Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

Electronic Supplementary Information

Nanostructuring SnTe to improve thermoelectric properties through Zn and Sb co-doping

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Table S1. Density of samples

Sample	Density (g/cm^3)
SnTe	6.411
$Sn_{0.99}Zn_{0.01}Te$	6.404
$Sn_{0.98}Zn_{0.02}Te$	6.383
$Sn_{0.88}Zn_{0.02}Sb_{0.1}Te$	6.327
$Sn_{0.83}Zn_{0.02}Sb_{0.15}Te$	6.329

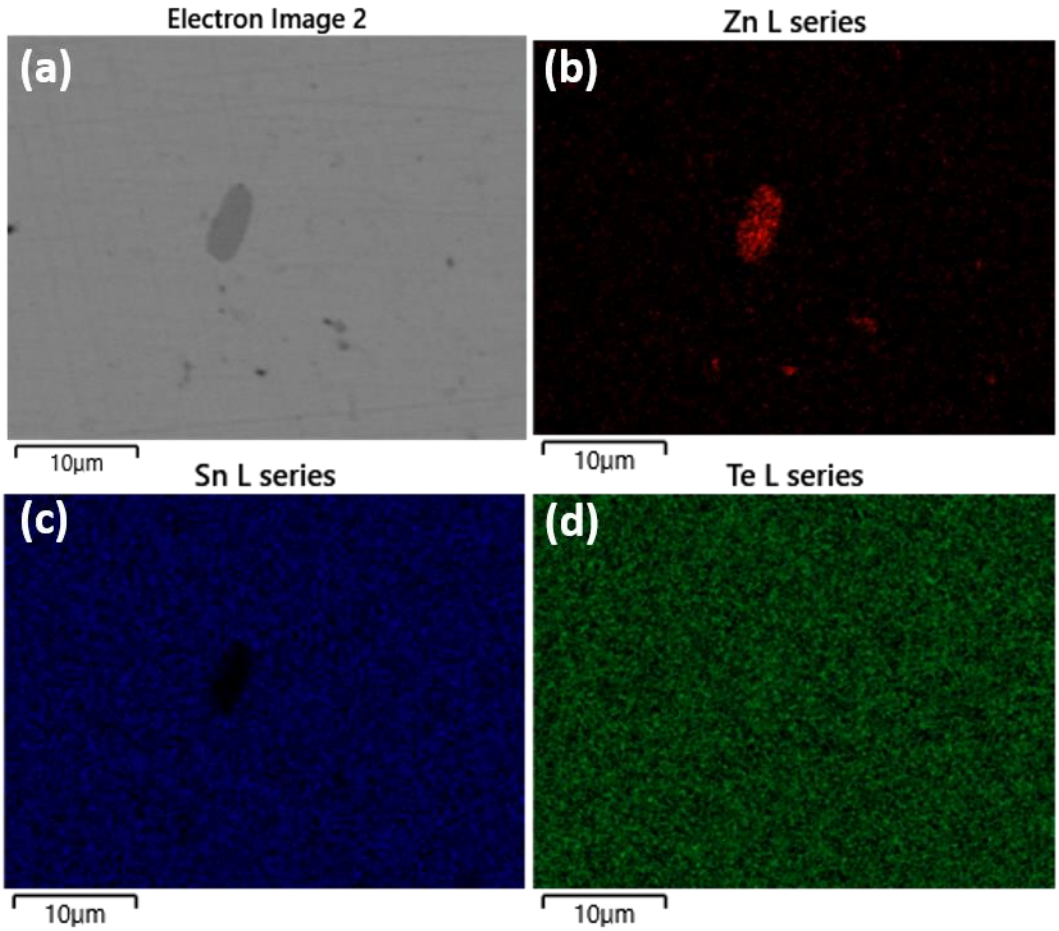

Figure S1. (a) FESEM BSE image and (b-d) corresponding EDS mapping of elements.

