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c-axis transport in rare-earth doped $CaFe_2As_2$[1] JOHNPIERRE PAGLIONE, T. DRYE, R. HU, S.R. SAHA, University of Maryland — The discovery of a low volume fraction phase of superconductivity in rare-earth doped $Ca_{1-x}R_xFe_2As_2$ with T_c= 47 K has sparked controversy over the nature of the observed superconductivity. However, an important aspect to understanding the behavior in these systems lies in understanding the role of the structural collapse wherein interlayer As atoms abruptly form a bond at sufficiently low temperatures, resulting in a ∼10% reduction of the *c*-axis through a first-order transition. We will present measurements of electrical transport with currents directed along the crystallographic *c*-axis, discussing the implications for the superconducting phase and the nature of the band structure change through the structural collapse transition.

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