Journal Name

ARTICLE

Electronic Supplementary Information

Independently Tuning the Power Factor and Thermal Conductivity of SnSe via Ag_2S Addition and Nanostructuring

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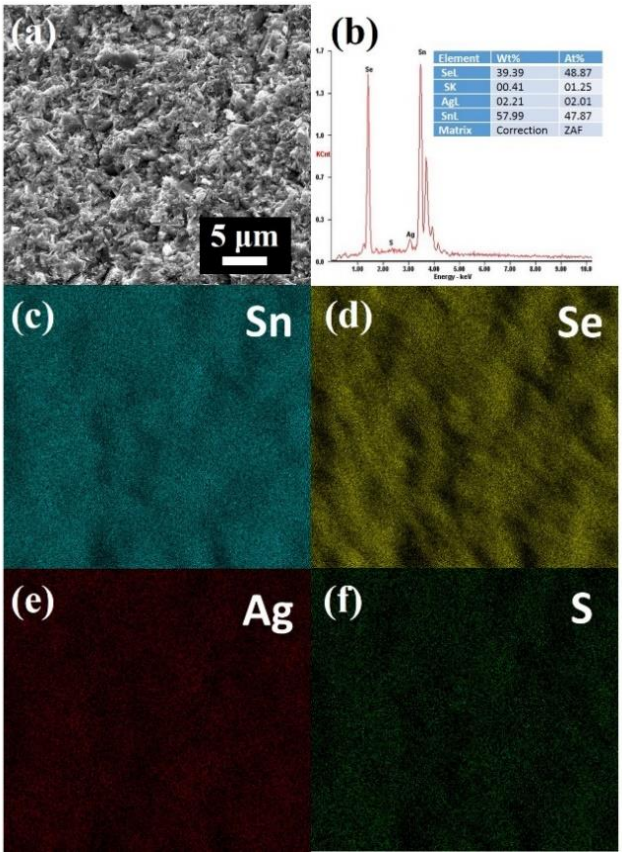

Fig. S1. (a) SEM of SS1-Nano and (b)-(f) corresponding EDX elemental mapping.

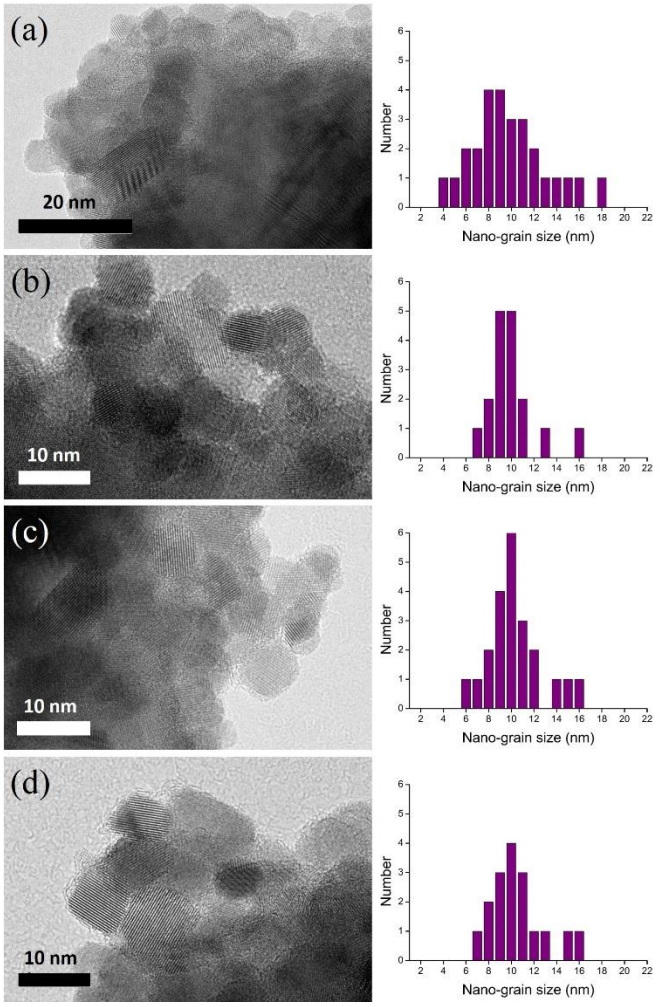

Fig. S2. TEM images and statistical distribution of nanograins in SS1-Nano.

