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Quantum magnetism on a chip

Wednesday, 27 June 2018 13:30 (1 hour)

Feynman's original vision for a quantum computer was of a physical quantum system whose Hamiltonian could be adjusted in situ to simulate the physics of a variety of other quantum systems. Quantum magnetic systems, with localized spins and short range interactions, are perhaps the simplest such physical quantum system that can be implemented in existing solid state technologies. This lecture will review how a D-Wave 2000Q quantum annealing processor, an ostensibly 2-dimensional circuit, can be used to realize phase transitions in the transverse field Ising model on a 3-dimensional lattice.

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