planning
 - SWG Status
 - Competence Awards
 - New Economic Impact Studies
- Outreach Activities

Recent Administration Changes

Departed



◀ Theodore Kassinger
Deputy Secretary

➤ Dr. David A. Sampson,
Deputy Secretary of
Commerce designate

Arriving



◀ Phillip J. Bond, Under
Secretary for Technology



➤ Michelle O'Neill, Acting
Under Secretary for
Technology



New NIST Director Nominated

Dr. William Jeffrey

Senior Director for Homeland and National Security and the Assistant Director for Space and Aeronautics - Office of Science and Technology Policy

Previous Positions

- DARPA
- Defense Airborne Reconnaissance Office
- Institute for Defense Analyses

Academic Background

Ph.D. Astronomy, Harvard

B.S. Physics, MIT

Visited NIST on June 10, 2005



Hollings MEP Changes



Kevin Carr
Leaving June 30



Roger Kilmer
Acting Director, July 1

Staff Recognition

Elected to National Academy of Sciences

Deborah Jin (Physics Laboratory)



Fellow of the PMSE Division of ACS

Eric Amis (Materials Science and Engineering Laboratory)



Life Fellow of the IEEE

Herbert Bennett (Electronics and Electrical Engineering Laboratory)



Staff Recognition



ASCE Walter P. Moore, Jr. Award

H.S. Lew (Building and Fire Research Laboratory)

ASTM Margaret Dana Award

Belinda Collins (Technology Services)



CCR Diversity Award

NOBCChE Henry Hill Lecturer

Willie May (Chemical Science and
Technology Laboratory)



Staff Recognition

Fellows of the American Physical Society



Herbert Bennett
(EEEL)



Richard Cavanagh
(CSTL)



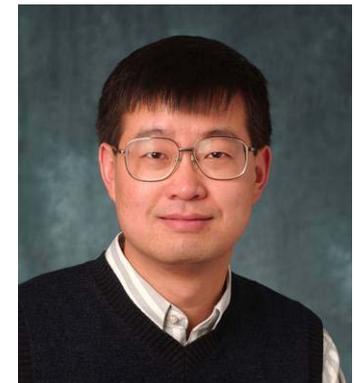
John Gillaspay
(PL)



Robert Schwall
(EEEL)



Mark Stiles
(PL)



Jun Ye
(PL)

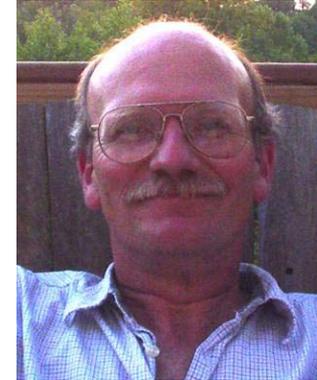
Staff Recognition

Arthur Flemming Awards

Applied Science
Category



Steven Jefferts
(PL)

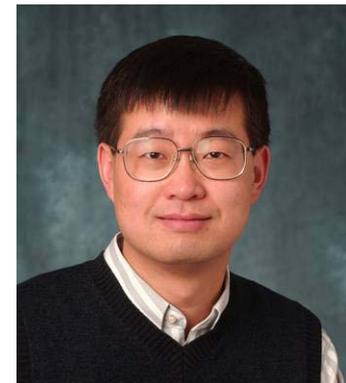


Keith Lykke
(PL)

Scientific Category



Daniel Fischer
(MSEL)



Jun Ye
(PL)

Staff Recognition

2004 Presidential Early Career Awards For Scientists and Engineers (PECASE)



Michael Fasolka
(MSEL)



Joel Ullom
(EEEL)

NIST Safety Days

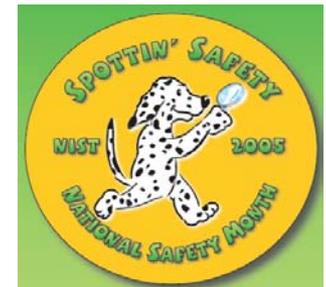
June 1 Boulder

June 2 Gaithersburg



Safety – Continuity of Operations

- Full employee telephonic alert system tested in November '04 and scheduled for June '05
- Tabletop exercises for Severe Weather (November '04) and Shelter-in-Place (February '05)
- NIST COOP Plan updated to meet requirements of FEMA Circular released in June 2004
- NIST will participate in Exercise Pinnacle on June 22-23
- MOA with Hagerstown Telework Center for distant relocation site

