Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

Supplementary Information

Electrodeposited CuSbTe Thin Films with Enhanced Thermoelectric Performance

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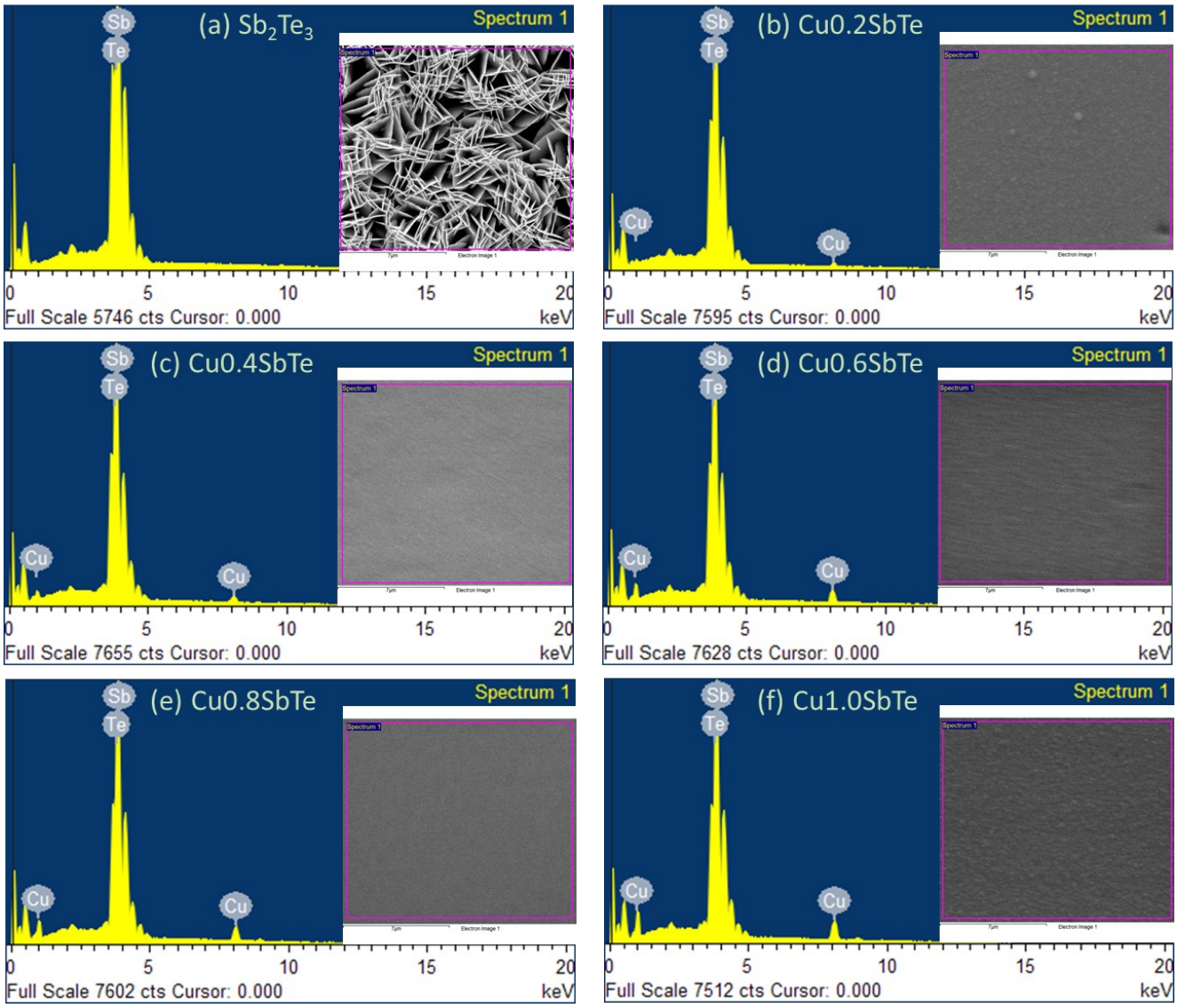

Figure S1. EDX spectra of (a) Sb_2Te_3, (b) Cu0.2SbTe, (c) Cu0.4SbTe, (d) Cu0.6SbTe, (e) Cu0.8SbTe, (f) Cu1.0SbTe.

