

Synthesis, Structure, Magnetism, and High Temperature Thermoelectric Properties of Ge doped Yb₁₄MnSb₁₁

Japheth F. Rauscher,¹ Catherine A. Cox,¹ Tanghong Yi,¹ and Susan M. Kauzlarich,^{1*}

¹*Department of Chemistry, University of California, One Shields Ave., Davis, CA 95616*

Christine M. Beavers²

²Advanced Light Source, Lawrence Berkeley National Lab, One Cyclotron Road, Berkeley, CA

94720

Peter Klavins³

³*Department of Physics, University of California, One Shields Ave., Davis, CA 95616*

Eric S. Toberer,⁴ and G. Jeffrey Snyder⁴

⁴*California Institute of Technology, 1200 California Blvd., Pasadena, CA 91125*

SUPPORTING INFORMATION

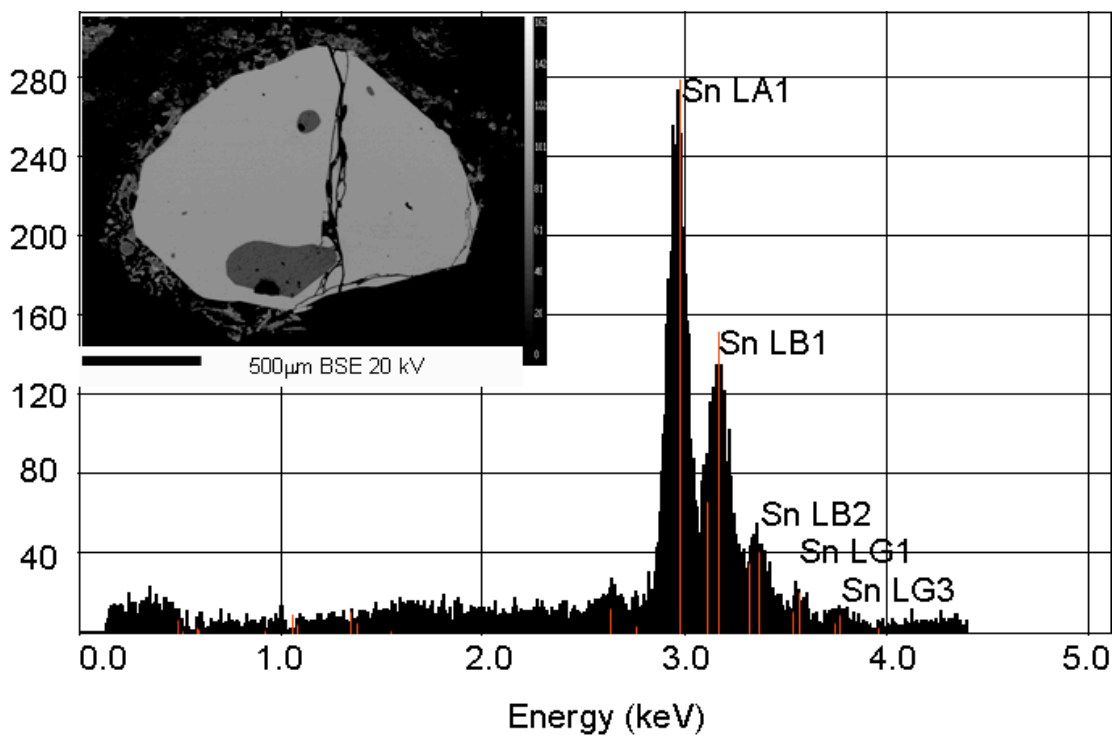


Figure S1. Backscattered electron microscopy (BSE) image (inset) and element mapping of the dark regions of $\text{Yb}_{13.99(14)}\text{Mn}_{1.05(5)}\text{Sb}_{10.89(16)}\text{Ge}_{0.06(3)}$ single crystal showing Sn inclusions.