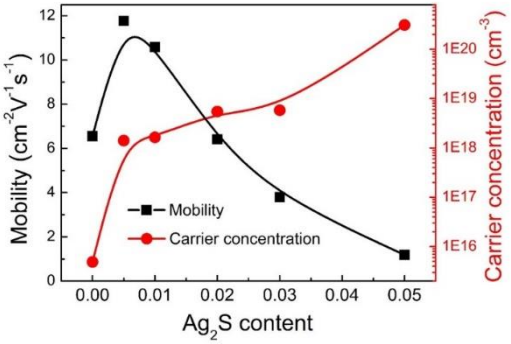

Fig. S3. Carrier concentration and mobility of $SnSe+xAg_2S$ (x = 0, 0.005, 0.01, 0.02, 0.03, 0.05) measured parallel to pressure direction at room temperature.

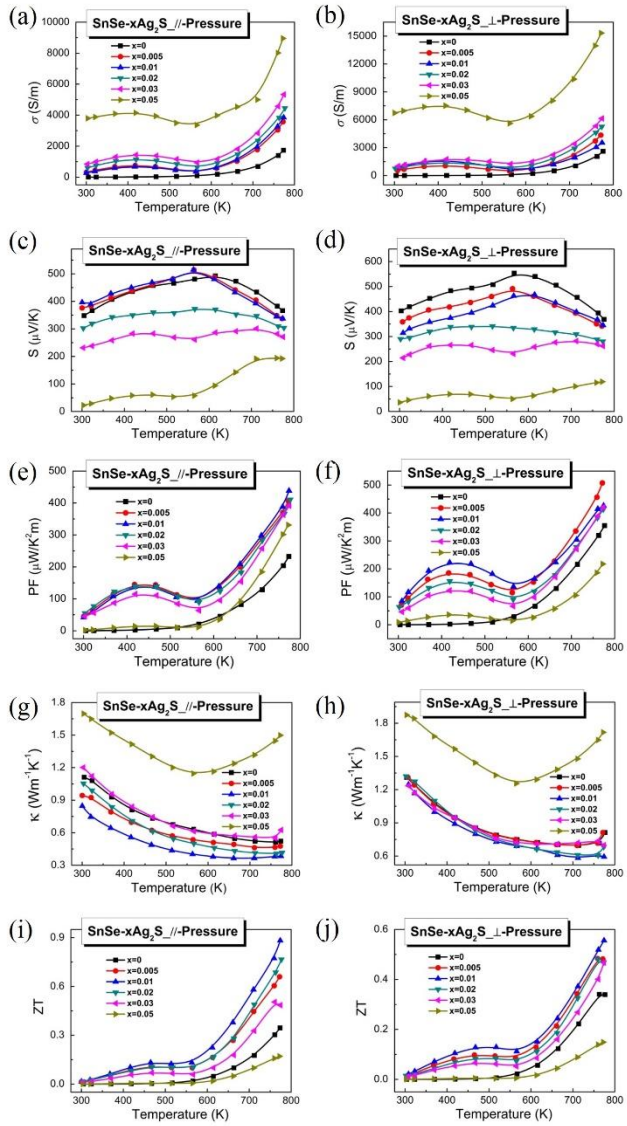

Fig. S4. Temperature dependence of electrical conductivities of SnSe+xAg_2S (x = 0, 0.005, 0.01, 0.02, 0.03, 0.05) (a) parallel and (b) perpendicular to pressure direction, (c)(d) Seebeck coefficients, (e)(f) power factors, (g)(h) thermal conductivities, and (i)(j) *ZT*s.

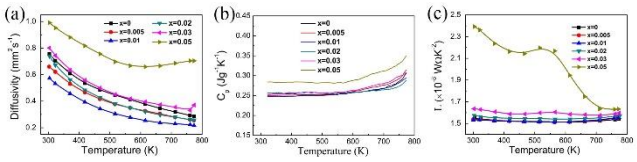

Fig. S5. (a) Diffusivity, (b) specific heat capacity, and (c) Lorenz number of SnSe+xAg_2S (x = 0, 0.005, 0.01, 0.02, 0.03, 0.05) parallel to pressure direction.

