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Effect of electron irradiation on resistivity and London penetration depth of ($Ba_{1-x}K_x$)Fe_2As_2[1] KYUIL CHO, J. MURPHY, H. KIM, M.A. TANATAR, R. PROZOROV, The Ames Laboratory, USA, M. KONCZYKOWSKI, LSI, Ecole Polytechnique, France, B. SHEN, H.H. WEN, Nanjing University, China — The effect of electron irradiation on the in-plane resistivity and London penetration depth was studied in single crystals of ($Ba_{1-x}K_x$)Fe_2As_2 (x = 0.19, 0.24, and 0.34). The irradiation fluence varied between 8.7×10^{18} and 5.2×10^{19} electrons per cm^2. We found a profound decrease of the critical temperature, T_c, by 3 - 10 K depending on doping and the irradiation dose. Expectedly, the residual resistivity increases. The analysis of low-temperature part of London penetration depth shows that the superconducting gap becomes more anisotropic in under-doped (x = 0.19 and 0.24) crystals. Interestingly, however, the full - gap at the optimal doping (x = 0.34) remained at the same $\Delta(0)/T_c$ ratio after 5.2×10^{19} e/cm^2 irradiation even though T_c has decreased by almost 10 K (1/4 of the original value). The results will be discussed in a framework of $s_\pm$ pairing with a complex interplay between intra - and inter - band interactions and scattering.

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Kyuil Cho
The Ames Laboratory

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