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Skutterudite Derivatives: A Fundamental Investigation of New Materials with Potential for Thermoelectric Applications KAYA WEI, YONGKWAN DONG, GEORGE NOLAS[1], Universiry of South Florida — Thermoelectric devices allow for the direct conversion of heat into electricity as well as solid-state refrigeration. Skutterudites continue to be of great interest for power generation applications. For example, when atoms are placed into the interstitial cages of these open-structured materials, the lattice thermal conductivity can be substantially reduced compared with that of unfilled skutterudites. Recently we began a fundamental investigation of new compounds with a modified skutterudite structure. Fundamental studies on the synthesis and low temperature transport properties of unfilled and partially filled rhombohedrally modified skutterudite derivatives will be presented. Along with Reitveld refinement, the structure and stoichiometry of those compositions as well as their transport properties will be discussed. This work aims to further the fundamental investigation of new skutterudites, while continuing the research on these materials towards thermoelectric power generation applications.

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