Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Effect of electron irradiation on superconductivity in isovalently substituted $\mathbf{Ba(Fe_{1-x}Ru_x)_2As_2}$ and $\mathbf{SrFe_2(As_{1-x}P_x)_2}$ C.P. STREHLOW, A. THALER, M.A. TANATAR, S.L. BUD'KO, P.C. CANFIELD, R. PROZOROV, The Ames Laboratory, M. KOCZYKOWSKI, LSI, Ecole Polytechnique, S. MIYASAKA, Osaka University — Single crystals of isovalently substituted $Ba(Fe_{1-x}Ru_x)_2$ As_2 and $SrFe_2(As_{1-x}P_x)_2$ were irradiated at 23 K by 2.5 MeV electrons with a total fluence up to 2×10^{19} electrons per cm^2. Both the resistivity and Hall coefficient were measured before and after irradiation using the van der Pauw method. Irreversible vortex properties were probed using miniature Hall-probe arrays. We correlate the change in resistivity due to irradiation with changes in flux pinning, relaxation rate and irreversibility line. We compare the results with theoretical predictions for different pairing scenarios, including extended $s_{\pm}$.

C.P. Strehlow
The Ames Laboratory

Date submitted: 16 Nov 2012 Electronic form version 1.4