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Evolution of London penetration depth in single crystals of $\mathbf{Ba(Fe_{1-x}T_x)_2As_2}$ (T=Co, Ni) irradiated with heavy ions H. KIM, R. T. GORDON, N. NI, M. A. TANATAR, S. L. BUD'KO, P. C. CANFIELD, Ames Laboratory/Iowa State University, J. HUA, U. WELP, W. K. KWOK, Argonne National Laboratory, R. PROZOROV, Ames Laboratory/Iowa State University — Single crystals of $Ba(Fe_{1-x}T_x)_2As_2$ (T=Co, Ni) were irradiated with 1.4 GeV Pb ions at different fluences to deliberately produce defects of controlled density. The London penetration depth, $\lambda(T)$, was measured by using the tunnel diode resonator technique. While overall, $\lambda(T)$ exhibits a power-law behavior at low temperatures, $\lambda(T) \sim AT^n$, as was found previously [1], the fitting parameters A and n depend on the irradiation. Furthermore, both transport and magnetic susceptibility measurements show some reduction in the superconducting transition temperature, T_c, with increasing density of the induced defects. The evolution of the low temperature behavior of the penetration depth and transition temperature with irradiation dose will be analyzed in frameworks of existing theories where scattering plays a significant role due to sign change of the order parameter. The implications for the understanding of the pairing mechanisms in pnictide superconductors will be discussed. [1] R. T. Gordon *et al.*, Phys. Rev. Lett. **102**, 127004 (2009); Phys. Rev. B **79**, 100506(R) (2009).

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