



PUBLIC LAW 108-153

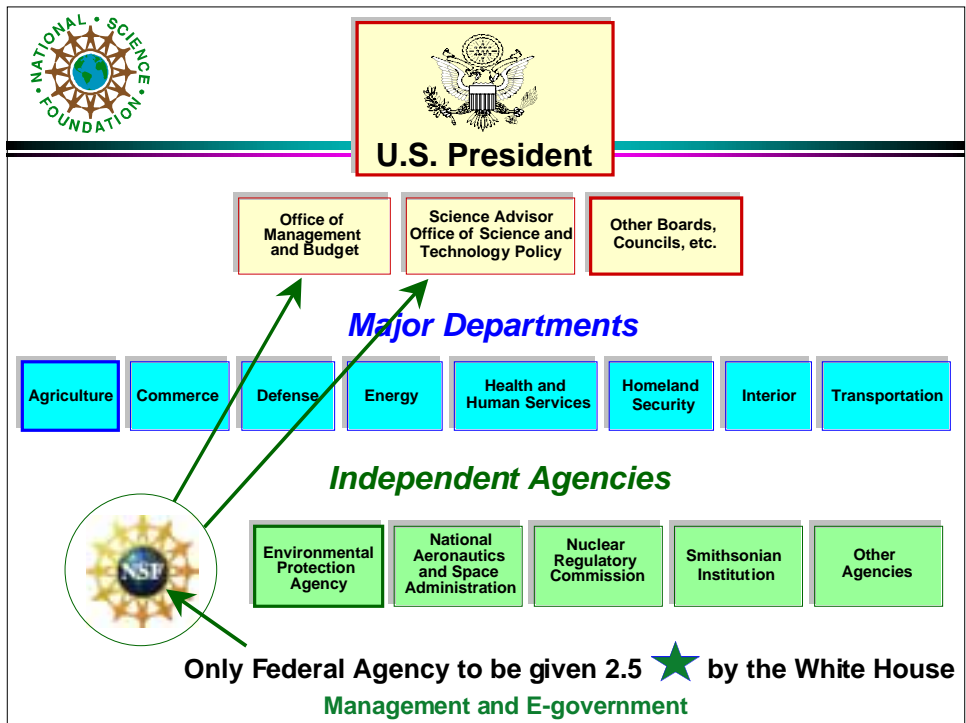
National Science Foundation

Nanotechnology and the United States Congress

Indo - U.S. Workshop Nanotechnology: Issues in Interdisciplinary Research and Education

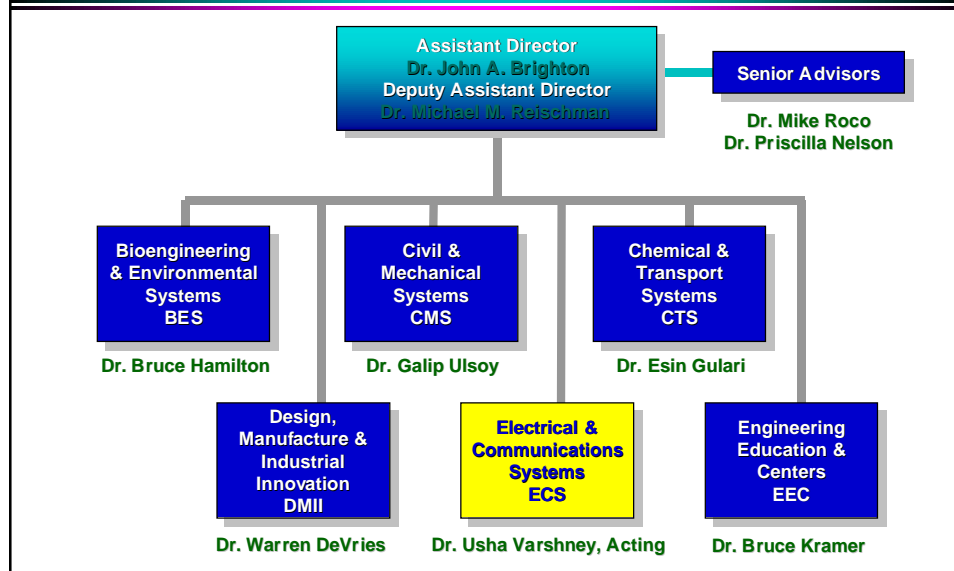
Indian Institute of Science
Bangalore, India
August 11-13, 2004