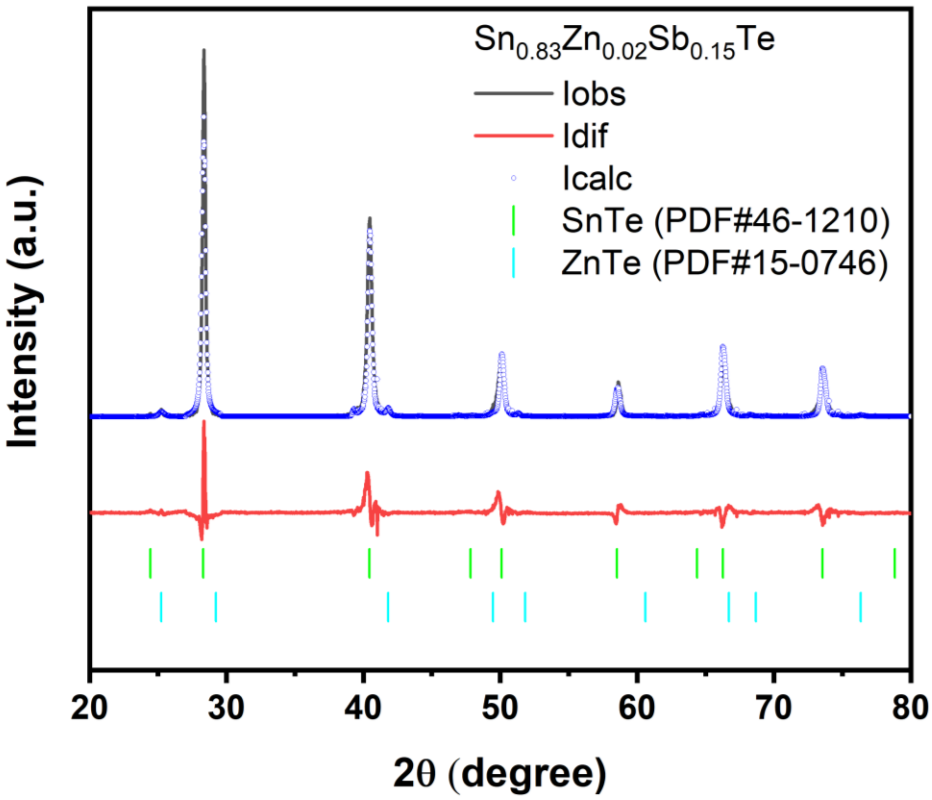

Figure S2. Rietveld refinement for the sample $Sn_{0.83}Zn_{0.02}Sb_{0.15}Te$.

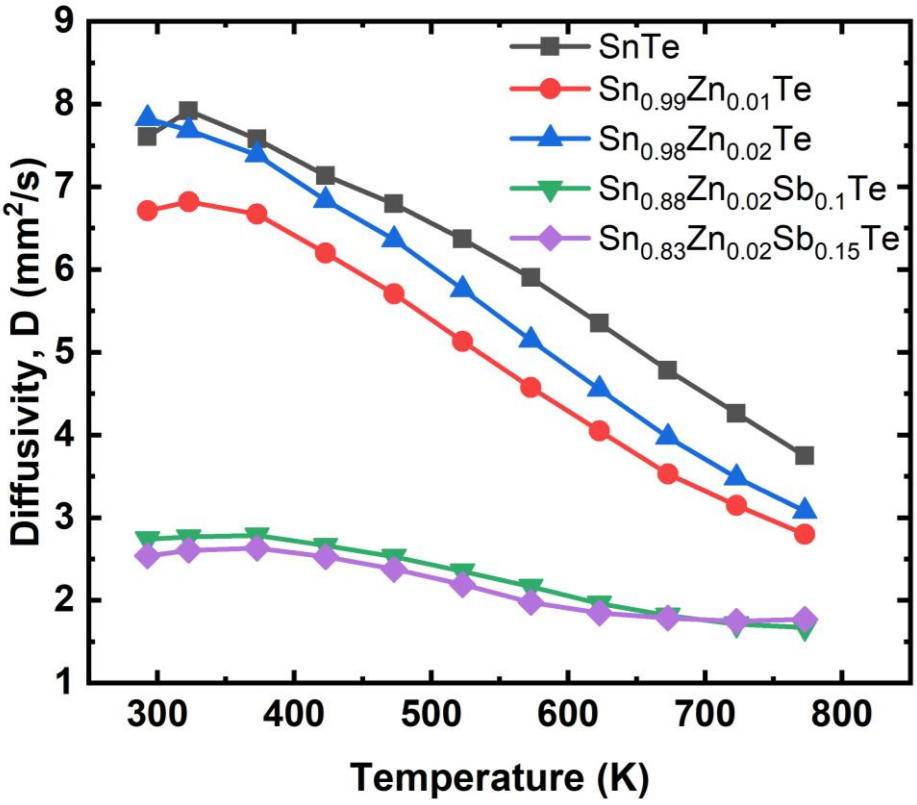

Figure S3. Temperature dependent diffusivity with temperature for the Zn and Sb samples.