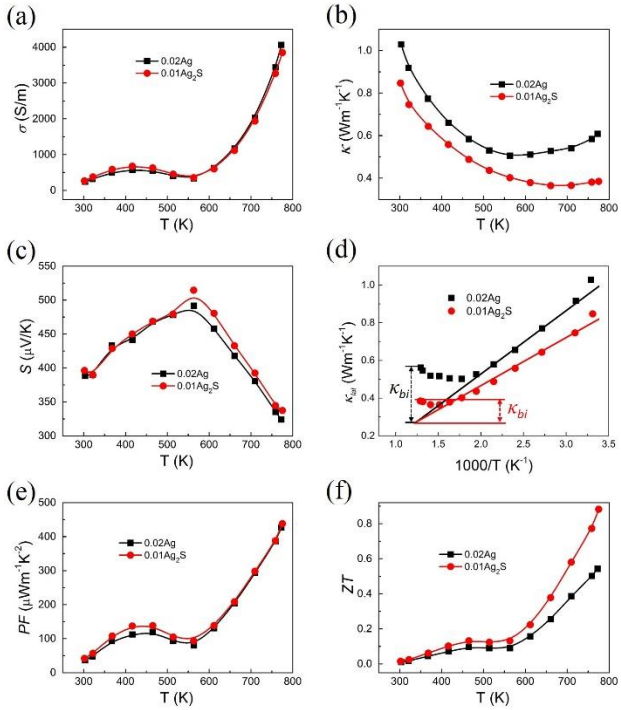

Fig. S6. Temperature dependence of (a) electrical conductivities, (b) Seebeck coefficients, (c) power factors, (d) total thermal conductivities, (e) lattice thermal conductivities and (f) *ZT*s for SnSe+0.02Ag and SnSe+0.01Ag_2S.

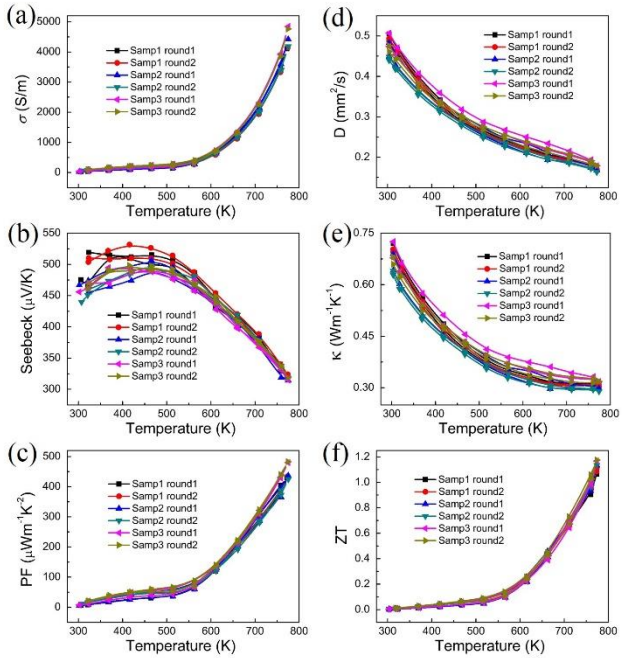

Fig. S7. Reproduced thermoelectric properties of the SS1-Nano samples while both heating and cooling: (a) electrical conductivities, (b) Seebeck coefficients, (c) power factors, (d) diffusivities, (e) total thermal conductivities, and (f) *ZT*s.

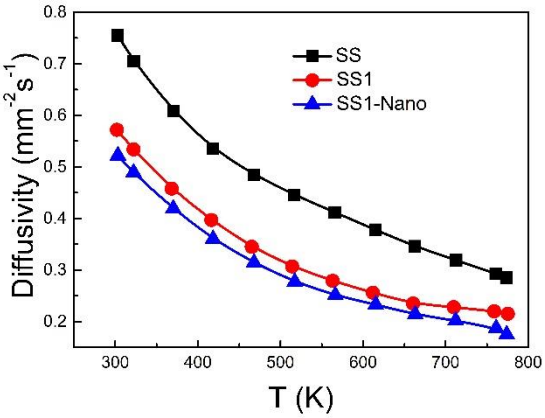

Fig. S8. Temperature dependence of diffusivities for SS, SS1, SS1-Nano.