

Anion-exchange Synthesis of Thermoelectric Layered $\text{SnS}_{0.1}\text{Se}_{0.9-x}\text{Te}_x$ Nano/microstructures in Aqueous Solution; Complexity and Carrier Concentration.[†]; Supporting Information.

Lisi Huang,^a Guang Han,^{*a,b} Bin Zhang,^c and Duncan H. Gregory^{*d}

^aCollege of Materials Science and Engineering, Chongqing University, Chongqing 400044, China

^bKey Laboratory of Low-grade Energy Utilization Technologies and Systems, Ministry of Education of China, Chongqing University, Chongqing 400044, China

^cAnalytical and Testing Centre, Chongqing University, Chongqing 401331, China

^dWestCHEM, School of Chemistry, University of Glasgow, Glasgow, G12 8QQ, UK

*Corresponding author: Email: guang.han@cqu.edu.cn; Duncan.Gregory@glasgow.ac.uk

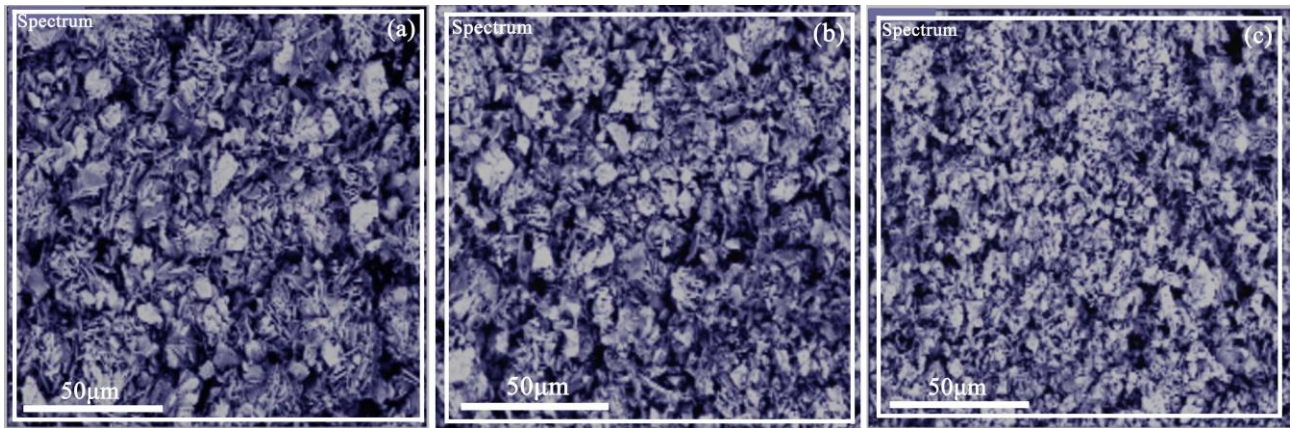


Figure S1. SEM images of $\text{SnS}_{0.1}\text{Se}_{0.9-x}\text{Te}_x$ nano/microstructures revealing the positions where EDS spectra in Figure 2g-i were collected: (a) $x = 0.02$, (b) $x = 0.05$, and (c) $x = 0.08$.

