

PHYS379 Group 3 Minutes

Date and Time: 21/02/2023 @ 15:00

Location: Library A3 Study Space

1. Appointment of chair & secretary

Willow is appointed as secretary for today.

2. Grover's Algorithm Project

We have now finished implementing the Durr-Hoyer Algorithm (aka Grover Adaptive Search). Willow has tested various termination thresholds for this. Ana has also done testing of her implementation of Grover's algorithm in qiskit for different numbers of qubits, shots, iterations, etc.

Willow will modify her code so that it can be run on the CPU so that Ana can test it for various simulation parameters.

We will also implement simulation of errors into the program and test how this affects the code.

3. Shor's Algorithm Project Update

Sam has a working quantum prototype of Shor's algorithm for low numbers of qubits. Sid has a classical implementation that works as well. However, we may have an issue as the number of required qubits may exceed the number we are capable of computing if we go with 10 qubits as originally planned. If we implement Shor's algorithm for a 6-qubit problem it will probably be workable (as this would then require a net total of 12-13 qubits. The maximum we can run is 14).

Sam thinks he can get Shor's algorithm completed by this weekend for 6 qubits.

4. Report Plans

Ana has written a first draft of the general introduction for our report and has also started work on the introduction to the Grover's project. Willow will work on the explanation of the Durr-Hoyer GAS algorithm. We also discussed how to

use BibTeX for referencing.

5. AOB

We will decide the time and location of our next meeting via Teams.