

## NATIONAL SCIENCE FOUNDATION CENTERS

NSF supports a variety of centers programs that contribute to the Foundation’s mission and vision. Centers exploit opportunities in science, engineering, and technology in which the complexity of the research program or the resources needed to solve the problem require the advantages of scope, scale, duration, equipment, facilities, and students. Centers are a principal means by which NSF fosters interdisciplinary research.

**NSF Centers**  
Dollars in Millions

	Program Initiation	Number of Centers in FY 2024	FY 2024 Current Plan	FY 2025 (TBD)	FY 2026 Request	Change over	
						FY 2024 Current Plan	Percent
Artificial Intelligence Research Institutes	2020	22	\$52.28		\$40.88	-\$11.40	-21.8%
Biology Integration Institutes	2020	18	39.54		10.00	-29.54	-74.7%
Centers for Analysis & Synthesis	1995	3	6.28		4.75	-1.53	-24.4%
Centers for Chemical Innovation	1998	8	26.80		14.00	-12.80	-47.8%
Engineering Research Centers	1985	20	82.58		37.68	-44.90	-54.4%
Materials Centers	1994	20	57.31		30.00	-27.31	-47.7%
NSF Regional Innovation Engines	2023	10	43.45		13.88	-29.57	-68.1%
Quantum Leap Challenge Institutes	2020	5	14.57		25.00	10.43	71.6%
Science & Technology Centers	1987	18	70.89		24.49	-46.40	-65.5%
Spectrum Innovation Initiative Centers	2021	1	4.28		-	-4.28	N/A

### About NSF Centers Programs

#### Artificial Intelligence Research Institutes – multi-directorate

The FY 2026 Request of \$40.88 million will support 22 AI Institutes, five AI Institutes awarded in FY 2020, nine in FY 2021, six in FY 2023 and two in FY 2024. In addition, five AI Institutes (two awarded in FY 2020, two in FY 2021, and one in FY 2023) are wholly funded by the U.S. Department of Agriculture National Institute of Food and Agriculture (USDA NIFA). Each institute is typically funded at up to \$4.0 million per year for up to five years. The National AI Research Institutes program, a multisector collaboration among government, industry, and academia, supports multidisciplinary advances on challenges in both foundational and use-inspired AI research. Each funded institute has three missions: (1) to advance fundamental knowledge of AI; (2) to advance use-inspired work on using AI to solve real-world problems of importance to the U.S. economy; and (3) to grow the U.S. AI workforce and build pathways for students. They serve as nexus points for academic, government, and industry interaction, and integrate research with the development of the next-generation AI workforce. A key motivation for the program is to maintain and grow U.S. leadership and competitiveness in AI at a time when other nations are making significant investments in the field.

The National AI Research Institutes program is led by CISE and includes contributions from all NSF directorates along with external partners, including federal agencies and industry.

### Biology Integration Institutes – BIO

The FY 2026 Request of \$10.0 million is expected to support up to 8 Biology Integration Institutes (BII). The BII program supports collaborative teams of researchers investigating frontier questions about life that span multiple disciplines within and beyond the biological sciences. The goal is to foster creative integration of fields using innovative experimental, theoretical, and modeling approaches, including those that make use of artificial intelligence, to discover underlying principles operating across multiple levels of living systems. Each institute focuses on a central, compelling biological question and addresses that question through unique research themes that include fundamental and use-inspired work. This research advances discovery and understanding in the life sciences and expands capabilities in biotechnology to modify and utilize living systems. Outcomes from BII awards will foster innovation and applications that benefit U.S. national security and health and inspire new biotechnologies and applications to drive economic growth.

