Supplementary Information (SI) for Materials Advances.
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Supporting Information

Improvement of Hydrophilicity and Optical Nonlinearity in Te/In_2Se_3 Bilayer Heterostructure Film by Annealing at Different Temperatures for Optoelectronic Applications

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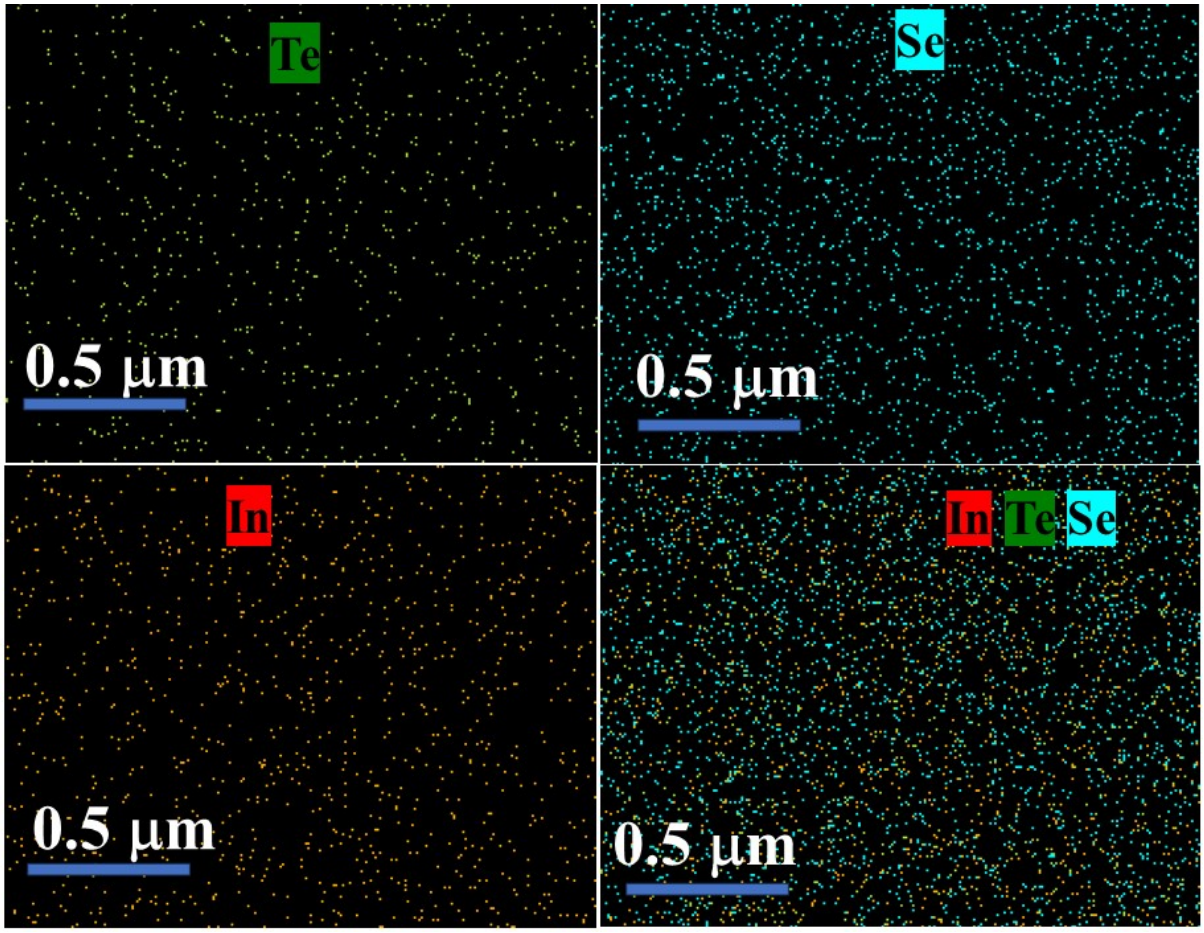

