Update and Priorities

Visiting Committee On Advanced Technology (VCAT) June 9-10, 2009

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National Institute of Standards and Technology
U.S. Department of Commerce

Overview

- News
- Update on priorities
- Update on budget
- Update on planning
- Thoughts on our agenda

Awards and External Recognition of NIST Staff

Physicist **Deborah S. Jin** will receive Sigma Xi's 2009 William Procter Prize for Scientific Achievement, for Jin's technical innovations in the field of ultra cold Fermionic (atomic) gases. Her work has been described as the crucial first step in developing superconductors that work at room temperature.

Physicist **James C. Bergquist**, whose research helped usher in the age of optical atomic clocks, has been elected a member of the National Academy of Sciences.

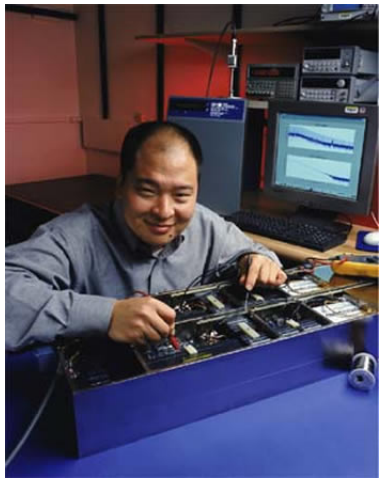
Daniel Madrzykowski was named George D. Post Instructor of the Year for 2009 by the International Society of Fire Service Instructors and *Fire Engineering*.

Jun Ye, a NIST Fellow at JILA in Boulder, has received the 2009 European Frequency and Time Award for his pioneering work in establishing a neutral atom optical lattice clock, narrow linewidth lasers, femtosecond spectroscopy, and phase-coherent transmission of frequencies via optical fibers.

Leo Hollberg, a physicist and group leader who recently retired from NIST Boulder, will receive the 2009 William F. Meggers Award from the Optical Society of America (OSA). The award recognizes outstanding work in spectroscopy.

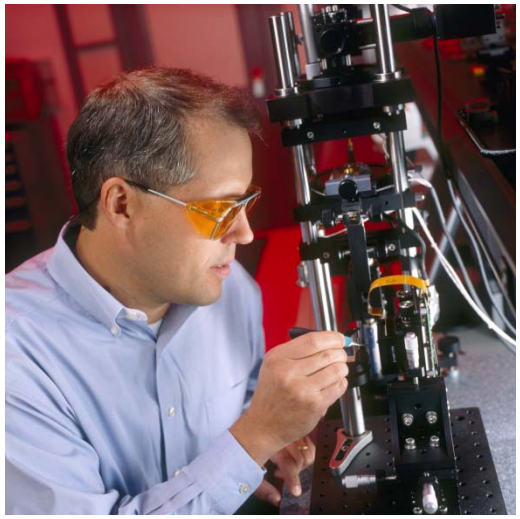
Awards and External Recognition of NIST Staff

2008 Arthur S. Flemming Award Winners



Research Physicist **Sae Woo Nam** received the Arthur S. Flemming Award for Applied Science, Engineering and Mathematics for his ground-breaking work with single photon detection systems

Scientist **Stephan J. Stranick** received the Arthur S. Flemming Award for Basic Science for his innovations in chemical imaging microscopy techniques below the diffraction limit of light



Department of Commerce

Gary F. Locke
Secretary of Commerce

Gary F. Locke confirmed as US Commerce Secretary on March 24, 2009

- National Oceanic and Atmospheric Administration
- International Trade Administration
- US Patent and Trademark Office
- **National Institute of Standards & Technology**
- Economics and Statistics Administration
- other agencies...

