Abstract Submitted
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Thermal expansion of CaFe$_2$As$_2$: 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$_x$)$_2$As$_2$ 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$_2$As$_2$ 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 $x - T_{\text{anneal}} - T$ 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.


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