Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Muon Spin Relaxation Studies of Pyrochlore Iridates $R_2Ir_2O_7$, (R= Y, Yb, and Nd) STEVEN DISSELER, CHETAN DHITAL, STEPHEN WILSON, Boston College, SEAN GIBLIN, ISIS-RAL, ALEX AMATO, CHRIS BAINES, Paul Scherrer Institute, MICHAEL GRAF, Boston College — We report results for zero field muon spin relaxation measurements over the range 2 K $<$ T $<$ 220 K taken at the ISIS facility for three members of the pyrochlore iridate family, $R_2Ir_2O_7$, comprised of both magnetic (R = Yb, Nd) and non-magnetic (R = Y) species. The formation of a static internal field is detected via a loss of asymmetry below the bifurcation temperature observed in magnetic susceptibility for all three compounds. We will present results describing the nature of this internal field based on short time muon depolarization data taken at PSI. Longitudinal field measurements reveal the internal field is of order 1000 G for all three materials, and the existence of dynamic fluctuations at 2 K for R = Yb, Nd; the depolarization is quasistatic near 2 K for R = Y. We discuss these results as applied to understanding the unusual magnetic and transport properties observed in the iridate family, and the implications regarding long range magnetic order and the low temperature ground state.

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Date submitted: 22 Nov 2011 Electronic form version 1.4