



Quantum for All Summer 2020-revised plans

In an effort to strengthen the STEM workforce and prepare students for future quantum related job opportunities, the National Science Foundation (NSF), the White House Office of Science and Technology Policy (OSTP)¹, and national business partners are working together to provide camps and conferences for teachers and students. Quantum for All is an opportunity for educators and students to broaden their understanding of quantum information systems and quantum mechanics by engaging in activities specifically developed for the HS classroom.

The Quantum for All (QA) educator conference will be held July 13-16, 2020 and will be open to high school teachers. The QA Camp will be held July 16, 2020 and will be open to high school students. In order to increase safety measures, the number of conference attendees will be limited to 25 teachers and 25 students. Half of the teacher slots will be allocated specifically for local (DFW) teachers and the other half will be open to teachers nationwide. Only local students will be invited attend.

Quantum information science (QIS) offers a new way of communicating and processing the world around us and the conference/camp will focus on providing a deeper understanding of cybersecurity, GPS, networks, telecommunications, lasers, and quantum computers. Core concepts to be addressed will include principles of quantum information science such as superposition, qubits, entanglement, cryptography, quantum squeezing, and quantum states of atoms. In keeping with research and best practices, the content will be discovered through a variety of activities specifically designed for the HS classroom.

Educators will attend for 4 days with the first three days being dedicated to providing a basis for using quantum information (QI) in the classroom. The conference will start by making connections to current curriculum and then provide ways to extend what teachers are already doing to include QIS. The last day will be the student camp and teachers will be the session instructors for that day. Teaching the campers allows teachers the opportunity to gain confidence and experience in using the resources while being supported by peers. This type of opportunity has been shown to be useful in helping educators implement what they have learned.

Students who attend the quantum camp will have the opportunity to attend different sessions related to QIS which will be presented by the teachers attending the conference. This provides an opportunity of the teachers to implement what they have learned about teaching QIS material. The sessions will be about 1.5 hours in length and the students will be in groups of no more than 10 students and 2-3 teachers.

Registration and Stipends:

Teachers will be asked to provide a \$200 registration fee in order to ensure attendance. At the conclusion of the conference teachers will be entitled to either a \$300 stipend or \$500 in equipment to take back and use in their classroom. There is also the option to purchase graduate credit for \$500. Travel and lodging is not included in this grant, but efforts will be made to help find close and reasonable lodging.

Students will be asked to pay a \$20 registration fee to ensure their attendance. The \$20 will include a t-shirt and lunch.

More information:

For more information or to register visit our website <https://quantumforall.org/>



¹ <https://www.whitehouse.gov/ostp/>