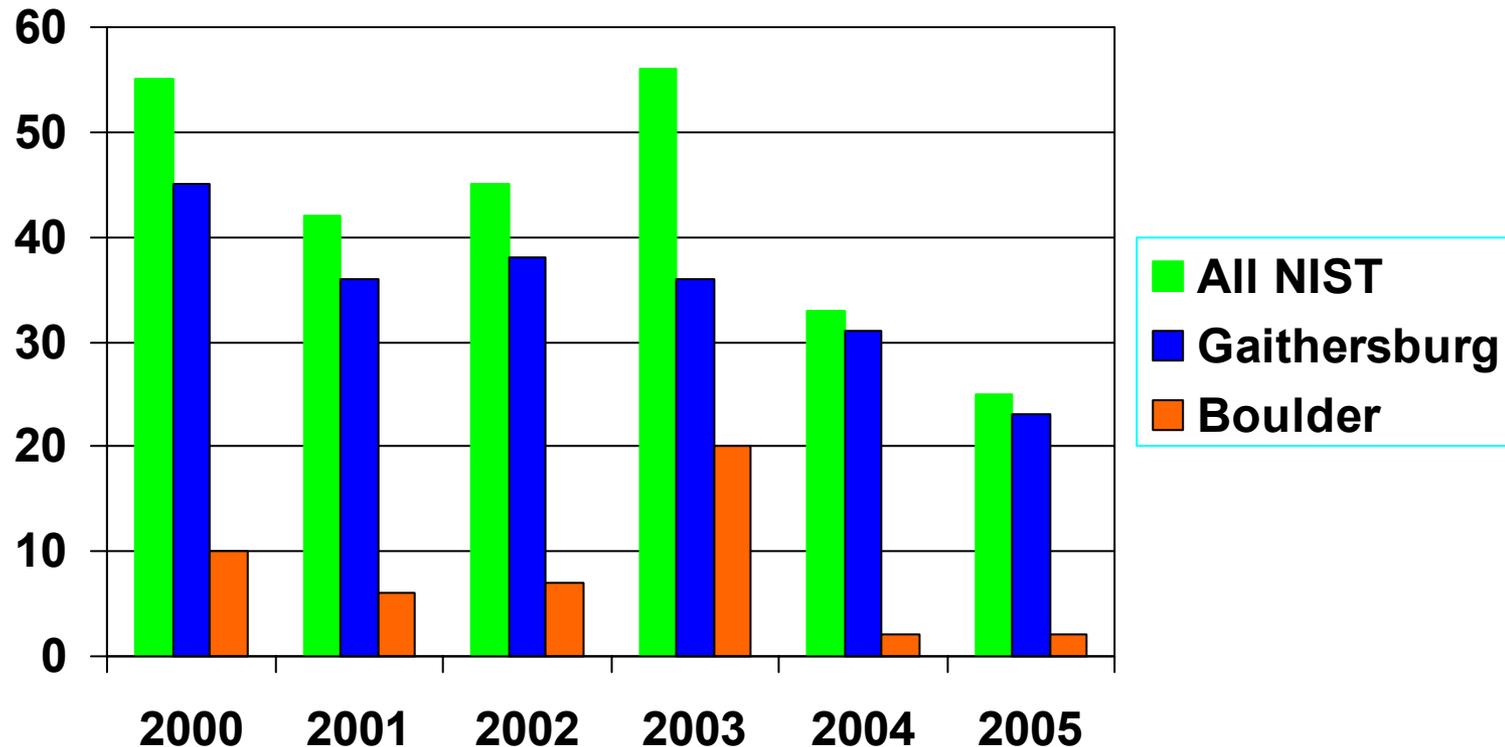


Safety – Building 101 Evacuation

- Unannounced evacuation conducted 1:30 pm on Feb 2
 - BFRL staff used video cameras to observe movement and short questionnaire to determine experiences
 - Evacuation was completed in 7 minutes
- Based on findings and recommendations, changes include:
 - Authorization to replace “sedan chair” evacuation devices with more maneuverable Garaventa evacuation chairs (on order)
 - Decision to install panic bars on exit doors near lecture rooms (installation scheduled for this Summer)
 - Increased emphasis on emergency coordinator training
 - *Emergency Coordinator Handbook* (in draft)
 - Decision to place permanent signs at designated meeting points (installation scheduled for this Fall)

