

STATISTICS COLLOQUIUM

MONDAY, APRIL 18, 2011

TALK: 4:00 PM — SCIENCE CENTER RM. 309

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“Quantum Computation and Quantum Simulation”

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ABSTRACT

Quantum computation and quantum information are of great current interest in computer science mathematics, physical sciences and engineering. They will likely lead to a new wave of technological innovations in communication, computation and cryptography. As the theory of quantum physics is fundamentally stochastic, randomness and uncertainty are deeply rooted in quantum computation, quantum simulation and quantum information. Consequently quantum algorithms are random in nature, and quantum simulation utilizes Monte Carlo techniques extensively. Thus statistics can play an important role in quantum computation and quantum simulation. This talk will give a brief review on quantum computation and quantum simulation. I will introduce statistical analysis of quantum computation algorithms and quantum simulation.