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Study of the magnon spectrum in FeV_2O_4 using inelastic light scattering[1] Y. GIM, S. GLEASON, T. BYRUM, G.J. MACDOUGALL, Department of Physics and Frederick Seitz Materials Research Laboratory, University of Illinois, Urbana, Illinois 61801, USA, H.D. ZHOU[2], Department of Physics, Florida State University, Florida 32306-3016, USA , S.L. COOPER, Department of Physics and Frederick Seitz Materials Research Laboratory, University of Illinois, Urbana, Illinois 61801, USA — The interplay between orbital, spin and lattice dynamics create a rich environment for the study of novel properties and phases. Transition metal oxides with a spinel structure, AB_2O_4 are excellent systems in which to explore the interplay among these dynamics: By substituting on the A and B sites with various elements, various phenomena and ground states can be explored. FeV_2O_4 is a special spinel with two orbital-active $A-$ and $B-$ site cations. This material exhibits interesting magnetic and structural phenomena, such as multiferroic behavior and a strong dependence of its physical properties on external stimuli such as pressure and magnetic field. In this talk, we present an inelastic light (Raman) scattering study of the temperature- and magnetic field-dependence of the magnon spectrum of FeV_2O_4. We compare these results to of the magnon spectrum of MnV_2O_4 in order to examine the role of A-site substitution on the spin dynamics.

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