

NATIONAL SCIENCE FOUNDATION CENTERS

By bringing together people, ideas and tools on scales large enough to effect significant progress in disciplinary and cross-disciplinary fields, Centers play a key role in advancing science and engineering in the U.S., particularly through their encouragement of interdisciplinary research and the integration of research and education.

Centers Funding

(Dollars in Millions)

	Program Initiation (year)	FY 2004 Number of Centers	FY 2005		Change over FY 2005		
			FY 2004 Actual	Current Plan	FY 2006 Request	Amount	Percent
Centers for Analysis and Synthesis	1995	1	3.15	7.07	6.82	-0.25	-3.5%
Chemistry Centers	1998	32	17.44	13.01	14.81	1.80	13.8%
Earthquake Engineering Research Centers	1988	3	5.99	6.00	6.00	0.00	0.0%
Engineering Research Centers	1985	19	65.60	61.57	61.80	0.23	0.4%
Long-Term Ecological Research Program	1980	26	21.27	22.78	22.78	0.00	0.0%
Materials Centers	1994	35	57.20	57.00	58.00	1.00	1.8%
Mathematical Sciences Research Institutes	1982	6	15.05	17.15	17.15	0.00	0.0%
Nanoscale Science and Engineering Centers	2001	14	31.19	34.29	35.12	0.83	2.4%
Physics Frontiers Centers	2001	10	14.27	18.72	19.52	0.80	4.3%
Plant Genome Virtual Centers	1998	25	36.00	36.00	36.00	0.00	0.0%
Science and Technology Centers	1987	11	43.98	48.90	50.99	2.09	4.3%
Science of Learning Centers	2003	3	37.56	19.84	23.00	3.16	15.9%
SBE Centers	n/a	11	14.16	8.50	6.50	-2.00	-23.5%
Total, Centers		196	\$362.85	\$350.83	\$358.49	\$7.66	2.2%

Totals may not add due to rounding.

Centers for Analysis and Synthesis

- Center for Ecological Analysis and Synthesis:** The National Center for Ecological Analysis and Synthesis (NCEAS) at the University of California at Santa Barbara promotes integrative studies of complex ecological questions and serves as a locus for the synthesis of large data sets. The goals of the center are to advance the state of ecological knowledge through the search for universal patterns and principles and to organize and synthesize ecological information so that it will be useful to researchers, policy makers and resource managers addressing important environmental issues. The Center supports in-house working groups, post-doctoral associates, and sabbatical visits by senior scientists, all on a competitive basis. A Science Advisory Board serves to screen proposals on an annual basis. NSF's support for NCEAS in FY 2006 is \$3.82 million.
- Center for the Synthesis of Biological Evolution:** Initial funding of \$3.60 million in FY 2005 supported the establishment of the Center for the Synthesis of Biological Evolution. The Center provides mechanisms to foster synthetic, collaborative, cross-disciplinary studies in evolutionary biology. It plays a pivotal role in the further unification of the biological sciences as it draws together knowledge from disparate biological fields and increases our general understanding of biological design and function. Finally, the Center has a critical role in organizing and synthesizing evolutionary knowledge that is useful to policy makers, government agencies, educators and society.

The FY 2006 funding level is \$3.0 million. The established center will continue to develop new tools and cross-disciplinary standards for management of biological information and meta-information, support data analysis capabilities with broad utility across the biological science, host workshops bringing together scientists from a variety of disciplines to begin to integrate various approaches to the field, and to begin to host and curate databases important to evolutionary synthesis.

Chemistry Centers

Chemistry Centers include Chemical Bonding Centers (CBCs), Environmental Molecular Science Institutes (EMSIs) and Collaborative Research in Chemistry (CRCs). These programs provide diverse ways for groups of researchers in the chemical sciences to work collaboratively on challenging problems of fundamental and strategic importance. These include the molecular basis of life processes, the molecular origins of life, activation of strong bonds as a means to decrease energy requirements in chemical processing and synthesis, the rational design of materials for electronics, catalysts, atmospheric aerosols, and small molecular clusters with unique properties.

