

Condensed Matter Theory Center Seminar



Tuesday, September 3
11:00 am – 12:30 pm, Physics Building 2205

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“The nature of the quantum spin-liquid state in Herbertsmithite”

Recent neutron scattering experiments on the layered spin-1/2 kagome lattice antiferromagnet Herbertsmithite revealed the first signature of fractionalized excitations in a quantum spin liquid state. The precise nature of this state remains unclear, however. Indeed, mean-field models of gapped as well as gapless spin liquids exhibit sharp features in the dynamic structure factor, none of which have been observed in experiment.

In this talk I'm going to show that several of the experimentally observed details can be explained by the presence of topological vortex excitations in a gapped Z_2 spin liquid. These so called vison excitations form almost flat bands on the kagome lattice and act as a momentum sink for the spin-carrying excitations probed by neutron scattering.

(All are welcome to attend)

