FEBRUARY 01, 2022

White House Office of Science & Technology Policy and U.S. National Science Foundation Host "Quantum Workforce: Q-12 Actions for Community Growth" Event, Release Quantum Workforce Development Plan

New strategic plan aims to strengthen America's quantum ecosystem by developing a diverse, inclusive, and sustainable workforce

Today, the White House Office of Science and Technology Policy's (OSTP) National Quantum Coordination Office (NQCO) and the U.S. National Science Foundation (NSF) – in coordination with the National Q-12 Education Partnership – convened educators and leaders in Quantum Information Science and Technology (QIST) to explore training and education opportunities for America's future QIST workforce. Furthering a national strategy to ensure the United States remains an international QIST leader, the event focused on ways to engage young minds in QIST and established tools to help improve early (K-12) education and outreach.

During the event, OSTP's NQCO and NSF released the *National Strategic Plan for Quantum Information Science and Technology Workforce Development*. A product of the National Science and Technology Council Subcommittee on Quantum Information Science (SCQIS), the plan recommends a series of actions and community opportunities to grow the QIST workforce through expanded training and education at all levels. It also highlights the continued importance of gathering data on the workforce needs in industry, academia, and the federal government, and of developing long-term learning opportunities to expand and broaden the pool of talent and ensure the QIST workforce represents all of America. The plan will help guide QIST workforce efforts in the coming years as the Federal government works to strengthen the pool of quantum-ready workers. The plan can be found here.

“Our future prosperity depends on expanding the capacity of our Nation to inspire, educate, train, and empower the next generation of talent,” **said National Quantum Coordination Office Director and OSTP Assistant Director for Quantum Information Science (QIS) Dr. Charles Tahan.** “The career opportunities in quantum and related fields are immense, and we are thrilled to work with NSF, industry, and educational institutions in the National Quantum Initiative and Q-12 Partnership to reach more young people.”

“To accelerate growth in quantum science and engineering, we must continue to institutionalize and scale efforts that create a culture of creativity and inclusivity, one that empowers people from all backgrounds and disciplines to pursue quantum careers,” **said NSF Director Sethuraman Panchanathan.** “The Q12 Partnership has charted a path forward for nurturing quantum expertise from across the United States, and today, that path advances from exploration to rapid action. Alongside today’s release of the National Strategic Plan for QIST Workforce Development, NSF is announcing a new program, ExpandQISE, to provide sustained support for researchers developing new ways to cultivate and diversify the U.S. quantum workforce.”

NSF is issuing a solicitation for proposals through the Expanding Capacity in Quantum Information Science and Engineering (ExpandQISE) program to launch QISE research and education activities for students at all levels and from all backgrounds. With grants up to $5 million over five years, the program will expand quantum engagement to new institutions, with a particular focus on those where more than half of students are from groups under-represented in the sciences. Also today, NSF announced a $2.2 million grant to the Montana-Arkansas (MonArk) NSF Quantum Foundry, led by Montana State University and the University of Arkansas, to create the Arkansas-Montana-South Dakota 2D Quantum Photonics Alliance (2DQP Alliance). The alliance extends the foundry to the South Dakota School of Mines and Technology and the University of Arkansas at Pine Bluff, an historically Black university, significantly expanding quantum career-path opportunities for those universities’ students.

Today’s event also announced U.S. participation in World Quantum Day, an international event to be held on April 14th, 2022, to highlight the many ways

quantum has, does, and will impact and benefit all of society. For World Quantum Day, the Q-12 partnership will bring quantum learning activities to classrooms across the country through the community driven activity *QuanTime*. Organizations and individuals are encouraged to engage in this international celebration and can learn about ways to get involved at https://www.quantum.gov/world-quantum-day.

More on the "Quantum Workforce: Q-12 Actions for Community Growth" Event Sessions and the Q-12 Partnership:

The National Q-12 Education Partnership was launched in 2020 by NSF and the NQCO as a community effort led by stakeholders from industry, non-profits, academia and the Federal government to exemplify model approaches to broaden quantum learning opportunities for students in K-12 and beyond. Since then, the Partnership has expanded to include a growing community of high school teachers, educators, and academics. They have also created videos highlighting careers in quantum, provided opportunities for students to engage with industry, and developed a draft framework for connecting QIST concepts to secondary learning objectives. To learn more and get involved go to q12education.org.

At today's event, OSTP and NSF were joined by professors, high-school teachers, industry partners, and experts in education and diversity, equity and inclusion for a number of unique sessions aimed at exploring specific actions needed to ensure progress in early quantum education. The focus areas emerged from an NSF grant to understand K-12 quantum education gaps and needs. Specifically, the group explored:

- **Career pathways in QIST.** How the Q12 partnership and broader community can provide more resources for teachers, counselors, and families on quantum careers and the impact of quantum science
- **Quantum educational activities and lessons.** How the Q12 partnership and broader community can triple the number of ready-made quantum education activities for educators and families by 2023
- **Quantum communications and outreach.** What actions are needed to measurably increase engagement and awareness of QIST, its impact, and opportunities in the United States

- **QIST Education policy.** What types of policies will contribute to a stronger, more inclusive, and equitable quantum education ecosystem
- **Growing a more diverse Quantum Workforce.** How to engage new people and organizations to grow the quantum workforce beyond its existing talent pool. What steps should be taken to ensure more equitable on-ramps into QIST are available.

In the coming months, the SCQIS will hold further discussions on increasing participation by people from underrepresented backgrounds in STEM, starting with a look at short-term professional development for the quantum workforce. This is a critical piece of the quantum strategy to continue addressing a growing need for domestic talent.

Today's activities emerged from the National Quantum Initiative (NQI). Since its creation, NQI has established quantum institutes, foundries, and research centers across the United States, facilitated the launch of new Master's Degree programs in quantum, spawned a growing number of QIST-focused undergraduate courses, and guided a series of focused engagements with industry through the Quantum Economic Development Consortium, in addition to the development of concrete plans to foster early education and outreach activities through the National Q-12 Education Partnership. For more on NQI, please visit www.quantum.gov and for resources or tools for teaching and learning QIS please visit https://q12education.org/learning-materials.

###

Established in 1976, the White House Office of Science and Technology Policy – which houses the National Quantum Coordination Office – advises the President and others within the Executive Office of the President on the scientific, engineering, and technological aspects of the economy, national security, homeland security, health, foreign relations, and the environment. For more on OSTP's work please visit: https://bidenwhitehouse.archives.gov/ostp/.

The U.S. National Science Foundation propels the nation forward by advancing fundamental research in all fields of science and engineering. NSF supports research and people by providing facilities, instruments and funding to support their ingenuity and sustain the U.S. as a global leader in research and

innovation. With a fiscal year 2021 budget of $8.5 billion, NSF funds reach all 50 states through grants to nearly 2,000 colleges, universities and institutions. Each year, NSF receives more than 40,000 competitive proposals and makes about 11,000 new awards. Those awards include support for cooperative research with industry, Arctic and Antarctic research and operations, and U.S. participation in international scientific efforts.