National Science Foundation

www.nsf.gov

@NSF | US.NSF | @NSF

@NSF | @US.NSF | @NSF

2415 Eisenhower Ave, Alexandria, VA 22314

National Science Foundation

HISTORY WALL

A NOTE FROM THE DIRECTOR

This beautiful mural provides an amazing visual history of the National Science Foundation (NSF), spanning nearly 7 decades of scientific discovery and innovation and depicting NSF's impact on the nation. This is a legacy that belongs to all of us, and to the nation.

It is a sampling of NSF's impact through curiosity-driven, discovery-based exploratory research and use-inspired, solutions-focused translational research. This mural epitomizes the mission of NSF — ***"To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense."***

History is an integral part of knowledge management within a federal agency. Remembering the road NSF has traveled—with all of its twists and turns—helps us navigate the road ahead. Furthermore, an accounting of our history is an accounting of the growth of the science and engineering enterprise in the United States.

We look forward to the next several decades of NSF's societal and economic impact through world-class innovations in science, engineering and technology.

Dr. Sethuraman Panchanathan

ABOUT THE NATIONAL SCIENCE FOUNDATION

Established by Congress in 1950, the National Science Foundation (NSF) embodied Vannevar Bush's vision for basic research in the United States. As he wrote in 1945, in Science, The Endless Frontier: "Scientific progress is one essential key to our security as a nation, to our better health, to more jobs, to a higher standard of living, and to our cultural progress."

Today, NSF remains an independent federal agency, one that supports fundamental research and education across all fields of science and engineering. With an annual budget of $8.8 billion (FY 2022), we are the funding source for approximately 25% of all federally supported basic research conducted by America's colleges and universities. In many fields such as mathematics, computer science and the social sciences, NSF is the major source of federal backing.

WHAT WE DO

As described in our strategic plan, NSF is the only federal agency whose mission includes support for all fields of fundamental science and engineering, except for medical sciences. We are tasked with keeping the United States at the leading edge of discovery in areas from astronomy to geology to zoology. So, in addition to funding research in the traditional academic areas, the agency also supports "high-risk, high pay-off" ideas, novel collaborations and numerous projects that may seem like science fiction today, but which the public will take for granted tomorrow.

Mural credit: Nicole R. Fuller

1. From biochemistry to weather prediction, supercomputing and supercomputing centers maintain U.S. leadership in S&T.
2. NSF's next generation Arctic Research Vessel, RV Sikuliaq.
3. Carbon nanotubes have novel properties yielding new applications.
4. PCR, essential to genomics, was developed from Yellowstone microbes.
5. NSF research helps predict and prevent disasters such as wildfires.
6. Brain-machine interfaces, like retinal prostheses, promise new applications in health and communications.
7. Shake tables, like this one from the Network for Earthquake Engineering Simulation, protect lives and property.
8. Geckos inspire the development of polymers and directional adhesion materials.
9. NSF provides funding to start-ups like Google.
10. The first permanent telescope at Kitt Peak opened in 1960.
11. Understanding the biology and epidemiology of vector-borne illnesses is the subject of ongoing multidisciplinary research.
12. Ice cores provide an environmental look back in time.
13. Shows like Peep and the Big Wide World improve pre-school education.
14. With the submersible Alvin, researchers first discovered life in the extreme environment of deep-sea vents.
15. S&E Indicators provide a broad base of quantitative information on U.S. and international science and engineering enterprise.
16. NSF and NSB recognize excellence with the Alan T. Waterman Award, the Vannevar Bush Award, and the National Medal of Science.
17. NSF is a leader in Arctic research.
18. NSF-funded search & rescue robots improve disaster response.
19. NSF computing history is illustrated here by PLATO (Programmed Logic for Automated Teaching Operations) in 1969.
20. An atomic-resolution structure of the HIV capsid.
21. NSF promotes informal scientific education and literacy through its support of programming like NOVA.
22. NSF's SBIR program strengthens the role of small business in federally funded R&D, as it did in cellular technology in the 1990s.
23. From CSNET in 1981, to NSFNET and beyond, NSF has supported innovations that helped create the Internet of today.
24. NSF is a leader in Antarctic research.
25. The LIGO observatories confirmed Einstein's predicted gravity waves.
26. The bioluminescent green fluorescent protein (GFP) from jellyfish is a powerful cellular biology research tool.
27. Sequencing the genome of Arabidopsis thaliana paved the way for a deeper understanding food crops and other plants.
28. The Graduate Research Fellowship Program is NSF's longest continuously operating program.
29. NSF support of scanning and RFID technologies, like bar codes, has helped revolutionize commerce and connectedness.
30. Mathematics is fundamental to S&T.
31. NSF's First Grant Book recorded awards from FY1952-FY1959.
32. NSF support of archaeology enhances our understanding of where we come from and who we are.
33. NSF researchers are studying the global decline in amphibian populations.
34. In electronics and material science, graphene's unique electrical and physical properties promise new breakthroughs.
35. Vannevar Bush's vision made NSF's founding possible.
36. Doppler-On-Wheels studies extreme weather like tornados.
37. NSF supports GPS technology, such as the National Center for Geographic Information and Analysis.
38. Neuroscience is a major area for NSF.
39. The National Ecological Observatory Network (NEON) collects environmental data via distributed sensor networks.
40. This Design Squad App illustrates NSF's support of informal education and advanced touch-screen technology.
41. The IceCube Neutrino Observatory, located beneath the US South Pole Station, studies the nature and properties of these particles.
42. NSF supports potentially transformative technologies like Virtual Reality.
43. Robobees are innovative autonomously-flying microrobots that have potential impacts in many applications.
44. Quantum phenomena can yield novel technologies in computing and communications.
45. Breakthroughs in economics inspired new software that streamlines organ matches like kidney exchanges.
46. The Very Large Array is a component of the National Radio Astronomy Observatory.
47. NSF was key to the development of the MRI, now an essential health tool.
48. This block-sorting robot tests how autonomous systems discern their environment.
49. NSF support led to the study and systematization of ASL.
50. 3D printing has impacted manufacturing, design and the arts.
51. NSF supports research into bee colony decline and efforts to save the bees.
52. The High-Performance Instrumented Airborne Platform for Environmental Research is a modified jet that studies the atmosphere.
53. Large-scale computing simulates complex systems like hurricanes.
54. Large-scale changes to seawater chemistry can damage coral reefs and more.
55. Biometric identification—*whether fingerprints, iris scans, or DNA*—is essential to security and forensics.
56. The social sciences, like linguistics, improve our understandings of ourselves and our society.
57. In 2019, a global network of telescopes (Event Horizon Telescope) with major NSF support captured the first ever image of a black hole.
58. With support for programs like The Magic School Bus, NSF supports elementary and informal STEM education.
59. Robotics and automation, such that in this self-driving car, promise to transform transport and more.
60. In 1991, NSF-funded researchers discovered the first of three extra solar planets by using radio telescopes.
61. The bacterial enzyme, CRISPR, is revolutionizing biotech and health.
62. The 2008 Amundsen-Scott South Pole Station is NSF's latest Antarctic research station.