

M.D. Lumsden, S.E. Nagler, B.C. Sales, D.A. Tennant, D.F. McMorrow and S.-H. Lee S.-H., *Spin wave spectrum of the 2d Heisenberg Antiferromagnet  $K_2V_3O_8$* , Bull. Am. Phys. Soc., APS March Meeting, 2004.

Spin wave spectrum of the 2d Heisenberg Antiferromagnet,  $K_2V_3O_8$ , M.D. LUMSDEN, Oak Ridge National Laboratory, S.E. NAGLER, Oak Ridge National Laboratory, B.C. SALES, Oak Ridge National Laboratory, TENNANT D.A., University of St Andrews, MCMORROW D.F., Risoe National Laboratory, LEE S.-H., National Institute of Science and Technology — Previous neutron diffraction and magnetization studies of  $KVO$  revealed a phase transition to a long-range ordered state ( $T=4$  K) characterized by weak ferromagnetism and a unique field-induced spin reorientation transition. This behavior was explained by competition between a c-axis anisotropy and the Dzyaloshinskii-Moriya interaction. We have performed inelastic neutron scattering studies of the spin waves in the ordered state which show that  $KVO$  is a quasi-2d spin system with an in-plane coupling of 1.2 meV and  $J/J'$  of about 200. In addition, a small zone-center energy gap of about 100 eV has been observed consistent with the anisotropy terms determined previously. However, additional, unexpected magnetic scattering is observed near the antiferromagnetic zone boundary exhibiting a very unusual Q-dependence. Possible explanations for this additional scattering will be given.