Abstract Submitted
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Synthesis, structure, chemical doping and high pressure studies of the $SrPt_3$ P with unique structure features[1] BENMAAN JAWDAT, BING LV, XIYU ZHU, YUYI XUE, CHING CHU[2], Texas Center for Superconductivity and Department of Physics, University of Houston, Houston, TX 77204-5002 — Superconductivity up to 8.4K was reported by Takayama et al.[3] in APt_3P (A=Sr, Ca and La) in 2012 with structural information based only on X-ray powder refinement. The compounds are suggested to crystallize in an antiperovskite-based structure closely related to that of the heavy fermion superconductor $CePt_3Si$ but are nonpolar unlike $CePt_3Si$. Both small single crystals and polycrystalline samples of $SrPt_3P$, the compound with the highest T_c of this class of materials, are synthesized through solid state reactions. In this presentation, full and detailed structural information will be revealed based on X-ray single crystal analysis. Different chemical doping on different sites and high pressure studies have been carried out on the compound of $SrPt_3P$. The results and its implication will be presented and discussed.

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[3]T. Takayama, K. Kuwano, D. Hirai, Y. Katsura, A. Yamamoto, and H. Takagi, Phys. Rev. Lett., 108, 237001(2012).

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