Supporting information

Outstanding thermoelectric properties in solvothermal-synthesized $Sn_{1-3x}In_xAg_{2x}Te$ micro-crystals through defect engineering and band tuning

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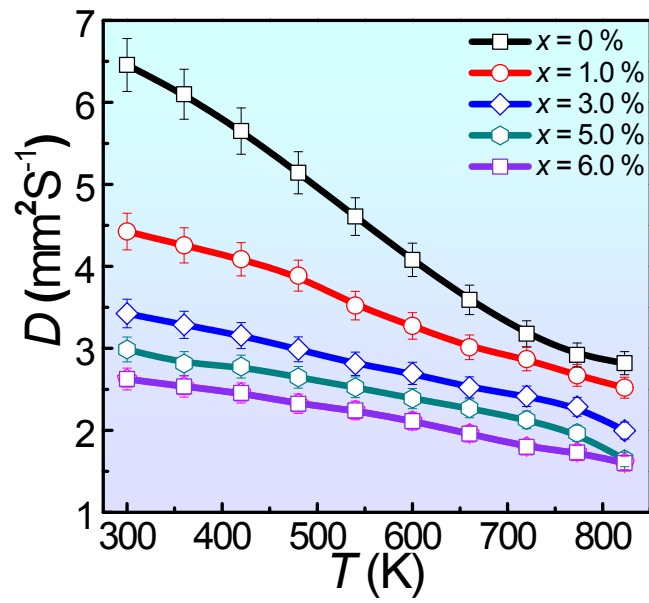**zhigang.chen@usq.edu.au, zhigang.chen@uq.edu.au*

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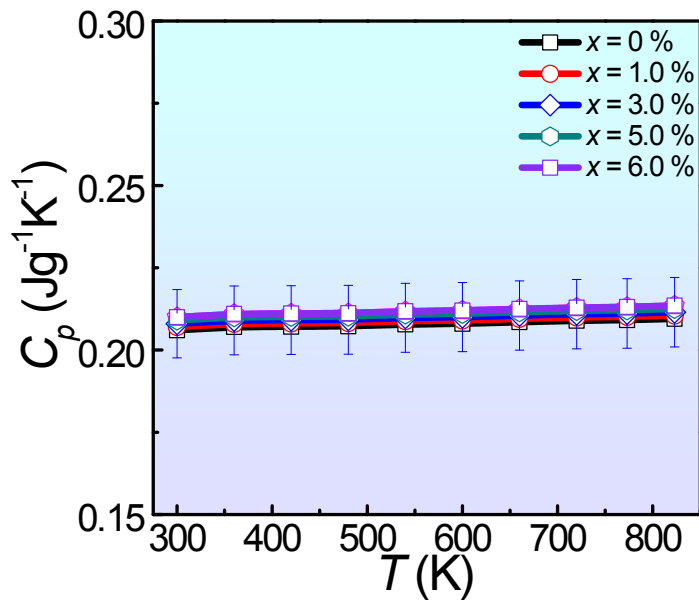**Figure S1**. Thermal diffusivity D as a function of temperature for different $Sn_{1-3x}In_xAg_{2x}Te$.