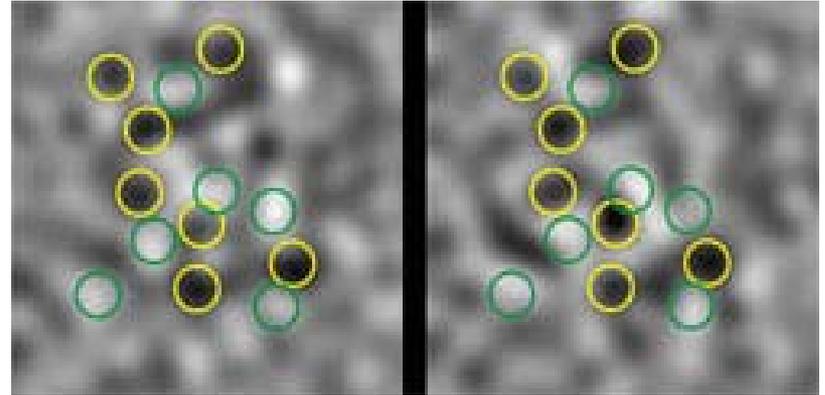


All Recordable Incidents FY 2000 Through FY 2005 To Date (May 31)

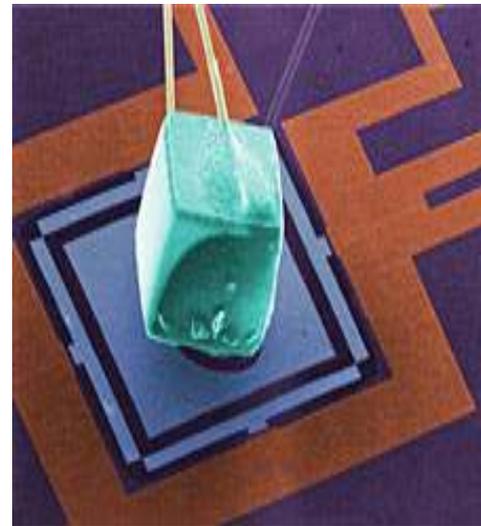


Accomplishments

- Noisy Pictures Tell a Story of 'Entangled' Atoms



- Chip-scale Refrigerators Cool Bulk Objects



Hidden Slide For Notes

Chip scale refrigeration

Accomplishments

- New NIST SRM Aids Search for Mutant DNA



- Portable Radiation Detectors Performance Test Results

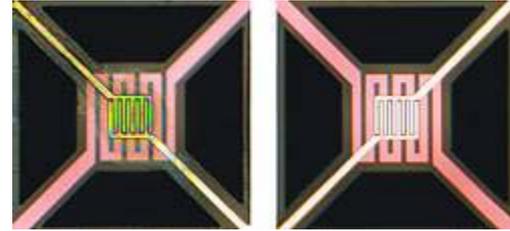


Hidden Slide For Notes

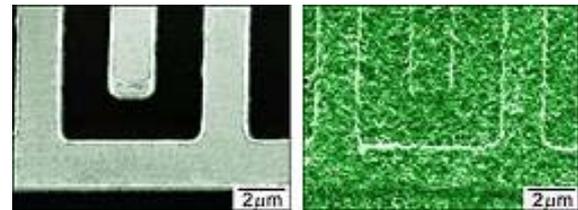
Portable radiation detection

Accomplishments

➤ New Gas Sensors Patterned with Conducting Polymer



Images of two microheater devices, each about 100 micrometers wide. The left microheater is coated with a conducting polymer. On the right is an identical microheater with no coating.



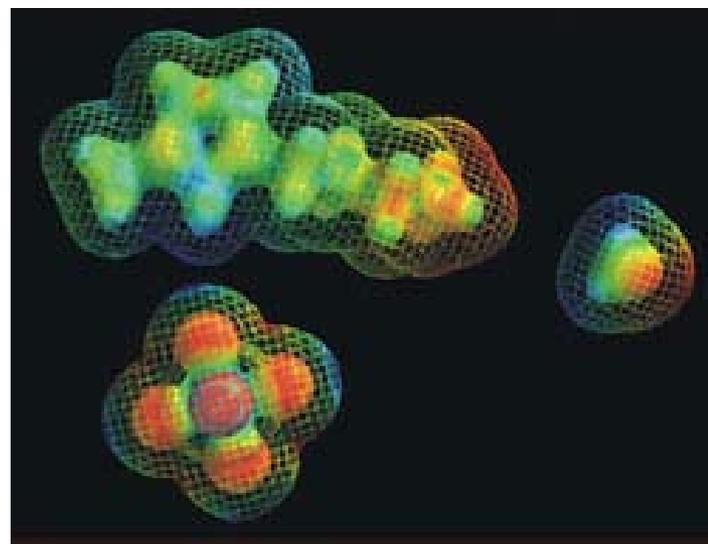
Micrographs of a portion of the microheater device before (left) and after (right) application of the polyaniline coating.