Fig. S1. Elemental mapping of elements of 250 °C annealed Te/In_2Se_3 film

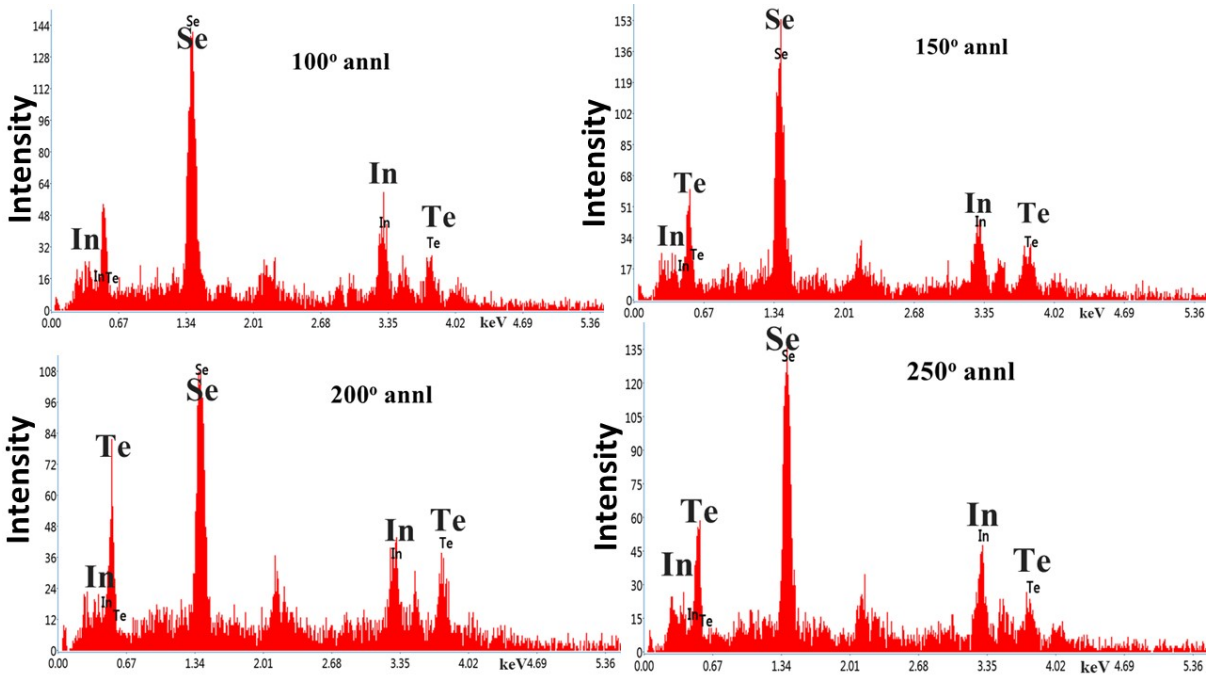

Fig. S2. EDX spectra of 100 °C, 150 °C, 200 °C, and 250 °C annealed Te/In_2Se_3 films

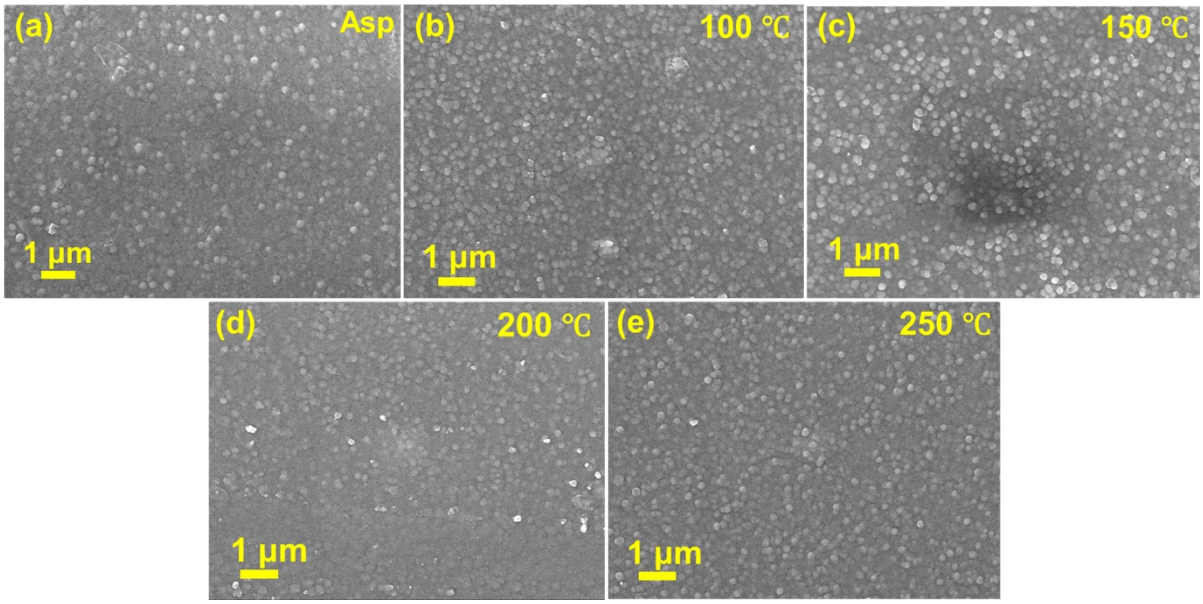

Fig.S3. FESEM images of (a) Asp, (b) 100℃, (c) 150℃, (d) 200℃, and (e) 250 ℃ annealed Te/In_2Se_3 thin films at 1 μm.