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Directorate for Engineering



National Science Foundation

The role of NSF is to help **Set** and **Advance** the National Agenda for Research and Education in Science, Mathematics, Engineering and Technology

- Created: **1950**
- Federal Agency: **Independent**
- Total Budget FY 2004: **\$5.58 B**
- Supports: **Basic Research and Education**
- Grant mechanism: **Merit-based Peer Review**
- Director and Deputy Director: **Presidential Appointees**
- Employees: **1400**
 - » Intergovernmental Personnel Act (IPA): **1/3**
 - » Federal Appointment: **2/3**



Public Law 108-153

PUBLIC LAW 108-153—DEC. 3, 2003

117 STAT. 1923

Public Law 108-153
108th Congress

21st Century Nanotechnology Research and Development Act

To authorize appropriations for nanoscience, nanotechnology, and nanotechnology research, and for other purposes.
The President and the Vice President of the United States of America in Congress assembled,

Dec. 3, 2003
(S. 146)
114 Stat.
Nanotechnology
Research and
Development Act,
28 USC 5081
note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "21st Century Nanotechnology Research and Development Act".

SEC. 2. NATIONAL NANOTECHNOLOGY PROGRAM.

28 USC 5081.

(a) NATIONAL NANOTECHNOLOGY PROGRAM.—The President shall implement a National Nanotechnology Program. Through appropriate agencies, councils, and the National Nanotechnology Coordination Office established in section 3, the Program shall—

President.

- (1) establish the goals, priorities, and metrics for evaluation for Federal nanotechnology research, development, and other activities;
- (2) invest in Federal research and development programs in nanotechnology and related sciences to achieve those goals; and
- (3) provide for interagency coordination of Federal nanotechnology research, development, and other activities undertaken pursuant to the Program.



Program Activities PL 108-153

Provides support for fundamental research to catalyze synergistic interdisciplinary science and engineering research and education in emerging areas of nanoscience, nanotechnology and nanoengineering by:

- Providing grants to individuals and interdisciplinary teams of investigators
- Establishing a network of advanced technology user facilities
- Establishing collaborative interdisciplinary research centers among academic institutions, national laboratories, industries and states
- Accelerating nanotechnology research and development in the private sector
- Encouraging interagency coordination and partnerships with state, regional and local government-led nanotechnology centers
- Encouraging participation of Historically Black Colleges and Universities/Minority Institutions and states participating in the EPSCoR program
- Ensuring that ethical, legal, environmental and other appropriate societal concerns are considered during the development of nanotechnology
- Ensuring that advances in nanotechnology bring about improvements in quality of life for all Americans
- Ensuring United States' international leadership in the development and application of nanotechnology
- Advancing United States' economic competitiveness in the global marketplace



Centers

The Program shall provide for the establishment of centers :

American Nanotechnology Preparedness Center

- Study on the societal, ethical, environmental, educational, legal, and workforce implications of nanotechnology
- Identify anticipated issues related to the responsible research, development, and application of nanotechnology, as well as provide recommendations for preventing or addressing such issues

Center For Nanomaterials Manufacturing

- Research on new manufacturing technologies for materials, devices, and systems
- Develop mechanisms to transfer such manufacturing technologies to United States industries



Program Management

The National Science and Technology Council shall oversee the planning, management, and coordination of the Program. The Council, itself or through an appropriate subgroup it designates or establishes, shall:

- Establish goals and priorities for the program
- Establish program component areas
- Oversee interagency coordination of the program
- Develop and update a strategic plan about how the program will move results out of the laboratory, support for long-term funding, and the allocation of funding
- Propose a coordinated interagency budget for the program
- Exchange information with academia, industry, state and local government
- Develop a plan to utilize Federal programs, such as the Small Business Innovation Research program and the Small Business Technology Transfer Research program
- Identify research areas that are not being adequately addressed
- Encourage progress on program activities through the utilization of existing manufacturing facilities and industrial infrastructures
- Take into consideration the recommendations of the Advisory Panel and the views of academia, state, and industry