Accomplishments

- Light Scattering Method Reveals Details under Skin



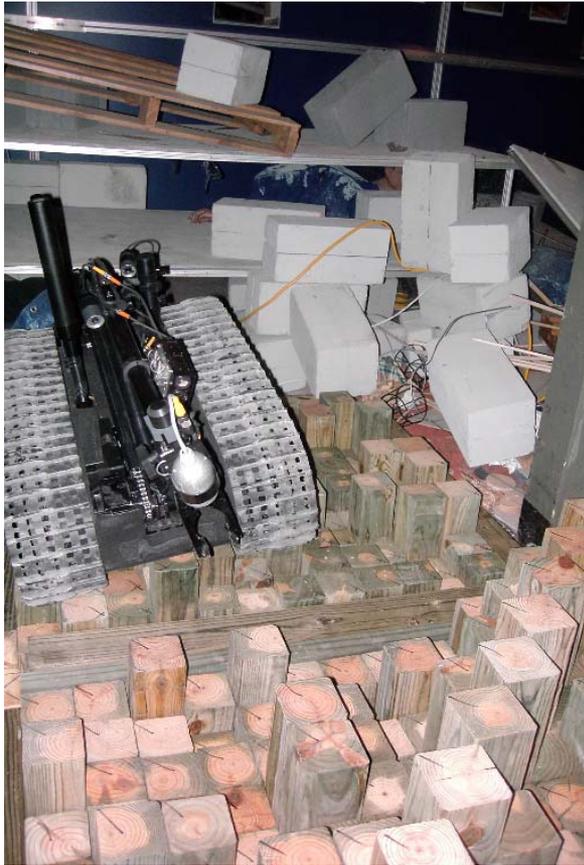
- Data Effort Improves Flow Toward 'Greener' Chemistry



Hidden Slide For Notes
'Greener Chemistry'

Accomplishments

Test Arena for Urban Search and Rescue



- Search & rescue
- Ordinance disposal
- Drug searches
- Pre- and Post disaster scenarios



- Dogs and robots share NIST special test arena

Facility Improvements

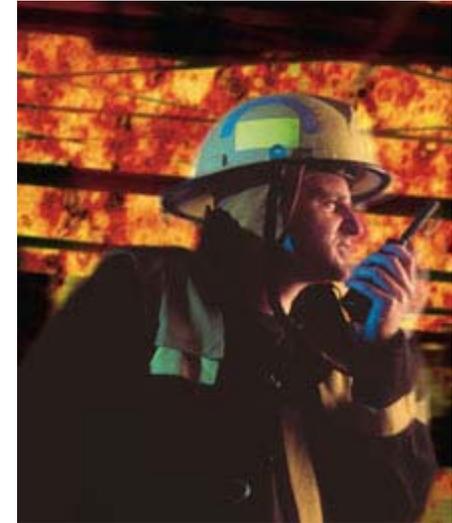
- Boulder Central Utility Plant
- Boulder Primary Electrical Service
- Gaithersburg Building 222 Major Repairs



