

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Dynamic spin ice: $\text{Pr}_2\text{Sn}_2\text{O}_7$ ¹ CHRISTOPHER WIEBE, Florida State University/NHMFL, HAIDONG ZHOU, JOHN JANIK, LUIS BALICAS, YOUNJOON JO, YIMING QIU, JOHN COPLEY, JASON GARDNER — In this presentation, we report a new spin ice - $\text{Pr}_2\text{Sn}_2\text{O}_7$ - which appears to have enhanced residual entropy due to the dynamic nature of the spins. Neutron scattering experiments show that at 200 mK, there is a significant amount of magnetic diffuse scattering which can be fit to the dipolar spin ice model. However, these short-ranged ordered spins have a quasielastic response that is atypical of the canonical spin ices, and suggests that the ground state is dynamic (ie. composed of locally ordered 2-in, 2-out spin configurations that can tunnel between energetically equivalent orientations). We report this as an example of a *dynamic* spin ice down to 200 mK.

¹We acknowledge support from the NSF and the EIEG program (FSU).

Christopher Wiebe
Florida State University

Date submitted: 20 Nov 2008

Electronic form version 1.4