

Abstract Submitted  
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**Field-Induced Quantum Criticality in a Two-Dimensional Antiferromagnet**<sup>1</sup> TAO HONG, MICHEL KENZELMANN, MATTHEW BOULOUBASIS, DANIEL REICH, COLLIN BROHOLM, Johns Hopkins University, MATTHEW STONE, Oak Ridge National Laboratory, EMILY DUNKEL, SUBIR SACHDEV, Harvard University — We describe neutron scattering measurements on the two-dimensional spin gap antiferromagnet piperanzium hexachlorodocuprate (PHCC) in the vicinity of quantum critical point at which the spin gap is closed by an applied magnetic field. We measure the energy and damping of the propagating  $S_z = 1$  mode above the spin gap; both quantities become strongly temperature dependent at the critical field. The temperature dependence of the mode energy is successfully described by a self-consistent Hartree-Fock theory of interacting spin excitations.

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