Abstract Submitted
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Inter-plane resistivity in single crystals $Ca(Fe_{1-x}Co_x)_2As_2$ with doping level variation[1] MAKARIY TANATAR, S. RAN, S.L. BUD'KO, P.C. CANFIELD, RUSLAN PROZOROV, Ames Laboratory USDOE and Iowa State University — $CaFe_2As_2$ undergoes sharp first order tetragonal-to-orthorhombic phase transition on cooling below T_{SM}=175 K, accompanied by stripe type antiferromagnetic ordering. The transition temperature can be suppressed to zero by application of pressure, revealing collapsed tetragonal high pressure phase, and partial superconductivity. It can also be suppressed by Co substitution of Fe. This doping suppresses structural and magnetic instabilities and induces bulk superconductivity with T_c up to 17 K $Ca(Fe_{1-x}Co_x)_2As_2$ with x=2.8% [1]. Here we report systematics of the temperature-dependent inter-plane resistivity in this Co-doped series of compounds over complete doping phase diagram.

[1] S. Ren S.L. Bud'ko, W.E.Straszheim, J. Soh, M.G.Kim, A.Kreyssig, A.I.Goldman and P.C.Canfield, Phys. Rev. B **85**, 224528 (2012).

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