National Nanotechnology Advisory Panel

The Advisory Panel established by the President shall consist of members from academic institutions and industry. The Advisory Panel shall advise the President and the Council on matters relating to the program, including assessing:

- Trends and developments in nanotechnology science and engineering
- Progress made in implementing the program
- The need to revise the program
- The balance among the components of the program, including funding levels for the program component areas
- Whether the program component areas, priorities, and technical goals developed by the Council are helping to maintain United States leadership in nanotechnology
- The management, coordination, implementation, and activities of the program
- Whether societal, ethical, legal, environmental, and workforce concerns are adequately addressed by the program



National Nanotechnology Coordination Office (NNCO)

The President shall establish a National Nanotechnology Coordination Office, with a Director and full-time staff, which shall

- Provide technical and administrative support to the Council and the Advisory Panel
- Serve as the point of contact on Federal nanotechnology activities for government organizations, academia, industry, professional societies, State nanotechnology programs, interested citizen groups, and others to exchange technical and programmatic information
- Conduct public outreach, including dissemination of findings and recommendations of the Advisory Panel, as appropriate
- Promote access to and early application of the technologies, innovations, and expertise derived from Program activities to agency missions and systems across the Federal Government, and to United States industry, including startup companies



Federal Agencies

Agencies that are authorized in the legislation include:

- **National Science Foundation (NSF)**
\$385,000,000 (FY 2005); \$424,000,000 (FY 2006); \$449,000,000 (FY 2007);
\$476,000,000 (FY 2008).
- **Department of Energy (DOE)**
\$317,000,000 (FY 2005); \$347,000,000 (FY 2006); \$380,000,000 (FY 2007);
\$415,000,000 (FY 2008).
- **National Aeronautics and Space Administration (NASA)**
\$34,100,000 (FY 2005); \$37,500,000 (FY 2006); \$40,000,000 (FY 2007);
\$42,300,000 (FY 2008).
- **National Institute of Standards and Technology (NIST)**
\$68,200,000 (FY 2005); \$75,000,000 (FY 2006); \$80,000,000 (FY 2007);
\$84,000,000 (FY 2008).
- **Environmental Protection Agency (EPA)**
\$5,500,000 (FY 2005); \$6,050,000 (FY 2006); \$6,413,000 (FY 2007);
\$6,800,000 (FY 2008).



National Nanotechnology Initiative (NNI)

An interagency program that coordinates nanoscale research and development portfolios among 16 U.S. Government department and independent agencies under the auspices of the Nanoscale Science, Engineering and Technology (NSET) Subcommittee of the National Science and Technology Council

- **DOC/NIST – Department of Commerce/National Institute of Standards and Technology**
- **DHHS/FDA – Department of Health and Human Services/Food and Drug Administration**
- **DHHS/NIH – Department of Health and Human Services/National Institutes of Health**
- **DHS/TSA – Department of Homeland Security/Transportation Security Administration**
- **NASA – National Aeronautics and Space Administration**
 - **IA – Intelligence Technology Innovation Center**
- **Treasury – Department of the Treasury**
- **EPA – Environmental Protection Agency**
- **USDA – U.S. Department of Agriculture**
 - **NRC – Nuclear Regulatory Commission**
- **DOT – Department of Transportation**
 - **NSF – National Science Foundation**
- **DOD – Department of Defense**
 - **DOE – Department of Energy**
 - **DOJ – Department of Justice**
 - **State – Department of State**