Several chemistry awardees are using powerful new tools and the synergy of interdisciplinary approaches to gain a better understanding of water. Both commonplace and exotic, water interacts with itself and other materials in complex ways that impact the chemical reactions occurring in the atmosphere, on the earth and within our bodies. Researchers supported by Chemistry Centers are using synchrotron x-ray diffraction, ultrafast laser spectroscopy, infrared spectroscopy, mass spectrometry, quantum chemistry calculations, molecular dynamics simulations and other cutting-edge tools to understand the structure and reactivity of water at surfaces and in condensed phases.

In FY 2006, NSF will provide \$14.81 million, an increase of \$1.80 million (13.8 percent) over the FY 2005 Current Plan of \$13.01 million, to support 3 new centers, making the total 35 centers.

Earthquake Engineering Research Centers

Three Earthquake Engineering Research Centers (EERCs) focus on reducing earthquake losses, integrating research and education, and developing partnerships with industry and the public agencies responsible for earthquake hazard mitigation at the local, state and federal levels. The EERCs link geological information about the nature of earthquake hazards in different regions of the country with geotechnical and structural engineering knowledge to provide state-of-the-art structural design methodologies. They provide the knowledge and technology base for industry and public agencies to build and retrofit buildings, bridges, and other infrastructure to better withstand the impacts of earthquakes. Because these centers involve partnerships among social scientists and engineers, they are developing a new generation of decision tools to improve public service agencies' planning for earthquake hazard mitigation and their responses during earthquake emergencies.

EERCs are major contributors in the field both in the U.S. and internationally. An additional \$10 million from universities, three states, government, and industry were leveraged with \$5.99 million in NSF support during FY 2004. There were 65 academic institutions and 155 non-academic organizations participating in the research and education programs of the EERCs. The EERCs involved 476 university-level faculty and students in research and curriculum development and 225 K-12 students in research and education. The EERCs produced 1 new course. In FY 2006, NSF will provide a total of \$6.0 million to the EERCs, equal to FY 2005.

Engineering Research Centers

The Engineering Research Centers (ERC) program stands as a landmark in federal support for university research and education in partnership with industry. These centers provide an environment where academe and industry can focus together on advances in the complex engineered systems that transform industrial processing systems and product lines most important for the Nation's future. ERCs bring diverse engineering and scientific disciplines together to address fundamental research issues at the interface between the discovery-driven culture of science and the innovation-driven culture of engineering. They provide the intellectual foundation for industry collaboration with faculty and students to resolve generic, long-range challenges, producing the knowledge needed to ensure steady advances in technology, speed their transition to the marketplace, and train graduates who are effective in applying them in industry.

ERCs are also devoted to the integration of research and education by creating team environments for learning and research and producing curricula and course materials for bioengineering, multimedia information systems, manufacturing, electronic packaging, and particle science and technology, among others. In addition, all ERCs have active programs to stimulate interest in engineering with pre-college students and their teachers and several have sites at local museums to educate the general public about engineering and technology.

An additional \$72 million in support from industry, other federal agencies, universities, and four states leveraged NSF support of \$65.60 million in FY 2004. There were 373 academic institutions and 206 non-academic organizations participating in the research and education programs of the ERCs. In addition, there were 316 memberships with industry, an additional 51 affiliated and 81 contributing firms from the U.S. and abroad. The full set of ERCs involved 3,557 university-level faculty and students in research and curriculum development, 209 K-12 teachers, and 613 K-12 students in research and education. The ERCs produced 35 new courses, 98 course modules, and 6 certificate and degree programs. There were 28 patents issued and 60 licenses issued to ERC Intellectual Property. In FY 2006, NSF funding for ERCs totals \$61.80 million, an increase of \$230,000 over the FY 2005 Current Plan. This funding will support 13 ERCs across a broad range of technologies in bioengineering, micro and opto electronics, information technology, design and manufacturing plus four new centers.

Long Term Ecological Research Program

The Long Term Ecological Research (LTER) program is an NSF-wide Centers program that supports long-term analysis of ecological phenomena, both natural and human influenced; comparisons of observations across diverse ecosystems; integration of information from multiple sites and multidisciplinary projects through cross-site syntheses; and provision of large, secure, ecologically diverse sites with well-developed support capabilities. Extensive computer networking, facilitated by the LTER Network Office, enables regional, national and international communication and synthesis. In FY 2006 NSF will support 26 LTER sites that are representative of major ecosystems, including two sites in Antarctica. A significant recent development in 2004-2005 was the expansion of the network through the addition of 2 new near-coastal marine sites, one off the coast of southern California and the second a coral reef site in the South Pacific. The LTER program will conclude its first two-year strategic planning process in FY 2006, focusing on network-wide science and synthesis, interdisciplinary science across LTER sites, and the integration of research and education. NSF provided assistance in 2004 to the international LTER program (ILTER) for enabling it to become a more autonomous international organization. Over 30 countries are now ILTER members, enabling worldwide research collaborations between the U.S. sites and sites abroad. NSF's FY 2006 core support for the LTER program will total \$22.78 million.