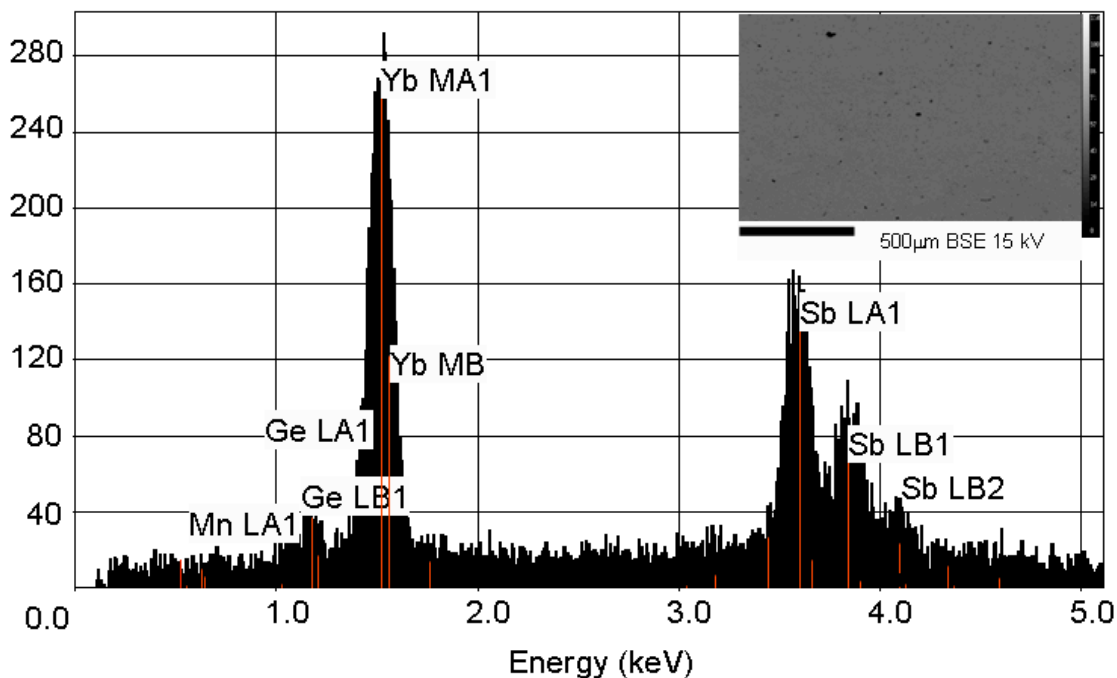


Figure S2. Backscattered electron microscopy image (inset) and element mapping of Ge doped $\text{Yb}_{14}\text{MnSb}_{11}$ hot pressed pellet, showing evidence for all elements.

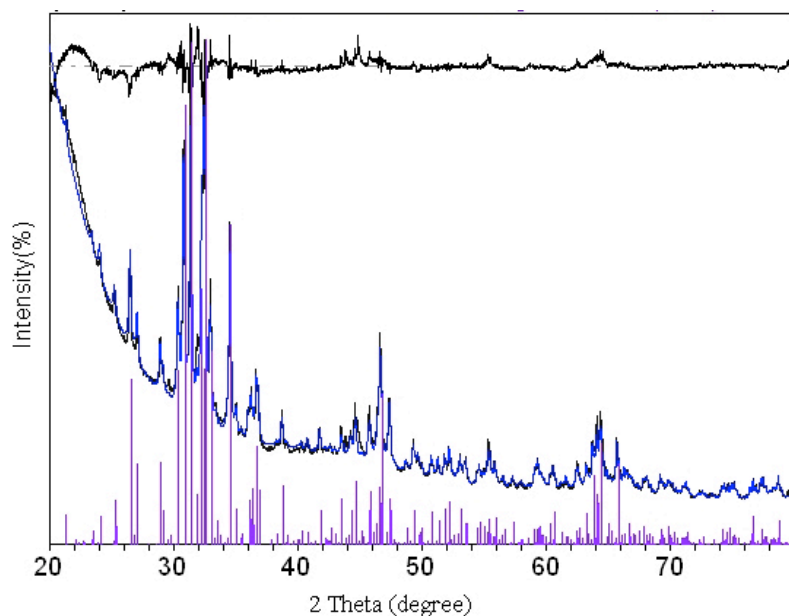


Figure S3. Powder X-ray diffraction of $\text{Yb}_{14}\text{MnSb}_{11}$. The black curve is the experimental data, the blue curve is the calculated curve. The top black line indicates the deviation between calculated and experimental and the purple solid lines indicate the peak positions and relative intensities. The high background at low 2θ is due to the air-sensitive holder. $R = 4.40\%$.

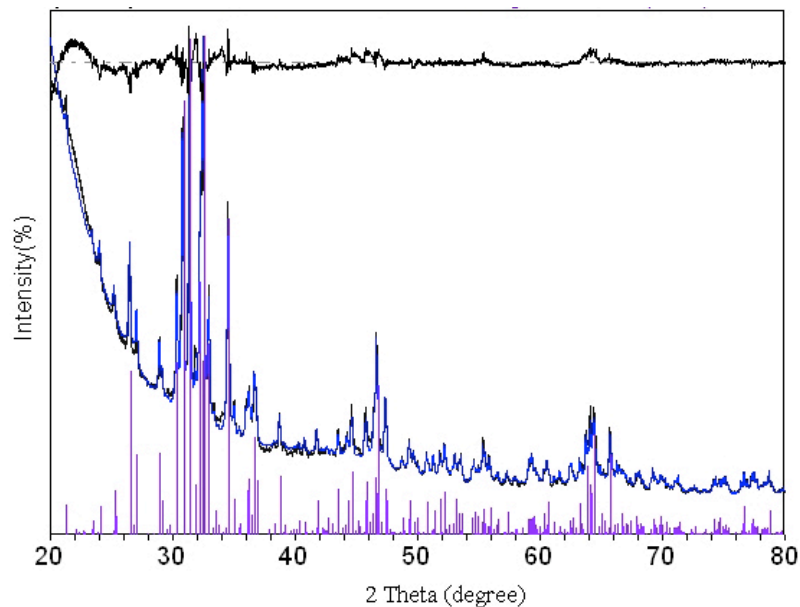


Figure S4. Powder X-ray diffraction of Ge doped $\text{Yb}_{14}\text{MnSb}_{11}$. The black curve is the experimental data, the blue curve is the calculated curve. The top black line indicates the deviation between calculated and experimental and the purple solid lines indicate the peak positions and relative intensities. The high background at low 2θ is due to the air-sensitive holder. $R = 4.54\%$.