

MAR06-2005-001443

Abstract for an Invited Paper
for the MAR06 Meeting of
the American Physical Society

Spin excitations in frustrated Kagomé lattice systems

YOUNG LEE, MIT, Department of Physics

We present experimental results on the behavior of interacting spins on the two-dimensional frustrated Kagomé lattice. Basic concepts of geometrical frustration will be reviewed, and measurements on single crystal and powder samples of ideal Kagomé systems (both classical and quantum) will be described. For a system with $S=5/2$, our inelastic neutron scattering measurements of the spin wave excitations reveal a novel “flat mode” which is a direct consequence of the high degree of frustration. We observe interesting behavior related to spin chirality (both vector and scalar). Recently, we have performed measurements on a material with spin-1/2 ions in an ideal Kagomé lattice arrangement. We discuss our results in relation to the excitations proposed for novel quantum spin liquid states.