

Abstract Submitted
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Superconductivity in Ta-doped Zr_5Ge_3 System VARUN ANAND, SHENG LI, XIAOYUAN LIU, BING LV, The University of Texas at Dallas, Richardson, Texas, THE UNIVERSITY OF TEXAS AT DALLAS TEAM — Inspired by the discovery of first superconductor Zr_5Sb_3 in the large hexagonal Mn_5Si_3 -type compounds, we have carried out systematical doping studies in the Ta-doped $Zr_{5-x}Ta_xGe_3$ ($0 \leq x \leq 5$) system. X-ray diffraction analysis has shown a clear phase transition from hexagonal Mn_5Si_3 -type structure to tetragonal W_5Si_3 -type structure occurring when $x > 3$. Superconductivity up to 4.5K is observed, on the other hand, when Ta doping level is $0.5 \leq x \leq 2$. The superconductivity is further demonstrated from both magnetic and electrical resistivity measurements with type-II superconductors and upper critical field ~ 5000 Oe. The detailed synthesis and characterizations will be presented and discussed.

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