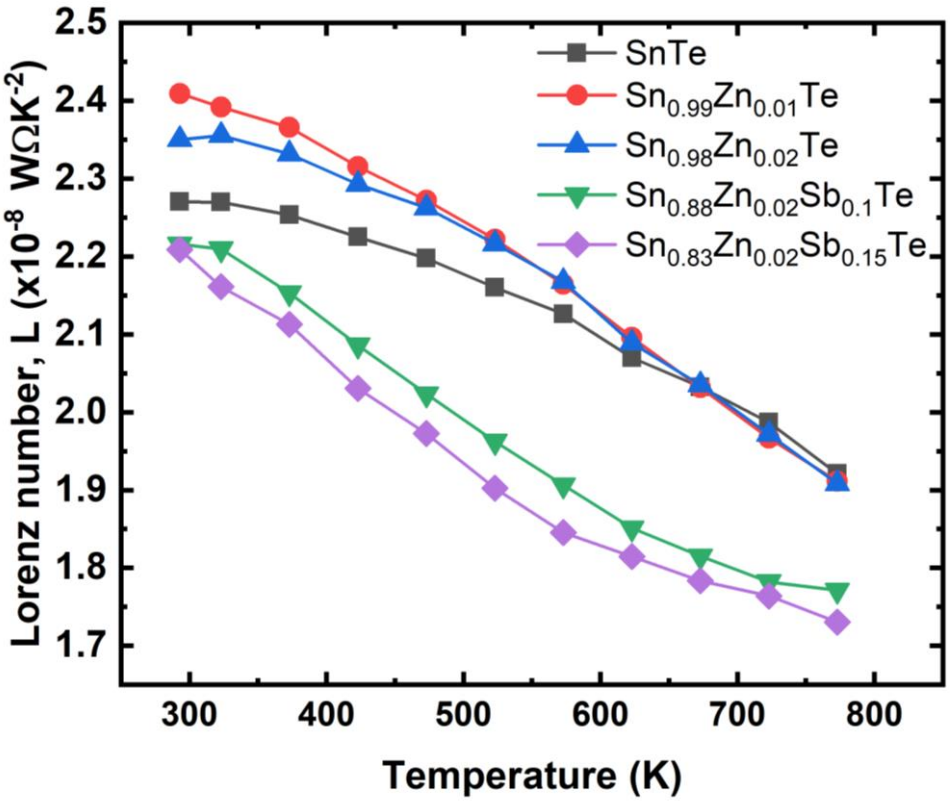

Figure S4. Temperature dependent Lorenz number for the Zn and Sb co-doped samples.