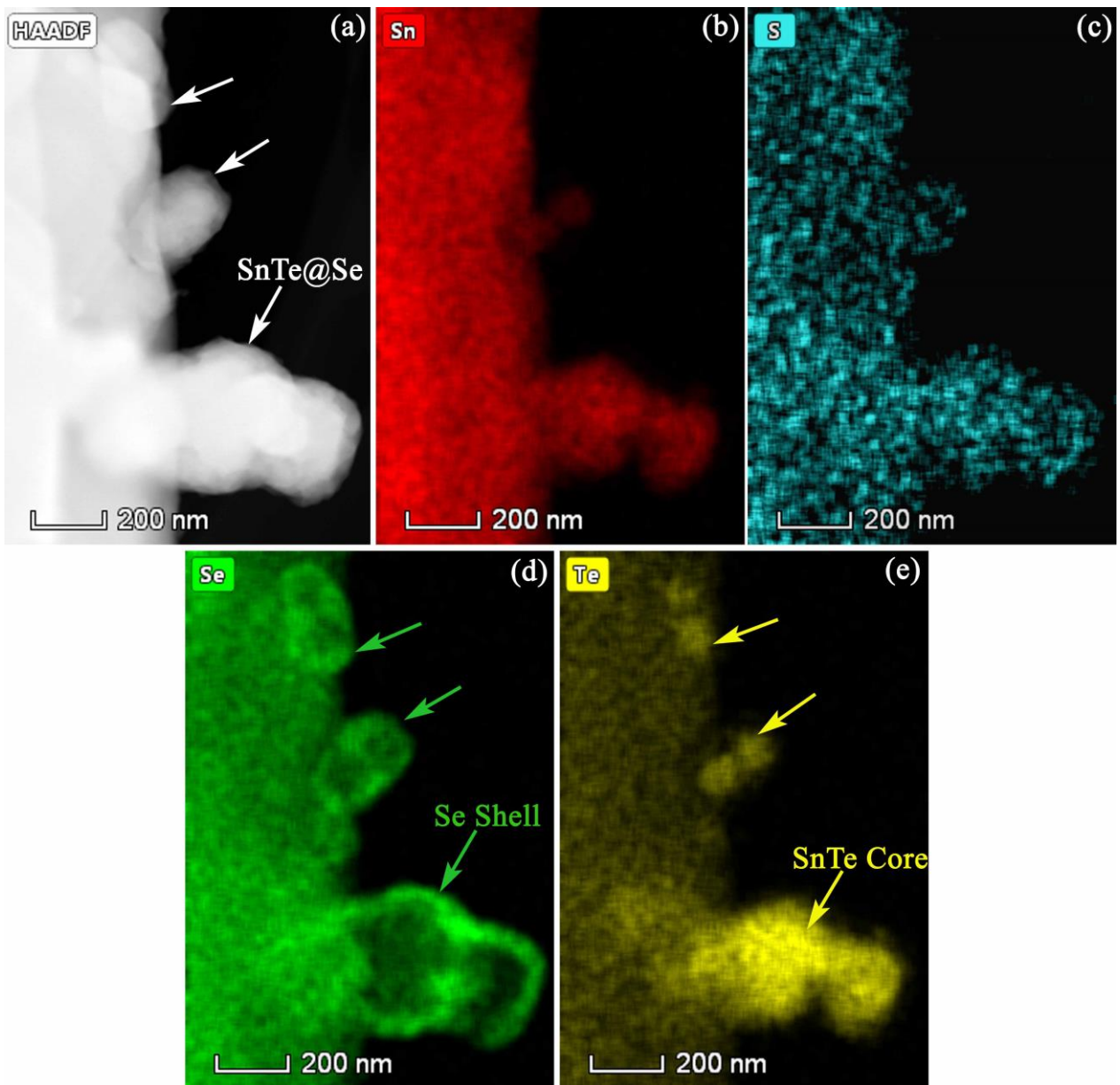


Figure S2. Characterization of $\text{SnS}_{0.1}\text{Se}_{0.82}\text{Te}_{0.08}$ nano/microstructures: (a) HAADF-STEM image and (b-e) its corresponding element maps for Sn, S, Se and Te, respectively.

