Introduction to Quantum Computing

Lecturer: Xiaodi Wu

Reading Assignment: Course Website; KLM Chap 1 and 2.

Welcome to CMSC/PHYS 457
Introduction to Quantum Computing

Teaching Team

Instructor

- Instructor: Prof. Xiaodi Wu
- Contact: xwu@cs.umd.edu
- Research: Quantum Information and Computation
- Joint Center for Quantum Information and Computer Science (QuICS)

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TA

- Joseph Li, jli0108@umd.edu
- Yi Lee, ylee1228@umd.edu

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- One sentence about who you are (e.g., name, major, graduate/undergraduate).
- One sentence about why you are here.

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- Please feel free to share your interests or so at piazza.
- Also please finish assignment 0 so that we can understand your need better.

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- selective quantum research frontiers: **quantum error correction**.

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- **A lot of effort expected!**

CMSC/PHYS 457: Common Questions

There is NO required textbook. We will mainly refer to lecture notes (available online or our own) and the following textbooks.

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Interested in working with QuICS?

- Do well! Discuss project topics with QuICS people!

More logistics

Office Hours (AVW 4140)

- Wu: around the lecture or by appointment.
- Joseph Li: Tu 9:15am-11:15am, Fri 9:15am-10:15am
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- **ELMS**: distribute and submit assignments (gradescope), grades, and solutions.

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Please let us know ASAP if

- you cannot submit assignments electronically.
- time conflicts of exams.
- concerns about the difficulty of the course.
- anything that you wanted to discuss .....

You might be interested in knowing

Some ongoing projects inside QuICS: (incomplete list)

- Circuit Compilation and Optimization.
- Quantum Programming Languages.
- Quantum Algorithms for Optimization.
- Quantum Computing meets Machine Learning.
- Quantum Hamiltonian Simulation.
- Quantum Cryptography.
- ..... (check more at our website) .....

Reading Assignments on Linear Algebra

Linear algebra with Dirac notations

- KLM 2.1-2.6.
- A cheatsheet on our website.