Materials Centers

Materials Centers include Materials Research Science and Engineering Centers (MRSECs) and International Materials Institutes (IMIs). MRSECs support interdisciplinary materials research addressing fundamental problems of intellectual and strategic importance. They support shared experimental facilities, they place strong emphasis on the integration of research and education at all levels, and they provide support to stimulate emerging areas of materials research. The MRSECs feature cutting-edge materials research in areas such as polymers, biomimetic and biomolecular materials, magnetic and ferroelectric materials, nanoscale materials, electronic and photonic materials, structural materials, and organic systems and colloids. During FY 2005 approximately half of the existing MRSECs compete with new proposals for new six-year awards effective in September 2005.

The Materials Centers program also includes the International Materials Institutes (IMIs). IMIs are five-year awards (renewable through open competition) that support and stimulate cooperative activities in various areas of materials research and education between U.S. investigators and their colleagues worldwide. The first three IMIs were established in FY 2003, and three more were established in FY 2004.

The MRSECs have strong links to industry and other sectors. MRSECs and IMIs also involve research and educational partnerships among academic institutions in the U.S. as well as international partnerships.

NSF's FY 2006 support for the Materials Centers totals \$58.0 million, an increase of \$1.0 million (1.8 percent) over the FY 2005 Current Plan. Leveraged support from non-NSF sources for these centers was over \$62 million in FY 2004.

Mathematical Sciences Research Institutes

The Institutes provide a national resource for in-depth research in the mathematical sciences and for multidisciplinary research between mathematical scientists and other scientists and engineers from academia, industry, and government laboratories. Significant postdoctoral experiences are nurtured through mentoring with world-class mathematical scientists and through opportunities with partner universities, industries, and government laboratories. In FY 2006, NSF will provide \$17.15 million, level with the FY 2005 Current Plan.

Nanoscale Science and Engineering Centers

As part of the multi-agency National Nanotechnology Initiative, NSF funded six centers in FY 2001; two centers focused on manufacturing at the nanoscale were established in FY 2003; six centers in FY 2004, and an additional two centers are planned for FY 2005. Research at the nanoscale aims to advance the development of the ultra-small technology that will transform electronics, materials, medicine, environmental science and many other fields. Each center has a long-term vision for research, and together they will provide coherence and a long-term outlook to U.S. nanotechnology research and education. Support will be provided for education and outreach programs from the graduate to the K-12 level, designed to develop a highly skilled workforce, advance pre-college training, and advance the public understanding of nanoscale science and engineering. The centers have strong partnerships with industry, national laboratories and international centers of excellence. In FY 2006, NSF will provide continuing support to fourteen centers at \$35.12 million, an increase of \$830,000 (2.4 percent) over the FY 2005 Current Plan of \$34.29 million.

Physics Frontiers Centers

The Physics Frontiers Centers program was initiated in FY 2001. These centers provide critical resources and necessary infrastructure to exceptionally promising new areas of physics. They serve as focal points to help catalyze new fields, with the resources and infrastructure to enable development of the new tools and techniques needed, and to facilitate exploration of new directions in a way that is not practical in individual investigator awards. Areas such as atom lasers, quantum information science, computational physics, biological physics, and astrophysics are particularly promising for such an investment. Interdisciplinary research is a key element of this program, and each center is expected to have a significant outreach and infrastructure component. In FY 2006, NSF will provide a total of \$19.52 million for support of ten centers, an increase of \$800,000 above the FY 2005 Current Plan.

Plant Genome Virtual Centers

The Plant Genome Research subactivity supported twenty-five Plant Genome Virtual Centers in FY 2004. These are multi-institutional networks where coordinated, multi-disciplinary teams pursue comprehensive, interdisciplinary research on the structure, organization and function of plant genomes relevant to economically important plants or plant processes.