Pat Gallagher
Deputy Director

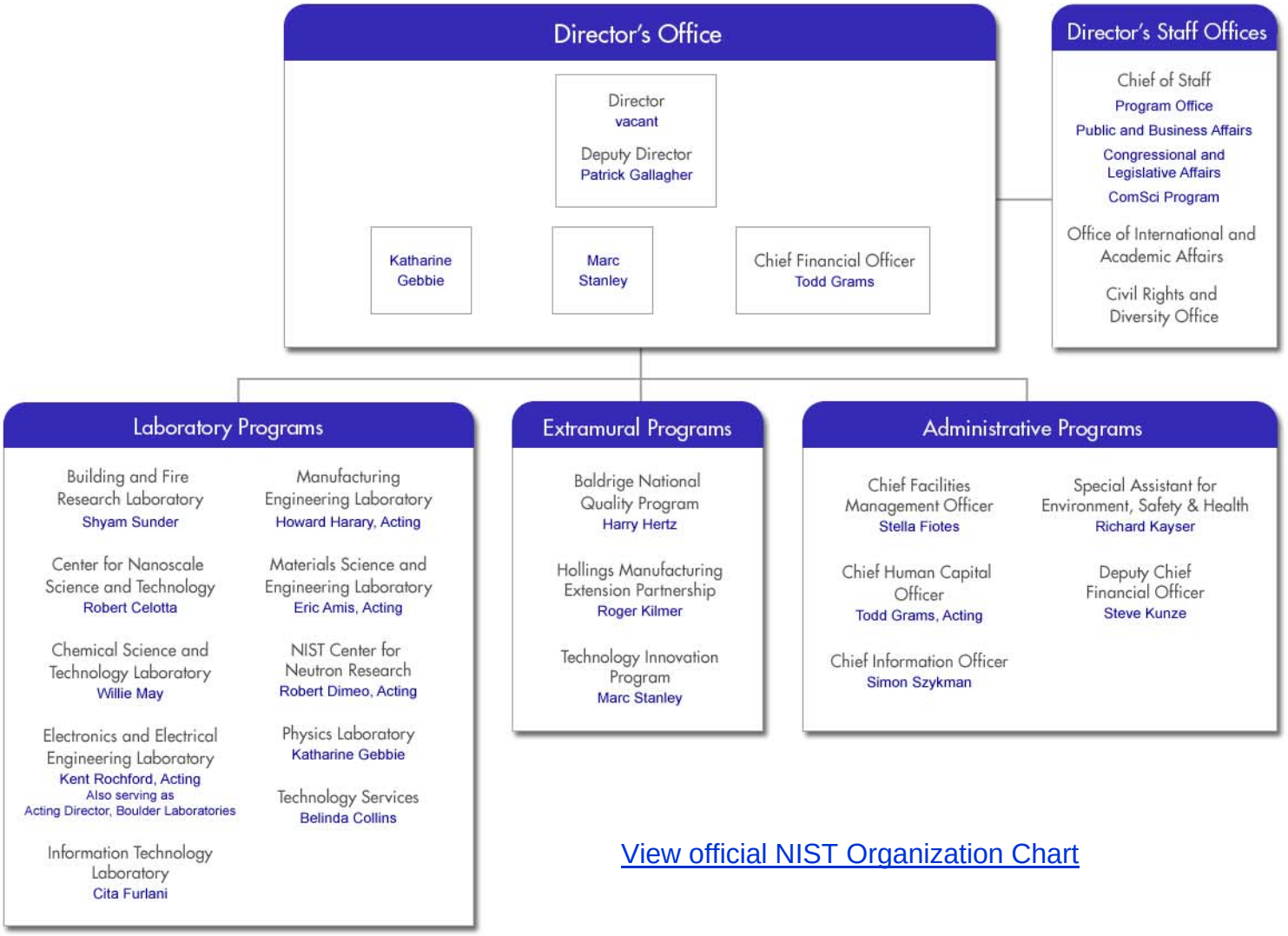
NIST Management Priorities

1) **Leadership** - To improve our management systems, operations, and leadership to allow the organization to be as effective and efficient as possible.

2) **Safety** - To strengthen our safety program and to actively foster a culture where safety is expected to be an integral part of our work.

3) **Positioning NIST** - To ensure that NIST is on key policy makers' radar screens in discussions about and actions to address the nation's innovation and competitiveness needs.

