

Abstract Submitted
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Raman Evidence for Symmetry Breaking in SrCr_2O_4 ¹ MICHAEL VALENTINE, Department of Physics and Astronomy, The Johns Hopkins University, Baltimore, MD 21218, USA, SIÂN DUTTON, Department of Chemistry, Princeton University, Princeton, NJ 08544, USA, SEYED KOOHPAYEH, Department of Physics and Astronomy, The Johns Hopkins University, Baltimore, MD 21218, USA, ROBERT CAVA, Department of Chemistry, Princeton University, Princeton, NJ 08544, USA, COLLIN BROHOLM, Department of Physics and Astronomy, The Johns Hopkins University, Baltimore, MD 21218, USA, TURAN BIROL, HENA DAS, CRAIG FENNIE, Cornell University, Ithaca, New York 14853 USA, NATALIA DRICHKO, Department of Physics and Astronomy, The Johns Hopkins University, Baltimore, MD 21218, USA, INSTITUTE FOR QUANTUM MATTER COLLABORATION — Raman spectra from 400 cm^{-1} to 650 cm^{-1} were acquired from single crystalline SrCr_2O_4 to probe magneto-elastic effects on its frustrated magnetism. The compound contains two-dimensional sheets of CrO_2 , where spin-3/2 Cr atoms with direct exchange interactions form a distorted triangular lattice with helical magnetic order below 43K [1]. Even in the paramagnetic phase, the spectra show mode splitting beyond predictions for space-group P_{mnn} that describes powder x-ray diffraction data. This splitting occurs at the $480\text{ cm}^{-1} A_g$ mode and is enhanced below T_N , which suggests it may be associated with magneto-elastic effects.

[1] S E Dutton, E Climent-Pascual, P W Stephens, J P Hodges, A Huq, C L Broholm, and R J Cava, J. Phys.: Condens. Matter 23 (2011) 246005

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