Of the 25 centers supported in FY 2004, 20 were continuations or renewals of virtual centers created in previous years; 5 were newly established centers. The 25 centers involve 155 scientists as key personnel with a large number of postdoctoral fellows, graduate students, undergraduate students, technical personnel, and others involved. Key participants are located at 55 institutions in 28 states. International collaborators in 3 projects from 7 different countries are involved in a number of areas of research including the potato, wheat, and model legume projects. NSF support for Plant Genome Virtual Centers in FY 2005 and FY 2006 totals \$36.0 million each year.

Science and Technology Centers

NSF's Science and Technology Centers (STC) Integrative Partnerships Program supports innovation in the integrated conduct of research, education, and knowledge transfer in fields of basic science, mathematics, and engineering. STCs foster partnerships that build a new collaborative culture among researchers and educators at all levels in academia, industry, government laboratories, and other public and private organizations. The Centers provide opportunities to explore challenging and complex research problems that often require interdisciplinary expertise and high-risk approaches, access to state-of-the-art instrumentation and facilities, and a commitment of high levels of support for sustained periods of time. It is estimated that STC funding from sources other than NSF totaled approximately \$38 million in FY 2004.

STCs have an impressive record of research accomplishments, research training, contributions to K-12 education, and timely transfer of knowledge and technology from the laboratory to industry and other sectors. Traditional barriers among disciplines and among university, governmental, and industrial laboratories have been reduced, creating a new mode of leadership and management in research and education. STCs have engaged the nation's intellectual talent, robustly drawn from its full human diversity, in the conduct of research and education activities; enabled the training of undergraduate students, graduate students, and postdoctoral fellows; involved scores of industrial researchers in basic research; and spawned new companies, products, and jobs.

STCs also create partnerships and programs that transfer knowledge in service to society with respect to new research areas, promising new instrumentation, and potential new technologies. NSF's FY 2006 Request for the STC program is \$50.99 million. Of this, \$42.09 million resides in directorate budgets for

continuing support of 11 established STCs. An additional two STCs, established in FY 2005, are funded (\$8.0 million) within the Integrative Activities budget line, which also includes \$900,000 for ongoing administrative support for all 13 STCs.

Science of Learning Centers

NSF's investment builds on the Foundation's support for multidisciplinary research that advances fundamental knowledge about the science of learning. Science of Learning Centers (SLC) are built around a unifying research focus and incorporate a diverse, multidisciplinary environment involving appropriate partnerships with academia, industry, international partners, all levels of education, and other public and private entities.

The \$3.16 million increase brings FY 2006 funding for the SLCs to \$23.0 million. In FY 2006, NSF continues the third of five initial years of support for four Centers awarded in the program's first competition and provides startup support for a second cohort of up to four SLCs. This funding level is designed to support a diverse portfolio of research projects, providing leadership across a broad range of science and engineering approaches to the science of learning research.

SBE Centers

- **Children's Research Initiative Centers:** The Children's Research Initiative (CRI) supports a variety of research activities, including small research centers, individual investigator awards, collaborative proposals, and workshops. Together, the research centers represent a new thrust in the field of integrative developmental science; individually, they support leading-edge research about children and media, developmental science, and the integration and dissemination of developmental science to inform both research and policy. Centers established from FY 2001 through FY 2003 are located at the University of North Carolina-Chapel Hill, Cornell University, New York University, and the University of Michigan. A fifth center is a collaboration among four universities: Georgetown University, Northwestern University, University of Texas-Austin, and University of California-Los Angeles. No additional centers were established in FY 2005. In FY 2006, NSF will provide \$1.50 million to support three CRI centers.
- **Climate Change Research Initiative Centers:** In FY 2004, there was support for five centers focusing on Decision Making Under Uncertainty related to climate variability and change as part of the government-wide Climate Change Research Initiative (CCRI):
 - Arizona State University's Decision Center for a Desert City uses Phoenix as a laboratory to study adaptation strategies, with particular attention to water management in an arid climate.
 - Carnegie Mellon University's Climate Decision Making Center focuses on how to deal with unavoidable uncertainties, including cost and policy decision implications.
 - Columbia University's Center for the Study of Individual and Group Decision Making Under Climate Uncertainty (DMUU) focuses on integrating psychological insights with those from other social sciences to develop tools to help people better understand the impacts of climate change and their response options.
 - The University of Colorado-Boulder's Science Policy Assessment and Research on Climate (SPARC) team examines decision makers' expectations about what science can deliver, whether policy makers can use available information, and what future information might be useful to them.
 - The Rand Corporation research team conducts fundamental research on different characterizations of uncertainty and develops quantitative tools to deal with robust decision making.