NIST Organization



View official NIST Organization Chart

Safety at NIST

- Path forward:
  - Build a world class safety program
  - Integrate safety into our work
  - Phased approach
- Actions:
  - Rich Kayser is Special Assistant for ESH
  - Completed Boulder cleanup project
  - Completed all required actions under NRC CAL
  - Responded to Notice of Violation from City of Boulder
  - Made management and organizational changes to strengthen safety at NIST
  - Developed & implementing NIST Safety Action Plan

President's Science and Innovation Plan

President Barack Obama gives a speech at the National Academy of Sciences on April 27, 2009.

Commerce Secretary Gary Locke and Harvey V. Fineberg President of the Institute of Medicine., NAS.

The President's budget recognizes that NIST is a capable partner that is strategically positioned to help the Nation improve its innovation performance and respond effectively and efficiently to national priorities.

- Double NIST laboratory/construction budget
- Growth of Hollings MEP Program
- Growth of Technology Innovation Program

- NIST programs and Presidential priorities:
  - Smart Grid
  - Health IT
  - Cyber-security
  - Manufacturing
  - Innovation and competiveness

Photos by Patricia Pooladi courtesy National Academy of Sciences.

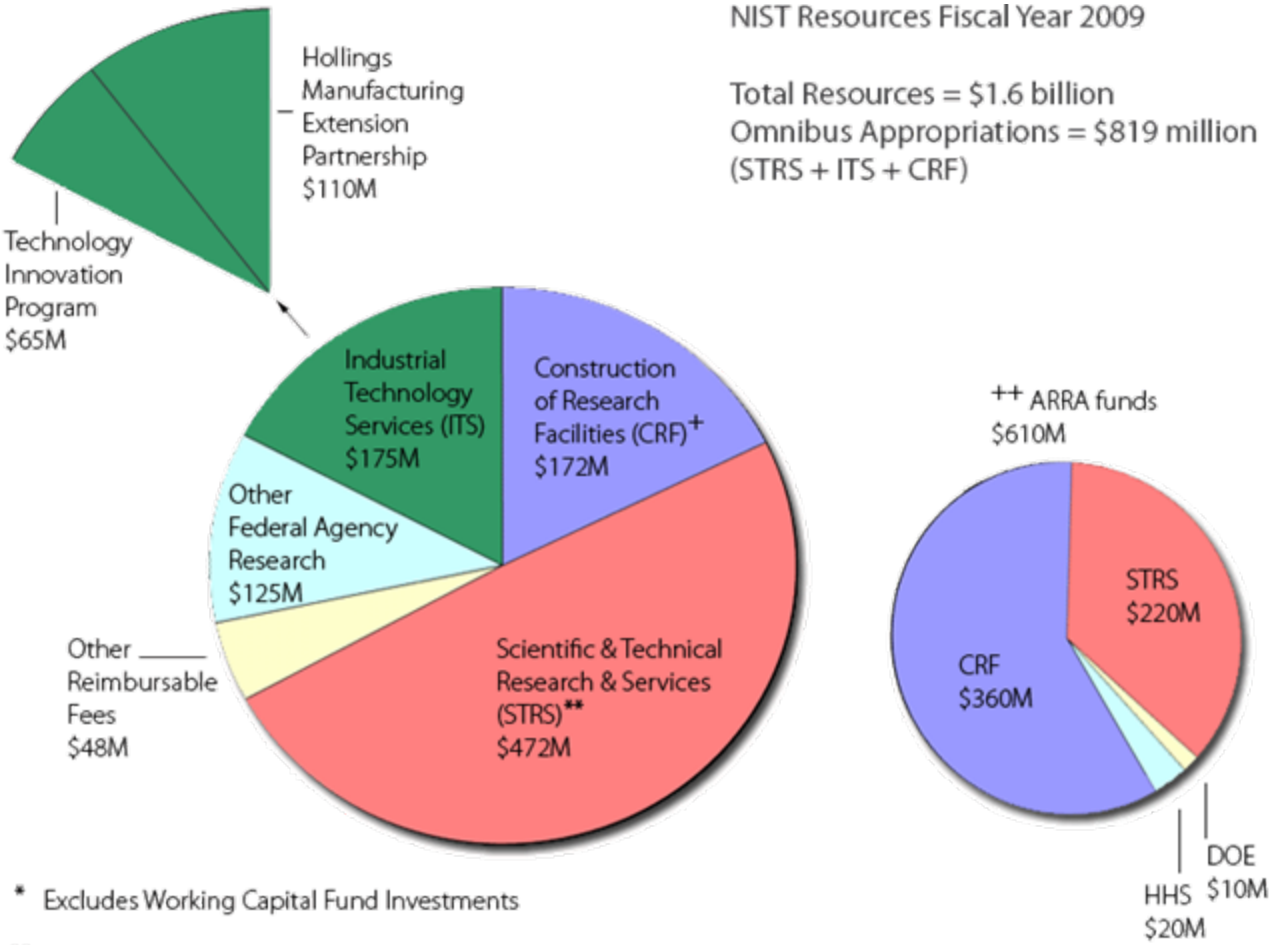
NIST Budget FY 2008 – FY 2010

Dollars in Millions

	FY 2008 Enacted	FY 2009 Enacted	ARRA *	FY 2010 Request
STRS	**$440.5**	**$472.0**	**$220.0**	**$534.6**
National Measurement and Standards Labs	415.2	442.6	211.1	508.3
Baldrige National Quality Program	7.9	9.4	0.0	9.6
Corporate Services (CIO and Business Systems)	16.5	16.5	8.9	16.7
Congressionally Designated Projects	0.9	3.5	0.0	0.0
ITS	**154.8**	**175.0**	**0.0**	**194.6**
Technology Innovation Program	65.2	65.0	0.0	69.9
Hollings Manufacturing Extension Parthership	89.6	110.0	0.0	124.7
CRF	**160.5**	**172.0**	**360.0**	**116.9**
NIST Construction & Major Renovations	79.2	98.0	180.0	116.9
Competitive Construction Grant Program	30.0	30.0	180.0	0.0
Congressionally Designated Projects	51.3	44.0	0.0	0.0
Total NIST	**755.8**	**819.0**	**580.0**	**846.1**

***** Excludes $10M from DoE for Smart Grid and $20M from HHS for Health IT.

NIST 2009 Budget: Another Look



* Excludes Working Capital Fund Investments

