



## A Message from the Director of the National Science Foundation

2019 has been a year of tremendous success and progress for NSF and the STEM research and education communities we support. We saw exciting results from basic research across the spectrum, from the quantum scale to the cosmic, learning more about the organization and behavior of everything from biological systems to cities and economies. Many of this year's accomplishments emphasize how important collaboration is to spurring innovation and discovery.

Collaboration was essential to the year's most stunning discovery: the first picture of the shadow of a black hole, taken by the Event Horizon Telescope. It was an extraordinary thrill to see that image for the first time, and even more wonderful to see the public excitement around the announcement, highlighted across the front pages of nearly every major newspaper around the globe. Such an incredible accomplishment was made possible by the dedication of more than 200 researchers across many disciplines, 13 stakeholder institutions, and dozens of additional partner institutions - a research coalition that promises more breakthroughs to come.

2019 was also a year for partnerships that will help us understand, through research, the changes happening in the Arctic and Antarctic. I was pleased to participate in the Arctic Circle Assembly in Reykjavik, Iceland in October, and to lead a delegation of officials from several U.S. government agencies to Antarctica earlier this month. NSF is dedicated to maintaining Antarctica as a scientific preserve for research and discovery, and we're creating the multilateral framework for productive stewardship of the polar regions as rapid ecological shifts create new challenges and opportunities.



This year also marked a milestone for NSF's work to foster cross-cutting collaboration and partnerships from the ground up. In September, the Convergence Accelerator issued its first awards, totaling \$39 million. This funding brings together people from the whole range of research and engineering—from across research areas, from industry and academia, from non-profits and government offices, from small business and Fortune 100 companies—to identify where their unique mix of skills and expertise can produce results that will make a greater impact than any single approach.

Those are just a few examples from the past year of the power of partnerships. There are many more! NSF's 10 Big Ideas have continued to foster cutting-edge collaboration, enabling rapid advances across research areas and significant progress to fulfill the strategic vision for scientific progress that the Big Ideas represent. NSF is working with the White House, Congress, and other government agencies at all levels to better understand and guide the development of artificial intelligence, which is a key component of the Big Ideas and will shape the future of our economy and communities. 2019 also brought notable progress on outstanding new facilities that will be hubs for discovery, including the completion of the Daniel K. Inouye Solar Telescope (DKIST) and National Ecological Observatory Network (NEON), as well as progress on the Antarctic Infrastructure Modernization for Science (AIMS) program and Large Synoptic Survey Telescope (LSST), which Congress recently renamed the Vera C. Rubin Observatory.

As we close out the year, I'm thankful for the dedication of all the individuals who have worked so hard to make all of NSF's partnerships succeed in 2019. Their commitment to innovation and discovery is building a bright future to look forward to in 2020 and beyond!



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