Physics & Astronomy Colloquium – Spring 2019

Friday, April 12th at 2:30 pm in PE 208

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Quantum Annealing vs Classical Optimization

Can quantum computers solve optimization problems much more quickly than classical computers? One major piece of evidence for this proposition has been the fact that quantum annealing (QA) can find the minimum of some cost functions exponentially more quickly than local search algorithms like classical simulated annealing. In this talk I'll describe a classical Markov chain Monte Carlo algorithm inspired by QA that can also exponentially outperform simulated annealing and classical local search, demonstrating that quantum algorithms can also lead to new methods in classical optimization.

BIOGRAPHY: Elizabeth Crosson received her PhD in physics from the University of Washington in 2015. After that she did a postdoc with John Preskill at the Caltech Institute for Quantum Information and Matter. In 2018 she joined the physics department at the University of New Mexico as an assistant professor, where she is also cross-appointed in the UNM computer science department. Her research interests include classical simulations of quantum systems, quantum complexity theory, and quantum error correction.