High Resolution Neutron Scattering Study of Ho$_2$Ti$_2$O$_7$ JASON GARDNER, Indiana University and NIST — I will review recent neutron scattering work on the pyrochlore oxides Ho$_2$Ti$_2$O$_7$, 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$_2$Ti$_2$O$_7$ 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.