Table S1. The average film thickness and elemental composition of Sb_2Te_3 and CuSbTe films.

Bath	Average Film thickness (μm)	Cu (at%)	Sb (at%)	Te (at%)
Sb_2Te_3	**8.99**	0	36.95	63.05
		0	37.20	62.80
		0	36.95	63.05
		0	36.84	63.16
		0	36.23	63.77
		0	**36.83**	**63.17**
Cu0.2SbTe	**5.80**	3.05	34.86	62.09
		2.71	35.23	62.06
		2.75	35.28	61.96
		2.84	35.06	62.10
		2.91	35.05	62.03
		2.85	**35.10**	**62.05**
Cu0.4SbTe	**5.49**	5.65	33.82	60.53
		5.62	33.69	60.69
		5.85	33.55	60.60
		5.76	33.73	60.51
		5.56	33.81	60.63
		5.69	**33.72**	**60.59**
Cu0.6SbTe	**4.86**	10.34	30.68	58.98
		9.49	31.48	59.02
		9.84	30.92	59.24
		10.38	31.31	58.31
		10.27	30.52	59.21
		10.06	**30.98**	**58.96**
Cu0.8SbTe	**4.56**	11.76	30.66	57.58
		11.31	30.60	58.08
		11.32	30.54	58.14
		11.70	30.34	57.96
		11.86	30.34	57.80
		11.59	**30.50**	**57.91**
Cu1.0SbTe	**4.35**	15.27	28.79	55.94
		15.32	28.49	56.18
		15.63	28.59	55.78
		15.34	28.41	56.25
		15.93	28.07	56.00
		15.50	**28.47**	**56.03**

