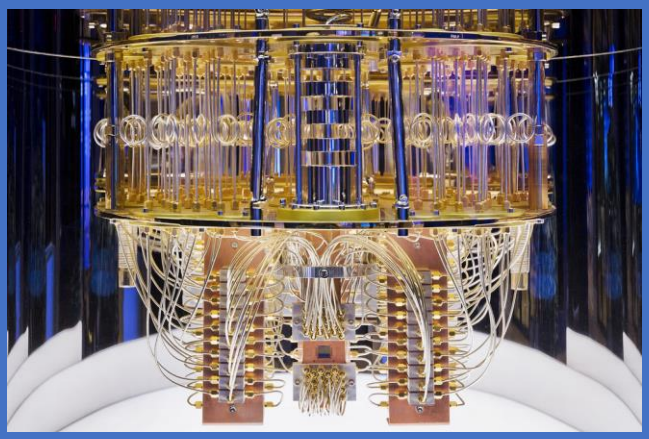


UPCOMING SESSIONS

JAN 09, 2023 – APR 22, 2023

Wed, 5.30 – 8.30 pm

Online / Engineering Center 2840

PHY 2049 Physics; PHY 4604 Quantum Mechanics; or equivalent or permission of Instructor

EEE 6429: Advanced Quantum Computers

Course Summary

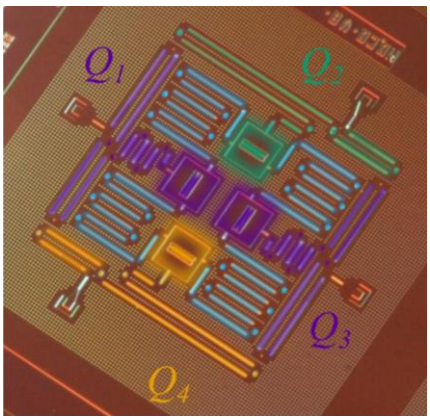
Advanced principles of quantum computers and quantum information systems with in-depth analysis and state-of-the-art physical implementations. The course focuses on fundamentals of quantum theory and quantum information; hardware architectures, including superconducting Josephson junctions, trapped ions and defect centers in solids; quantum gates; implementation and applications to practical problems in quantum physics and computing.

Topics Covered

- Basics of Quantum Mechanics
- Quantum circuits
- Cavity quantum electrodynamics
- Radiative transitions in natural and artificial atoms
- Coherence and statistics
- Photon antibunching and nonclassical light
- Coherent and squeezed states
- Atom-photon interactions
- Entangled states and quantum teleportation
- Quantum platform: quantum dots
- Quantum platform: superconducting circuits
- Quantum platform: cold atoms
- Quantum bits and quantum gates
- Quantum computing
- Quantum cryptography

Course Benefit

- Provide a comprehensive introduction to quantum computing and other quantum technologies
- Introduce students to the modeling of quantum systems
- Expose students to the state-of-the-art quantum technology
- Involve students in the exciting and extensively growing area of quantum technologies



For more information, contact
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