

Abstract Submitted
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Physical characterization of chemically-doped YFe_2Ge_2 compounds at different Y, Fe and Ge sites LAXMI RISAL, SHENG LI, BING LV, Department of Physics, University of Texas at Dallas — The discovery of superconductivity in the Fe pnictides in 2008 has triggered intensive research on the superconductivity of so called 122 ThCr_2Si_2 -type AFe_2As_2 (A=alkali or alkaline earth metals) compounds, with many superconductors have been found in the past few years. On the other hand, experimental efforts are also carried out to search for superconductivity in the other non-pnictide systems with the same ThCr_2Si_2 -type structures, i.e. RFe_2Ge_2 and RFe_2Si_2 where R= rare earth elements. Superconductivity with transition temperature (T_c) at 1.8K is indeed detected in the YFe_2Ge_2 through stringent synthesis procedure. Herein, we have carried out systematical doping studies at Y, Fe, and Ge sites, with the aim to further enhance the T_c . The detail synthesis, x-ray analysis, electrical transport, and heat capacity measurements will be presented, and the results with potential quantum criticality will be discussed.

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