Abstract Submitted
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Temperature-dependent resistivity in single crystals $\mathbf{Na}_{1-\delta}\mathbf{Fe}_{1-x}\mathbf{Co}_x$[1] M. A. TANATAR, Ames Laboratory US DOE, Ames, Iowa, N. SPYRISON, K. CHO, Ames Laboratory US DOE, Ames Iowa, G.T. TAN, J.Q. YAN, P.C. DAI, C.L. ZHANG, Oak Ridge National Laboratory, Knoxville, TN, R. PROZOROV, Ames Laboratory US DOE, Ames Iowa — Stoichiometric NaFeAs superconductor is representative of the slightly underdoped part of the doping phase diagram, with a sequence of tetragonal-to-orthorhombic, $T_s \approx 60$ K, magnetic, T_m=45 K, and superconducting, T_c=12 K transitions. Doping level in the compound can be tuned with Co substitution of Fe, acting as electron donor. This doping suppresses structural and magnetic instabilities and induces superconductivity with T_c up to 25 K. Doping with Co allows for studying complete doping phase diagram. We performed systematic measurements of the temperature-dependent in-plane, $\rho_a(T)$, and inter-plane, $\rho_c(T)$, electrical resistivities in the compounds. At optimal doping, both $\rho_a(T)$ and $\rho_c(T)$ show close to T-linear temperature dependence above the superconducting T_c. With doping this dependence gradually evolves towards T^2. At much higher temperatures a slope-change is observed in $\rho_a(T)$, which we relate with onset of carrier activation over a pseudogap.

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M. A. Tanatar
Ames Laboratory US DOE, Ames Iowa

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