

Abstract Submitted
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The Interplay of Fe and Ce Magnetism in $\text{Ca}_{0.71}\text{Ce}_{0.29}(\text{Fe}_{1-x}\text{Co}_x)\text{As}_2$ single crystals¹ SHAN JIANG, Univ of California - Los Angeles, LIAN LIU, Columbia University, HUIBO CAO, WEI TIAN, Oak Ridge National Lab, EVE EMMANUELIDU, AOSHUANG SHI, Univ of California - Los Angeles, YASUTOMO UEMURA, Columbia University, NI NI, Univ of California - Los Angeles — In this talk, we will present the synthesis and characterization of the $\text{Ca}_{0.71}\text{Ce}_{0.29}(\text{Fe}_{1-x}\text{Co}_x)\text{As}_2$ single crystals. Elastic neutron scattering complemented by resistivity, susceptibility and heat capacity measurements has revealed a paramagnetic-to-antiferromagnetic phase transition of the Fe sublattice at 69K and a monoclinic-to-triclinic structural phase transition at 73 K in $\text{Ca}_{0.71}\text{Ce}_{0.29}\text{FeAs}_2$. In addition, Fe spin reorientation and Ce ordering at lower temperatures, reminiscent of the one in REFeAsO (RE=Ce, Pr, Nd) materials, exist. The Co substitution on the Fe sites completely suppresses the ordering of Fe sublattice at $x=0.032$. However, it only slightly affects the Ce ordering, which prevents the formation of superconductivity in $\text{Ca}_{0.71}\text{Ce}_{0.29}(\text{Fe}_{1-x}\text{Co}_x)\text{As}_2$.

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Shan Jiang
Univ of California - Los Angeles

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