QUANTUM INFORMATION SCIENCE (QIS)

Quantum Information Science Funding[1]
(Dollars in Millions)

	FY 2024 Current Plan	FY 2025 (TBD)	FY 2026 Request
BIO	$3.28		$3.28
CISE	18.11		18.11
EDU	4.00		4.00
ENG	23.85		23.85
GEO	-		1.00
MPS	152.86		152.86
TIP	27.05		27.05
OISE	1.00		1.00
Total	**$230.15**		**$231.15**

[1] Funding displayed may have overlap with other topics and programs.

QIS research will advance fundamental understanding and exploitation of uniquely quantum phenomena that can be harnessed for information processing, transmission, and measurement in ways that classical approaches do less efficiently, or not at all. The development of new applications for QIS will lay the groundwork for one of the major technological revolutions of the 21st century. Building upon more than three decades of exploration and discovery-oriented research, NSF investments in QIS will continue to propel the Nation forward as a leading developer of quantum technology. NSF investments are a key component of the Administration's focus on critical and emerging industries.

NSF's QIS investments build upon the agency's long-standing and continuing foundational, use-inspired, and translational activities in QIS, including more recent opportunities for interdisciplinary teams, centers, and targeted workforce development efforts. NSF Investments will continue to enable key work in all the major areas of quantum computing, communications, sensing, networking, artificial intelligence, and simulation. Special attention as to how these areas connect with each other will accelerate development in all of them and lead to advances in quantum computers, quantum networks, and quantum-based metrology. Also of interest are novel approaches for building the quantum computing stack as well as hybrid approaches that combine quantum and classical computing, and post-quantum cryptographic algorithms designed to be secure against attacks from both classical and quantum computers. Collaboration with fields beyond the core of QIS will identify end users of new quantum technologies and help establish the market for new tools and applications, from cybersecurity to biotechnology. Ultimately, this work will allow quantum technology to become established on a sound footing and play a recognizable role in advancing the U.S. economy.

Consistent with and crucial to its mission, NSF will form new or expand existing partnerships with other federal agencies, private industry, foundations, national laboratories, and existing centers to leverage NSF's investments in QIS research and education. In addition, international cooperation with like-minded countries is critical to ensure that discoveries, and their resulting technologies, provide

for economic growth and national security. NSF will continue to provide funding opportunities for QIS researchers, enabling access to industry-built quantum computing platforms and to support international collaboration efforts.

In FY 2026, NSF will continue to support the design and implementation phases of the National Quantum Virtual Laboratory (NQVL), which was initiated with a pilot phase in FY 2023. The NQVL is a community-wide test bed designed to facilitate the translation of research results emerging from fundamental science and engineering into breakthrough technologies, while at the same time emphasizing and advancing the scientific and technical value of this work. The NQVL aims to develop and utilize use-inspired and application-oriented quantum technologies through multi-sectoral collaborations spanning academia and industry. Through a new competition, NSF will sustain its investment in the Quantum Leap Challenge Institutes (QLCIs). The QLCIs are large-scale interdisciplinary research projects motivated by major challenges at the frontiers of QIS. QLCIs are expected to catalyze breakthroughs on important problems underpinning QIS, for example, in the focus areas of quantum computation, quantum communication, quantum simulation and/or quantum sensing. At the same time, QLCIs will nurture a culture of discovery, provide workforce development opportunities in the context of cutting-edge research, and demonstrate value-added research translation. As an indispensable part of the overall effort in QIS, NSF will continue foundational investments in individual investigator programs and disciplinary-specific centers.