

Conference Presentation (invited, oral)
Polarized Neutrons in Condensed Matter Investigations (PNCMI 2004)
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Title & Abstract:

Polarized Inelastic Neutron Scattering Measurements in the Quasi-One Dimensional Antiferromagnet KCuF_3 .

The material KCuF_3 is a prototypical example of a weakly coupled $S=1/2$ Heisenberg antiferromagnetic chain system. The inter-chain coupling leads to antiferromagnetic order at low temperatures. In the ordered state theory predicts that the low energy spin dynamics exhibits an unusual gapped longitudinal mode. Here we report polarized inelastic scattering measurements of the excitations in KCuF_3 . A weak magnetic field is utilized to prepare a single domain state with the spins aligned in the scattering plane but perpendicular to the chain direction. This configuration enables a clean measurement of the longitudinal magnetic response as spin flip scattering