Superconducting Transition in New Thorium-Nickel-Carbon Ternary Compound ThNi$_4$C TED GRANT, University of California Irvine, ANTONIO JEFFERSON S. MACHADO$^1$, EEL - USP - Brazil, CIGDEM CAPAN, ZACHARY FISK, University of California Irvine — Since the discovery of high temperature superconductivity in iron pnictides, there is an emphasis on finding new Co, Ni, or Fe based superconductors. We have synthesized for the first time ThNi$_4$C that is in the hexagonal CaCu$_5$ prototype structure. We discovered bulk superconductivity in ThNi$_4$C that has previously been unreported in the thorium-nickel-carbon ternary system. The data from magnetic susceptibility, electrical resistivity, and heat capacity indicate bulk superconductivity with $T_c = 5.5$ K. Results from thorium substitution with Y, Lu, La, and Gd will also be presented.

$^1$visiting scholar at UC Irvine

Ted Grant
University of California Irvine

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