

Abstract Submitted  
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**Nature of the low energy excitations in the spin liquid state of  $\text{Cs}_2\text{CuCl}_4$** <sup>1</sup> ALTAN ALLAWALA, VESNA MITROVIC, BRAD MARSTON, GEORGIOS KOUTROULAKIS, Brown University, RADU COLDEA, Clarendon Laboratory, University of Oxford — We have performed detailed measurements as a function of temperature and applied magnetic field of the NMR rate in the spin liquid phase of the spin-1/2 frustrated antiferromagnet  $\text{Cs}_2\text{CuCl}_4$ . Comparison of the magnetization and relaxation rate to the spin-1/2 antiferromagnetic chain  $\alpha$ - $\text{CuNSal}$  and to variational calculations using Gutzwiller-projected mean-field theory implies that the low energy excitations in  $\text{Cs}_2\text{CuCl}_4$  are characterized by gapless fermionic excitations in the spin liquid phase at non-zero temperature and applied field. To investigate the ability of one dimensional versus two dimensional models to reproduce the low energy properties of  $\text{Cs}_2\text{CuCl}_4$  <sup>2</sup> we compare the measured  $T^{-1}$  NMR rate to a field theoretical description of a Luttinger liquid<sup>3</sup>.

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<sup>2</sup>M.-A. Vachon *et al.*, New J. Phys. **13** 093029 (2011)

<sup>3</sup>H. Kühne *et al.*, Phys. Rev. B **83** 100407(R) (2011)

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