Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Magnetic Ordering in Yb$_4$LiGe$_4$ J.N. SVENSSON, S. DISSELER, R.C. JOHNSON, M.J. GRAF, Boston College, S. GIBLIN, ISIS Rutherford Appleton Laboratory, P. CARRETTA, Univ. of Pavia, S. PETER, Northwestern University — R$_5$T$_4$ compounds (R = rare earth, T = Ge or Si) are interesting because the magnetic properties depend sensitively on changes in the crystalline structure. Yb$_5$Ge$_4$ such a compound, with (presumed) AFM order occurring at $T_N = 1.7$ K. We are interested in the effects of substituting Li in place of one Yb atom. Previous measurements of the magnetic properties of polycrystalline Yb$_4$LiGe$_4$ using NMR, specific heat, and resistance measurements at temperatures down to 0.5 K and in magnetic fields up to 4 T were made for comparison with the parent compound. The resistance measurements showed a maximum at 1.1 K, which may indicate the onset of magnetic order. Thus we performed $\mu$SR measurements on Yb$_4$LiGe$_4$ and Yb$_5$Ge$_4$, and analysis of the data confirmed magnetic ordering (possibly AFM) at 1.1 K. $\mu$SR also revealed a dependence on the magnetic history of the sample. Currently we are studying the pressure dependence of the (presumed) $T_N$ to explore if increased pressure can drive the $T_N$ to 0 K, and results will be discussed.

Jacob Niclas Svensson
Boston College

Date submitted: 21 Nov 2009

Electronic form version 1.4