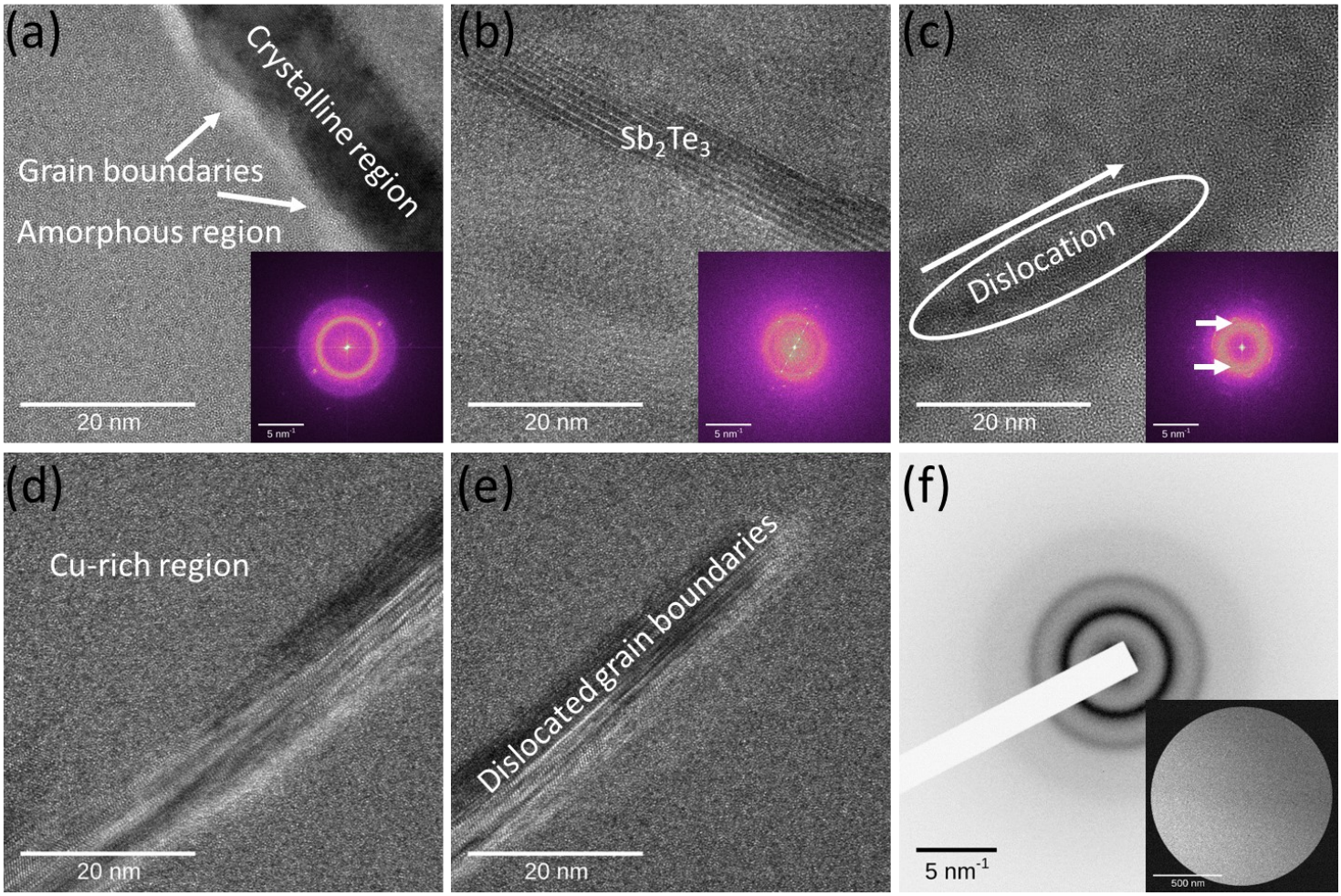

Figure S2. (a) HRTEM image Cu0.4SbTe film showing crystalline and amorphous region, (b) Distribution of amorphous and crystalline fraction of CuSbTe, (c) Dislocation in CuSbTe film, (d and e) Amorphous-crystalline features with dislocations at grain boundaries (f) SAED pattern of Cu0.4SbTe in spotted region of the inset.

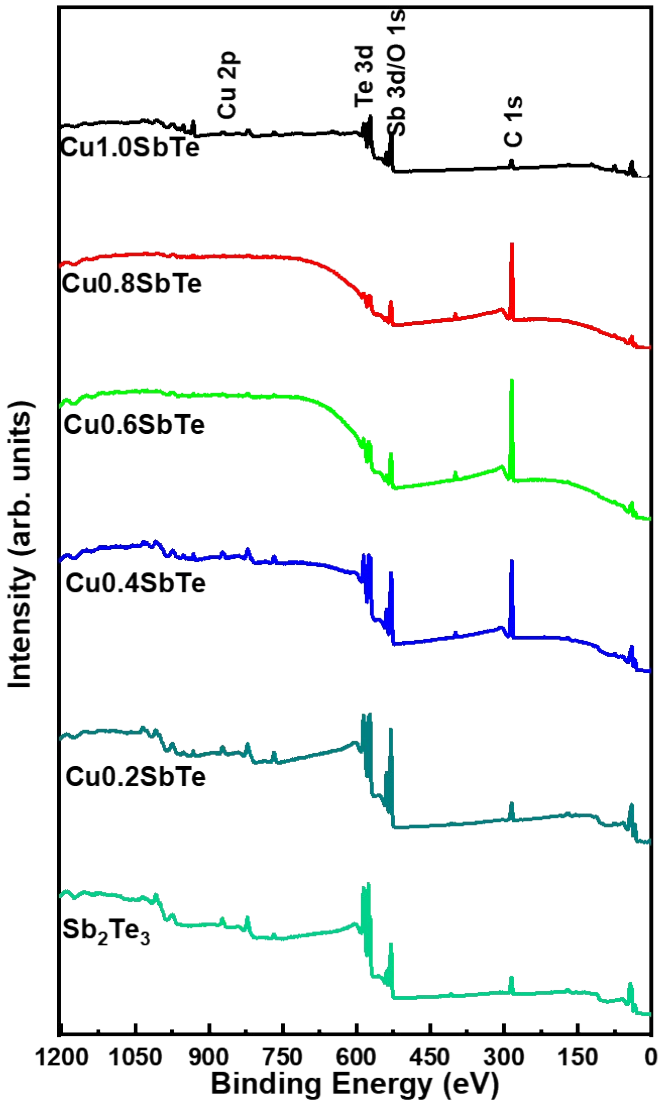

Figure S3. XPS survey spectra of pure Sb_2Te_3 and CuSbTe films.