In FY 2006, NSF will continue to support the five CCRI Centers for a total of \$5.0 million.

FY 2004 Estimates for Selected Centers
(Dollars in Millions)

	Number of Participating Institutions ¹	Number of Partners ²	Total NSF Support	Total Leveraged Support ³	Number of Participants ⁴
Chemistry Centers	60	18	\$17	\$2	650
Earthquake Engineering Research Centers	65	155	\$6	\$10	1,130
Engineering Research Centers and Groups	373	433	\$66	\$72	7,810
Long-Term Ecological Research Program	184	125	\$21	\$73	2,500
Materials Centers	99	347	\$57	\$62	5,150
Physics Frontiers Centers	16	14	\$14	\$2	478
Plant Genome Virtual Centers	55	7	\$36	\$6	2,160
Science and Technology Centers	86	326	\$44	\$38	1,915

¹Number of Participating Institutions: all academic institutions that participate in activities at the centers.

²Number of Partners: the total number of non-academic participants, including industry, states, and other federal agencies at the centers.

³Total Leveraged Support: funding for centers from sources other than NSF.

⁴Number of Participants: the total number of people who utilize center facilities, not just persons directly supported by NSF.

Centers Supported by NSF in FY 2004

Center	Institution	State
Center for Ecological Analysis and Synthesis	U of California-Santa Barbara	CA
Chemistry Centers		
Actinides and Heavy Metals in the Environment - The Formation, Stability, and Impact of Nano- and Micro-Particles	U of Notre Dame	IN
Activation and Transformation of Strong Bonds	U of Washington	WA
Alternative Chemistries for Barrier Materials in Cu Metallization	U of Florida	FL
An Integrated Approach to Understanding the Air-Water Interface in Atmospherically Relevant Systems	U of California-Irvine	CA
Atom and Group Transfer Reactions: A Combined Synthetic, Structural, Theoretical, Kinetic, and Solution Calorimetry Investigation	Mass Institute of Tech	MA
Catalytic Manipulation of Amide-Based Molecules and Materials	U of Wisconsin-Madison	WI
Chemical and Microbial Interactions at Environmental Interfaces	Stanford U	CA
Chemical Design of Materials	U of California-Santa Barbara	CA
Darwinian Chemical Systems	Mass. General Hospital	MA
Environmental Redox-Mediated Dehalogenation Chemistry	Johns Hopkins U	MD
Environmental Chemical Analysis	Penn State U	PA
Environmental Molecular Science	SUNY-Stony Brook	NY
Exploiting Self-Assembly in Biological and Synthetic Macromolecules to Create Novel Hybrid Materials	U of Pittsburgh	PA
Fundamental Studies of Nonparticle Formation in Air Pollution	Worcester Polytechnic Inst	MA
Gas Hydrates: From Fundamental Theory to Hydrogen Transport	U of California-Irvine	CA
Institute for Environmental Bioinorganic Chemistry	Princeton U	NJ
Laboratory for Molecular Sciences	California Institute of Tech	CA
Lanthanide Binding Tags: New Chemical Tools for Proteomics	Mass Institute of Tech	MA
Molecular Environmental Chemistry of Mn Oxide Biomineralization	U of California-San Diego	CA
Molecular Isotopic Tools for Environmental Research	Woods Hole	MA
Molecular Level Analysis of Macromolecule-Surface Interactions in Bacterial Adhesion	Penn State U	PA
Molecular Structure and Microstructure of Primary PM _{2.5} Derived from Stationary and Mobile Fossil Fuel Sources	U of Kentucky	KY
Micro Imaging for Sensory and Materials Applications	Mass Institute of Tech	MA
Moderate Resolution Protein Structures by Chemical Cross-Linking and Mass Spectrometry	U of Calif-San Francisco	CA
Multi-dimensional Molecular Metals, Crystal Design, and Superconductivity	Cornell U	NY
Multiply-bound Polymer Chains: Novel Chemistry for Improved Interfacial Properties	U of Tennessee	TN
Next Generation Aromatics	U of Georgia	GA
Ordering Processes in Water, Aqueous Solutions, and Water-Biomolecule Solutions	Arizona State	AZ
Role of Environmental Molecular Interfaces on the Chemical and Biological Reactivity of Pollutants	Ohio State U	OH
Synthesis and Characterization of Fluorescent Porphyrinoid Bioconjugates for Imaging and Bioanalyses	Louisiana State Univ	LA
Synthesis and Characterization of New Molecular Clusters of Tetrels	U of California-Davis	CA
Toward Synthetic Biology: the replication of synthetic polymers	Emory U	GA