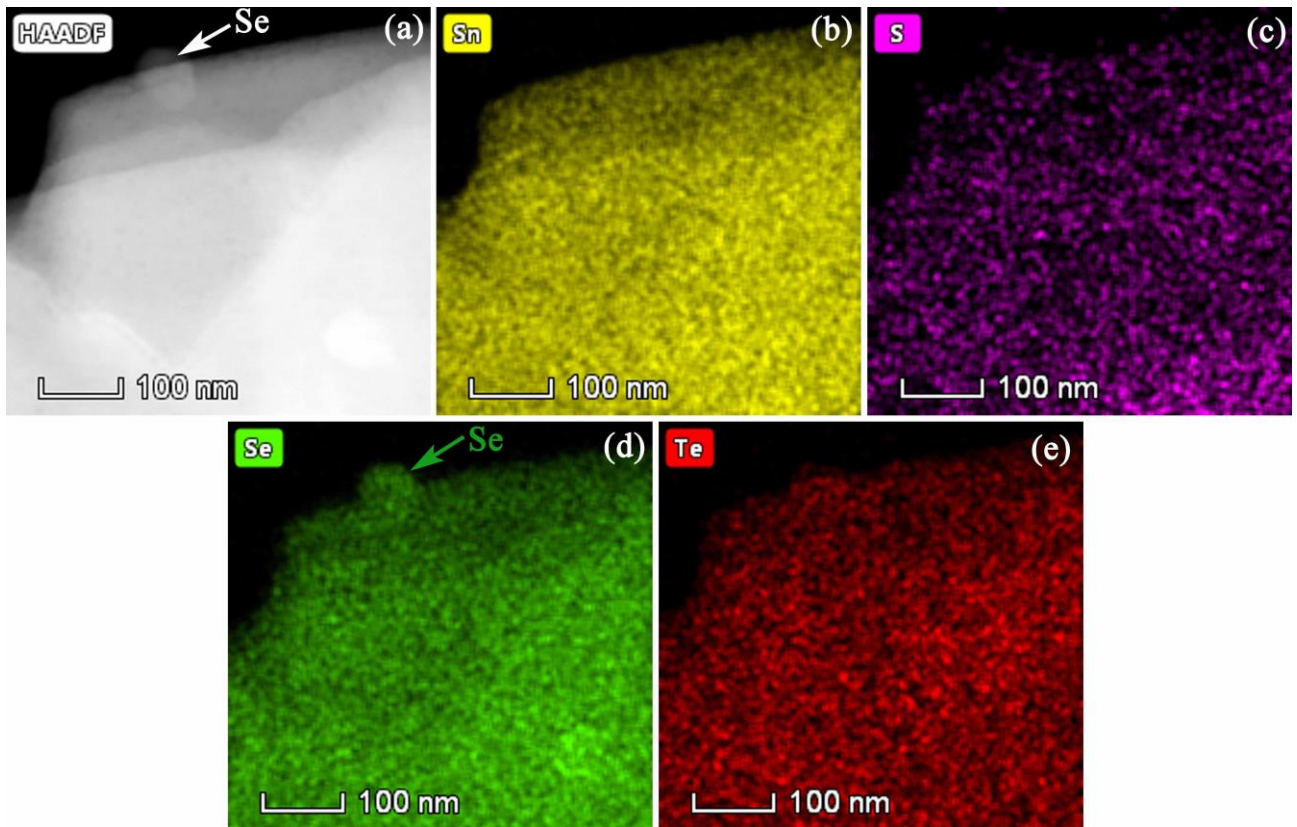


Figure S3. Characterization of $\text{SnS}_{0.1}\text{Se}_{0.82}\text{Te}_{0.08}$ nano/microstructures: (a) HAADF-STEM image and (b-e) its corresponding element maps for Sn, S, Se and Te, respectively.

