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Transport properties of germanium-filled skutterudites JIHUI YANG, Materials and Processes Laboratory, GM R&D Center, Warren, MI 48090, GEORGE NOLAS, Department of Physics, University of South Florida, Tampa, FL 33620, HIROTSUGU TAKIZAWA, Department of Materials Chemistry, Tohoku University, Sendai, Japan — We report the transport properties of dense polycrystalline Ge-filled skutterudites $Ge_{0.25}Co_4Sb_{12}$ and $Ge_{0.05}Co_4Sb_{12}$ prepared by a high-pressure synthesis approach. Low temperature electrical resistivity, Seebeck coefficient, Hall coefficient, and thermal conductivity measurements were performed on these skutterudite compounds, and are compared with those of $Co_4Sb_{11}Ge$ and $CoSb_3$. The Ge atoms residing inside the interstitial voids of the skutterudite crystal structure act as electron donors. The lattice thermal conductivity of these compounds is lower than that of $CoSb_3$ but higher than that of other filled skutterudites. The potential for thermoelectric applications is also discussed.

Jihui Yang
Materials and Processes Laboratory, GM R&D Center, Warren, MI 48090

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