

Organized jointly by Quantum Materials Center, Department of
Mathematics, Department of Physics and Astronomy,
Industrial Immersion Program

Quantum computing working seminar

Time: Tuesdays 11am-12pm starting Jan 28, 2020

Where: EXPL 4106

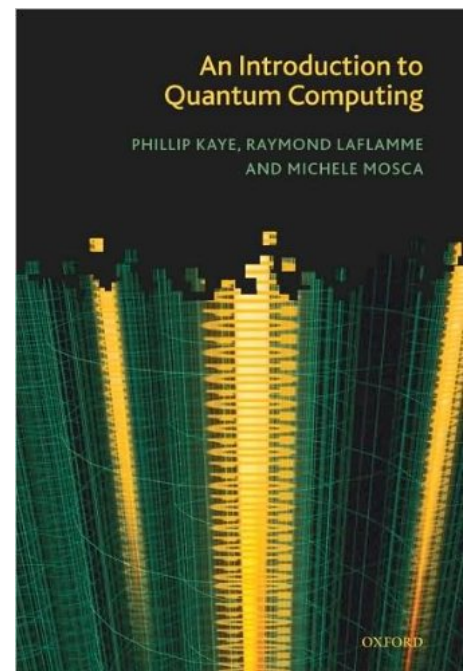
We are starting an informal working seminar on quantum computing (QC). We will start from the basics and will follow the book “Introduction to quantum computing” by Kaye, Laflamme, and Mosca. **Discussion leaders include Quantum Computing group members from Booz Allen Hamilton.**

COME LEARN ABOUT THE FUNDAMENTALS OF QUANTUM COMPUTING IN AN INFORMAL ATMOSPHERE. FACULTY, GRADUATE STUDENTS, UNDERGRADUATES WITH ANY BACKGROUND ARE WELCOME.

PLEASE REGISTER HERE: <https://forms.gle/j6g8XEJ6HCKyQDo6A>

Discussion topics include:

- Notation and relevant linear algebra, asymptotic notation and asymptotic analysis of algorithms
- Quantum circuit models and classical reversible computing, circuits for uniquely quantum processes, such as teleportation, measurement within the model
- Basic quantum algorithms that yield provable speedups over their classical counterparts
- Common quantum algorithms such as phase estimation, amplitude estimation, Grover’s search algorithm, linear systems
- Quantum walks and walk based algorithms
- The adiabatic algorithm
- Quantum error correction
- Methods for determining lower bounds on algorithms
- Classical algorithms that can simulate certain quantum systems, Hamiltonian simulation methods
- The best classical methods for solving problems we discuss, recent developments and other topics



Looking forward to seeing you!

For additional questions please contact Maria Emelianenko at
memelian@gmu.edu.