Earthquake Engineering Research Centers

Mid-America Earthquake Center	U Illinois-Champaign-Urbana	IL
Multidisciplinary Center for Earthquake Engineering Research	State U of NY-Buffalo	NY
Pacific Earthquake Engineering Research Center	U of California-Berkeley	CA

Engineering Research Centers

Advanced Engineering Fibers and Films	Clemson U	SC
Bioengineering Educational Technology	Vanderbilt U	TN
Biomimetic Microelectronic Systems	U of Southern California	CA
Biotechnology Process Engineering	Mass Institute of Tech	MA
Collaborative Adaptive Sensing of the Atmosphere	U of Mass, Amherst	MA
Computer-Integrated Surgical Systems and Technologies	Johns Hopkins U	MD
Engineered Biomaterials	U of Washington	WA
Engineering of Living Tissue	Georgia Institute of Tech	GA
Environmentally Beneficial Catalysis	U of Kansas	KS
Environmentally Benign Semiconductor Manufacturing	U of Arizona	AZ
Extreme Ultraviolet Science and Technology	Colorado State U	CO
Integrated Media Systems	U of Southern California	CA
Low Cost Electronic Packaging	Georgia Institute of Tech	GA
Neuromorphic Systems Engineering	California Institute of Tech	CA
Particle Science & Technology	U of Florida	FL
Power Electronic Systems	Virginia Tech U	VA
Reconfigurable Machining Systems	U of Michigan	MI
Subsurface Sensing and Imaging Systems	Northeastern U	MA
Wireless Integrated MicroSystems	U of Michigan	MI

Long Term Ecological Research Sites

Arctic Tundra: Toolik Field Station	Marine Biological Lab	MA
Bonanza Creek Experimental Forest	U of Alaska	AK
California Current Ecosystem	U of Calif - San Diego	CA
Cedar Creek Natural History Area	U of Minnesota	MN
Central Arizona-Phoenix Urban LTER	Arizona State U	AZ
Coweeta Hydrologic Laboratory	U of Georgia	GA
Florida Coastal Everglades	Florida International U	FL
Georgia Coastal Ecosystems	U of Georgia	GA
H.J. Andrews Experimental Forest	Oregon State U	OR
Harvard Forest	Harvard U	MA
Hubbard Brook Experimental Forest	Syracuse U	NY
Jornada Experimental Range	Duke U	NC
Kellogg Biological Station	Michigan State U	MI
Konza Prairie Research Natural Area	Kansas State U	KA
Luquillo Experimental Forest	U of Puerto Rico-Rio Piedros	PR
McMurdo Dry Valleys, Antarctica	Desert Research Institute	NV
Metropolitan Baltimore Urban LTER	Institute of Ecosystem Studies	MD
Moorea Coral Reef Ecosystem	U of Calif - Santa Barbara	CA
Niwot Ridge-Green Lakes Valley	U of Colorado	CO
North Temperate Lakes	U of Wisconsin	WI
Palmer Station, Antarctica	U of California	CA
Plum Island Sound	Woods Hole	MA
Santa Barbara Coastal LTER	U of California-Santa Barbara	CA
Sevilleta National Wildlife Refuge	U of New Mexico	NM
Shortgrass Steppe	Colorado State U	CO
Virginia Coast Reserve	U of Virginia	VA