Recent Reports

- New study shows billions in cost estimated for firefighter injuries

Results to guide future NIST fire safety research

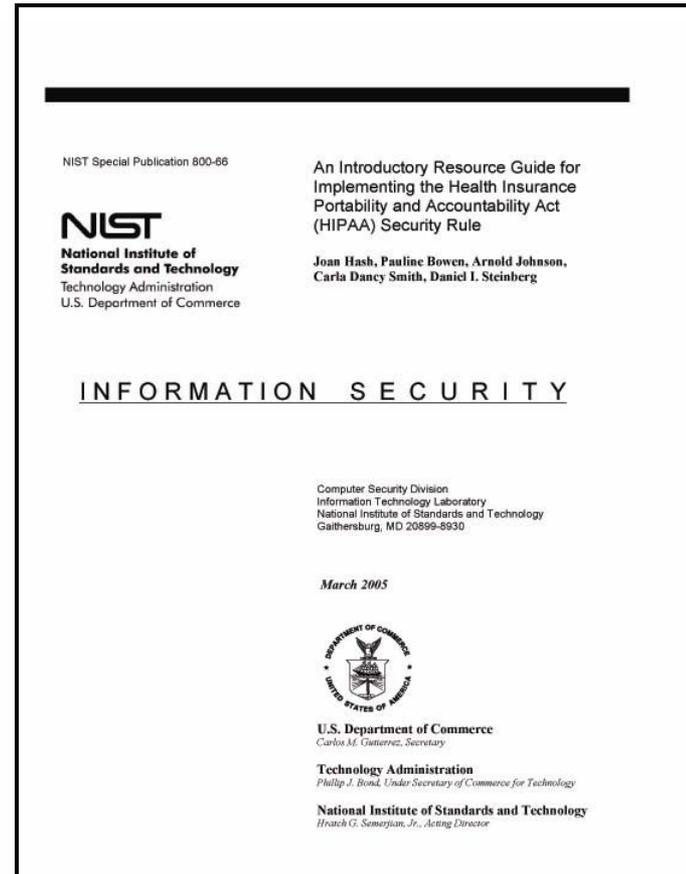


- ◀ Voluntary Voting Systems Guidelines v.1 submitted to Election Assistance Commission

-
- Hidden slide for notes on Help America Vote Act

Recent Reports

➤ NIST Issues HIPAA Security Guideline



World Trade Center Report

- Public and media briefing on draft recommendations June 23
- Recommendations seek improvement in design, construction, and maintenance of buildings



ATP Homeland Security Projects

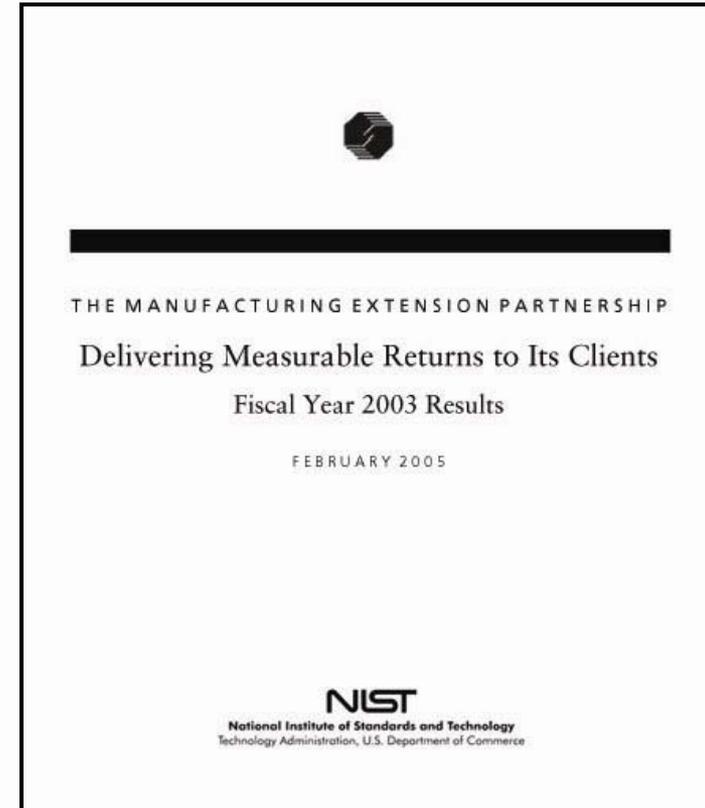
Category	No. Projects	ATP Award (\$M)	Industry Share (\$M)	Total Budget (\$M)
Biometrics	9	20.4	11.7	32.1
CBRNE	19	84.5	84.4	168.9
Critical Defense Manufacturing	1	3.5	3.7	7.2
Critical Infrastructure Protection	10	25.9	30.1	56.0
Cybersecurity	4	7.4	1.5	8.9
Critical Physical Infrastructure	44	93.2	68.2	161.4
Surveillance & Intel	7	16.1	12.8	28.9
Technologies for Incident Response	15	33.3	21.7	55.0
Total	109	284.4	234.1	518.5

Impact of MEP Assistance

In a survey of NIST MEP clients with projects completed in FY03 – **4,865** companies around the country reported that, as a result of NIST MEP services, they:

- Created and retained **50,315 jobs**
- Increased or retained **\$4.12 billion** in sales
- Realized **\$686 million** in cost savings
- Invested **\$912 million** in modernization, including plant and equipment, information systems, and workforce training

Note: MEP served a total of **18,422** clients in 2003.



