



Quantum Information and Computing (QIC) Seminar

Nick Hunter-Jones (UT Austin)

10:00 AM, Friday, December 1, 2023

201 Engineering Center

Random circuits and quantum advantage in the NISQ era

Quantum advantage concerns computational tasks that can be performed efficiently on a quantum device, which necessarily surpass the capabilities of the most powerful classical computers. Recent claims of quantum computational advantage have centered on the hardness of simulating random quantum circuits, where experimental implementations of a certain sampling task have arguably exceeded what is possible to simulate on existing classical computers. We'll overview random circuit sampling and its theoretical underpinnings, discuss some recent progress, and highlight existing open problems.

The speaker: Nick Hunter-Jones is an Assistant Professor of Physics and Computer Science at UT Austin, primarily focusing on quantum information theory, quantum computing, and quantum many-body physics. Some of his recent research interests include random quantum circuits, unitary designs, quantum complexity, quantum simulation, and demonstrations of quantum advantage. Prior to joining UT Austin Nick was a Postdoctoral Fellow at Stanford and at the Perimeter Institute. He received his Ph.D. in Physics from Caltech and his B.S. in Physics from MIT.