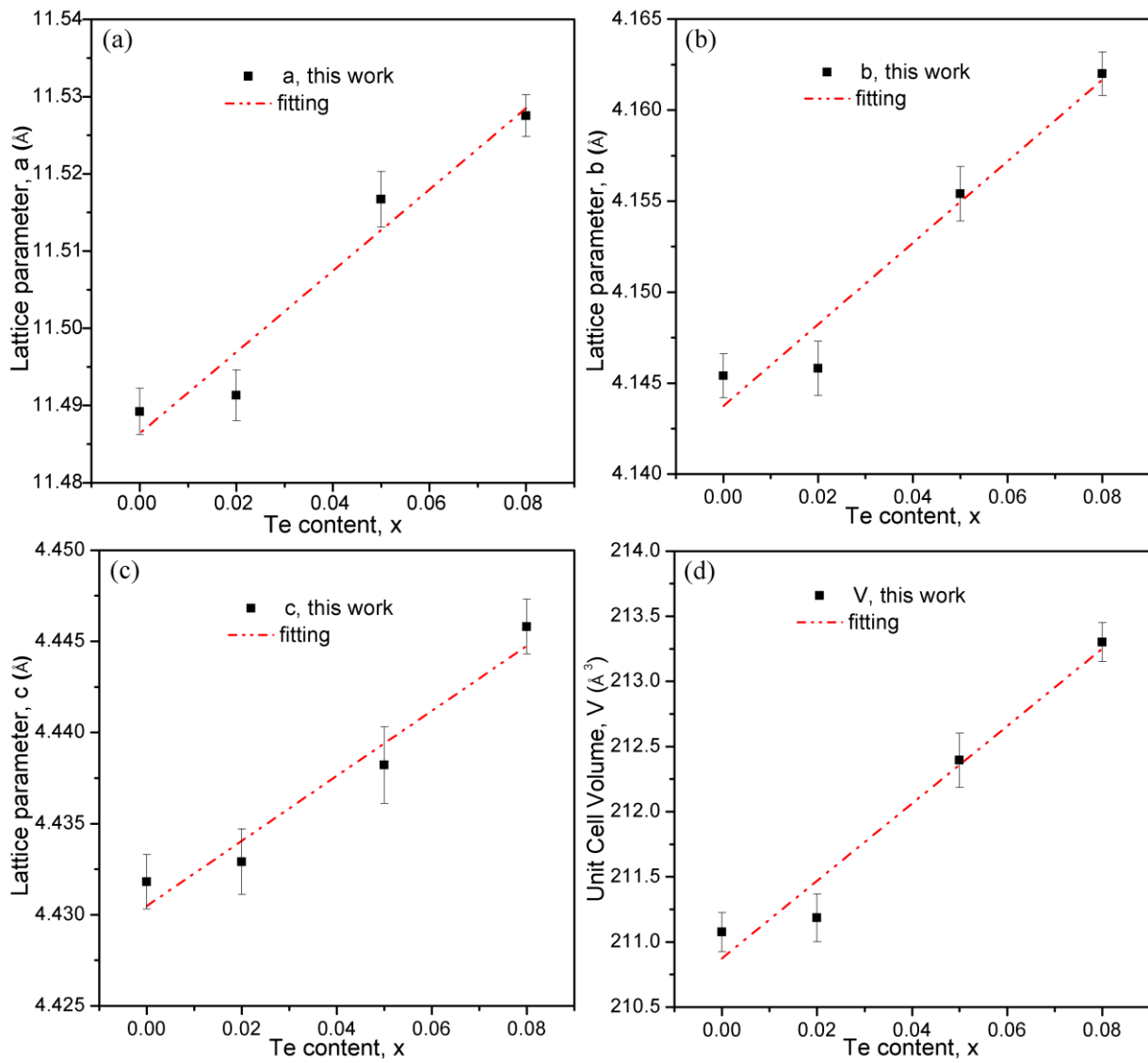


Figure S4. (a-c) Rietveld-refined lattice parameters and (d) unit cell volumes as a function of Te concentration (x) for SPS-SnS_{0.1}Se_{0.9-x}Te_x (x = 0.02, 0.05, 0.08). The linear fits to each set of data are indicated by the red dashed/dotted line.

