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【128】How does the spin dance in frustrated spinels?

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Different from the situation in conventional paramagnets, spins in the frustrated magnets can fluctuate or dance collectively, leaving a trace in reciprocal space that can be detected using neutron scattering. Here we present our neutron scattering results for two typical spinel compounds: MnSc₂S₄ and CdEr₂X₄, where the magnetic ions form the diamond and pyrochlore lattice, respectively. Our results evidence the existence of the spiral spin-liquid state in MnSc₂S₄, where the spins fluctuate as spirals, and the dipolar spin ice state in CdEr₂X₄, where the spin fluctuation gives rise to emergent magnetic monopoles.

Author: GAO, Shang (Center for Emergent Matter Science, RIKEN, Japan, Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institut and Department of Quantum Matter Physics, University of Geneva)

Presenter: GAO, Shang (Center for Emergent Matter Science, RIKEN, Japan, Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institut and Department of Quantum Matter Physics, University of Geneva)

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