

The University of Chicago Computer Science Department
PRESENTS:

“Characterizing the computational power of quantum physics”



Bill Fefferman
University of Maryland/NIST

Abstract:

Quantum computation is rapidly transitioning from science fiction to reality. Recent experimental progress from efforts in academia and industry has taken us into a new era in which scalable quantum computers are on the horizon and imperfect quantum systems on the scale of 50-100 qubits will be implemented in the very near term. As this era progresses, the gap between theory and experiment is shrinking and insights from theoretical computer science are increasingly becoming crucial to understanding these quantum devices.

This talk aims to describe my research, which seeks to develop the tools needed to characterize the power of quantum computation, both in the very near-term and the indefinite future. These tools will provide the foundation for building the next generation of useful quantum algorithms, but will also help guide the course of quantum experiment.

The talk will be accessible to a general computer science audience.

Bio:

Bill Fefferman is an Assistant Research Professor at the University of Maryland, as well as a Research Scientist at the National Institute of Standards and Technology. Previously, he held postdoctoral positions at the University of California at Berkeley, advised by Umesh Vazirani, and before that at the Joint Center for Quantum Information and Computer Science at the University of Maryland.

He received his doctorate in computer science at Caltech, advised by Alexei Kitaev and Chris Umans. He has recently been awarded the Air Force Young Investigator Award to help support his research on the power of near-term quantum systems.

Thursday, March 7, 2019
2:00 pm
JCL 390
Host: Fred Chong