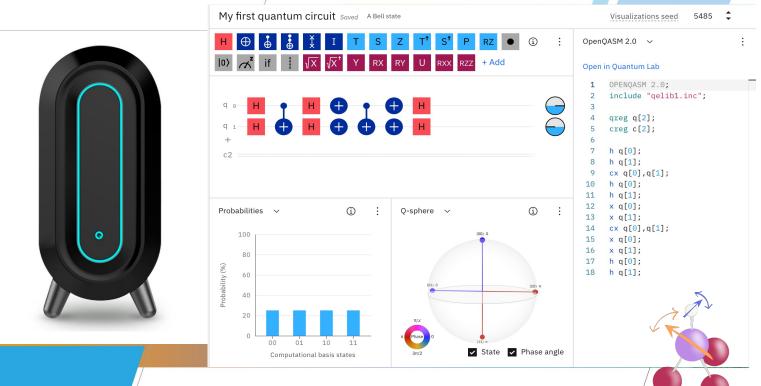


Quantum Computing for Gifted Students



You can make you own quantum program codes!
You can tell others how quantum computing works!

Programme period: July 2022 to January 2023
Organizer: HKUST and HKAGE

Target: 40 students (Secondary 4-5)



Application form to:
Dr. Ting Pong Choy,
Department of Physics
HKUST
(Deadline: 16/05/2022)





Quantum Computing for Gifted Students

| Session | Date | Time | Topic |
|---------|------------------|-----------|--|
| 1 | 2-Jul | 1000-1300 | A brief history of computers |
| 2 | 9-Jul | | A brief introduction to quantum computers |
| 3 | 16-Jul | | Matrix representation of quantum gates |
| 4 | 23-Jul | | Quantum circuits, search algorithm |
| 5 | 30-Jul | | Complex numbers, single qubit gates |
| 6 | 6-Aug | | Universal circuits, quantum Fourier transform |
| 7 | 13-Aug | | Quantum mechanics, quantum entanglement |
| 8 | 20-Aug | | A brief introduction to building quantum computers |
| 9 | 27-Aug | | Breaking RSA encryption |
| 10 | 3-Sep | | An introduction to quantum cryptography |
| 11 | 10-Sep | | An introduction to quantum communication |
| 12 | 17-Sep | | An introduction to quantum error correction |
| 13 | 8-Oct | | Quantum algorithms - I |
| 14 | 15-Oct | | Quantum algorithms - II |
| 15 | 22 Oct to 12 Nov | TBC | Programming exercieses and hand-on tutorials |
| 16 | 19 Nov to 31 Dec | TBC | Small scale group projects |
| 17 | Mid Jan 2023 | TBC | Showcase event |



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