### Centers for Analysis and Synthesis – BIO

The FY 2026 Request of \$4.75 million for Centers for Analysis and Synthesis is expected to provide continuing support (\$2.25 million) for a center in environmental data science and (ESILL), awarded in FY 2022 and (\$2.50 million) for a center in molecular and cell biology (NCEMS), awarded in FY 2024. ESILL develops teams, concepts, resources, and expertise to enable effective and coordinated efforts to answer broad scientific questions that emerge at interfaces between biological and environmental sciences, including natural hazards, invasive species, land use change, biodiversity loss, and ecosystem services. The center leverages data provided by the National Ecological Observatory Network (NEON), Long-Term Ecological Research (LTER), and other observatories and databases. NCEMS plays a catalytic role in advancing integrated knowledge on the workings of cells, metabolism, information processing, growth, senescence, proliferation, and differentiation by analyzing and synthesizing diverse molecular and cellular data. The center investigates questions including those about disordered and misfolding proteins, neurodegenerative processes, and genomic adaptation. Both centers involve the application of artificial intelligence/machine learning (AI/ML) and other computational tools and provide training in AI/ML to enable the future workforce to use these tools.

### Centers for Chemical Innovation – MPS

The FY 2026 Request of \$14.0 million will fund up to six Phase II Centers for Chemical Innovation (CCI). The multi-institutional research centers are designed to respond rapidly to emerging research opportunities and national priorities. They produce transformative research and new innovations and tackle major long-term chemical research challenges in the process. The CCIs also serve as a nexus for industry, higher education, and national laboratories, and effectuate knowledge transfer to industry and the commercialization of their discoveries and new technologies. The themes of the CCIs are varied and include Administration priorities such as AI, QIS, biotechnology, and advanced manufacturing.

### Engineering Research Centers – ENG

The FY 2026 Request for \$37.68 million will partially support the 16 current Engineering Research Centers (ERC). The ERC program establishes collaborative, ground-breaking research partnerships between universities and industry to push the frontiers of engineering research, accelerate technological development, and cultivate a globally competitive engineering workforce. The centers advance AI, biotechnology, quantum technology, manufacturing, microelectronics and semiconductors, and other national priorities.

ERC technologies spearhead new products, fields and industries that benefit U.S. security, prosperity, and quality of life. For example, past ERCs pioneered disk drives, cloud computing, robotic surgery, synthetic biology, and chip fabrication, and current ERCs are building the quantum internet, turning waste into fertilizer, and developing smart, localized manufacturing.

Since 1985, ERCs have produced more than 2,800 invention disclosures, 47,500 publications, 950 patents, 1,400 licenses, and 250 spinoffs. Providing hands-on, real-world experience, they have educated nearly 15,000 students for the technology workforce.

#### Materials Centers – MPS

The FY 2026 Request level of \$30.0 million is expected to support up to 10 Materials Research Science and Engineering Centers (MRSEC). MRSECs function as hubs for solving complex grand-challenge materials problems requiring broad multidisciplinary expertise within the physical sciences and engineering to understand materials phenomena, exploit materials properties, and to create and discover new materials. Research in materials science is inherently interdisciplinary and the MRSEC program is a prime example of convergent research encompassing physics, chemistry, mathematics, biology, materials science, and engineering. Through collaborative efforts involving academics, industry, national laboratories experts, and international and educational partners, MRSECs advance materials research and education in the United States, and in many cases are international leaders.

#### NSF Regional Innovation Engines – TIP

The FY 2026 Request level of \$13.88 million will support a portfolio of about 10 NSF Regional Innovation Engines (NSF Engines). The NSF Engines program constitutes a bold new initiative that is catalyzing regional innovation ecosystems throughout the United States, spurring economic growth and job creation by bringing together the science and technology research enterprise with regional-level resources, experts, and populations to accelerate key technologies. NSF is investing in use-inspired research, translational research, entrepreneurship, and workforce development to nurture and grow new regional industries, positioning regions as national and global leaders in specific areas. This initiative, the single largest *broad* investment in place-based research, innovation, and workforce development in generations, will ensure America's competitiveness and security for decades to come. Each NSF Engine is anticipated to be funded at up to \$160 million over up to ten years, subject to progress relative to performance milestones and availability of funds; the funds requested here are to provide essential services to maintain the program as a whole, not to invest in the NSF Engines themselves.

