Supporting Information

Thermoelectric properties of *n*-type $Cu_4Sn_7S_{16}$-based compounds

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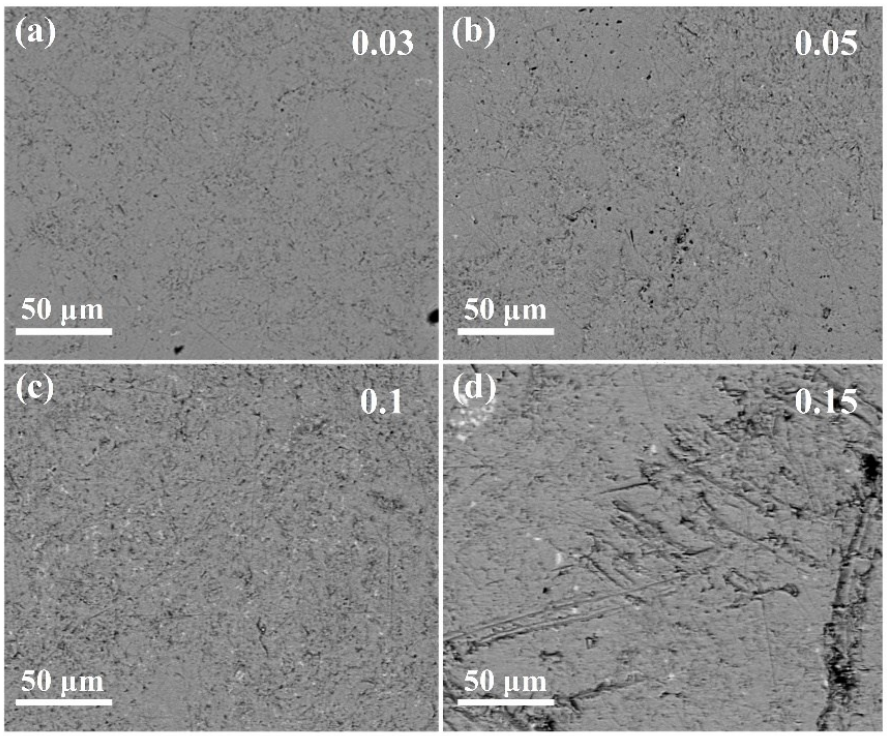

Fig. S1 Backscattered electron (BSE) patterns of $Cu_{4-x}Ag_xSn_7S_{16}$ (x= 0.03, 0.05, 0.1, 0.15). Impurity phases (white particles) emerge when *x* reaches 0.05.

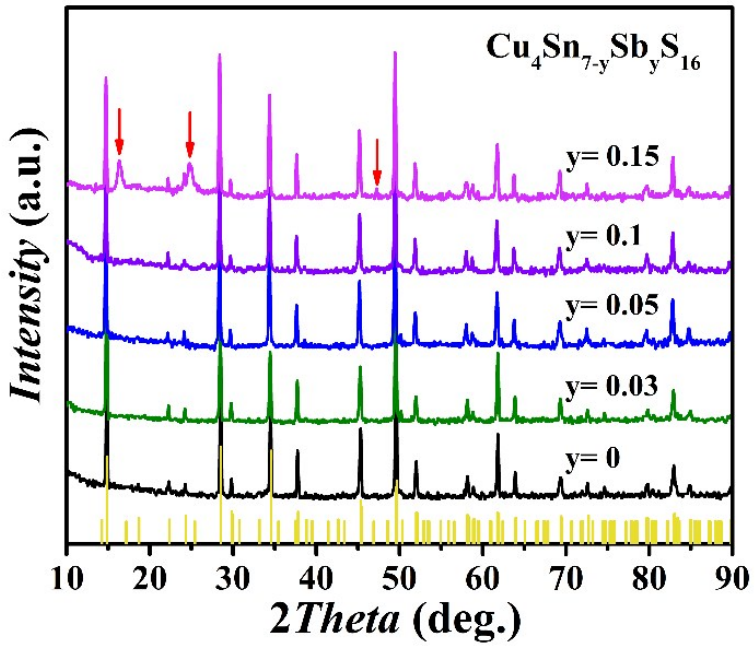

Fig. S2 XRD patterns of $Cu_4Sn_{7-y}Sb_yS_{16}$ (y= 0, 0.03, 0.05, 0.1, 0.15) bulks after SPS. Impurity phases emerge when *y* reaches 0.15.