** Includes $3.5 million in congressionally directed projects

\+ Includes $44 million in congressionally directed projects and $30 million for a competitive construction grant program

++ $610 million of ARRA funds to include $220 million for STRS, $360 million for CRF, $20 million from the Department of Health and Human Services, and $10 million anticipated interagency agreement with the Department of Energy

NIST Recovery Act Funds -- STRS

$220 Million for NIST STRS Programs	
Funds	**Program**
$119 Million	To procure high-value research and measurement equipment for the NIST labs
$35 Million	To fund competitive research grants in measurement science at U.S. universities and other research institutions
$22 Million	To expanded NRC/NIST Postdoctoral Research Fellowship Program
$20 Million	To fund the creation of fellowship program to provide fellowships for scientists and engineers to work at NIST
$15 Million	To fund competitive research contracts ($5 million for SBIR contracts, and for Smart grid and cyber security related work)
$9 Million	To fund contracts to Improve NIST's IT infrastructure

NIST Recovery Act Funds -- CRF

$360Million for NIST CRF Programs

Internal NIST Construction	
$43.5 million	To complete the NIST Boulder Building 1 Extension (B1E) construction in Boulder, Colorado.
$39 million	For Safety, Capacity, Maintenance and Major Repairs (SCMMR) to reduce NIST's maintenance and repair backlog
$25 million	For enhancing performance of NIST Boulder Building 1 Extension (B1E).
$16 million	For high-efficiency pumps and other support infrastructure in the NIST Center for Neutron Research (NCNR)
$7.5 million	To fund the construction of Liquid Helium Recovery Systems(LHRS) for NIST Gaithersburg and Boulder
$2 million	To fund a Net-Zero-Energy Residential Test Facility at NIST Gaithersburg
$16 million	To fund the design and construction of the National Structural Fire Resistance Laboratory at NIST Gaithersburg
$7 million	To fund the design and construction of an Emergency Services Station to house the NIST Fire and Police services
$15 million	To fund the design and construction of new time-code radio broadcast stations
$9 million	For relocation and consolidation of the advanced robotics and logistics operations.
Extramural Construction	
$180 million	To support competitive grants to fund the construction of research facilities at U.S. universities and research institutions