NSF Engines are actively advancing key technologies such as advanced manufacturing, advanced wireless, AI, biotechnology, QIS, and semiconductors, including the intersection of food and agriculture, critical infrastructure, and water management. They are bringing together multiple disciplines, institutions, and sectors, including organizations and industries that have not previously engaged with NSF. They are balancing technical and geographic (i.e., local and regional challenges, capabilities) innovation; incentivizing partnerships between NSF, other federal agencies, academia, industry, nonprofits, state, local, and tribal governments, civil society, and communities of practice; and serving as hubs for NSF's broader portfolios of investment in their respective areas of focus. In just the first year of the inaugural cohort of 10 NSF Engines spanning more than 450 distinct organizations, an NSF investment of \$150 million has been matched by more than \$1 billion in commitments by state governments, the private sector, and other investors.

Quantum Leap Challenge Institutes – MPS

The FY 2026 Request level of \$25.0 million will support up to five Quantum Leap Challenge Institutes (QLCI). The QLCIs are large-scale interdisciplinary research projects motivated by major challenges at the frontier of quantum information science, engineering and technology (QISET). Each Institute is expected to catalyze breakthroughs on important problems underpinning QISET, including quantum computation, quantum communication, quantum simulation and/or quantum sensing. These rapidly developing fields have seen several discoveries and breakthroughs. However, many foundational and technological challenges must be overcome before the full potential of QISET can be realized. The QLCI's goal is to support timely and bold research agendas aimed at making breakthroughs on one of these clearly identified and compelling challenges within a five-year period. QLCIs are expected to: engage an intellectually diverse community in the pursuit of identified challenges; develop cohesive, collaborative, and national-scale approaches to research in quantum information science, engineering and technology; and enable the development of a well-trained workforce with strong cross-disciplinary skill sets needed for American Leadership in Quantum.

Science and Technology Centers: Integrative Partnerships – multi-directorate

The FY 2026 Request level of \$24.49 million will support between 13 and 14 existing Science and Technology Centers (STC). These include STCs from the FY 2016, FY 2021, and FY 2023 cohorts. Currently, STC awards are for five years, with possible renewal for an additional five years, or ten years total. In FY 2024, a solicitation for a new STC class was issued to replace the sunseting 2016 cohort.

The STC program advances interdisciplinary discovery by integrating cutting-edge research, education and workforce development, and targeted knowledge transfer. STCs help place the U.S. at the vanguard of S&E discovery by pursuing exceptionally innovative, complex projects that require large-scale, long-term awards. STCs create new scientific paradigms, establish new scientific disciplines, and develop transformative technologies with the potential for broad scientific and societal impact.

Administration priorities are supported through existing STC awards including quantum acoustics (NewFoS), optoelectronics (IMOD), the design and manufacturability of complex, nanostructured materials (COMPASS), the application of AI to Earth system modeling (LEAP), developing more efficient management of phosphorous in agriculture (STEPS), and combining synthetic biology, advanced imaging, and computational modeling to develop a predictive model of a whole cell (QCB).

**Spectrum Innovation Initiative: National Center for Wireless Spectrum Research (SII-Center) – MPS**  
 The FY 2026 Request level of zero dollars will conclude operations of the SII-Center program. See the full *Spectrum Innovation Initiative* narrative in the NSF-Wide chapter for more information.

**Estimates for Centers Participation in 2024**

	Number of Participating Institutions <sup>1</sup>	Number of Partners <sup>2</sup>	NSF Current Plan (\$ in millions)	Leveraged Support (\$ in millions) <sup>3</sup>	Number of Participants <sup>4</sup>
Artificial Intelligence Research Institutes	326	547	\$52.28	\$41	N/A
Biology Integration Institutes	827	286	39.54	N/A	5,573
Centers for Analysis & Synthesis	160	95	6.28	N/A	545
Centers for Chemical Innovation	74	80	26.80	8	670
Engineering Research Centers	665	278	82.58	86	3,409
Materials Centers	155	110	57.31	18	3,000
NSF Regional Innovation Engines	90	478	43.45	1,000	N/A
Quantum Leap Challenge Institutes	117	63	14.57	-	965
Science & Technology Centers	297	325	70.89	45	2,643
Spectrum Innovation Initiative Centers	31	57	4.28	-	1,129

<sup>1</sup> Academic institutions participating in activities at the centers.

