

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Ferromagnetic Resonance of the Weak Ferromagnet Sr_2IrO_4 HUA CHEN, ALLAN MACDONALD, Department of Physics, The University of Texas at Austin, Austin, TX, 78712 — We derive a pseudospin model for the strongly spin-orbit coupled $5d$ oxide Sr_2IrO_4 that is based on a standard t/U expansion and Slater's theory of atomic multiplets. Using this model, we use linear spin-wave theory to evaluate the material's spin wave spectrum and address the influence of quantum fluctuation on the saturation magnetization. We find that the ferromagnetic resonance (FMR) frequency has an unusual square root dependence on magnetic field, with a prefactor related to the strength of the exchange coupling between $j = 1/2$ pseudospins. FMR can thus be used as an alternative probe of the nontrivial magnetism of Sr_2IrO_4 .

Xiao Li
Univ of Texas, Austin

Date submitted: 14 Nov 2013

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