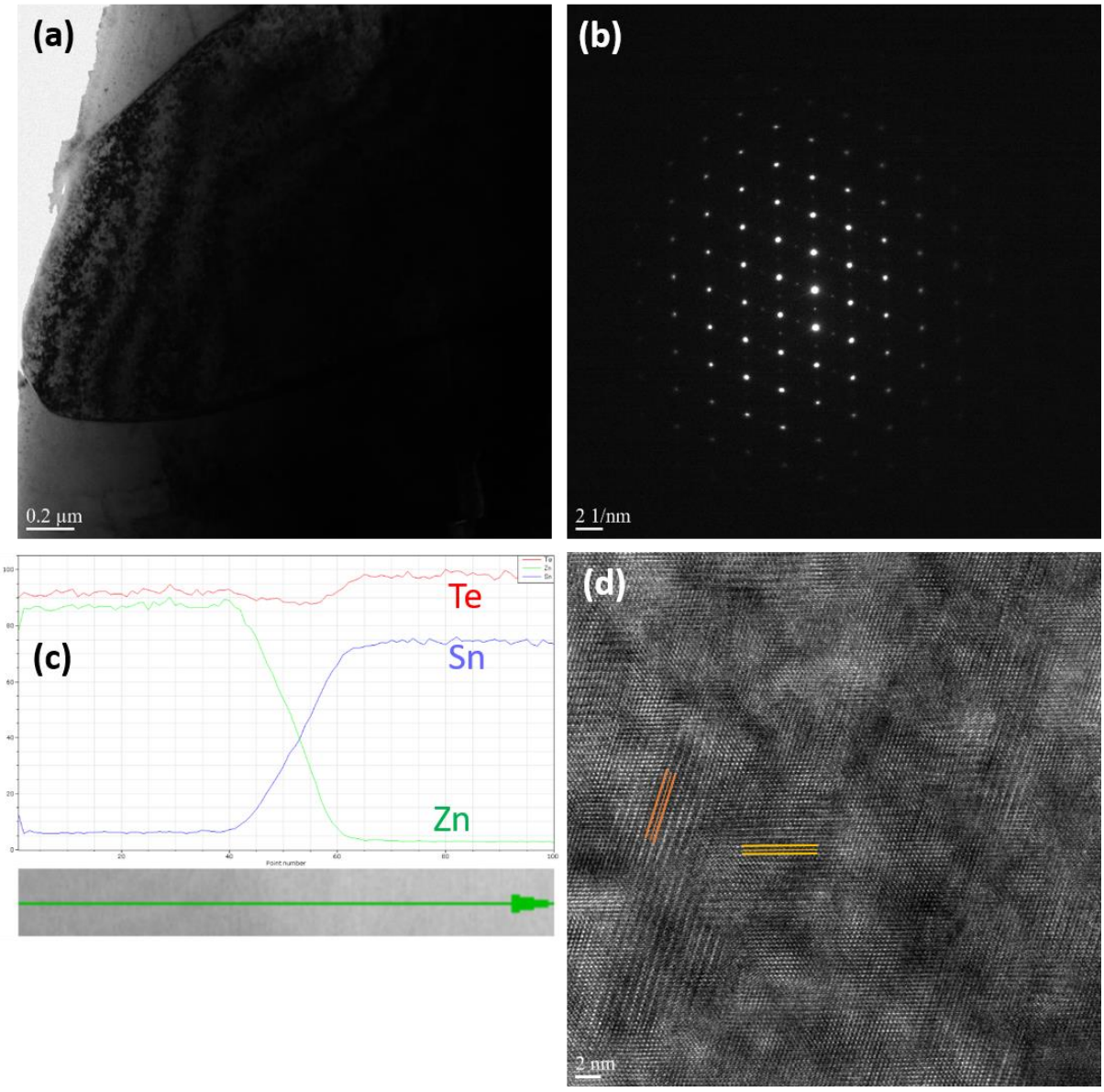

Figure S5. (a) BF image showing numerous nanostructures within a grain, (b) corresponding SAED image showing presence of the CuPt-type ordering, (c) line scan data which confirms presence of alternating SnTe and ZnTe phases within the grain and (d) HRTEM image showing both A and B type variants as represented by the gold and orange lines for the $Sn_{0.98}Zn_{0.02}Te$ sample.