<sup>2</sup> Number of non-academic participants, including industry, states, and other federal agencies at the centers.

<sup>3</sup> Estimated of funding for centers from sources other than NSF.

<sup>4</sup> Estimated number of people who use center resources, not just persons directly support by NSF.

**Centers Supported by NSF in FY 2024**

<b>Center</b>	<b>Institution</b>	<b>State</b>
<b>Artificial Intelligence Research Institutes</b>		
Artificial Intelligence for Environmental Sciences (AI2ES)	U of Oklahoma	OK
Institute for Foundations of Machine Learning	U of Texas, Austin	TX
Institute for Student-AI Teaming	U of Colorado, Boulder	CO
Molecule Maker Lab Institute (MMLI): An AI Institute for Molecular Discovery, Synthetic Strategy, & Mfg.	U of Illinois, Urbana-Champaign	IL
AI Research Institute for Fundamental Interactions	MIT	MA
AI Institute for Collaborative Assistance and Responsive Interaction for Networked Groups (AI-CARING)	Georgia Tech	GA
AI Institute for Learning-enabled Optimization at Scale	U of California-San Diego	CA
AI Institute for Advances in Optimization	Georgia Tech	GA
AI Institute for Intelligent CyberInfrastructure with Computational Learning in the Environment (ICICLE)	Ohio State	OH
AI Institute for Future Edge Networks and Distributed Intelligence (AI-EDGE)	Ohio State	OH
AI Institute for Edge Computing Leveraging Next Generation Networks (Athena)	Duke	NC
AI Institute in Dynamic Systems	U of Washington	WA
AI Institute for Engaged Learning	North Carolina State	NC
AI Institute for Adult Learning and Online Education	Georgia Tech	GA
AI Institute for Inclusive Intelligent Technologies for Education (INVITE)	U of Illinois, Urbana-Champaign	IL
AI Institute for Transforming Education for Children with Speech and Language Processing Challenges	SUNY at Buffalo	NY
AI Institute for Agent-based Cyber Threat Intelligence and Operation	U of California, Santa Barbara	CA
AI Institute for Societal Decision Making (AI-SDM)	Carnegie-Mellon	PA
Institute for Trustworthy AI in Law and Society (TRAILS)	U of Maryland, College Park	MD
AI Institute for Artificial and Natural Intelligence	Columbia U	NY
NSF-Simons AI Institute for Cosmic Origins	U of Texas, Austin	TX
NSF-Simons AI Institute for the Sky (SkAI Institute)	Northwestern	IL
<b>Biology Integration Institutes</b>		
Behavioral Plasticity Research Institute (BPRI)	Baylor College of Medicine	TX
Emergent Ecosystem Responses through Genes-to-Systems Institute (EMERGE)	Ohio State	OH
Advancing Spectral biology in Changing Environments to understand Diversity (ASCEND)	U of Minnesota, Twin Cities	MN
Genomics and Eco-evolution of Multi-scale Symbioses Institute (GEMS)	U of Illinois, Urbana-Champaign	IL
Host-Virus Evolutionary Dynamics Institute (HVEDI)	U of Arkansas	AR
Mechanisms of Cellular Evolution	Arizona State	AZ
New Roots for Restoration	Donald Danforth Plant Sci. Ctr.	MO