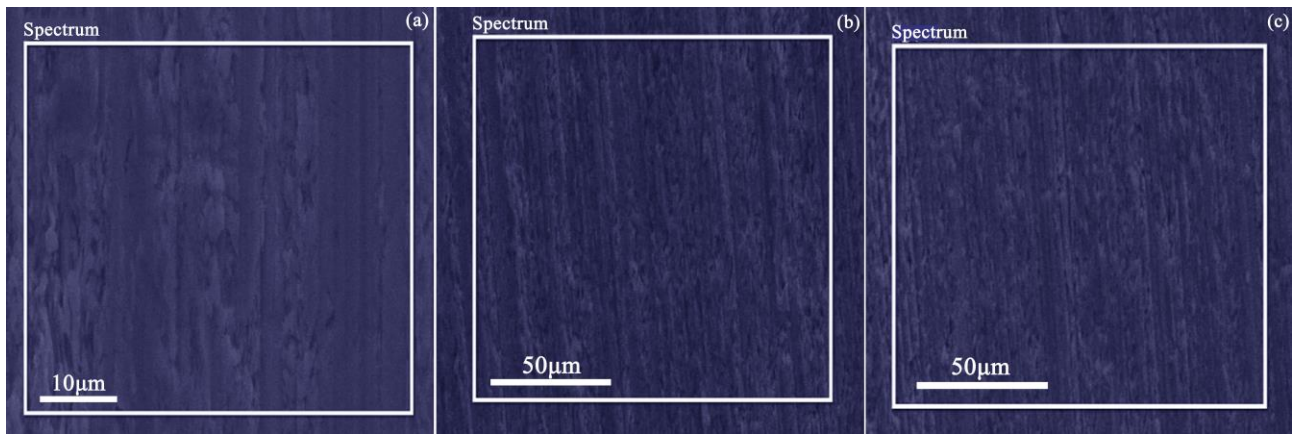


Figure S5. SEM images of $\text{SnS}_{0.1}\text{Se}_{0.9-x}\text{Te}_x$ pellets revealing the positions where EDS spectra in Figure 5g-i were collected: (a) $x = 0.02$, (b) $x = 0.05$, and (c) $x = 0.08$.