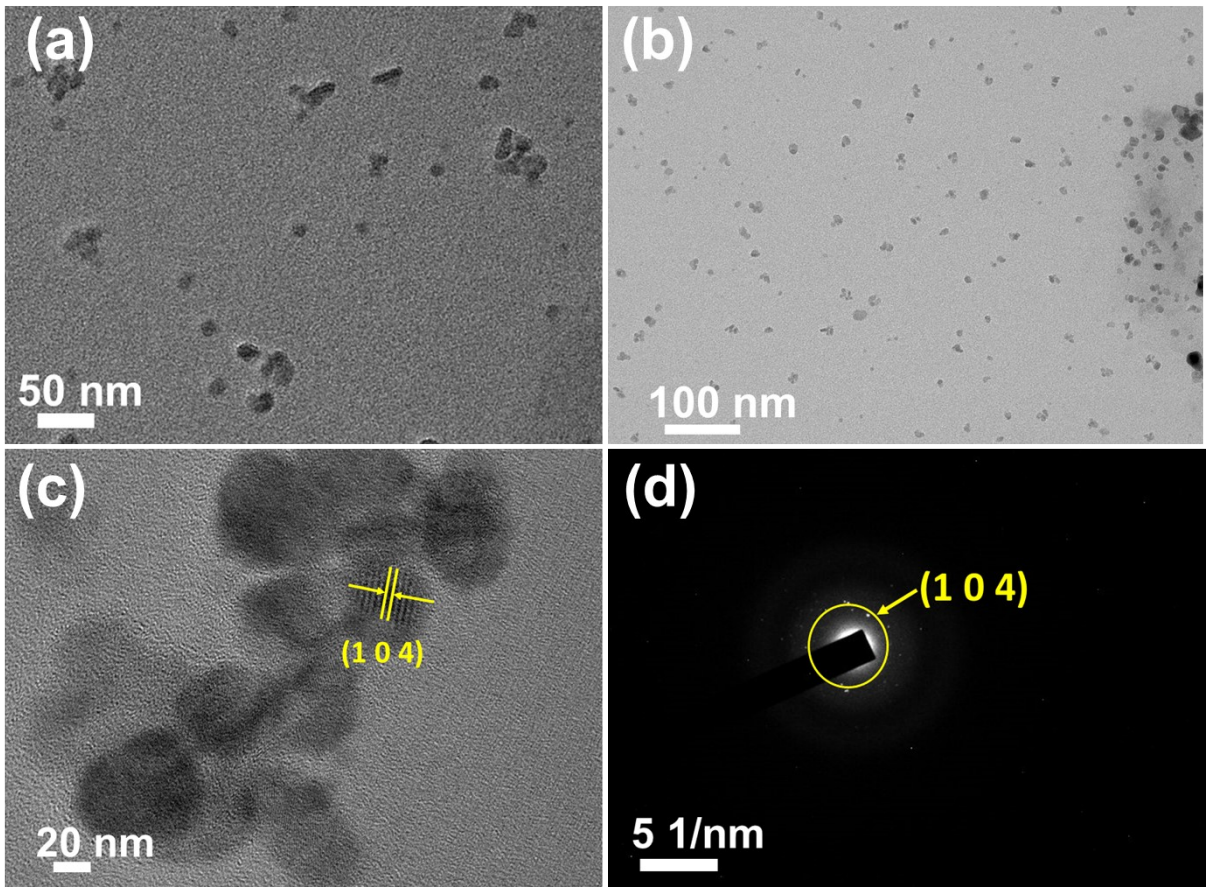

Fig.S4. TEM image (a) at 50 nm, (b) at 100 nm, (c) HRTEM image, and (d) SAED pattern of the as-prepared Te/In_2Se_3 thin film.

