Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

High Resolution Neutron Scattering Study of $Ho_2Ti_2O_7$ JASON GARDNER, Indiana University and NIST — I will review recent neutron scattering work on the pyrochlore oxides $Ho_2Ti_2O_7$, looking at the slow spin dynamics in the system. For many years now, the nuclear spin system was held responsible for the persistent (electronic) spin dynamics in $Ho_2Ti_2O_7$ at mK temperatures. We can now measure both spin systems directly with the improved signal to noise ratio seen at modern back scattering instrumentation. I hope to show this is not the case. To complicate the story further propagating magnetic "monopoles" have now been observed in this and other spin ice materials. I will comment on these exotic excitations and what our data can say about them. This work was performed in collaboration with Georg Ehlers and other at the SNS, in Oak Ridge.

[1] "Direct observation of a nuclear spin excitation in Ho2Ti2O7" G Ehlers, E Mamontov, M Zamponi, K C Kam and J S Gardner, Phys. Rev. Lett. **102**, 016405 (2009).
[2] "Observation of Magnetic Monopoles in Spin Ice" Kadowaki et al., J. Phys. Soc Japan **78** 103706 (2009) and Signature of magnetic monopole and Dirac string dynamics in spin ice" Jaubert and Holdsworth, Nature Phys. 5, 258 (2009).

Jason Gardner
Indiana University/NIST

Date submitted: 09 Dec 2009 Electronic form version 1.4