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Investigations of the 2D Isinglike magnet, $ZnMn_2O_4$ WILLIAM RATCLIFF, YING CHEN, YIMING QIU, QING HUANG, JEFFREY LYNN, National Institute of Standards and Technology, NCNR, SUNMOG YEO, SANG CHEONG, Rutgers University, Department of Physics, PAULA PICCOLI, ARTHUR SCHULTZ, Argonne National Lab, IPNS — $ZnMn_2O_4$ crystallizes at high temperatures in the spinel structure. At lower temperatures, it undergoes a Jahn Teller distortion which lowers its symmetry to tetragonal. At lower temperatures ($T_N \sim 60$K), the system orders magnetically. Fits to the order parameter, line shape of powder diffraction peaks, and the direct observation of rods of scattering in single crystal diffraction experiments show the system to be two dimensional. This is likely due to an interplay of orbital ordering and frustration. In this talk, I present the results of recent neutron diffraction experiments performed on this compound and discuss the nature of the magnetism.

William Ratcliff
National Institute of Standards and Technology, NCNR

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