

Article

Electrical Transport and Thermoelectric Properties of SnSe–SnTe Solid Solution

Jun-Young Cho ¹, Muhammad Siyar ², Woo Chan Jin ¹, Euyheon Hwang ³, Seung-Hwan Bae ⁴, Seong-Hyeon Hong ¹, Miyoung Kim ¹ and Chan Park ^{1,5,*}

¹ Department of Materials Science and Engineering, Seoul National University, Seoul 08826, Republic of Korea; takecjy@gmail.com (J.-Y.C.); woottan@snu.ac.kr (W.C.J.); shhong@snu.ac.kr (S.-H.H.); mkim@snu.ac.kr (M.K.)

² School of Chemical & Materials Engineering, National University of Sciences and Technology, Islamabad H-12, Pakistan; engrsiyar.uet@gmail.com

³ SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University, Suwon 16419, Republic of Korea; euyheon@skku.edu

⁴ Department of Nano Science and Engineering, Kyungnam University, Changwon 51767, Republic of Korea; shbae@kyungnam.ac.kr

⁵ Research Institute of Advanced Materials, Seoul National University, Seoul 08826, Republic of Korea

* Correspondence: pchan@snu.ac.kr

Received: 28 October 2019; Accepted: 19 November 2019; Published: date

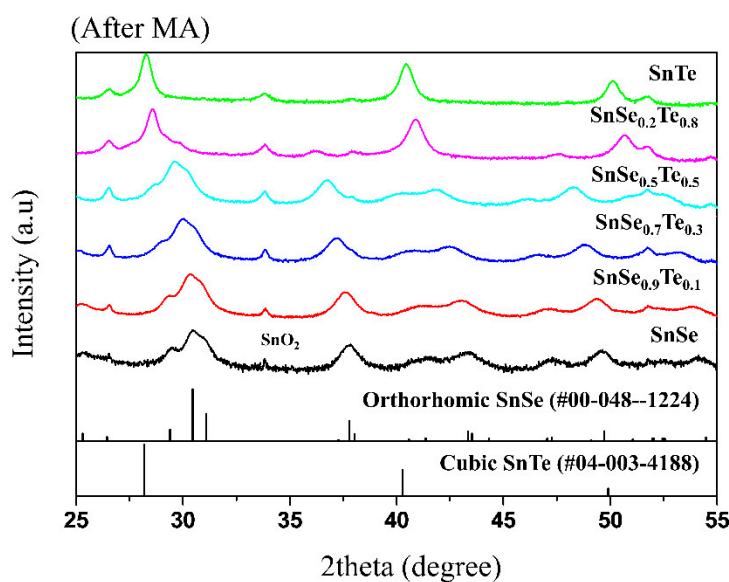


Figure S1. Theta-2theta XRD patterns of the polycrystalline $\text{SnSe}_{1-x}\text{Te}_x$ ($x = 0, 0.1, 0.3, 0.5, 0.8$ and 1) powder prepared using mechanical alloying.

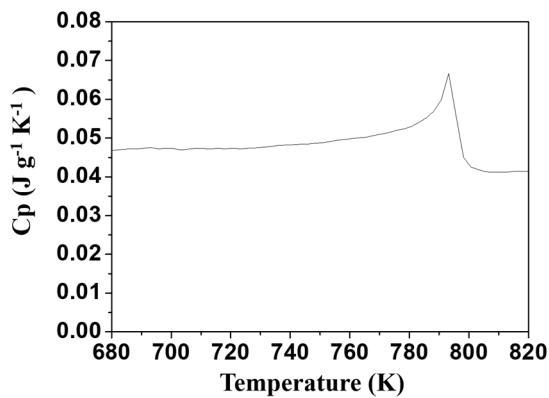


Figure S2. Heat capacity of SnSe measured by differential scanning calorimetry (DSC).

Table S1. The cell parameters of the polycrystalline $\text{SnSe}_{1-x}\text{Te}_x$ ($x = 0, 0.1, 0.3, 0.5, 0.8$ and 1) obtained by Rietveld refinement method using TOPAS software.

Sample	Composition	a(Å)	b(Å)	c(Å)	$\alpha=\beta=\gamma$
1	SnSe	11.495	4.152	4.442	90
2	$\text{Sn}(\text{Se}_{0.9}\text{Te}_{0.1})$	11.542	4.183	4.458	90
3	$\text{Sn}(\text{Se}_{0.7}\text{Te}_{0.3})$	11.659	4.227	4.483	90
4	$\text{Sn}(\text{Se}_{0.5}\text{Te}_{0.5})$	11.703	4.251	4.489	90
		6.243	6.243	6.243	90
5	$\text{Sn}(\text{Se}_{0.2}\text{Te}_{0.8})$	6.261	6.261	6.261	90
6	SnTe	6.315	6.315	6.315	90