

Abstract Submitted
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Magnetic studies of $S=1/2$ kagomé lattice single crystals TIANHENG HAN, MIT, JOEL HELTON, ANDREA PRODI, CLAUDIO MAZZOLI, PETER MULLER, DEEPAK SINGH, JOSE RODRIGUEZ, COLLIN BROHOLM, DANIEL NOCERA, SHAOYAN CHU, YOUNG LEE — The Zn-paratacamite mineral family, $Zn_xCu_{4-x}(OH)_6Cl_2$, presents a promising system for studies of frustrated magnetism on a $S=1/2$ kagomé lattice. Here we report a new synthesis method, by which high quality single crystals of Zn-paratacamite can be produced. The $x = 1$ mineral herbertsmithite is a spin-liquid candidate. This compound displays a magnetic susceptibility that is anisotropic at high temperatures. A small anisotropy is observed in specific heat measurements with magnetic field applied in-plane and normal-to-plane. Inelastic neutron scattering has been performed and we will discuss the observed structure factor in the context of various theoretical expectations.

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