Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Novel spin structures in Mn and Co chromite THOMAS KAPLAN, Michigan State University — The ferrimagnetic or conical spiral (FS), a variational approximation to the ground state of the classical Heisenberg model with competing AB and BB interactions in cubic spinels[1], is in qualitative to quantitative agreement with neutron diffraction (ND) results for $MnCr_2O_4$ and $CoCr_2O_4$.[2] This despite its local instability for the experimental parameter values.[1] It also was used to interpret related NMR studies.[3] Understanding recent ND experiments[4] on both materials again was generally based on the FS. However, these measurements, done on single crystals, and with highly improved resolution, uncovered a subtle but important modification of the FS: while the fundamental Bragg peaks (originating from the spin components along the cone axes) are typical, the satellite peaks (coming from the transverse or spiral components) are broadened.[4] Efforts to understand this based on the classical spin model will be discussed.

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Date submitted: 21 Nov 2005 Electronic form version 1.4