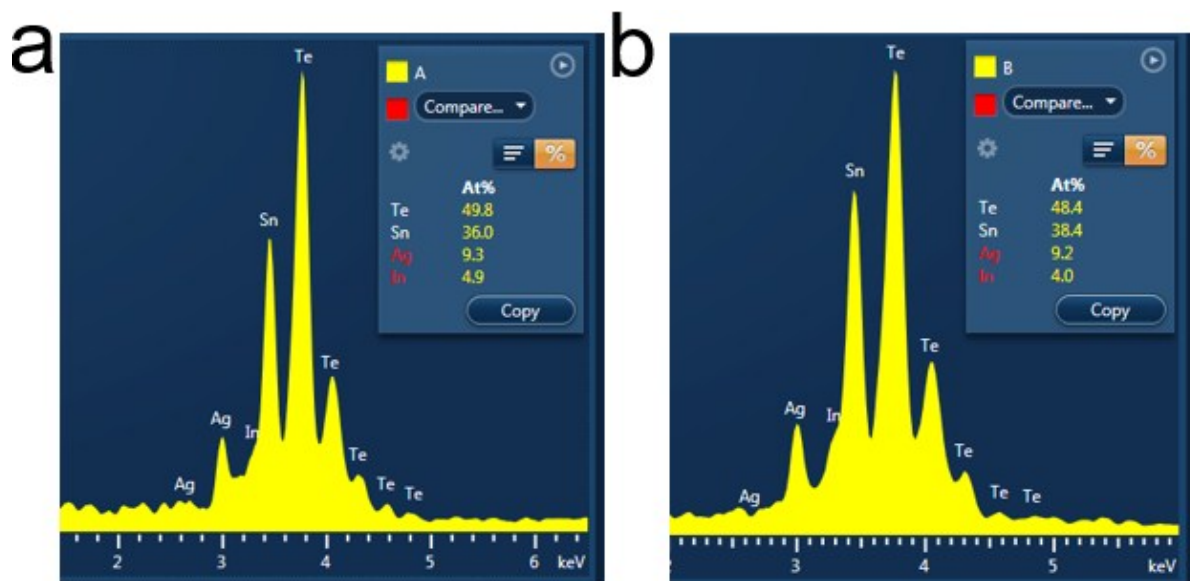**Figure S2**. Specific heat (C_p) of $Sn_{1-3x}In_xAg_{2x}Te$ samples

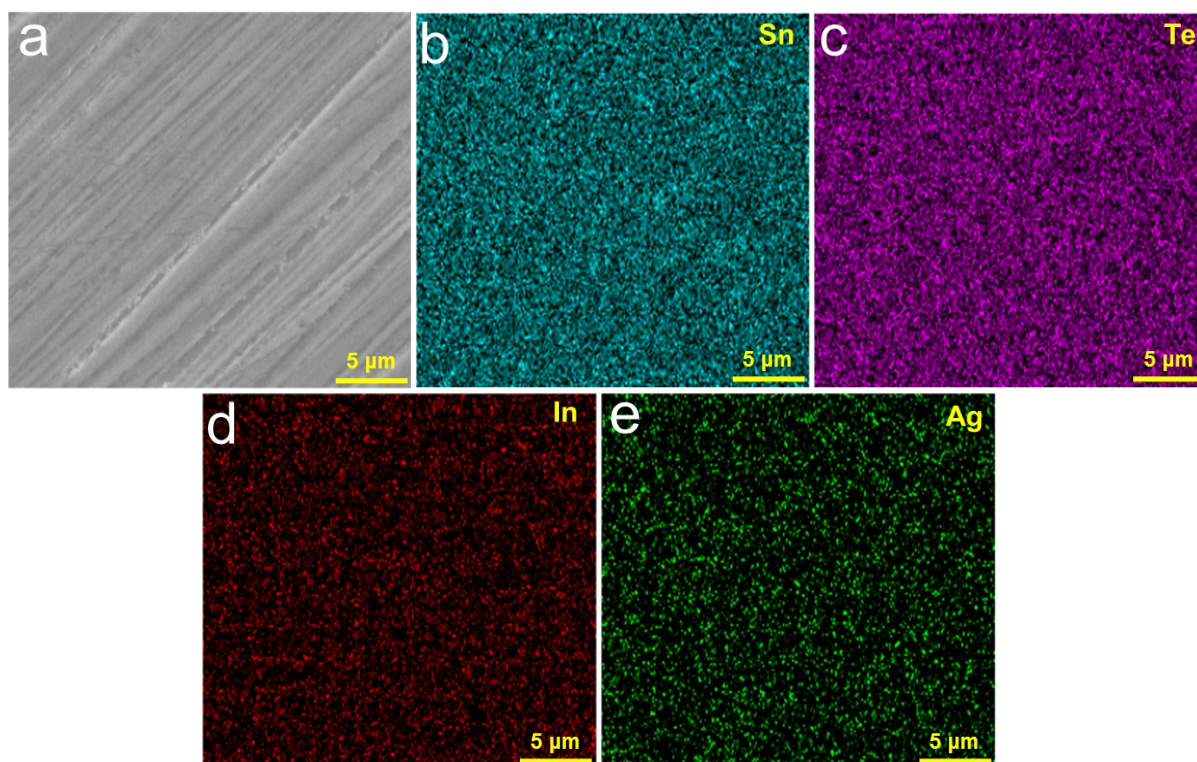**Figure S3.** EDS spectrum and compositional analyses of spot A and B from **Figure 1e.**

