

Abstract Submitted
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Muon Spin Relaxation Study of Ba(Fe_{0.93}Co_{0.07})₂As₂ GRAEME LUKE, A. ACZEL, McMaster University, J.P. CARLO, Columbia University, T. GOKO, TRIUMF, T.J. WILLIAMS, McMaster University, N. NI, S.L. BUD'KO, P.C. CANFIELD, Ames Laboratory, Y.J. UEMURA, Columbia University — We have performed muon spin relaxation (μ SR) measurements of superconducting Ba(Fe_{0.93}Co_{0.07})₂As₂. Zero field measurements show that static magnetism is absent for this Co concentration. In the mixed state, we observe a well-formed vortex lattice which results in an anisotropic μ SR lineshape. We have fit the spectra to a microscopic model for the vortex state to obtain the magnetic field penetration depth. The penetration depth is about 2000Å in low (200G) fields and increases with applied field. The temperature dependence of the superfluid density is well described by a power law; behaviour which is consistent with gap nodes, substantial gap anisotropy or multi-band superconductivity. Research at McMaster University is supported by NSERC and CIFAR. Work at the Ames Laboratory was supported by the Department of Energy, Basic Energy Sciences under Contract No. DE-AC02-07CH11358.

Graeme Luke
McMaster University

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