

Abstract Submitted  
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**Electronic and Thermal Properties of Cubic Ge-Sb-Te Compounds** DONALD MORELLI, KEVIN ZHOU, Michigan State University — The ternary rocksalt structure compound  $\text{Ge}_4\text{SbTe}_5$  is unusual because most members of the Ge-Sb-Te family form along the tie-line of the binary compounds GeTe and  $\text{Sb}_2\text{Te}_3$ , and thus do not possess the 1:1 cation:anion ratio necessary to present themselves in a cubic structure. The TE properties of these  $(\text{GeTe})_x(\text{Sb}_2\text{Te}_3)_{1-x}$  compounds, while interesting in their own right, are no better than those of commercially available materials.  $\text{Ge}_4\text{SbTe}_5$  and its relatives, with equal numbers of atoms on the cation and anion sites, form stably in the cubic rocksalt structure. For TE applications a cubic compound is advantageous because there is no issue regarding anisotropy of the thermoelectric properties. We have fabricated bulk samples of  $\text{Ge}_4\text{SbTe}_5$  and related compounds, characterized their crystal structure, and measured some of their thermal and electronic properties. Results of isoelectronic substitution of Se on the Te site and Sn on the Ge site will be reported.

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