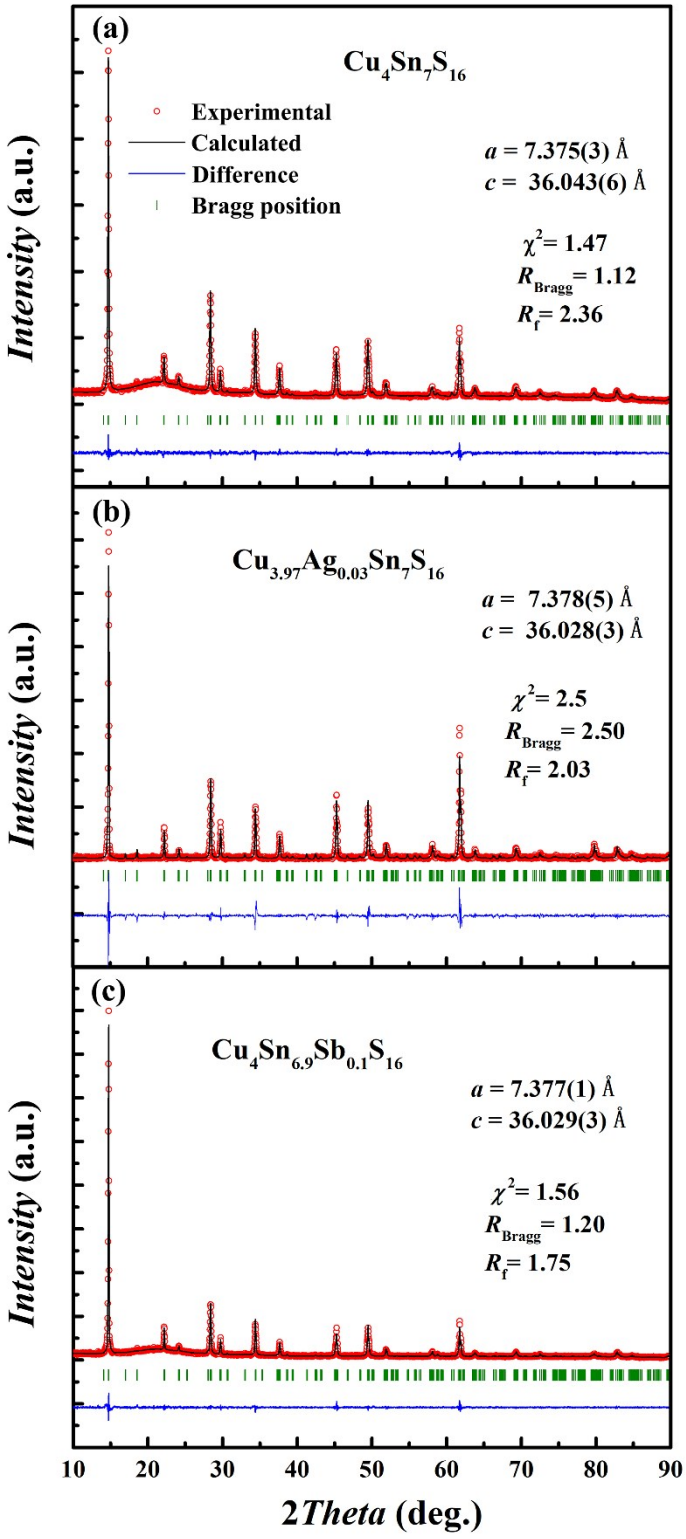

Fig. S3 Rietveld refinements for (a) $Cu_4Sn_7S_{16}$; (b) $Cu_{3.97}Ag_{0.03}Sn_7S_{16}$; (c) $Cu_4Sn_{6.9}Sb_{0.1}S_{16}$

Table S1 Refined lattice parameters for $Cu_4Sn_7S_{16}$, $Cu_{3.97}Ag_{0.03}Sn_7S_{16}$ and $Cu_4Sn_{6.9}Sb_{0.1}S_{16}$

	$Cu_4Sn_7S_{16}$	$Cu_{3.97}Ag_{0.03}Sn_7S_{16}$	$Cu_4Sn_{6.9}Sb_{0.1}S_{16}$
a (Å)	7.375	7.379	7.378
c (Å)	36.04	36.03	36.03
V_{cell} (Å^3)	1697.94	1698.69	1698.12