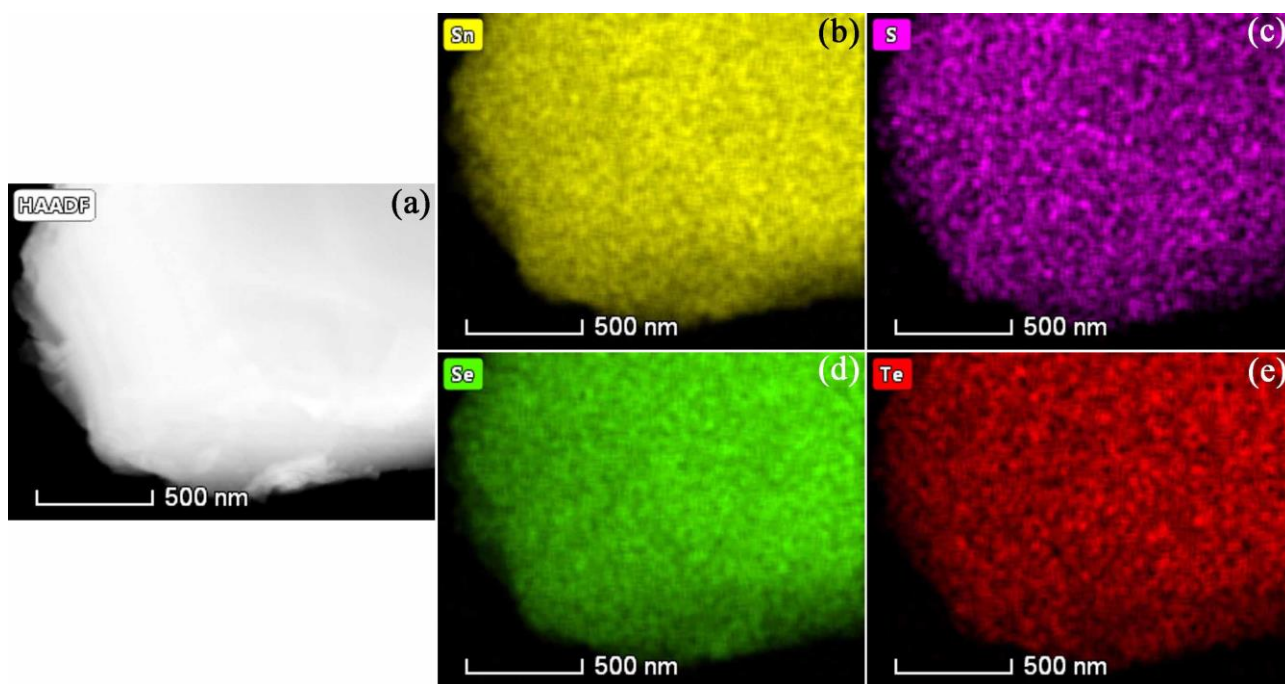


Figure S6. Characterization of SPS-SnS_{0.1}Se_{0.88}Te_{0.02}: (a) HAADF-STEM image and (b-e) its corresponding element maps for Sn, S, Se and Te, respectively.

