

Abstract Submitted
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Magnetic excitations
from a pyrochlore Heisenberg antiferromagnet¹ KEMP PLUMB, ALLEN SCHEIE, The Johns Hopkins University, JASON KRIZAN, Princeton University, JOSE RODRIGUEZ-RIVERA, YIMING QIU, NIST Center for Neutron Research, ROBERT CAVA, Princeton University, COLLIN BROHOLM, The Johns Hopkins University — We present single crystal inelastic neutron scattering measurements for a new pyrochlore antiferromagnet, $\text{NaCaNi}_2\text{F}_7$. In this material $S=1$ carrying Ni ions occupy the B-site pyrochlore sublattice while Na^+ and Ca^{2+} are completely disordered on the A-site. Our results show that while the infinite time magnetic correlations are dominated by the influence of this Na-Ca charge disorder, the energy scale set by this disorder is small compared with the magnetic exchange interactions. On shorter time scales (higher energies) spin liquid correlations dominate. These are the first such measurement of the full excitation spectra from the spin-liquid phase in a pyrochlore Heisenberg antiferromagnet and provide new insight into the interplay between disorder and magnetic exchange interactions in frustrated magnets.

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