Specific Interests of Participating U.S. Government Agencies

- **DHHS(NIH)** - Therapeutics, Diagnostics, Biomaterials, Miniaturized Tools, Cell and Molecular Sensing
- **DHS(TSA)** - Detection and Remediation of Chemical, Biological, Radiological, and Explosive Agents
- **DOC(NIST)** - Measurements and Standards; Commercialization
- **DOD** - Information Technology, High Performance Materials, Chemical and Biological Detection
- **DOE** - Energy Science, Environment, Non-Proliferation
- **DOJ** - Diagnostics-Crime, Contraband, Ballistic Protection
- **EPA** - Environment, Green Manufacturing
- **NASA** - Lighter, Smaller, Adaptive, Radiation Hard Spacecraft; Human Status
- **NSF** - Science and Engineering Research and Education in All Areas of Nanotechnology
- **USDA** - Biotech for Crop Yield
- **DOT** - Small, Lightweight, Affordable Materials
- **FDA** - Packaging, Drug Delivery, Biointeractive Devices
- **IA** - National Security
- **NRC** - Detection and Materials Reliability
- **State** - U.S. Position in World Affairs
- **Treasury** - Taggants; Wear-resistant Material



NNI Grand Challenges

- **Nanostructured Materials by Design**
- **Manufacturing at the Nanoscale**
- **Chemical-Biological-Radiological-Explosive Detection, and Protection**
- **Nanoscale Instrumentation, and Metrology**
- **Nano-Electronics, -Photonics, and -Magnetics**
- **Healthcare, Therapeutics, and Diagnostics**
- **Efficient Energy Conversion and Storage**
- **Microcraft and Robotics**
- **Nanoscale Processes for Environmental Improvement**



NNI Funding Request for FY 2005

Dollars in Millions

● DHHS (NIH)	Department of Health and Human Services	\$89
● DHS (TSA)	Department of Homeland Security	\$1
● DOC (NIST)	Department of Commerce	\$53
● DOD	Department of Defense	\$276
● DOE	Department of Energy	\$211
● DOJ	Department of Justice	\$2
● EPA	Environmental protection Agency	\$5
● NASA	National Aeronautic and Space Administration	\$35
● NSF	National Science Foundation	\$305
● USDA	Department of Agriculture	\$5
TOTAL		\$982



NSF FY 2004 - 05 Priority Areas

Millions of Dollars

	FY 2004	FY2005
● Biocomplexity in the Environment	\$100	\$100
● Human and Social Dynamics	\$24	\$23
● Information Technology Research	\$303	-
● Mathematical Sciences	\$89	\$89
● Nanoscale Science and Engineering	\$253	\$385
● Workforce for the 21 st Century	n/a	\$20



Reports and Publications National Nanotechnology Initiative

1999:
10-year
vision



Government
plan

Reports



Worldwide
benchmark



Societal
implications



Brochure for
public



2004 Report on 10-Year Vision



New Congressional Caucus *Bipartisan and Bicameral*



Congressional Nanotechnology Caucus



Founding Chair: *George Allen*
Senator George Allen (R-VA)

Co-Chairs:

Senator Ron Wyden (D-OR)
Congressman Sherwood Boehlert (R-NY)
Congressman Bart Gordon (D-TN)

- > Caucus Members
- > Dear Colleague Letter
- > Nanotechnology Funding Resources and Opportunities

> Contact Information

To obtain more information or to join the Bipartisan and Bicameral Caucus, please contact:

Mr. Frank Cavaliere
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or
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E-mail: lisha_wanshney@hohm.senate.gov

Telephone: 202-224-4224



Goals

The purpose of the Congressional Nanotechnology Caucus is to promote the development of Nanotechnology by:

- Educating policy makers about the emerging areas of Nanoscience, Nanoengineering, and Nanotechnology
- Providing an official gateway for the Nanotechnology Community to the Congress on policy issues and concerns
- Facilitating communication between industrial and academic researchers and the Congress
- Building on previous appropriations for Federal Agencies that support Nanotechnology research

...in order to ensure that the Nation maintains a competitive edge in this new and important field.



Web Sites



- National Nanotechnology Initiative
<http://nano.gov>
- NSF Nanotechnology Science and Engineering Initiative (NSE)
- NSF Nanotechnology Science and Engineering Education (NSEE)
<http://www.nsf.gov/nano>
- Congressional Nanotechnology Caucus
<http://allen.senate.gov>



Organizational Structure

