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Systematics of the temperature dependent inter-plane resistivity in ($Ba_{1-x}K_x$)Fe_2As_2[1] MAKARIY TANATAR, YONG LIU, T.A. LOGRASSO, B. JENSEN, K.W. DENNIS, R.W. MCCALLUM, RUSLAN PROZOROV, Ames Lab — The single crystals of hole-doped iron-based superconductor ($Ba_{1-x}K_x$)Fe_2As_2 were studied in great details in underdoped to optimally - doped compositions. In contrast, the overdoped side was practically inaccessible due to the difficulty in crystals growth. Only recently high quality single crystals have become available, and here we report the temperature dependent inter-plane resistivity for the whole doping range x=0 to x=1. In a parent compound, $BaFe_2As_2$, inter-plane resistivity shows a broad cross-over maximum at a characteristic temperature T_{max} ∼200 K. With K doping this maximum first shifts to higher temperatures, reaches a maximum 250 K close to the optimal doping, $x = 0.4$ and then decreases towards the K-rich compositions. In pure KFe_2As_2 the maximum shows clear correlation with features in magnetization measurements.

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