Electronic Supplementary Material (ESI) for RSC Advances.

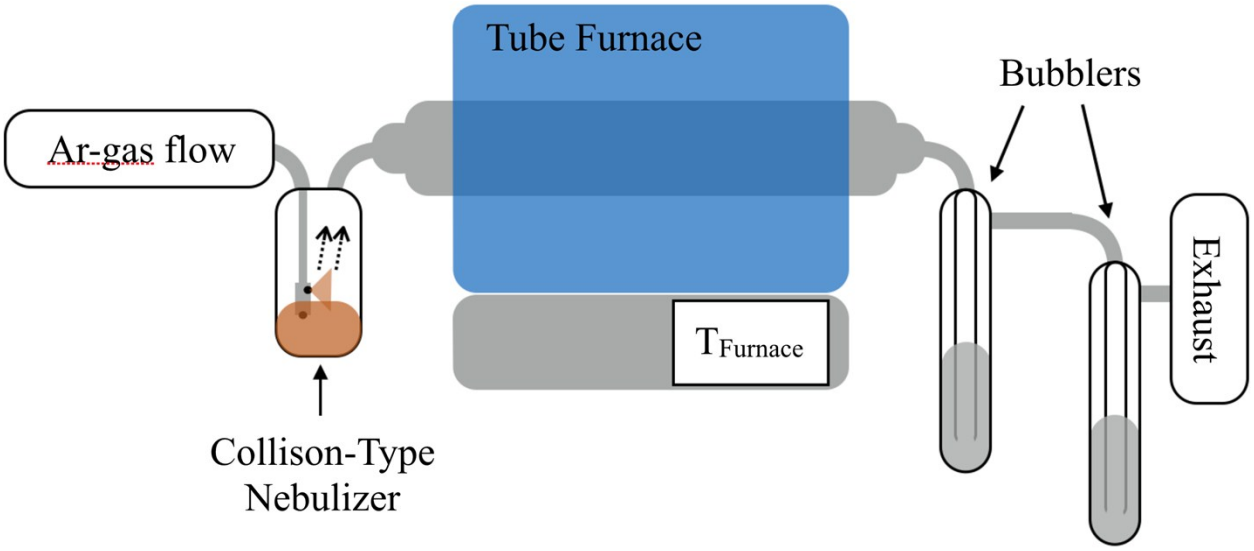

Fig. S1: Schematic diagram depicting the aerosol spray pyrolysis apparatus used in this work.

