

Abstract Submitted
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Combined Transport, Magnetization and Neutron Studies of Structural and Magnetic Behavior in $\text{Ca}_3\text{Ir}_4\text{Sn}_{13}$ ZHENSONG REN, MANI POKHAREL, TOM HOGAN, Boston College, ATHENA SEFAT, CLARINA DE LA CRUZ, HUIBO CAO, Oak Ridge National Laboratory, BO LI, CYRIL OPEIL, STEPHEN WILSON, Boston College — $\text{Ca}_3\text{Ir}_4\text{Sn}_{13}$, synthesized by Espinosa and his coworkers almost 30 years ago, was recently suggested to possess an unconventional superconducting ground state in the presence of a background of strong spin fluctuations. This signature for this claim stemmed from charge transport and magnetization anomalies near 45K, yet, later a detailed single crystal XRD investigation revealed that the anomaly is produced by a second order superlattice transition and that this transition can be tuned to zero temperature—suggesting a structural quantum critical point. Here in an attempt to characterize this phase further, we present a picture of the evolution of the structural and magnetic behavior in $\text{Ca}_3\text{Ir}_4(\text{Sn}_{1-x}\text{Sbx})_{13}$ via a combined transport, magnetization and neutron scattering study.

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