Uncovering mechanisms of amphibian resilience to global change from molecules to landscapes	U of Pittsburgh	PA
Emergent Mechanisms in Biology of Robustness, Integrations & Organization (EMBRIO)	Purdue	IN
Regional OneHealth Aerobiome Discovery Network	Colorado State	CO
Institute for Symbiotic Interactions, Teaching, and Education in the Face of a Changing Climate (INSITE)	U of California, Merced	CA
Life without water: protecting macromolecules, cells, and organisms during desiccation and rehydration across kingdoms of life	Carnegie Institution of Washington	DC
Discovering the mechanisms and evolution of aging differences between females and males (IISAGE)	U of Alabama, Birmingham	AL
Predicting the global host-virus network from molecular foundations	Georgetown	DC
Integrative Movement Sciences Institute	U of California, Irvine	CA
Integration Across Scales and Biological Systems	U of Florida	FL
Embedding Molecular Biology in Ecosystem Research in an era of increasing wildfire and drought (EMBER)	U of Idaho	ID
Evolving Meta-Ecosystems in the Arctic	Woodwell Climate Res. Ctr. Inc.	WA
<b>Centers for Analysis and Synthesis<sup>1</sup></b>		
Socio-Environmental Synthesis Center (SESYNC)	U of Maryland	MD
Enviro. Data Science Innovation and Inclusion Lab (ESIIL)	U of Colorado, Boulder	CO
National Synthesis Center for Emergence in the Molecular and Cellular Sciences (MCB SC)	Pennsylvania State U	PA
<b>Centers for Chemical Innovation (Phase II awards only)<sup>2</sup></b>		
NSF Center for Sustainable Nanotechnology (CSN)	U of Wisconsin	WI
NSF Center for Sustainable Polymers (CSP)	U of Minnesota	MN
NSF Center for Aerosol Impacts on the Chemistry of the Environment (CAICE)	U of California, San Diego	CA
NSF Center for Genomically Encoded Materials (CGEM)	U of California, Berkeley	CA
NSF Center for Synthetic Organic Electrochemistry (CSOE)	U of Utah	UT
NSF Center for the Chemistry of Molecularly Optimized Networks (MONET)	Duke	NC
The Center for Computer Aided Synthesis (C-CAS)	U of Notre Dame	IN
The NSF Center for the Mechanical Control of Chemistry (CMCC)	Texas A&M	TX
<b>Engineering Research Centers</b>		
Advanced Self-Powered Systems of Integrated Sensors and Technologies (ASSIST)	North Carolina State	NC
Bio-mediated and Bio-inspired Geotechnics (CBBG)	Arizona State	AZ
Engineering Research Center for Innovative and Strategic Transformation of Alkane Resources (CISTAR)	Purdue	IN

<sup>1</sup> SESYNC is operating on no-cost extensions. No funds were obligated for the centers in FY 2024.

<sup>2</sup> Smaller, developmental Phase I awards do not meet the criteria as formal NSF Centers and so are not captured here.

## NSF Centers

Engineering Research Center for Precise Advanced Technologies and Health Systems for Underserved Populations (PATHS-UP)	Texas A&M	TX
Nanosystems Engineering Research Center for Directed Multiscale Assembly of Cellular Metamaterials with Nanoscale Precision (CELL-MET)	Boston College	MA
Nanotechnology Enabled-Water Treatment System	Rice	TX
ERC for Cell Manufacturing Technologies (CMaT)	Georgia Institute of Tech	GA
Optimization for Electro-thermal Systems (POETS)	U of Illinois	IL
ERC for Human Augmentation Via Dexterity (HAND)	Northwestern	IL
ERC for Environmentally Applied Refrigerant Technology Hub (EARTH)	U of Kansas	KS
ERC for Transformation of American Rubber through Domestic Innovations for Supply Security (TARDISS)	Ohio State	OH
ERC for Carbon Utilization Redesign through Biomanufacturing-Empowered Decarbonization (CURB)	Washington University	MO
ERCfor Quantum Networks (CQN)	U of Arizona	AZ
ERC for the Internet of Things for Precision Agriculture (IoT4Ag)	U of Pennsylvania	PA
ERC for Advancing Sustainability Through Powered Infrastructure for Roadway Electrification (ASPIRE)	Utah State U	UT
ERC for Adv Tech for Preservation of Biological Systems (ATP-Bio)	U of Minnesota	MN
ERC for Precision Microbiome Engineering (PreMiEr)	Duke	NC
ERC for Smart Streetscapes (CS3)	Columbia	NY
ERC for Advancing Sustainable and Distributed Fertilizer Production (CASFER)	Texas Tech	TX
ERC for Hybrid Autonomous Manufacturing Moving from Evolution to Revolution (ERC-HAMMER)	Ohio State	OH

