Abstract Submitted
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Thermal expansion of $CaFe_2As_2$: effect of annealing and cobalt doping[1] SERGEY L. BUD'KO, SHENG RAN, PAUL C. CANFIELD, Ames Laboratory, US DOE, and Dept. of Physics and Astronomy, Iowa State University, Ames, IA 50011, USA — Careful choice of Co concentration and annealing/quenching temperature in the $Ca(Fe_{1-x}Co_x)_2As_2$ series allows for tuning the ground state of the from orthorhombic-antiferromagnetic to superconducting to collapsed tetragonal [1].In this talk temperature-dependent, c-axis, thermal expansion measurements on several sets of Co-doped $CaFe_2As_2$ single crystals that were subjected to a variety of annealing conditions will be presented. These samples were chosen to cover all salient regions of the 3D $x - T_{anneal} - T$ phase diagram. The thermal expansion signatures of different types of phase transitions observed in these series will be discussed and comparison with the other measurements will be made.

[1] S. Ran, *et al.*, PRB **85**, 224528 (2012).

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