Electronic Supplementary Material (ESI) for Nanoscale Advances.

Supporting information

Precise Synthesis of Copper Selenide Nanowires with Tailored Cu Vacancies through Photo-Induced Reduction for Thermoelectric applications

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Supporting Figures

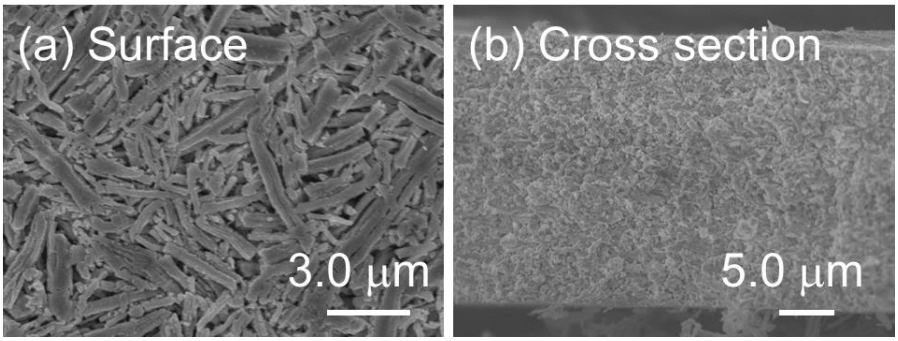

Fig. S1 (a) Surface and (b) cross sectional SEM images of $Cu_{2.00}Se$ NW films after pressing.

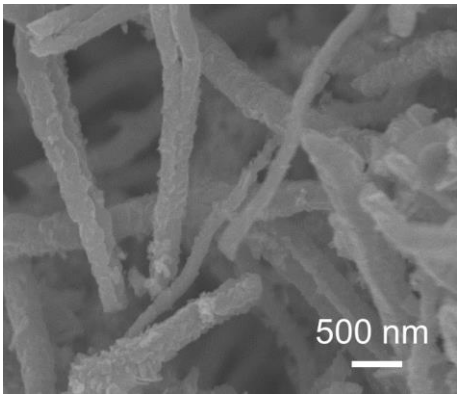

Fig. S2 A SEM image of $Cu_{2.00}Se$ NW with high magnification.

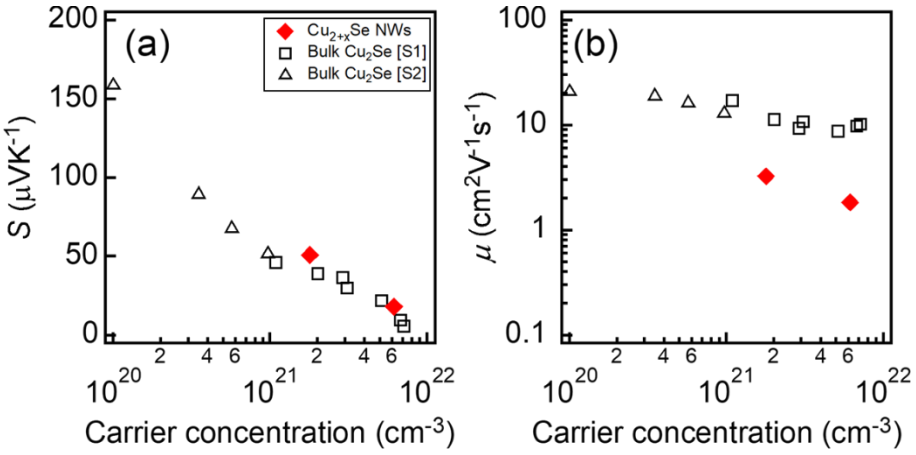

Fig. S3 (a) Seebeck coefficient (S) and (b) Hall mobility (μ) as a function of carrier concentration of $Cu_{2+x}Se$ NWs and bulk Cu_2Se [S1, S2].

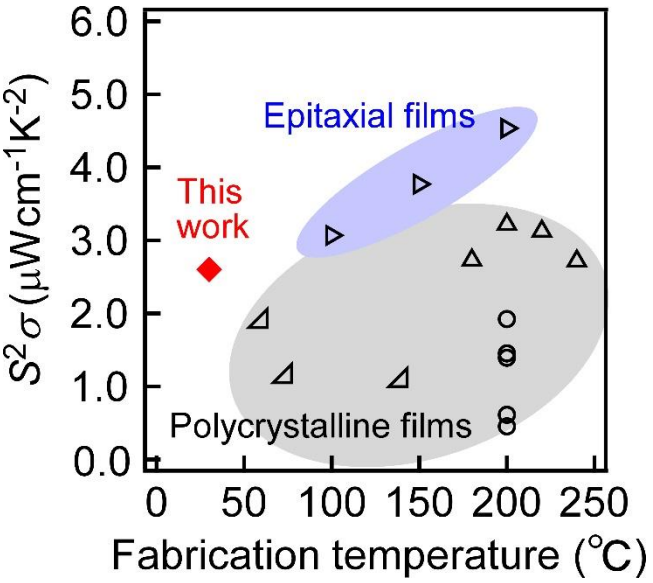

Fig. S4 $S^2\sigma$ of $Cu_{2.00}Se$ NWs (this work) as a function of the fabrication temperature, where the data of polycrystalline films [S3-S5] and epitaxial films [S6] were plotted.