Materials Centers

Advanced Carbon Materials Center	U of Kentucky	KY
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Center for Complex Materials	Princeton U	NJ
Center for Materials for Information Science	U of Alabama	AL
Center for Materials Research	Cornell U	NY
Center for Materials Science and Engineering	Mass Institute of Tech	MA
Center for Micro- and Nanomechanics of Materials	Brown U	RI
Center for Nanoscopic Materials Design	U of Virginia	VA
Center for Nanomagnetic Structures	U of Nebraska	NE
Center for Nanoscale Science	Pennsylvania State U	PA
Center for Nanostructured Materials	U of Wisconsin	WI
Center on Nanostructured Materials	Johns Hopkins U	MD
Center for Oxide Thin Films, Probes and Surfaces	U of Maryland	MD
Center for Polymer Science and Engineering	U of Massachusetts	MA
Center for Polymers at Engineered Interfaces	SUNY-Stony Brook/CUNY/ Polytech U	NY
Center for Polymer Interfaces and Macromolecular Assemblies	Stanford U/ UC-Davis/IBM	CA
Center for Response-Driven Polymeric Films	U of Southern Mississippi	MS
Center for Science and Engineering of Materials	California Institute of Tech	CA
Center for Semiconductor Physics in Nanostructures	U of Oklahoma/ U of Arkansas	OK,AR
Center for Sensor Materials	Michigan State U	MI
Center for Thermal Spray Research	SUNY-Stoney Brook	NY
Ferroelectric Liquid Crystals Materials Research Center	U of Colorado-Boulder	CO
International Institute on Complex Adaptive Matter	U of California / Los Alamos NL	CA/NM
International Materials Institute: Advanced Neutron Scattering Network for Education and Research	U of Tenn/Oak Ridge Nat Lab	TN
International Materials Institute: Center for Materials Science	U of Calif - Santa Barbara	CA
International Materials Institute: Materials Informatics and Combinatorial Materials Science	Rensselaer Poly/U Maryland/ Florida Inter	NY/MD/ FL
International Materials Institute: New Functionality in Glasses	Lehigh / Penn State	PA
Laboratory for Research on the Structure of Matter	U of Pennsylvania	PA
Materials Research Center	U of Chicago	IL
Materials Research Center	Harvard U	MA
Materials Research Center	Northwestern U	IL
Materials Research Science and Engineering Center	U of California-Santa Barbara	CA
Materials Research Science and Engineering Center	U of Minnesota	MN
Materials Research Science and Engineering Center	Carnegie Mellon U	PA
Materials Research Science and Engineering Center	Columbia U	NY
US/Africa Materials Institute	Princeton U	NJ
Mathematical Sciences Research Institutes		
American Institute of Mathematics	Palo Alto	CA
Institute for Mathematics and Its Applications	U of Minnesota	MN
Institute for Pure and Applied Mathematics	U of California-Los Angeles	CA
Mathematical Biosciences Institute	Ohio State U	OH
Mathematical Sciences Research Institute	U of California-Berkeley	CA
Statistical and Applied Mathematical Sciences Institute	Duke U	NC
Nanoscale Science and Engineering Centers		
Affordable Nanoengineering of Polymer Biomedical Devices (CANPBD)	Ohio State U	OH
High Rate Nanomanufacturing	Northeastern, U New Hampshire, U Mass, Lowell	MA
Integrated Nanomechanical Systems	Berkley, Cal Tech, Stanford, UC Merced	CA
Molecular Function at the Nano/Bio Interface	U of Pennsylvania	PA
Integrated Nanopatterning and Detection Technologies	Northwestern U	IL