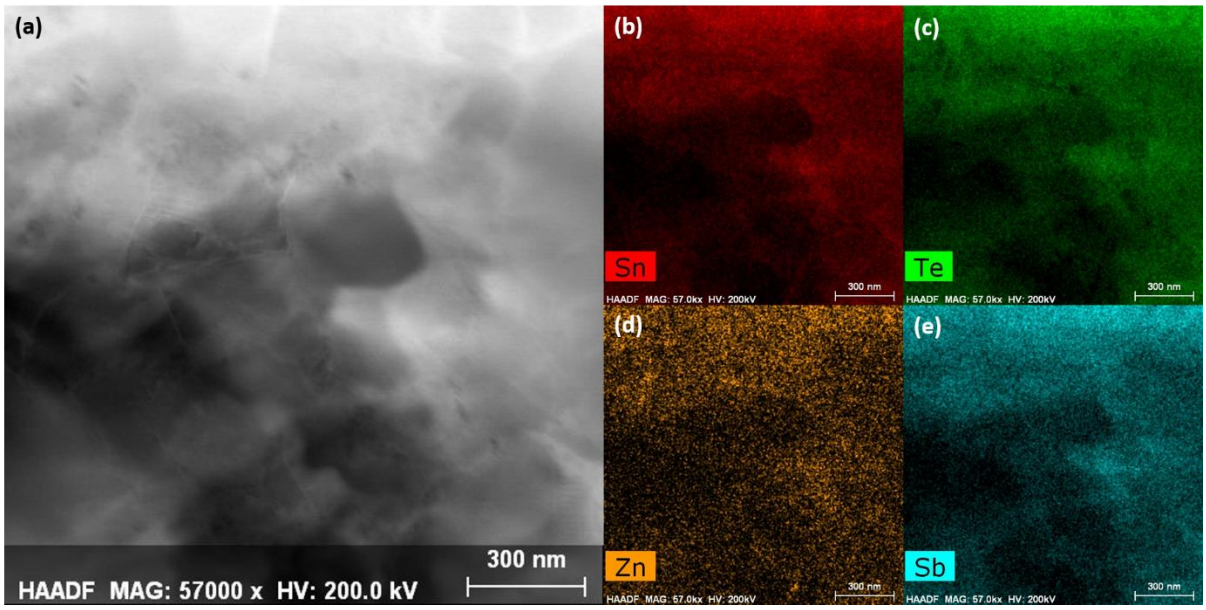

Figure S6. (a) HAADF image and (b-e) corresponding EDS mapping of the elements for the $Sn_{0.88}Zn_{0.02}Sb_{0.1}Te$ sample.

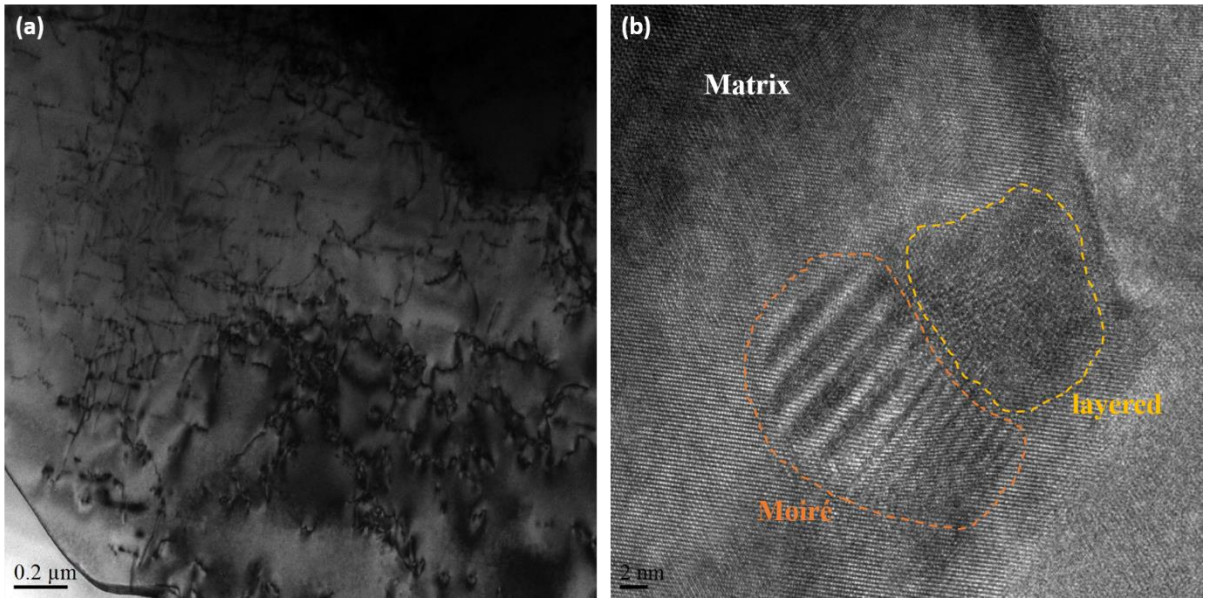

Figure S7. (a) BF image showing dislocation and numerous nanostructures and (b) HRTEM image showing occurrence of Moiré fringes for the $Sn_{0.88}Zn_{0.02}Sb_{0.1}Te$ sample.