National Baldrige Quality Program

- The 1,000th Baldrige Award application was received this year
- 64 applicants in 2005, 50% of which are from the healthcare industry
- Quest for Excellence Conference held in April
- Trained 476 examiners and 45 alumni examiners for 2005
- 2005 Award Ceremony scheduled for July 20



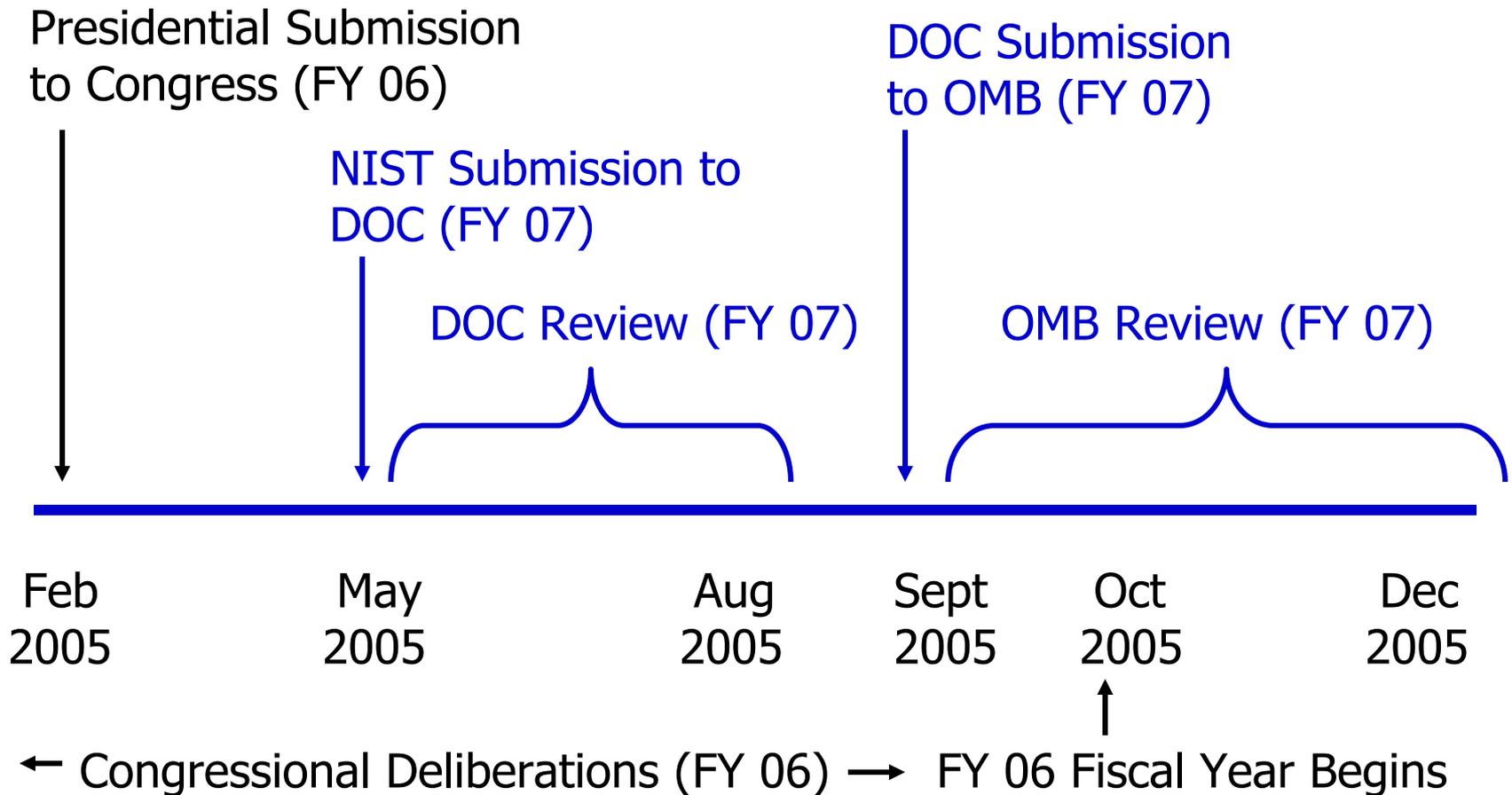
NIST FY 2006 Budget Request (\$M)

