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Kittiwit Matan, Daniel Grohol, Daniel G. Nocera, Jin Hyung Cho, Seung-Hun Lee, Steve Nagler, Young S. Lee, *Spin-waves in antiferromagnetic Kagome lattice*, Bull. Am. Phys. Soc., APS March Meeting, 2004.

**Spin-waves in antiferromagnetic Kagome lattice**, KITTIWIT MATAN, Department of Physics, MIT, DANIEL GROHOL, Department of Chemistry, MIT, DANIEL G. NOCERA, Department of Chemistry, MIT, JIN HYUNG CHO, Pusan National University and MIT, SEUNG-HUN LEE, NIST, Maryland, STEVE NAGLER, HFIR, Oak Ridge National Laboratory, YOUNG S. LEE, Department of Physics, MIT — We have used inelastic neutron scattering to study spin-waves in single crystal samples of the antiferromagnetic kagome lattice compound,  $\text{KFe}(\text{OH})(\text{SO})$ . The Fe spins on the kagome lattice order three dimensionally for temperatures below the Neel temperature,  $T = 65$  K. Spin-waves were measured at  $T = 10$  K, much lower than  $T$ . We have observed a novel weakly dispersive “zero-energy mode”, which is a consequence of the geometrical frustration. A spin Hamiltonian, which includes nearest-neighbor, second-nearest-neighbor interactions, easy-plane and easy-axis anisotropies, provides a good fit to our spin-wave data. We will discuss the implications of our results for the physics of the ideal kagome lattice.

