NEW JERSEY

FY 2022 Fast Facts

- **$155,004,000** Total NSF Awards to New Jersey
- **$134,943,000** Invested in Fundamental Research in New Jersey
- **$20,061,000** Invested in STEM Education in New Jersey
- **$1,786,000** Invested in New Jersey Businesses

Top NSF-funded Academic Institutions for FY 2022

- **Princeton University**
  - $57,235,239
- **Rutgers University New Brunswick**
  - $42,030,880
- **New Jersey Institute of Technology**
  - $16,984,304

NSF By The Numbers

The National Science Foundation (NSF) is a $9.5 billion independent federal agency created by Congress in 1950 to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense. NSF’s vital role is to support basic research and researchers who create knowledge that transforms the future.

- **11K** Number of awards NSF funds each year
- **$9.9B** FY 2023 Enacted
- **39K** Proposals evaluated
- **$1.6B** STEM education
- **1.8K** NSF-funded institutions
- **93%** Funds research, education and related activities
- **352K** People NSF supported
- **258** NSF-funded Nobel Prize winners

Data represents FY 2022 Actuals unless otherwise indicated.
Expanding the Frontiers of Science

Quantum material architectures consist of two-dimensional materials which, when stacked in precise 3D architectures, exhibit unique and tunable mechanical, electrical, optical and magnetic properties. These 3D architectures have broad potential applications and are highly promising components for microchips, batteries, antennas, chemical and biological sensors, solar cells and neural interfaces. However, it has been difficult to control or scale the manufacturing of these structures due to a lack of fundamental understanding of the physical and chemical processes required. With an NSF Future Manufacturing grant, researchers at Princeton University are developing a transformative Future Manufacturing platform for quantum material architectures using a cybermanufacturing approach which combines artificial intelligence, robotics, multiscale modeling and predictive simulation for the automated and parallel assembly of multiple two-dimensional materials into complex 3D structures. This platform enables future production of high-quality, custom quantum material architectures for broad and critical applications, which will support continued U.S. leadership in technology development. The research in cybermanufacturing is integrated with innovative educational programs for cross-disciplinary training of scientists and engineers, especially women and underrepresented minorities, in advanced manufacturing, AI and quantum structures. These programs also aim to engage the public in future manufacturing concepts.

STEM Education

To meet the immediate and long-term job market demands of the renewable-based power generation and distribution industries across the U.S., New Jersey Institute of Technology, the County College of Morris and industrial partners are collaborating to develop a renewable energy systems training laboratory and associated curriculum for students preparing to be technicians. Through this project, a new class of STEM graduates is being trained that will be in high demand and able to quickly integrate into the multibillion-dollar renewable energy power industries. This project significantly enhances STEM education nationwide by increasing awareness of renewable energy resources and solar photovoltaic technologies, and illuminates the development and utilization challenges of such technologies from sociocultural, environmental and economic perspectives. The project also greatly contributes to the enrichment of the long-term diversity of the undergraduate student bodies at the partner institutions.

Regional Innovation Engines

The NSF Engines program envisions fostering flourishing regional innovation ecosystems across the country, providing a unique opportunity to spur economic growth in regions that have not fully participated in the technology boom of the past few decades. The NSF Engines program uniquely harnesses the nation's science and technology research and development enterprise and regional-level resources. NSF Engines can catalyze robust partnerships rooted in scientific and technological innovation to positively impact the economy within a geographic region, address societal challenges, and advance national competitiveness. Find potential NSF engines in your state.

Infrastructure

The Large Hadron Collider in Switzerland is the world's most powerful particle accelerator. NSF-funded researchers at Princeton University conduct experimental high energy physics using the Compact Muon Solenoid detector, the collider's general-purpose detector. NSF-funded researchers at Rutgers University have been crucial to the construction, maintenance and continued improvement of this device.

NCSES

According to the National Center for Science and Engineering Statistics (NCSES), which is housed in NSF, New Jersey ranks 6th in the nation for business R&D performance. Visit New Jersey's science and engineering state profile to learn more!

- 37.08% of New Jersey's higher education degrees are concentrated in S&E fields.
- 5.46% of New Jersey's workforce are employed in S&E occupations.
- 7.64% of New Jersey's total employment is attributable to knowledge - and technology-intensive industries.

Learn More

CHIPS & SCIENCE – The CHIPS and Science Act's investments in the U.S. National Science Foundation will help the United States remain a global leader in innovation. Implementation of this legislation will be key to ensuring that ideas, talent and prosperity are unleashed across all corners of the nation. For more information, please visit NSF's CHIPS and Science website.

RESEARCH SECURITY – NSF is committed to safeguarding the integrity and security of science and engineering while also keeping fundamental research open and collaborative. NSF seeks to address an age of new threats and challenges through close work with our partners in academia, law enforcement, intelligence and other federal agencies. By fostering transparency, disclosure and other practices that reflect the values of research integrity, NSF is helping to lead the way in ensuring taxpayer-funded research remains secure. To learn more, please visit NSF's Research Security website.

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