Supplemental Information for

Enhanced thermoelectric properties of $Bi_2(Te_{1-x}Se_x)_3$-based compounds as n-type legs for low-temperature power generations

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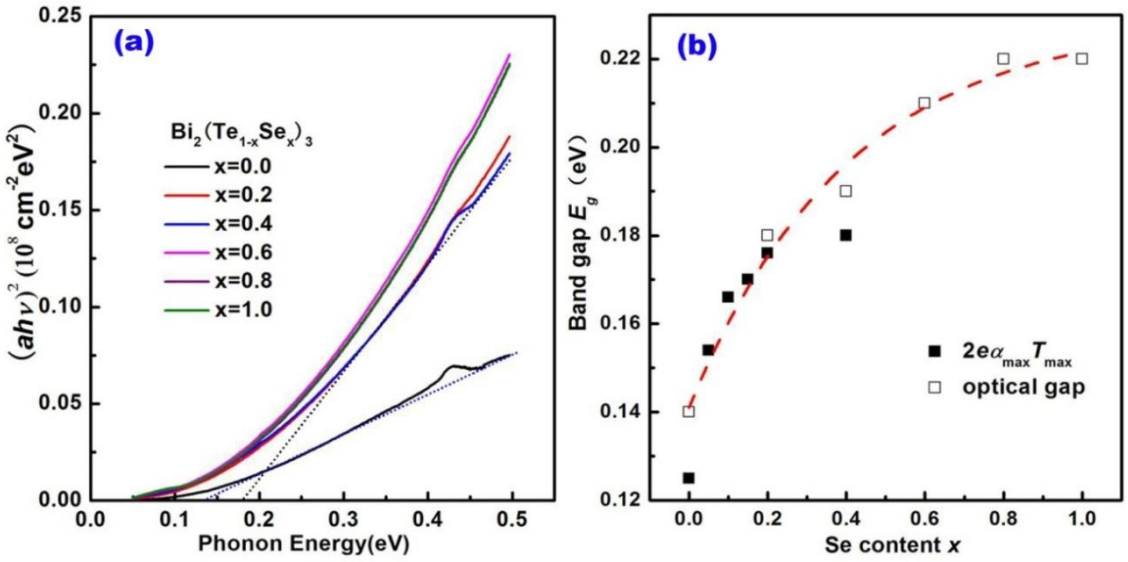

Figure S1 (a) IR spectrums and (b) optical band gap of $Bi_2(Te_{1-x}Se_x)_3$+0.08%wt I (x＝0.1-1.0) compounds, and the unfilled cubic symbols are the results obtained from the maximum Seebeck coefficients according to the formula $E_g=2e\alpha_{max}T_{max}$.

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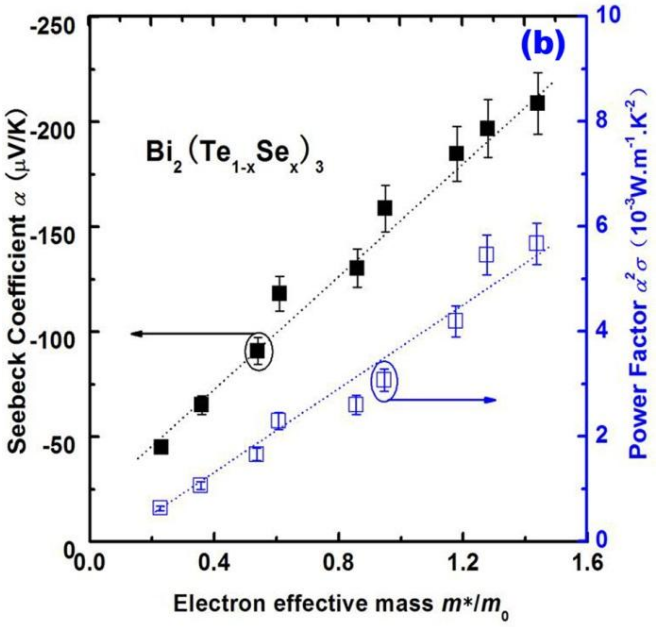

Figure S2 Seebeck coefficient and power factor at 300 K shown as a function of m^*/m_0 for $Bi_2(Te_{1-x}Se_x)_3$+0.08%wt I (x=0.0-1.0) solid solutions.

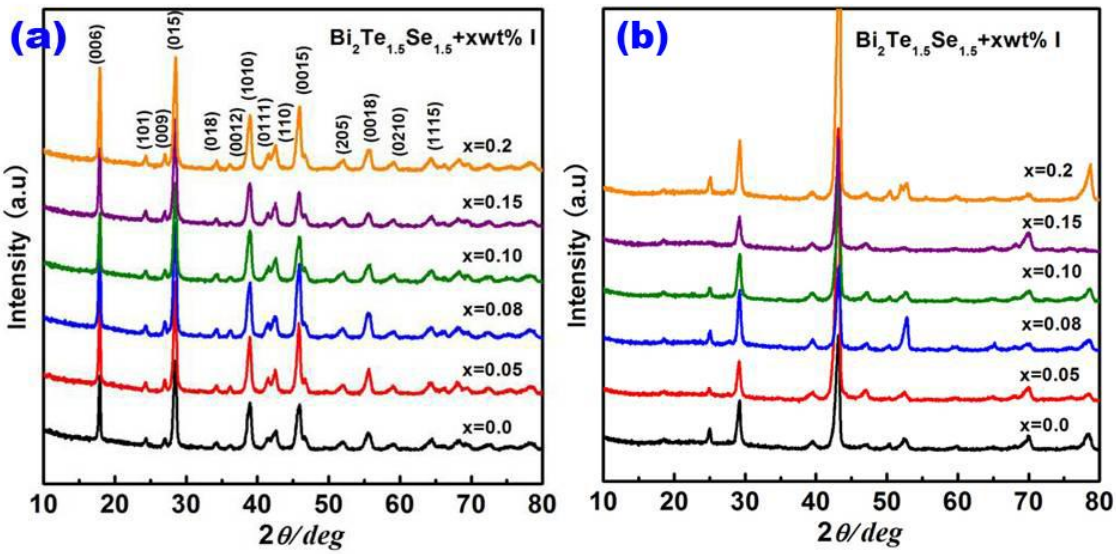

Figure S3 (a) Powder and (b) bulk XRD patterns for $Bi_2(Te_{0.5}Se_{0.5})_3$ compounds with different electron concentrations, and the measured surfaces of bulk XRD are perpendicular to the ZM direction.