NIST: Promoting U.S. Innovation and Industrial Competitiveness

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

NIST Today: Mission

To promote U.S. innovation and industrial competitiveness by advancing

measurement science, standards, and technology

in ways that enhance economic security and improve our quality of life

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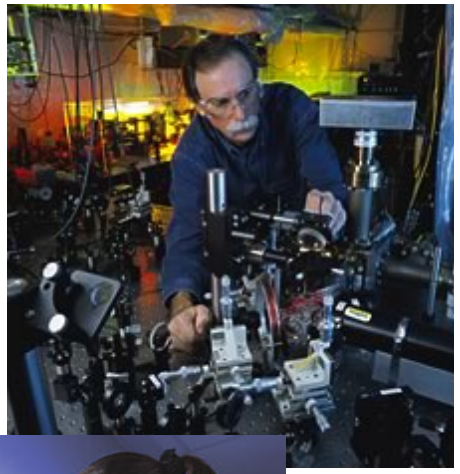
NIST At A Glance

Major Assets

- ~ 2,900 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
- Manufacturing Extension Partnership
- Technology Innovation Program



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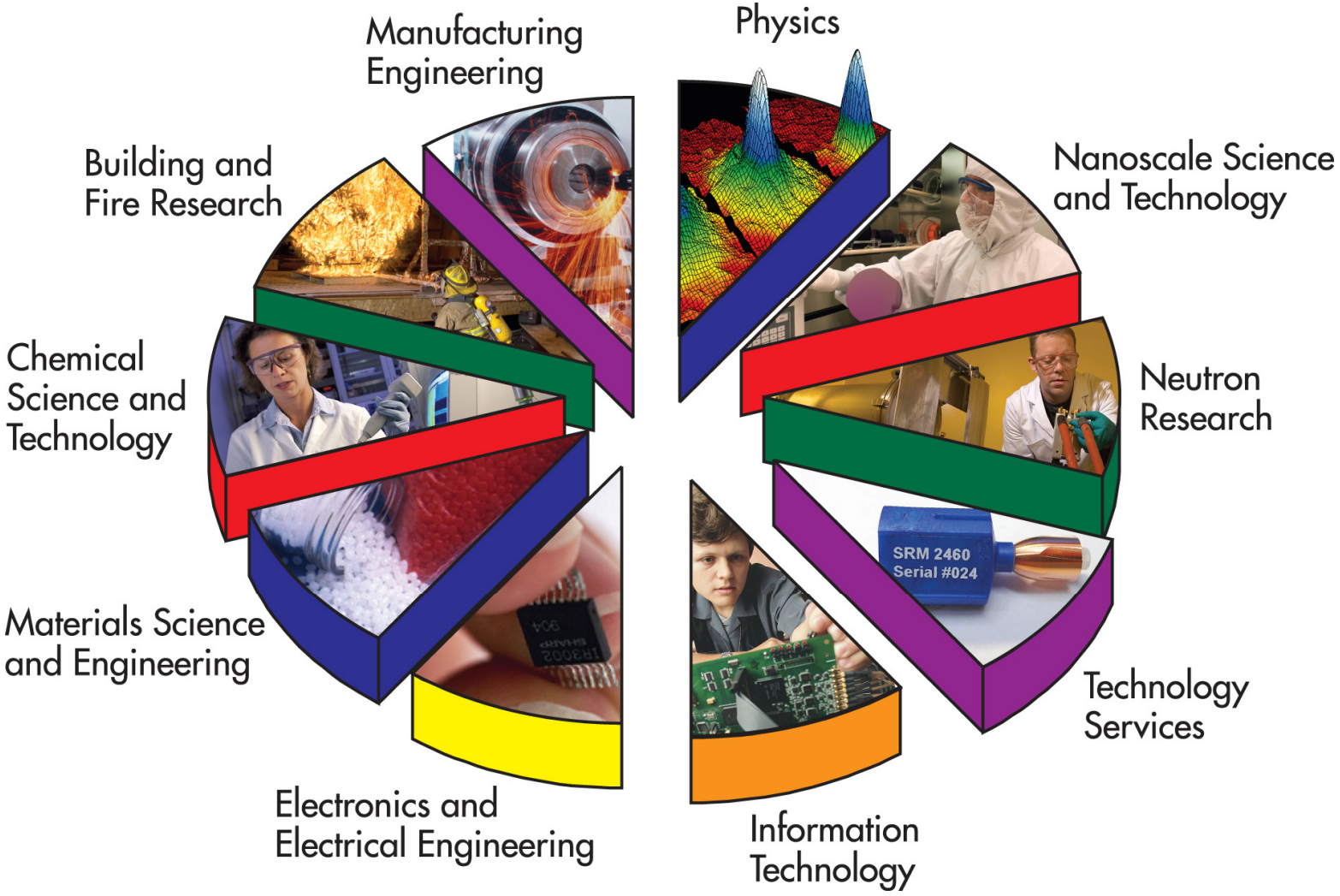
The NIST Laboratories



NIST Products and Services

Measurement Research

- ~ 2,200 publications per year

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

Calibration Tests

- ~ 25,000 tests per year

Laboratory Accreditation

- ~ 800 accreditations of testing and calibrations laboratories per year

NIST Publications

- ~ 2200 Manuscripts produced annually
- Most published in peer-reviewed journals
- ~ 10% in NIST publications
  - Journal of Physical and Chemical Reference Data (published by the American Institute of Physics)
  - Journal of Research of the National Institute of Standards and Technology (published by NIST)
  - Other publications such as Handbooks, Special Publications, Voluntary Product Standards, etc.

Standard Reference Data Act (P.L. 90-396)

"The Congress hereby finds and declares that reliable standardized scientific and technical reference data are of vital importance to the progress of the Nation's science and technology. It is therefore the policy of the Congress to make critically evaluated reference data readily available to scientists, engineers, and the general public. It is the purpose of this Act to strengthen and enhance this policy."

NIST Standard Reference Data Program

140 Scientific and Technical Databases

- 91 Available free on-line
- 46 PC databases available for purchase
- 3 On-line databases available by subscription

Examples

(free) NIST Chemistry WebBook is the most widely used NIST data product and is used by scientists, engineers, educators and students worldwide for applications in the areas of chemical engineering, physical chemistry, analytical chemistry, and chemical informatics.

(fee) NIST/EPA/NIH Mass Spectral Database is used by environmental, toxicology, forensic, and biomedical laboratories throughout the world and is distributed as an option by mass spectrometer manufacturers.

Standard Reference Data Subject Areas

Analytical Chemistry
Atomic and Molecular Physics
Biometrics
Biotechnology
Chemical and Crystal Structure
Chemical Kinetics
Chemistry
Communications
Construction
Data Security
Environmental Data
Fire
Fluids
International Comparisons
Law Enforcement
Materials Properties
Mathematical Databases, Software and Tools
Optical Character Recognition
Physics
Product Design
Surface Data
Text and Video Retrieval
Thermophysical & Thermochemical

NIST's Interests

- NIST's databases are a national resource representing an investment of several hundred million $ since the 1950s.
- Realizing their value into the future will require appropriate policies and solutions for:
  - Archiving
  - Preservation
  - Maintenance
  - Cyberinfrastructure (metadata standards, …)