

Abstract Submitted  
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**Spin-lattice interactions through the quantum critical transition in  $\text{Cu}(\text{pyz})(\text{NO}_3)_2$** <sup>1</sup> O. GUNAYDIN-SEN, J. CHEN, J. L. MUSFELDT, University of Tennessee, L. C. TUNG, Y. J. WANG, National High Magnetic Field Laboratory, M. M. TURNBULL, C. P. LANDEE, Clark University, M. -H. WHANGBO, North Carolina State University — We measured the magneto-infrared response of the quasi-one-dimensional quantum Heisenberg antiferromagnet  $\text{Cu}(\text{pyz})(\text{NO}_3)_2$  to investigate local lattice distortions through the field-driven transition to the fully polarized magnetic state. This magnetic quantum critical transition involves changes in the out-of-plane N and C-H bending modes of pyrazine with field that directly track the magnetization. We discuss our results in terms of calculated spin densities, scaling laws, and extracted spin-phonon coupling constants, the latter of which are remarkably large due to the softness of the pyrazine ligand.

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