## Abstract Submitted for the MAR10 Meeting of The American Physical Society

 $\mu$ SR Studies of Electron-doped 122 Pnictide Superconductors TRAVIS WILLIAMS, A.A. ACZEL, McMaster University, J.P. CARLO, Y.J. UEMURA, Columbia University, J. PAGLIONE, University of Maryland, S.L. BUD'KO, N. NI, P.C. CANFIELD, Ames Laboratory, Iowa State University, T. GOKO, McMaster University, Columbia University, TRIUMF, G.M. LUKE, McMaster University — Single crystals of Ba(Fe<sub>1-x</sub>Co<sub>x</sub>)<sub>2</sub>As<sub>2</sub> and Sr(Fe<sub>1-x</sub>Co<sub>x</sub>)<sub>2</sub>As<sub>2</sub> were studied using Transverse field (TF)- $\mu$ SR. We measured the penetration depth in the superconducting state by fitting the  $\mu$ SR spectra to a microscopic model for a range of applied magnetic fields and dopings. We have fit the temperature dependence of the superfluid density to a phenomenological two-gap model. We find that the low-temperature superfluid density varies roughly linearly with superconducting T<sub>C</sub>, both of which decrease with increasing Co substitution above x = 0.06.

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