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Magnetic ordering transition in the spin-gap compound $\mathbf{Sr_2Cu(BO_3)_2}$ I.R. FISHER, SUCHITRA E. SEBASTIAN, P. TANEDO, Dept. of Applied Physics, Stanford University, P.A. GODDARD, M. JAIME, N. HARRISON, NHMFL, Los Alamos National Laboratory, S.A. ZVYAGIN, NHMFL, Tallahassee — $Sr_2Cu(BO_3)_2$ is a weakly coupled dimer compound with an accessible spin gap between the singlet ground state and the lowest triplet excited state. The critical field ($H_c \simeq 56T$) above which the compound magnetically orders is significantly smaller than the intradimer coupling ($J \simeq 100K$), indicating triplet delocalisation due to the effect of interdimer exchange. Here, we present results of anisotropic high field magnetisation measurements that reveal the effects of Dzyaloshinskii-Moriya exchange interactions in determining the nature of the ordered state for $H > H_c$. We also present results that demonstrate how chemical pressure (the substitution of Ba for Sr) can be used to tune the spin gap in this material.

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