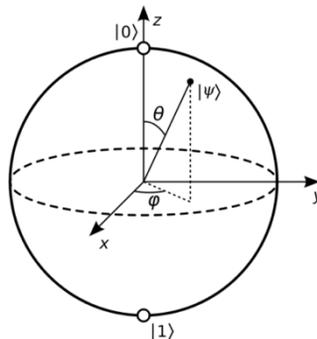


Intro to Quantum Seminar for the Northeastern Community

Gregory A. Fiete, Professor of Physics, College of Science, Northeastern University
(On Interdisciplinary Sabbatical in the Khoury College of Computer Sciences, Spring 2026)

Spring 2026, West Village H Room 366, Fridays 10-11am, Weekly
<https://fiete.sites.northeastern.edu/intro-to-quantum-seminar/>



Operator	Gate(s)	Matrix
Pauli-X (X)		$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
Pauli-Y (Y)		$\begin{bmatrix} 0 & -i \\ i & 0 \end{bmatrix}$
Pauli-Z (Z)		$\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$
Hadamard (H)		$\frac{1}{\sqrt{2}} \begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix}$
Phase (S, P)		$\begin{bmatrix} 1 & 0 \\ 0 & i \end{bmatrix}$
$\pi/8$ (T)		$\begin{bmatrix} 1 & 0 \\ 0 & e^{i\pi/4} \end{bmatrix}$
Controlled Not (CNOT, CX)		$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}$

Purpose and Synopsis: Curious about quantum physics but not a physicist or physics major? This seminar series is your chance to learn the fundamentals of quantum physics, quantum computing, quantum sensing, quantum cryptography, and quantum communication in an informal atmosphere without the need to register for a class. The seminar, open to all in the Northeastern community, will begin from basics assuming no prior knowledge of quantum mechanics and build through key concepts relevant to quantum technologies. The first weeks of the seminar will feature tutorial lectures and then the seminar will host experts from across campus who will give accessible talks on their quantum research. The aim is to bring together the entire Northeastern community in a single setting for establishing multi-disciplinary ties across the university for all who have an interest in quantum. Students, postdocs, staff and faculty at all levels are welcome. Questions and interactive discussions during the seminar are encouraged.

Topics Covered: Entanglement, Measurement Disturbance of Quantum Systems, Logic Gates, Quantum Advantage, No Cloning Theorem, Quantum Teleportation, EPR Paradox, Spin, Hilbert Spaces, Basic Mathematical Structure of Quantum Mechanics, Heisenberg Uncertainty Relations.

Speaker/Instructor Bio: Greg is a theoretical physicist specializing in the study of exotic quantum properties of materials. He received his PhD in physics from Harvard University and did postdoctoral work at the Kavli Institute for Theoretical Physics at UC Santa Barbara. He was a Lee A. DuBridge Prize Fellow in Theoretical Physics at Caltech. He is a recipient of the NSF CAREER Award, the DARPA Young Faculty Award, a DARPA Director's Fellowship, the Presidential Early Career Award for Scientists and Engineers (PECASE), a Simons Fellowship in Theoretical Physics, and a Bessel Research Award from the Alexander von Humboldt Foundation. He is an elected Fellow of the American Physical Society. Greg is a core and founding member of the Quantum Materials and Sensing Institute ([QMSI](#)) at Northeastern University.