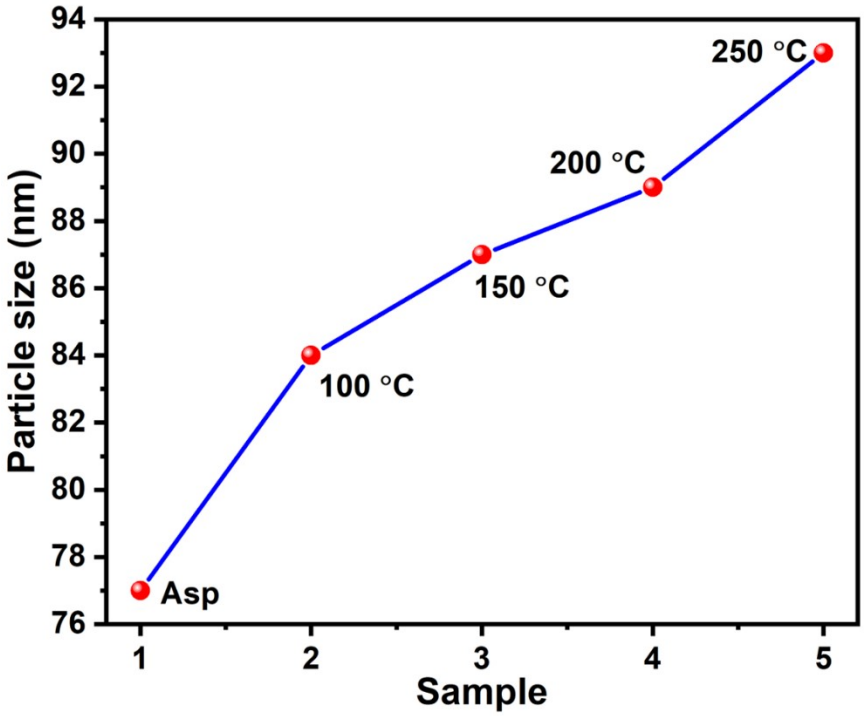

Fig. S5. Variation of particle size with as-prepared and annealing temperatures.

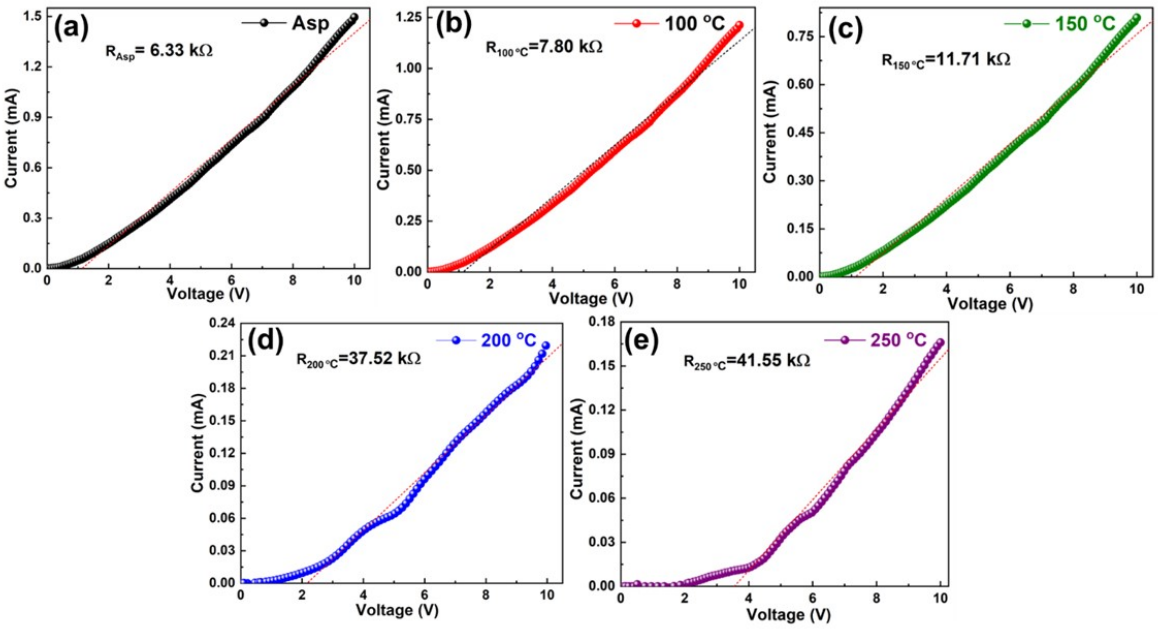

Fig.S6. Resistance data (a) as-prepared, (b) 100 °C, (c) 150 °C, (d) 200 °C, and (e) 250 °C under of Te/In_2Se_3 thin films.

Table S1. Compositional analysis of Te/In_2Se_3 films at different temperatures

Elements	**Te**		**In**		**Se**	
	Weight %	Atomic%	Weight %	Atomic%	Weight %	Atomic%
As-prepared	30.25	24.49	38.58	34.72	31.17	40.79
100 °C	37.33	30.80	34.52	31.66	28.15	37.54
150 °C	34.11	27.77	39.19	31.84	30.70	40.38
200 °C	28.62	23.05	39.31	35.20	32.07	41.75
250 °C	35.03	28.66	35.26	32.06	29.71	39.28