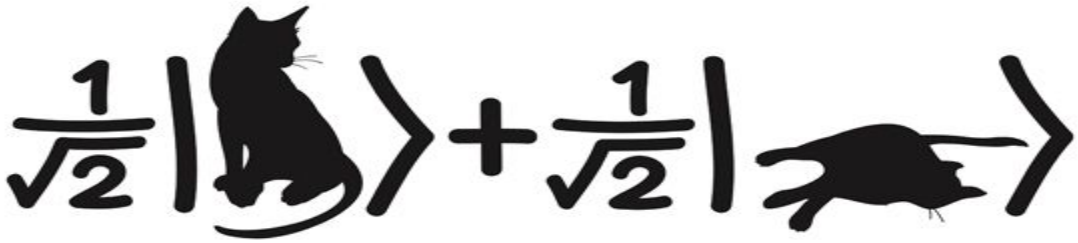
Visiting Scholar Seminar

Title: Quantum computation: When computer science meets quantum mechanics



Speaker: Dr. Tzu-Chieh Wei

Time & Location: 2-3:15 pm on Apr. 12, 2017 @ Kunsela C212

Abstract

Quantum computation is a novel way of information processing that allows, for certain classes of problems, exponential speedup over classical computation. Various models of quantum computation exist, such as the adiabatic, circuit, and measurement-based models, but operate very differently and may suit different physical realizations. I will give a pedagogical introduction to quantum computation by illustrating with simple quantum algorithms. I will also discuss the idea of quantum error correction, as in order for the quantum computer to retain its coherence and resist errors, a quantum version of error corrections needs to be implemented. As one can see, quantum computation is a natural consequence of putting computation in the framework of quantum mechanical rules.

This talk is self-contained. Audience of all levels are welcome.

Biography

Dr. Wei received his PhD from the University of Illinois at Urbana-Champaign (UIUC). After receiving his PhD, he conducted research as a postdoctoral research fellow and research associate at UIUC (2004-2007), Institute for Quantum Computing (2007-2009) and the University of British Columbia (2009-2011). He joined Stony Brook University in 2011. He has published more than sixty papers and many appear in journals with high impact factors, such as Nature Communication, Physical Review Letters, Physical Review A and Physical Review B. Further information regarding his publications can be found at http://insti.physics.sunysb.edu/~twei/Publications.html