Figure S4. (a) A typical SEM image of the sintered $Sn_{0.85}In_{0.05}Ag_{0.10}Te$ pellet and (b-e) Corresponding EDS elemental map data of Sn, Te, In and Ag.

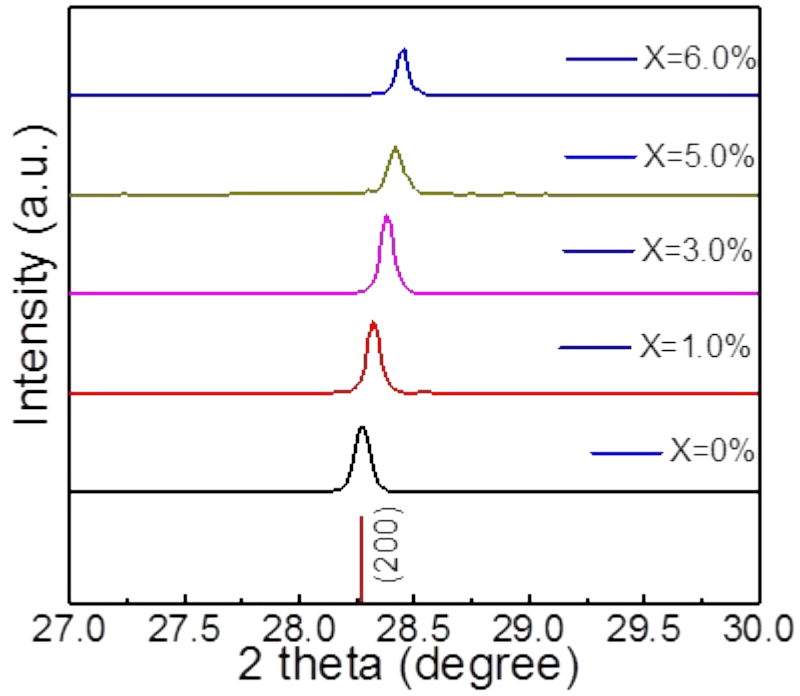**Figure S5.** Extended (200) peak of **Figure 2**a shows peaks are shifting towards higher angle demonstrating the lattice shrinkage of the lattice.
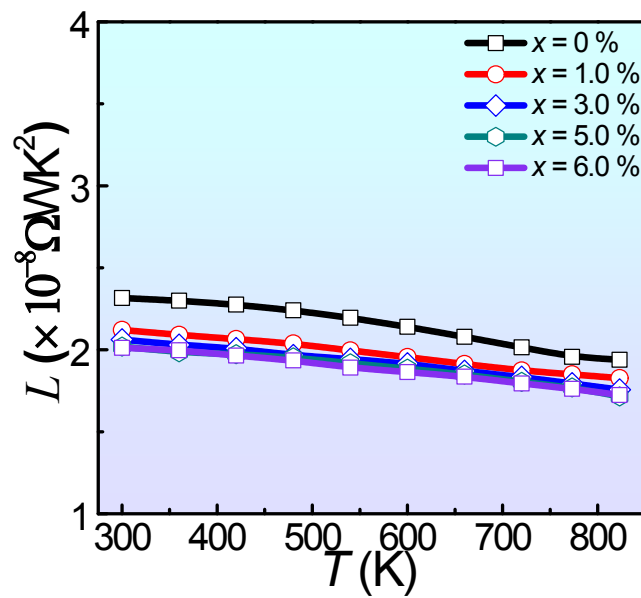

Figure S6. Calculated Lorenz number L as function of temperature of $Sn_{1-3x}In_xAg_{2x}Te$.