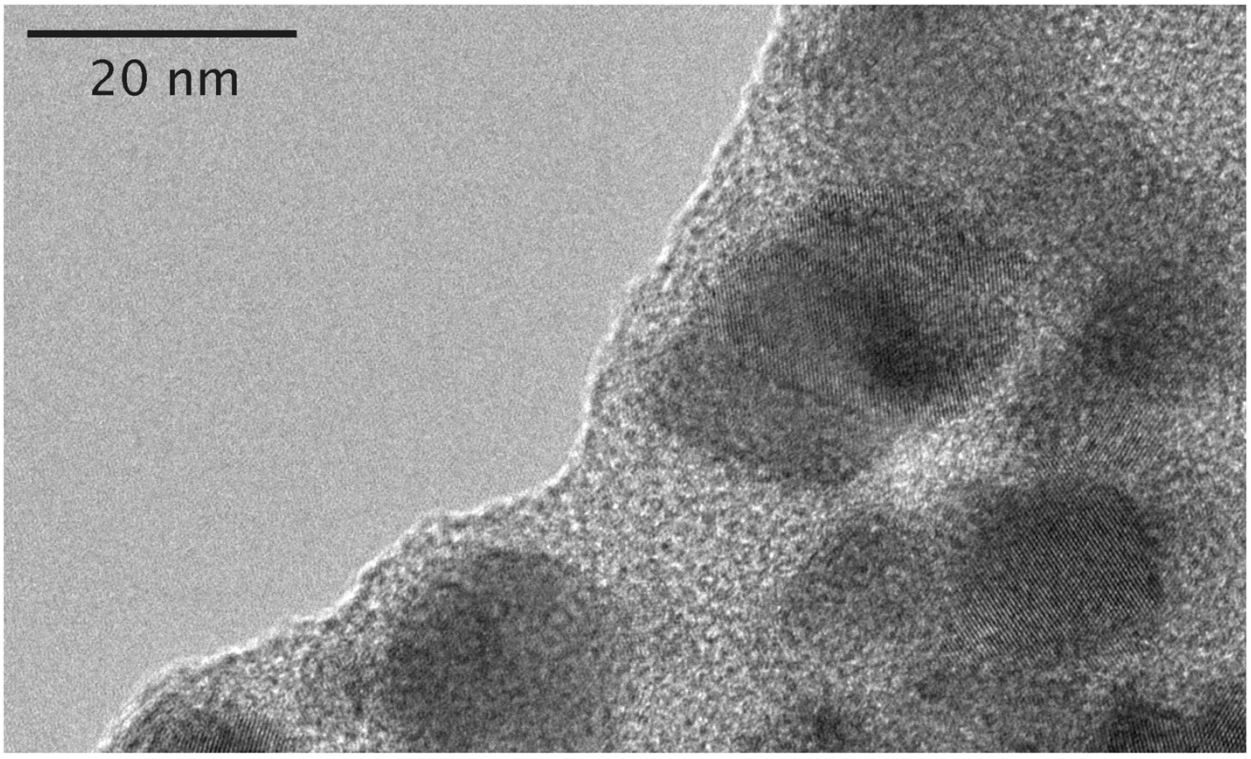

Fig. S2: TEM image of representative CZTS powder produced at operating temperatures above the optimal 800-850 ºC range.

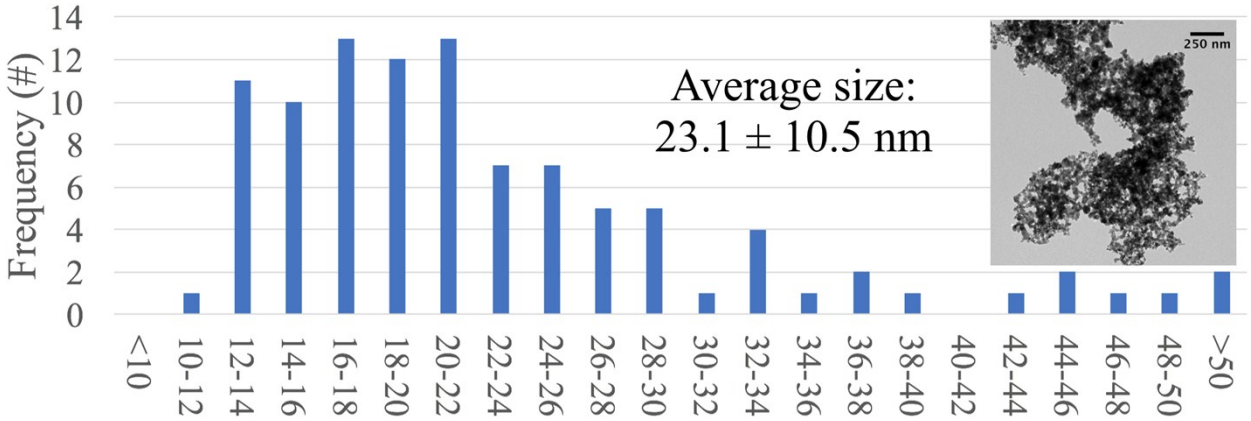

Fig. S3: Size distribution of CZTS nanoparticles produced by aerosol spray pyrolysis reactor. Sample size is 100 nanoparticles (observed in a TEM image and analyzed using ImageJ), and uncertainty is one standard deviation.

