**Quantum Phases and Criticality in Model Magnets**

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Arrays of quantum spins in magnets are excellent solid-state systems for high-precision studies of fundamental collective quantum phenomena like Bose-Einstein condensates, spin Tomonaga-Luttinger liquids and quantum criticality [1-2]. Further examples include the complex ground states and correlations realized in low-dimensional and frustrated systems [4-6] and the exciting physics of impurities and quenched disorder [7]. Interactions and quantum fluctuations can be controlled systematically in some oxides and halides by chemistry and pressure application, and correlations and particle numbers by magnetic field giving precise control over the parameters of model Hamiltonians. I will present recent work on systems with quenched disorder [7] and Anderson-Higgs modes near a quantum critical point [3].

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