Appropriation:	FY 2005	FY 2006	FY 2006	House
Scientific & Technical Research & Services (STRS):	Enacted	Base	Request	Committee
				Mark
NIST Laboratories	373.4*	380.8	420.6	392.1*
Baldrige National Quality Program	5.4	5.7	5.7	5.6
Subtotal, STRS	378.8	386.5	426.3	397.7
Industrial Technology Services (ITS):				
Advanced Technology Program	140.4	140.4	0.0	0.0
Hollings Manufacturing Ext. Partnership	107.5	107.5	46.8	106.0
Subtotal, ITS	247.9	247.9	46.8	106.0
Construction of Research Facilities (CRF):				
Construction and Major Renovations	6.9	0.0	23.9	11.0
Modifications and Improvements	22.7	23.5	35.0	34.0
Directed Grants	42.9	0.0	0.0	0.0
Subtotal, CRF	72.5	23.5	58.9	45.0
Total	699.2	657.9	532.0	548.7

FY 2005 amounts do not reflect rescissions of unobligated balances.

**Congressionally-directed STRS grants include \$8.8M in 2005 and the 2006 House Committee mark.*

Budget Timeline



Strategic Working Group Status

Biosystems and Health

Nanotechnology

Homeland Security

These three SWGs:

- Are fully operational and beginning to make progress
- Have completed research inventories

Information and Knowledge Management

- Charter completed and now being formed

Manufacturing

- A new area that is just beginning

NIST "Competence" Projects

High priority, fundamental research within NIST.

New FY 2005 Awards	\$ 1.9 M
Awards for Measurement Services	\$ 1.0 M
One-time "Exploration" competition	\$ 1.8 M
	<hr/>
	\$ 4.7 M
Competition for new FY2006 projects	\$ 4.0 M

Examples of proposals winning Exploration funds
"Metrology for the development of organic RFID"

"Nanoscale detectors for quantifying electromagnetic fields"

"Thermodynamic temperature ratio measurements with Johnson noise thermometry for next generation temperature scales"



Sam Benz optimizes the operating margins for the Josephson arbitrary-waveform synthesizer.

New Economic Studies

Retrospective Study

- Economic Assessment of the Role and Impact of Measurement in the U.S. Semiconductor Industry

Prospective Study

- Costs to the U.S. Biotechnology Industry from Inadequate Technological Infrastructure

NIST/DOC FY 2005 Plan For Success

- **Priority 1** - Continue to develop the infrastructure to support emerging technologies and next-generation measurement needs in the areas of manufacturing, nanometrology, biosciences and health, information / knowledge management.
- **Priority 2** : Respond to critical national priorities, including ensuring public safety and security, and improving voting standards by providing the critical measurement methods, standards, and technical expertise needed.

NIST/DOC FY 2005 Plan For Success

- **Priority 3** – Assure mutual recognition of standards to increase market access and remove technical barriers to trade.
- **Priority 4** – Maximize the effectiveness of NIST's extramural programs.
- **Priority 5** - Implement the President's Management Agenda

Outreach Activities

- Utah State University MOU (3/14/05)
- House Committee on Science, Chief Council (3/24/05)
- Senate Appropriations Subcommittee on Commerce, Justice, & Science Staff (4/18/05)
- Staff member reads letter from Senator Mikulski at Asian Pacific Heritage Month Address to NIST Staff (5/5/05)
- Congressional and Local Officials NIST Tour (5/5/05)
- Representative Weiner (D-NY-9) and staff (WTC) (5/18/05)
- Senate Commerce, Science, & Transportation Subcommittee on Technology, Innovation, & Competitiveness (5/27/05)
- Senate Homeland Security and Governmental Affairs Committee (6/1/05)
- Senate Commerce, Science & Transportation Subcommittee on Disaster Prediction and Prevention (6/2/05)
- Testimony to Senate Commerce, Science & Transportation Subcommittee (6/8/05)

Thanks to our VCAT Partners

*For providing valuable
insight to guide
positive change
at NIST*

