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**Effect of Electron Irradiation on isovalenly substituted $\mathbf{SrFe_2(As_{1-x}P_x)_2}$, $x = 0.35$** C.P. STREHLOW, Ames Laboratory, Ames, IA, USA, JASON MURPHY, Hummingbird Scientific, Lacey, WA, MAKARIY TANATAR, RUSLAN PROZOROV, Ames Laboratory, Ames, IA, USA, M. KONCZYKOWSKI, LSI, Ecole Polytechnique, Palaiseau, France, N. SALOVICH, R.W. GIANNETTA, UIUC, Urbana, IL, T. KOBAYASHI, S. MIYASAKA, S. TAJIMA, Osaka University, Osaka, Japan — The effects of electron irradiation on the termperature-dependent London penetration depth, $\lambda$(T), have been investigated in annealed optimally doped single crystals of isovalently substituted $SrFe_2(As_{1-x}P_x)_2$, $x = 0.35$, using the tunnel diode resonator technique. The low temperature behavior of $\lambda$(T) changes under electron irradiation from almost $T-$linear to practically exponentially saturated behavior, similar to the observations in another isovalently substituted 122 pnictide, $BaFe_2(As_{1-x}P_x)_2$. Furthermore, aluminum - coating technique was used to measure the absolute values of the London penetration depth, $\lambda(0)$, which allowed calculations of the superfluid density, $\rho_s$. We conclude that, similar to $BaFe_2(As_{1-x}P_x)_2$, the superconducting properties of $SrFe_2(As_{1-x}P_x)_2$ are compatible with $s_\pm$ pairing with accidental line nodes that are lifted by pair-breaking disorder. This work was supported by the Department of Energy Office of Science, Basic Energy Sciences under Contract No. DE-AC02-O7CH11358.

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