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Effect of electron irradiation on magnetic and superconducting transitions in underdoped $(Ba_{1-x}K_x)Fe_2As_2$[1] RUSLAN PROZOROV, M. A. TANATAR, Ames Laboratory, Ames IA 50011, USA, M. KOŃCZYKOWSKI, LSI, Ecole Polytechnique, Palaiseau, France, R. FERNANDES, University of Minnesota, MN, USA, B. SHEN, HAI-HU WEN, Nanjing University, China — Single crystals of $(Ba_{0.8}K_{0.2})Fe_2As_2$ (T_{c0} = 17 K) were irradiated by 2.5 MeV electrons in several steps up to a total fluence of 2×10^{19} electrons per cm^2. The sample resistance was measured both in situ at 23 K during the irradiation, and as a function of temperature in a separate set-up, between the irradiation runs. Annealing of the induced defects by warming the sample up to different temperatures showed that the defects are stable as long as sample temperature remains at or below the highest temperature the sample was subject to. We found that both superconducting and magnetic transition temperatures decrease linearly with the increase of the residual resistivity. Surprisingly, both transitions are supressed at the same rate of 0.1 K/$\mu\Omega$cm. For the highest dose, the residual resistivity changed by $\Delta\rho(0)$ = 85 $\mu\Omega$cm, whereas T_c changed from 17 K to 8 K and T_N changed from 102 to 93 K. Our results provide a strong evidence that both superconductivity and magnetism of iron - based superconductors are derived from the interband nesting - like interactions.

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