

Department of Physics Colloquium

Quantum Computing with Superconducting Qubits

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Abstract

What is a quantum computer, and what might it be useful for? I'll describe how a quantum computer, based on superconducting qubits, works. I'll also describe fault-tolerant quantum computing (FTQC), and the applications where a quantum computer might vastly outperform even the largest high-performance computing facility. What might such a "utility-scale" quantum computer look like, and how big would it have to be to solve problems intractable on today's machines?

About the Speaker

Dr. Josh Mutus currently serves as the Director of Quantum Materials at Rigetti Computing, a position he has held since April 2021. He holds a Ph.D. in Physics from the University of Alberta and an undergraduate degree from the University of Windsor. Before joining Rigetti Computing, Josh, worked for Google as a Quantum Electronics Engineer, where he worked for over six years from 2014 to 2021. Prior to Google, he did post-doctoral work at UC Santa Barbara.