Partial order in MnSi? JOHN HOPKINSON, HAE-YOUNG KEE, University of Toronto — Motivated by a recent neutron scattering study of MnSi, we study the ferromagnetic Heisenberg model with Dzyaloshinskii-Moriya interactions on the 3D corner-shared triangle lattice, the magnetic sublattice of MnSi. For classical spins we find evidence of a partially ordered state: degenerate states form a sphere with a fixed radius in momentum space. Further, for a metallic system, we propose an assignment of the Moriya vectors following an RKKY derivation of Fert and Levy. We calculate the structure factor within the mean field approximation and test this result against classical monte carlo calculations. We discuss the connection of our results to phenomenological Landau-Ginzburg treatments of the Dzyaloshinskii-Moriya coupling on this lattice.

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