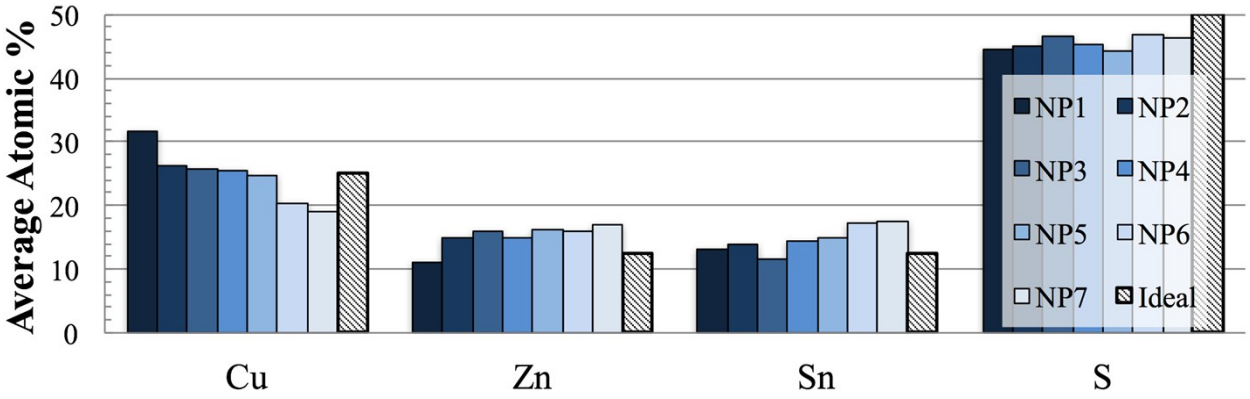

Fig. S4: Bar graph showing relative atomic concentrations of Cu, Zn, Sn, and S in a series of nanoparticle samples exhibiting compositional control of the product. Shaded bars correspond to stoichiometric Cu_2ZnSnS_4. Data acquired by SEM/EDS.

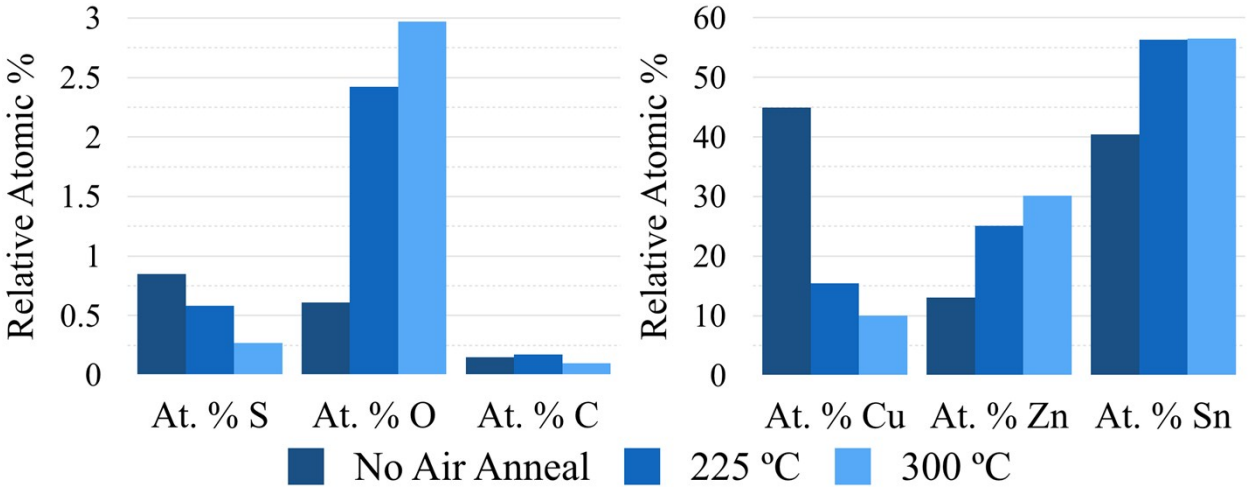

Fig. S5: XPS characterization of CZTS nanoparticles as-produced ("No Air Anneal") and after air annealing at different temperatures. (a) compares sulfur, oxygen, and carbon content, (b) compares metal cation content.