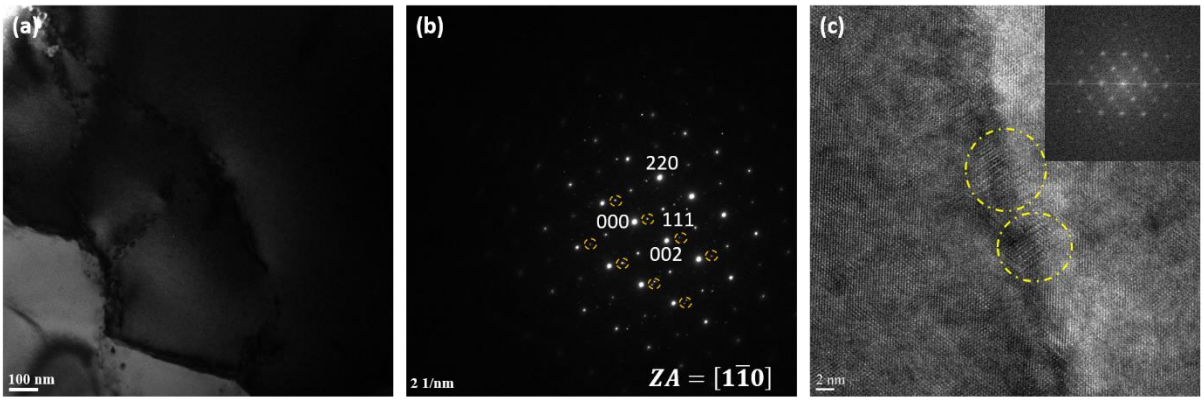

Figure S8. (a) BF image, (b) SAED pattern and (c) HRTEM image for the $Sn_{0.83}Zn_{0.02}Sb_{0.15}Te$ sample.

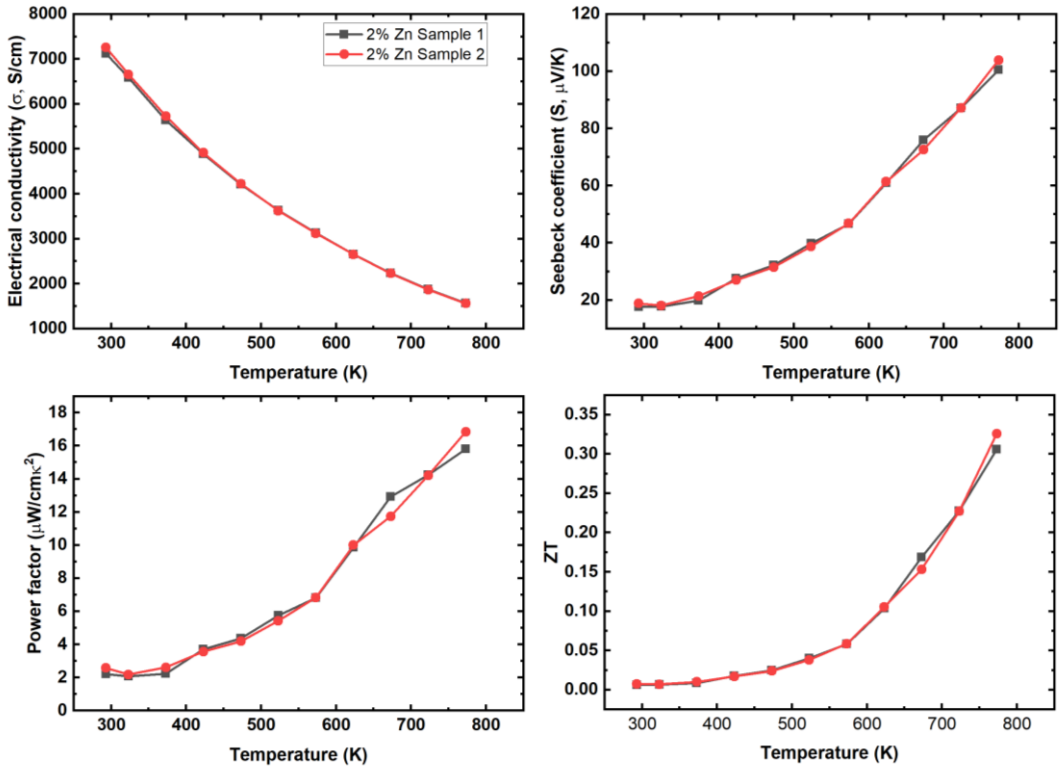

Figure S9. Temperature dependent (a)electrical conductivity, (b) Seebeck coefficient, (c) power factor and ZT for $Sn_{0.98}Zn_{0.02}Te$ the sample.