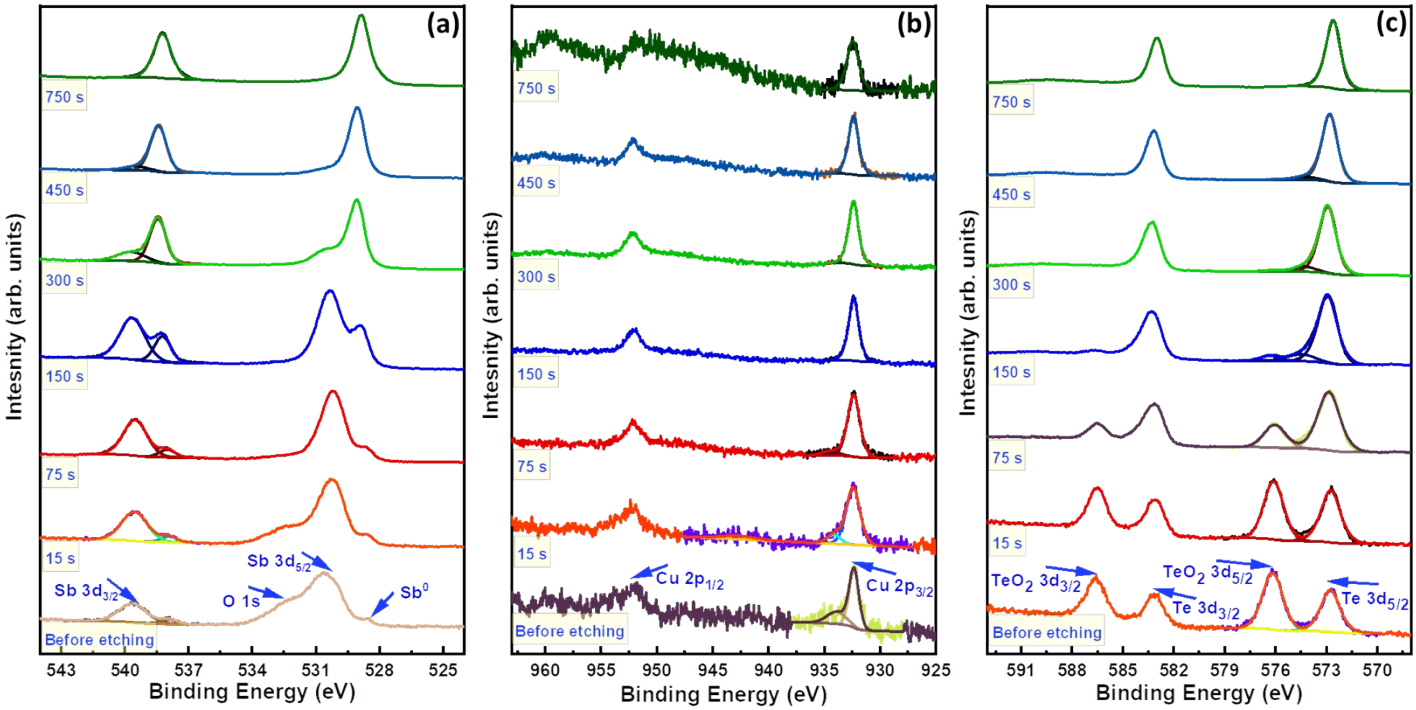

Figure S4. The core level XPS signals of (a) Sb 3d, (b) Cu2p, (c) and Te 3d for Cu0.4SbTe film for different etching time.