



## March 2022

Our nation must significantly increase our investment in science, mathematics, and engineering to remain competitive in the global scientific research enterprise. It is time to boost US global scientific and technological leadership and economic competitiveness.

### **Mathematics is a foundational discipline upon which future progress in science, engineering, and technology depends.**

Fundamental research in mathematics touches on all other branches of science. As examples, mathematicians model the spread of pandemics and help assess the efficacy of vaccine programs; produce basic research needed for advances in artificial intelligence and machine learning; and mathematicians' theoretical work underpins imaging technologies used to detect diseases, including cancer.

A recent National Science Board report, "The State of US Science and Engineering 2022," found many of our global competitors are increasing their investments in R&D rapidly, while the proportion of total US R&D funded by the US government is getting smaller. Our nation urgently needs to recommit to prioritizing S&T research in order to increase our global competitiveness.

### **Congress must provide the National Science Foundation (NSF) with funding in FY2023 of at least \$11 billion.**

The NSF supports research and education in all the science disciplines. NSF-supported research leads to technological innovations that directly benefit society. The NSF is especially important to the mathematical sciences because the agency provides nearly 65% of federal support for academic mathematical sciences research.

In 2021, the NSF made more than 11,300 competitive awards, supporting 1,900 colleges, universities, and other institutions across all 50 states, the District of Columbia, and four US territories. This includes responding to the COVID-19 pandemic, creating pathways for Americans to pursue STEM careers, improving resilience for communities facing mounting climate-related pressures, and managing Antarctic and Arctic science.

The NSF is an efficient agency—almost all appropriated funds go out the door in grants and awards to support research projects, facilities, and STEM education. NSF will continue to make strategic investments in basic research, the STEM workforce, and research infrastructure that will advance the nation's global competitiveness.

A significant increase in Congressional appropriations would help address the effects of years of high-quality grant proposals that go unfunded due to lack of sufficient funding. Those unmet needs continue. A 2020 National Science Board report stated that in fiscal year 2019, "approximately \$2.8 billion was requested for declined proposals that were rated Very Good or higher in the merit review process." This accounts for about 4,262 declined proposals at the NSF. The United States is leaving potentially transformative scientific research unfunded, while other countries are making significant investments.

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#### **About the American Mathematical Society**

Founded in 1888, the American Mathematical Society (AMS) is dedicated to advancing the interests of mathematical research and scholarship and connecting the diverse global mathematical community. The AMS has 30,000 individual members worldwide and supports mathematical scientists at every career stage.

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