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Thermoelectric and Structural Properties of the Chemically Doped $Ca_3Co_4O_9$ System JIANMING BAI, Oak Ridge National Laboratory, TAO WU, TREVOR A. TYSON, HAIYAN CHEN, New Jersey Institute of Technology — The Cu and Y doped thermoelectric oxide system $[Ca_2CoO_3][CoO_2]_{1.61}$, also referred to as $Ca_3Co_4O_9$, was prepared by solid state reaction followed by annealing under oxygen. The temperature dependent thermoelectric properties, including resistivity (ρ), Seebeck coefficient (S) and thermal conductivity (κ), were measured on Cu doped $[Ca_2Co_{1-x}Cu_xO_3][CoO_2]_{1.61}$ and Y doped $[Ca_{2-x}Y_xCoO_3][CoO_2]_{1.61}$. In order to understand the origin of the changes in ZT with doping, local (XAS) and long range (XRD) structural measurements as a function of doping were conducted. Identification of the locations of the doping sites and the impact on ZT will be discussed. This work is supported by DOE Grant DE-FG02-07ER46402. The Physical Properties Measurements System was acquired under NSF MRI Grant DMR-0923032 (ARRA award).

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