## Materials Centers

Brandeis Bioinspired Soft Materials Center	Brandeis	MA
Center for Advanced Materials and Manufacturing	U of Tennessee	TN
Center for Complex and Active Materials	U of California, Irvine	CA
Center for Dynamics and Control of Materials	U of Texas, Austin	TX
Center for Emergent Materials	Ohio State	OH
Center for Hybrid, Active and Responsive Materials	U of Delaware	DE
Center for Materials Innovations at Michigan	U of Michigan	MI
Center for Multifunctional Materials	Northwestern	IL
Center for Nanoscale Science	Pennsylvania State	PA
Chicago Materials Research Centers	U of Chicago	IL
Columbia Center for Precision Assembly of Superstratic and Superatomic Solids	Columbia	NY
Harvard Materials Research Center	Harvard	MA
Illinois Materials Research Center	U of Illinois, Urbana-Champaign	IL

Laboratory for Research on the Structure of Matter	U of Pennsylvania	PA
Materials Research Science and Engineering Ctr at UCSB	U of California, Santa Barbara	CA
Materials Research Science and Engineering Center	U of California, San Diego	CA
Materials Research Science and Engineering Center	U of Minnesota	MN
Princeton Center for Complex Materials	Princeton	NJ
UW Molecular Engineering Materials Center	U of Washington	WA
Wisconsin Materials Research Center	U of Wisconsin	WI
<b>NSF Engines</b>		
Central Florida Semiconductor Innovation Engine	ICAMR, Inc.	FL
NSF ASCEND Engine in Colorado and-Wyoming	Rocky Mtn Innovation Init. Inc.	CO
Great Lakes Water Innovation Engine	Current	IL
Louisiana Energy Transition Engine	Louisiana State	LA
North Carolina Textile Innovation and Sustainability Engine	Industrial Commons	NC
North Dakota Advanced Agriculture Technology Engine	North Dakota State	ND
Paso del Norte Defense and Aerospace Innovation Engine	U of Texas, El Paso	TX
Piedmont Triad Regenerative Medicine Engine	Wake Forest U	NC
Southwest Sustainability Innovation Engine	Arizona State	AZ
Upstate New York Energy Storage Engine	SUNY, Binghamton U	NY
<b>Quantum Leap Challenge Institutes</b>		
Quantum Systems through Entangled Science and Engineering	U of Colorado, Boulder	CO
Hybrid Quantum Architectures and Networks	U of Illinois, Urbana-Champaign	IL
Challenge Institute for Quantum Computation	U of California, Berkeley	CA
Quantum Sensing for Biophysics and Bioengineering	U of Chicago	IL
Robust Quantum Simulation	U of Maryland, College Park	MD
<b>Science and Technology Centers</b>		
Biology with X-Ray Free Electron Lasers	SUNY, Buffalo	NY
Center for Braiding Indigenous Knowledges and Science	U of Massachusetts, Amherst	MA
Center for Brains, Minds, and Machines: The Science and the Technology of Intelligence	MIT	MA
Center for Bright Beams	Cornell	NY
Center for Cellular Construction	U of California, San Francisco	CA
Center for Chemical Currencies of a Microbial Planet	Woods Hole Ocean. Inst	MA
Center for Complex Particle Systems	U Michigan	MI
Center for Engineering MechanoBiology	U of Pennsylvania	PA
Center for Integrated Quantum Materials	Harvard	MA
Center for Integration of Modern Optoelectronic Materials on Demand	U of Washington	WA
Center for Learning the Earth with Artificial Intelligence and Physics	Columbia	NY
Center for New Frontiers of Sound (NewFoS)	U of Arizona	AZ
Center for OLDest Ice EXploration	Oregon State U	OR
Center for Quantitative Cell Biology	U of Illinois, Urbana-Champaign	IL

*NSF Centers*

Center for Research on Programmable Plant Systems	Cornell	NY
Center for Science of Information	Purdue	IN
S&T Center on Real-Time Functional Imaging	U of Colorado	CO
S&Ts for Phosphorus Sustainability Center	North Carolina State	NC
<b>Spectrum Innovation Initiative</b>		
Spectrum X – An NSF Spectrum Innovation Center	U of Notre Dame	IN