

Abstract Submitted
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High-Energy Magnon Dispersion and Multimagnon Continuum in La_2CuO_4 NEIL HEADINGS, STEPHEN HAYDEN, RADU COLDEA, University of Bristol, TOBY PERRING, ISIS Facility — We report high-energy neutron scattering measurements of the magnetic excitations in the $S=1/2$ antiferromagnet La_2CuO_4 . Measurements were made using the MAPS time-of-flight spectrometer at the ISIS spallation source. Previous measurements found evidence for higher order (cyclic) exchange couplings. We find evidence for significant corrections to linear spin-wave (SW) theory including these higher-order exchange constants. In particular, the intensity of the spin wave pole deviates strongly from that predicted by SW theory near the $\mathbf{Q} = (\mathbf{1}/2, \mathbf{0})$ position. We also find evidence for a multi-magnon continuum.

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