NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 21-033

Dear Colleague Letter: Advancing Quantum Education and Workforce Development

December 23, 2020

Dear Colleague:

This Dear Colleague Letter (DCL) encourages submission of proposals for projects that will motivate and prepare students for quantum industries of the future. The National Science Foundation (NSF) is interested in preparation of students for quantum information science and engineering (QISE) at all levels and in all settings, both formal and informal.

BACKGROUND

We are on the cusp of a new quantum revolution that will require the nation to engage a well-prepared workforce. NSF has been funding quantum research and education since the 1980s, providing support for thousands of graduate students, post-docs, and early-career researchers. Now NSF intends to go even further by supporting projects to educate students in QISE, starting at the K-12 level and spanning informal and formal educational settings. NSF expects that these projects will not only help students develop the interest and flexible thinking needed to understand QISE, but also lead to improvements in educational practices that would have broad benefits across the country. Through such efforts in QISE education and workforce development, the United States can improve its industrial base, create and fill new jobs, and provide economic and national security benefits.

CALL FOR PROPOSALS

To improve QISE education, NSF is accepting proposals to conduct education-related research and development to prepare a diverse QISE workforce. The Directorate for Education and Human Resources (EHR) encourages the education research community to respond to this challenge through existing funding opportunities in EHR listed at the end of this DCL. Note that these proposals must meet all of the requirements of the corresponding funding program solicitations, including applicable deadlines and budget guidelines.

This DCL encourages proposals that will study, inspire, and support students' interest and motivation to pursue education pathways and careers in QISE. Successful projects should research and/or promote awareness and interest in QISE and inform preparation for QISE jobs of the future, while building the science, technology, engineering, and mathematics (STEM) skills and practices that will be needed for these jobs. As appropriate, proposals may address curricula, educational approaches, and educator professional development, as well as needs of other stakeholders such as industry professionals and professional societies. It is imperative that industries of the future be founded in principles of inclusivity that ensure equitable access to these new careers. Thus, this DCL encourages all proposals to include educational approaches designed to broaden participation in QISE and related careers. Proposals can build from the perspectives and strengths of talent pools that have not yet been fully tapped, including women, African Americans, Hispanics, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons with disabilities.

Questions about this DCL should be directed to the cognizant program directors for the programs listed below.

Sincerely,

Karen Marrongelle
Assistant Director, Education and Human Resources

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1. Funding Opportunities for K-12 Education
    - Computer Science for All (CSforAll: Research and RPPs)
    - Discovery Research PreK-12 (DRK-12)
    - Innovative Technology Experiences for Students and Teachers (ITEST)
    - Robert Noyce Teacher Scholarship Program (NOYCE)
2. Funding Opportunities for Undergraduate Programs
    - Advanced Technological Education Program (ATE)
    - Hispanic Serving Institutions Program (HSI)
    - Historically Black Colleges and Universities - Undergraduate Program (HBCU-UP)
    - Improving Undergraduate STEM Education Program (IUSE)
    - Scholarships in STEM Program (S-STEM)
    - The Louis Stokes Alliances for Minority Participation (LSAMP)
    - The Centers of Research Excellence in Science and Technology (CREST)
    - Tribal Colleges and Universities Program (TCUP)
3. Funding Opportunities for Graduate Programs
    - Alliances for Graduate Education and the Professoriate (AGEP) program
    - Innovations in Graduate Education (IGE) Program

    - NSF Research Traineeship (NRT) Program
4. Funding Opportunities for All Educational Levels
    - Advancing Informal STEM Learning (AISL)
    - EHR Core Research (ECR)
    - NSF INCLUDES
    - Research on Emerging Technologies for Teaching and Learning (RETTL)
    - Secure and Trustworthy Cyberspace (SaTC)

CONTACT INFORMATION

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K-12 Education	CSforAll (NSF 20-539)	Michael Ford	miford@nsf.gov
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	NOYCE (NSF 17-541)	Sandra Richardson	srichard@nsf.gov
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