FY2010 STRS Initiative Requests

Scientific and Technical Research Services: ***Focused Investments on National Priorities (+$60.5 million)***

- **Energy**
  - Powering up America: Accelerating an Interoperable Smart Grid ($5 M)
  - Advanced Energy Technologies: Solar Energy and Storage ($7.5M)
  - Measurement Science for Net-Zero Energy, High-Performance Green Buildings ($7M)
- **Environment**
  - Measurements and Standards Underpinning an Economy-Wide Carbon Cap-and-Trade Program ($7M)
  - Environment, Health and Safety Measurements and Standards for Nanotechnology ($3M)
- **Healthcare**
  - Health IT – Towards a Nationwide Healthcare Information Infrastructure ($5M)
  - Measurements Standards and Measurement Technology to Support Innovation in Healthcare ($9M)
- **Physical Infrastructure**
  - Rebuilding the Physical Infrastructure: Tools to Prioritize Infrastructure Remediation ($4.5M)
- **Information Technology Security**
  - Cyber Security: Leap-Ahead Security Technologies for Interconnected Systems ($5.5M)
  - Enabling Innovation through Quantum Information Science ($1.5M)
- **Pushing the Frontiers of Measurement Science**
  - Quantum-based Measurements ($5.4 M)

Hollings Manufacturing Extension Partnership (+$14.7 M)

Increased funding will help MEP expand center programs directed at:

- Accelerating technology adoption and innovation
- Promoting green and sustainable manufacturing technologies

Technology Innovation Program (+$4.9 M)

FY2010 funding will bring TIP funding to $69.9 M

FY2010 funding provides for a total of 8 new awards:

- Address a broader range of critical national needs
- Allow funding of new competition areas

NIST FY 2010 CRF Requests

Construction of Research Facilities: Strengthen NIST's core facilities to assure U.S. leadership in measurement science ($48.4 M)*

- NIST Center for Neutron Research Expansion ($8 M)

  Final year of 4-year $39 M project

- Boulder Building 1 Renovation ($26 M)

  Year one of a 4-year $70.2 M project

- Gaithersburg General Purpose Lab Renovation Planning and Design ($14.4 M)

  Year one of a $500 M project

NIST Photo

* New construction initiatives in addition to Safety, Capacity, Maintenance, and Major Repair (SCMMR) base.

Planning

- Three year plan as the formal planning document
- Focus is on the “moving parts” of the planning process:
  - External drivers
  - Administration priorities
  - Role definition
  - Strategic investments
  - Routine planning cycle
  - Program metrics
- Improved implementation

  (It’s not just about budgets…)

Planning: actions

- Re-chartered and re-focused NLB on strategic direction of agency
- Increased strategic funding to establish programs
- Increased interagency participation
- Improving tracking of program measures for new programs
- Developing new workshop program to define external drivers for key program areas
- Developing a planning cycle for NLB (FY2012)

Thoughts on today's agenda

The purpose of this meeting is to examine the interplay between the NIST role in documentary standards and the NIST laboratory programs for several high-impact case studies:

- What aspects of NIST's federal coordination role best leverage the technical capabilities of the NIST laboratories?
- How could NIST enhance its support of other Federal agencies in meeting U.S. Government needs for voluntary consensus standards?
- What would be the potential impacts on the NIST laboratory programs of NIST elevating the priority of its standards coordination role?

What you will see today

- Laboratory Tour; Phasor Measurement Units (Advanced Measurement Laboratory, Bldg 218)

  Jerry Stenbakken, Quantum Electrical Metrology Division, Electronics and Electrical Engineering Laboratory

- Enabling Clinical Information Sharing: Standards and Testing Demo

  Dr. Bill Majurski, Project Lead, and Ms. Lisa Carnahan, Leader, Interoperability Group, Software and Systems Division, Information Technology Laboratory

Discussion