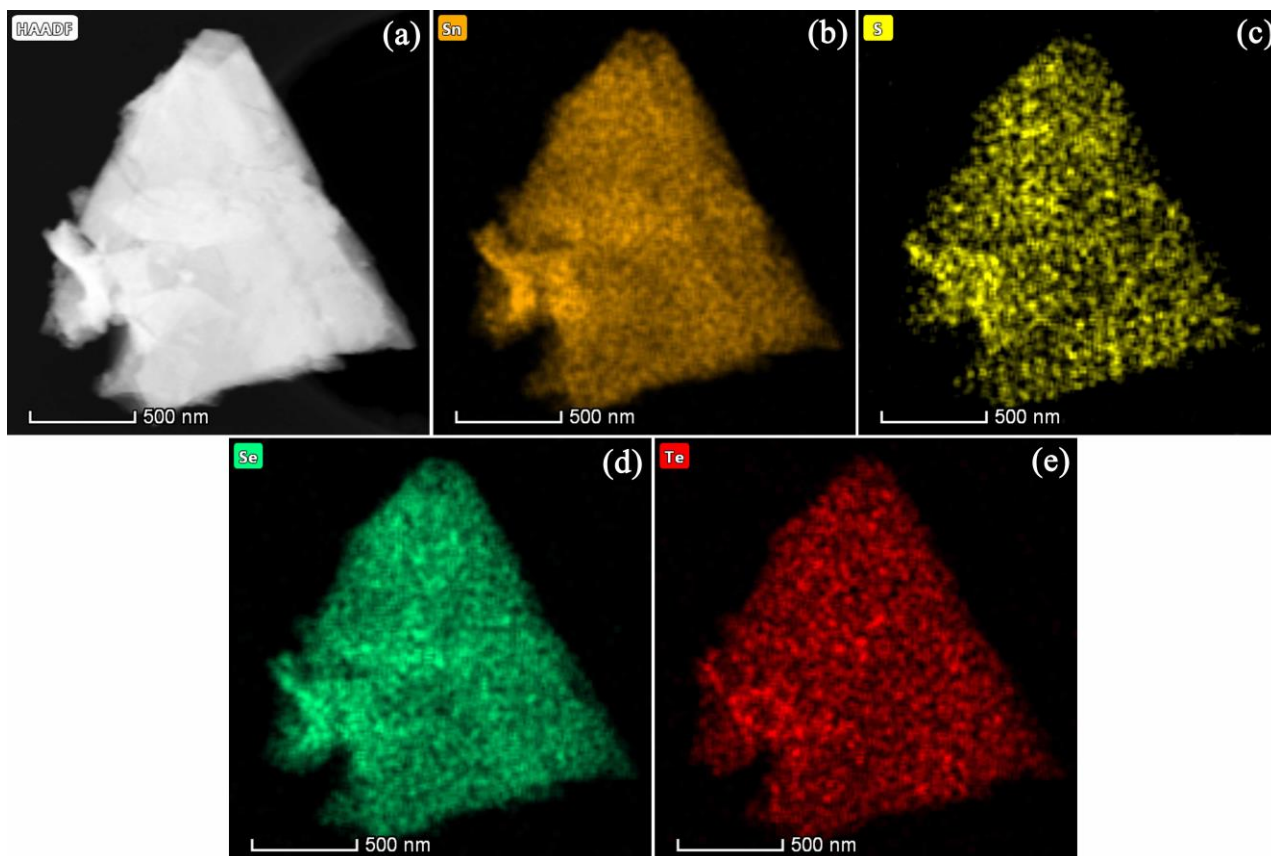


Figure S7. Characterization of SPS-SnS_{0.1}Se_{0.82}Te_{0.08} (peeled plate 1): (a) HAADF-STEM image and (b-e) its corresponding element maps for Sn, S, Se and Te, respectively.

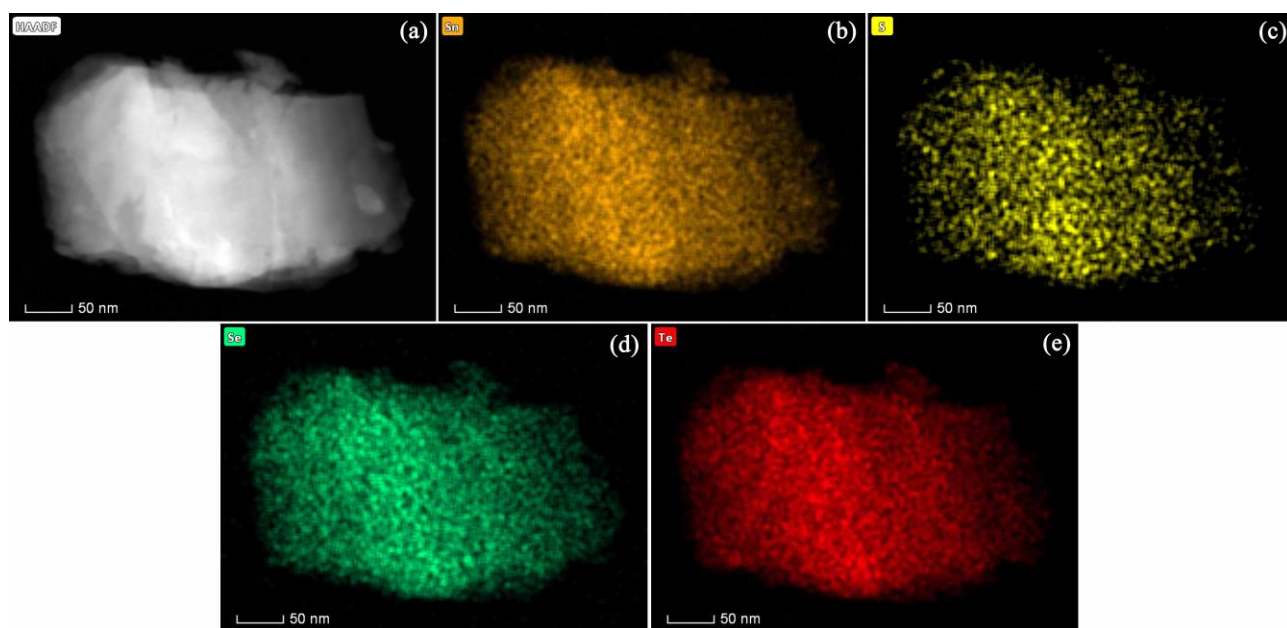


Figure S8. Characterization of SPS-SnS_{0.1}Se_{0.82}Te_{0.08} (peeled plate 2): (a) HAADF-STEM image and (b-e) its corresponding element maps for Sn, S, Se and Te, respectively.