

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Dynamic Scaling in the susceptibility of the Spin-1/2 Kagomé Lattice Antiferromagnet Herbertsmithite JOEL HELTON¹, KITTIWIT MATAN, MATTHEW SHORES, BART BARTLETT, EMILY NYTKO, Massachusetts Institute of Technology, YIMING QIU, NIST Center for Neutron Research, DANIEL NOCERA, YOUNG LEE, Massachusetts Institute of Technology — The spin- $\frac{1}{2}$ kagomé lattice antiferromagnet herbertsmithite, $\text{ZnCu}_3(\text{OH})_6\text{Cl}_2$, appears to display a quantum disordered ground state with effectively gapless excitations. We show that the dynamic susceptibility of this material displays an unusual scaling relation in both the bulk ac susceptibility and the imaginary part of the dynamic susceptibility as measured by inelastic neutron scattering. This behavior is remarkably similar to that seen in certain heavy-fermion metals which are doped to be near a quantum critical point.

¹Current Address: NIST Center for Neutron Research

Joel Helton
NIST Center for Neutron Research

Date submitted: 10 Nov 2009

Electronic form version 1.4