Probing the Nanoscale	Stanford U, IBM	CA
Nanoscale Systems in Information Technologies	Cornell U	NY
Science of Nanoscale Systems and their Device Applications	Harvard U	MA
Templated Synthesis and Assembly at the Nanoscale	U of Wisconsin-Madison	WI
Electronic Transport in Molecular Nanostructures	Columbia U	NY
Nanoscience in Biological and Environmental Engineering	Rice U	TX
Directed Assembly of Nanostructures	Rensselaer Polytechnic Inst	NY
Center for Integrated and Scalable Nanomanufacturing	U of Calif-Los Angeles	CA
Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems	U Illinois-Champaign-Urbana	IL
Physics Frontiers Centers		
Center for Cosmological Physics	U of Chicago	IL
Center for Gravitational-Wave Phenomenology	Pennsylvania State U	PA
Frontiers of Optical, Coherent Ultrafast Science	U of Michigan	MI
Joint Institute for Laboratory Astrophysics	U of Colorado	CO
Joint Institute for Nuclear Astrophysics	Notre Dame U	IN
Kavli Institute for Theoretical Physics	U California - Santa Barbara	CA
Magnetic Self-Organization in Laboratory and Astrophysical Plasmas	U of Wisconsin - Madison	WI
Center for the Study of the Origin and Structure of Matter	Hampton U	VA
Center for Theoretical Biological Physics	U of California-San Diego	CA
Ultracold Atoms	Harvard U, MIT	MA
Plant Genome Virtual Centers		
A Protein Interaction Database for Rice Protein Kinases	U of Nebraska-Lincoln	NE
A Rice Oligonucleotide Array	U of California-Davis	CA
Comparative and Functional Genomics of Tomato	Cornell U	NY
Comparative Evolutionary Genomics of Cotton	Iowa State U	IA
Deep Transcriptional Profiling of Rice Using Signature Sequencing	U of Delaware	DE
Dissecting Phytophthora Resistance in Soybean using Expression Profiling and Analysis of Quantitative Trait Loci	VA Polytechnic Inst & St U	VA
Finishing the Rice Genome	Cold Spring Harbor Lab	NY
Functional Analyses of Genes Involved in Maize Leaf Initiation	U of Georgia	GA
Functional Genomics of Hemicellulose Biosynthesis	Michigan State U	MI
Functional Genomics of Maize Centromeres	U of Georgia	GA
Gene Inventory and Function of the Model Legume	U of California-Davis	CA
Grass Genome Biodiversity	U of Georgia	GA
Identification and Characterization of Plant Cell Wall Mutants	Purdue U	IN
Vitis vinifera: Abiotic Stress and Wine Quality	U of Nevada-Reno	NV
Microarray Resources for Maize Research	U of Arizona	AZ
Molecular and Functional Diversity in the Maize Genome	U of Wisconsin-Madison	WI
Oryza Map Alignment Project	U of Arizona	AZ
Sequencing the Gene Space of a Model Legume	U of Minnesota	MN
The Floral Genome Project	Penn State U	PA
The Plant Ontology Consortium	Cold Spring Harbor Lab	NY
Potato Functional Genomics: Analysis of Growth, Development, Metabolism and Responses to Stress	U of California-Berkeley	CA
Center for Plant Evolutionary Genomics	New York U	NY
Center for Analysis of Rice Genome Transcription	Yale U	CT
Evolutionary Genomics of the Compositae	Indiana U	IN
Global Analysis of Functional Units in Plant Chromosomes	NC State U	NC
Science and Technology Centers		
Adaptive Optics	U of California-Santa Cruz	CA
Advanced Materials for Water Purification	U of Illinois	IL
Behavioral Neuroscience	Georgia State U	GA

Biophotonics Science and Technology	U of California-Davis	CA
Earth Surface Dynamics	U of Minnesota	MN
Embedded Networked Sensing	U of California-Los Angeles	CA
Environmentally Responsible Solvents and Processes	U of North Carolina	NC
Integrated Space Weather Modeling	Boston U	MA
Materials and Devices for Information Technology Research	U of Washington	WA
Nanobiotechnology	Cornell U	NY
Sustainability of Semi-Arid Hydrology and Riparian Areas	U of Arizona	AZ
Science of Learning Centers		
The LIFE Center - Learning in Formal and Informal Environments	U of Washington	WA
CELEST - A Center for Learning in Education, Science and Technology	Boston U	MA
Pittsburgh Science of Learning Center - Studying Robust Learning with Learning Experiments in Real Classrooms	Carnegie Mellon U	PA
SBE Centers		
Children's Research Centers		
Children's Digital Media Center	Georgetown U	DC
North Carolina Child Development Research Collaborative	U of North Carolina	NC
Cornell Center for Research on Children	Cornell U	NY
Center for Research on Culture, Development and Education	New York U	NY
Center for the Analysis of Pathways from Childhood to Adulthood	U of Michigan	MI
Climate Change Research Initiative Centers		
Decision Center for a Desert City	Arizona State U	AZ
Climate Decision Making Center	Carnegie Mellon U	PA
Center for the Study of Individual and Group Decision Making Under Climate Uncertainty	Columbia U	NY
Science Policy Assessment and Research on Climate Team	U of Colorado-Boulder	CO
The Rand Corporation Research Team	Rand Corporation	CA
National Consortium for Violence Research	Carnegie Mellon U	PA