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Nanoscale Science and Engineering Research and Development Extend Frontiers of Scientific Knowledge, Lead to Significant Technological Advances
Supplement to President's FY 2004 Budget Released Today

WASHINGTON, D.C. – The White House released today a special supplement to President Bush's FY 2004 budget describing advances in nanoscale science that have the potential to widely affect industry and society. From real-time medical diagnoses and targeted drug delivery to efficient manufacturing processes that reduce waste and pollution, strides in nanoscience are leading to an increasing number of applications and products.

The report, entitled *The National Nanotechnology Initiative: Research and Development Supporting the Next Industrial Revolution*, describes the strategic foundations of the National Nanotechnology Initiative (NNI) for investing in multi- and interdisciplinary research and moving discoveries from the laboratory to marketplace. Today roughly two-thirds of NNI funds go to university-based research; other funds are designated specifically to promote academic and industrial research partnerships.

Among the recent achievements in nanotechnology highlighted in the report and funded in whole or in part by the NNI are:

- Nano-electro-mechanical sensors that can detect and identify a single molecule of a chemical warfare agent – an essential step toward realizing practical field sensors.
- Nanotube-based fibers requiring three times the energy needed to break the strongest silk fibers and 15 times that of Kevlar fiber.
- Prototype data storage devices based on molecular electronics with data densities over 100 times that of today's highest density commercial devices.
- Field demonstration that iron nanoparticles can remove up to 96 percent of a major contaminant (trichloroethylene) from groundwater at an industrial site.
- Nanostructured wear-resistant coatings for bearing surfaces that DOD estimates will result in a \$20 million reduction in maintenance costs over the next 10 years.

As part of the FY 2004 Budget, President Bush requested \$849 million for nanotechnology research and development across all of the agencies that participate in the NNI. This represents an increase of approximately 10 percent over the amount appropriated by Congress for FY 2003. The proposed NNI allocation is part of the Administration's record \$123 billion request for federal research and development spending.

“Investments in nanoscale science and technology research and development are essential to achieving the President's top three priorities: winning the war on terrorism, securing the homeland, and

strengthening the economy,” said Dr. John H. Marburger, Director, Office of Science and Technology Policy (OSTP). “Programs such as the NNI will help ensure our global leadership in nanotechnology and the many areas that it affects.”

The budget supplement report is produced by the National Nanotechnology Coordination Office (NNCO) on behalf of the Nanoscience Engineering and Technology (NSET) Subcommittee of the National Science and Technology Council's Committee on Technology, and it is available online at <http://www.nano.gov>. For a printed copy of the report, contact the NNCO at (703) 292-8626 or staff@nnco.nano.gov.

The NNI is a federal research and development program established to coordinate the multiagency efforts in nanoscale science, engineering, and technology. The goals of the NNI are to: conduct research and development to realize the full potential of this revolutionary technology; develop the skilled workforce and supporting infrastructure needed to advance research and development; better understand the social, ethical, health, and environmental implications of the technology; and, facilitate transfer of the new technologies into commercial products. Participating departments and agencies include:

- Department of Agriculture
- Department of Commerce (National Institute of Standards and Technology)
- Department of Defense
- Department of Energy
- Department of Health and Human Services (National Institutes of Health and Food and Drug Administration)
- Department of Homeland Security (Transportation Security Administration)
- Department of Justice
- Department of State
- Department of Transportation
- Department of Treasury
- Environmental Protection Agency
- Intelligence Community
- National Aeronautics and Space Administration
- National Science Foundation

Congress established OSTP in 1976 with a broad mandate to advise the President and others within the Executive Office of the President on the impacts of science and technology on domestic and international affairs. The 1976 Act also authorizes OSTP to lead an interagency effort to develop and to implement sound science and technology policies and budgets and to work with the private sector, state and local governments, the science and higher education communities, and other nations toward this end. The Director of OSTP serves as co-chair of the President’s Council of Advisors on Science and Technology and oversees the National Science and Technology Council on behalf of the President.

The National Science and Technology Council (NSTC) was established by Executive Order on November 23, 1993. This Cabinet-level council is the principle means for the President to integrate science and technology policies across the federal government. The NSTC acts as a virtual agency for science and technology to coordinate the diverse parts of the Federal research and development enterprise.

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