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Synthesis of the electron-doped copper superconductors $Eu_{2-x}Ce_xCuO_{4-y}$ and their physical property characterization using the X-ray powder diffraction and high pressure[1] GUOQING WU, WILLIAM NELSON, LUIS FLORES, SEAN HEFFERNAN, CHRISTOPHER WECKERLY, Dept. of Physics, University of West Florida, 32514, USA — The electron-doped copper superconductors $Eu_{2-x}Ce_xCuO_{4-y}$ ($0 \leq x \leq 0.25$) were synthesized successfully using a solid state reaction method under a series of annealing and reduction procedures. X-ray diffraction and high hydrostatic pressure were used for their structure and electrical property characterization. Preliminary results show that the samples are in a single phase and the T_c drops as the pressure increases with a rate in sign opposite to the hole-doped counterparts and in magnitude apparently smaller than other cuprate superconductors.

[1]UWF Scholarly Creative Activity Award and UWF Research Academy Award 2011

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