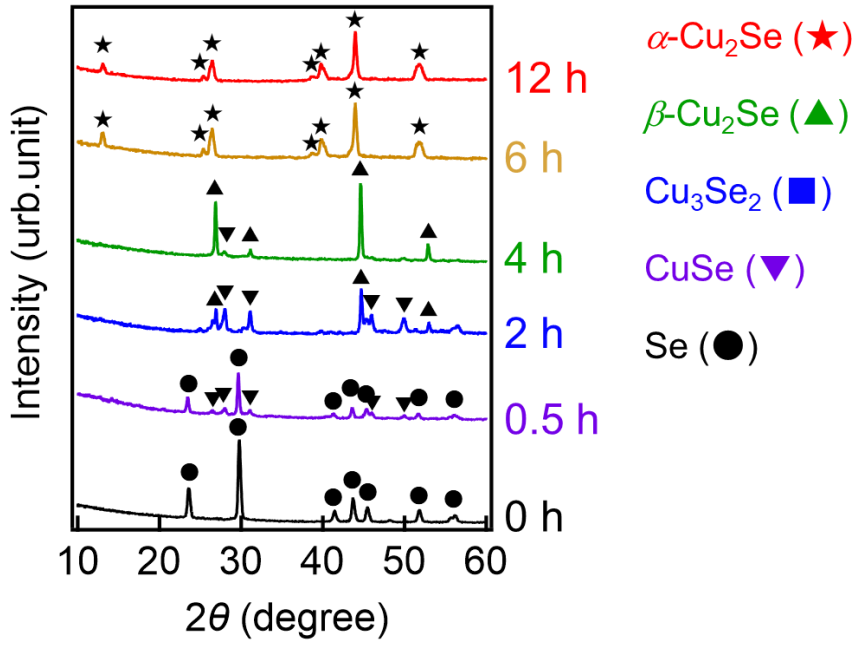

Fig. S5 XRD patterns of the samples synthesized by light irradiation for 0-12 hours.

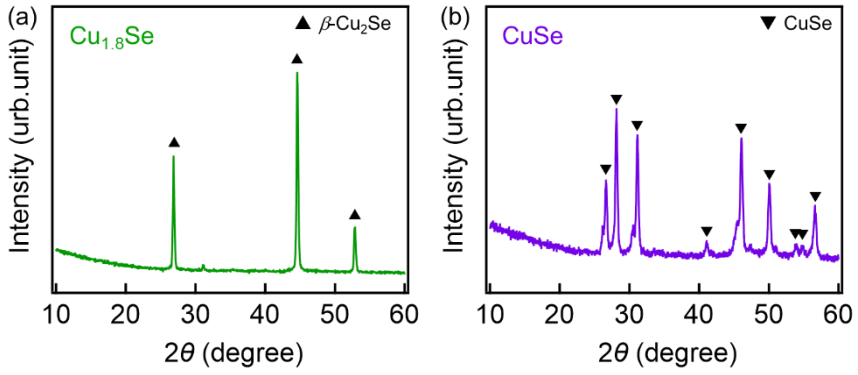

Fig. S6 XRD patterns of (a) $Cu_{1.8}Se$ NWs and (b) CuSe NWs. $Cu_{1.8}Se$ (CuSe) NWs were synthesized with used Cu/Se ratio of 1.8 (1.0) by light irradiation for 12 (30) hours.

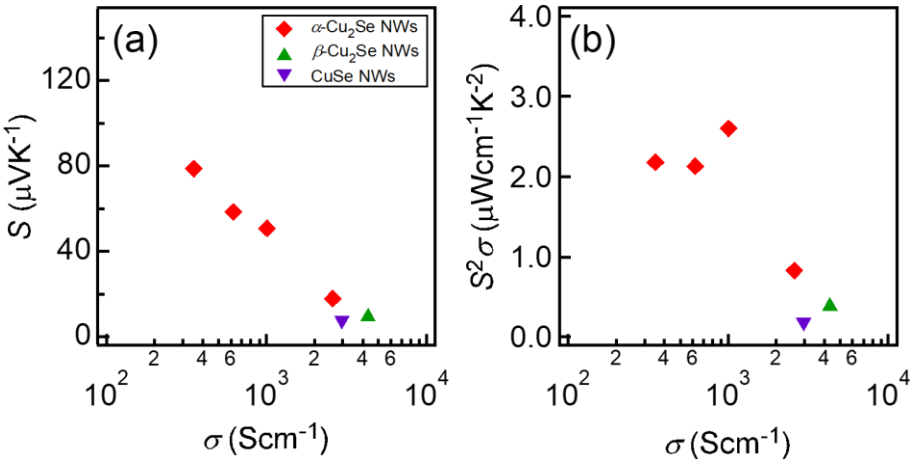

Fig. S7 (a) S and (b) $S^2\sigma$ as a function of σ of α-$Cu_{2+x}Se$ NWs, β-$Cu_{1.8}Se$ NWs and CuSe NWs.

References

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