

**2018 NSF NANOSCALE SCIENCE AND ENGINEERING CONFERENCE**  
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## **NANOSCALE SCIENCE AND ENGINEERING AT NSF**

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### **Abstract**

NSF supports nanoscale science and engineering in all disciplines throughout all research and education directorates as a mean of advancing fundamental discovery and innovation, integrating various fields of research, and advancing knowledge on nature and technology. NNI enables increased interdisciplinarity research from the atomic and molecular levels for about 6,000 active awards representing approximately 10 percent of all NSF portfolios. NSF is part of the interagency National Nanotechnology Initiative (NNI), partnering with 27 other departments and independent agencies including: Commerce, Defense, Energy, Transportation, NASA, NIH, EPA, Justice, Homeland Security, and USDA.

The presentation will outline long-term challenges in the United States driven by nanotechnology and its convergence with other foundational emerging technologies. The National Nanotechnology (NNI) vision for nanotechnology formulated in 2000 has promised to create basic understanding and a general-purpose technology in about 20-30 years ([www.wtec.org/nano2/](http://www.wtec.org/nano2/)). A perspective of the current national S&T initiatives inspired and enabled by nanotechnology, as well as the corresponding NSF programs and outcomes, will be presented. Convergence offers a new universe of discovery, innovation, and application opportunities through specific theories, principles, and methods ([www.wtec.org/NBIC2-report](http://www.wtec.org/NBIC2-report)) and grand challenges are mechanisms to facilitate faster scientific progress and implementation in the economy. An example is the research on Intelligent Cognitive Assistants ([www.nsf.gov/crssprgm/nano/reports/ICA2\\_Workshop\\_Report\\_2018.pdf](http://www.nsf.gov/crssprgm/nano/reports/ICA2_Workshop_Report_2018.pdf)). This presentation will include an update on international evolution since 1991 to 2017 of nanotechnology World of Science publications, USPTO patents, and NSF funding.