Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

μSR Study of Non-Magnetic Non-Centrosymmetric Superconductor $LaRhSi_3$ ALEXANDRE DESILETS-BENOIT, ANDREA BIANCHI, University of Montreal, GABRIEL SEYFARTH, University of Geneve, GERALD MORRIS, ROB KIEFL, TRIUMF, SARAH DUNSINGER, Technische Universitat Munchen, CIGDEM CAPAN, ZACHARY FISK, University of California - Irvine — We report on results of μSR experiments in a transverse field geometry of the non-centrosymmetric non-magnetic superconductor $LaRhSi_3$. $LaRhSi_3$ crystallizes in the $BaNiSn_3$-type tetragonal structure (space group I4mm) and it has a critical temperature T_c of 2.2 K. $LaRhSi_3$ is a type II superconductor which in magnetic fields presents an unusually sharp specific heat transition suggesting first order transitions. Under a field 250 G, $LaRhSi_3$ has a relatively low H_{c2} in respect to its H_{c1} of 90 G and a Pauli limit of 3.3 T. Surprisingly, at a field of 150 G we find the onset of depolarization of the muons to occur at a temperature which is a factor of 4 higher than the T_c obtained from transport measurements.

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Date submitted: 20 Nov 2009 Electronic form version 1.4