

CSAAPT Spring 2022 Semi-Virtual Meeting



Chesapeake Section of the
American Association of Physics Teachers
Spring 2022 Semi-Virtual Meeting
April 2, 2022 @ **RADFORD** UNIVERSITY

Contribution ID: 22

Type: **Talk**

Teaching quantum information science to high-school and early undergraduate students

Saturday, April 2, 2022 3:00 PM (15 minutes)

We present a simple, accessible, yet rigorous outreach/educational program focused on quantum information science and technology for high-school and early undergraduate students. This program allows students to perform meaningful hands-on calculations with quantum circuits and algorithms, without requiring knowledge of advanced mathematics. A combination of pen-and-paper exercises and IBM Quantum Experience simulations helps students understand the structure of quantum gates and circuits, as well as the principles of superposition, entanglement, and measurement in quantum mechanics. We also present a simple game that illustrates the advantages of quantum algorithms.

Primary author: BARNES, Edwin (Virginia Tech)

Presenter: BARNES, Edwin (Virginia Tech)

Session Classification: Afternoon Session 1