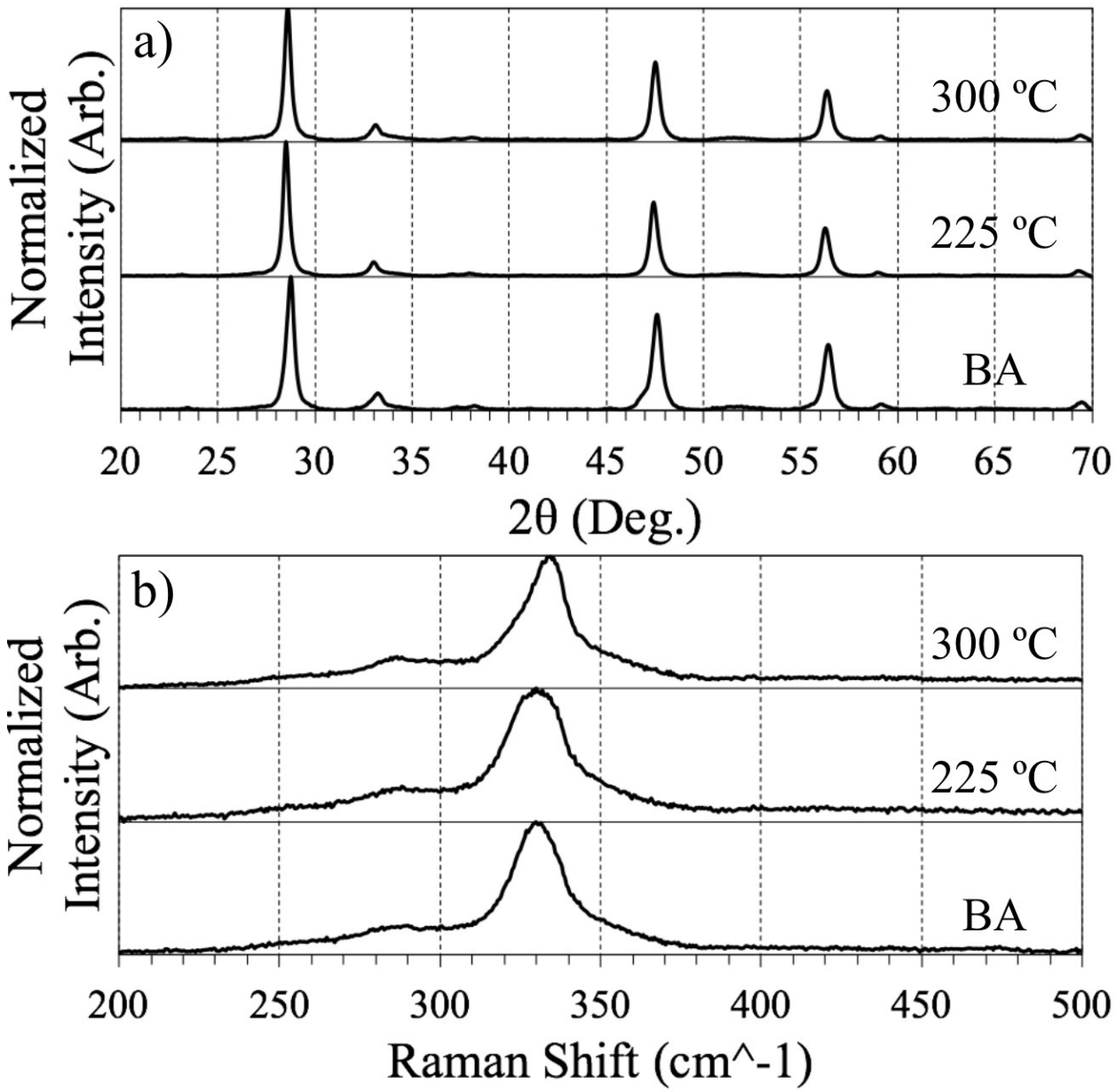

Fig. S6: Shows XRD (a) and Raman (b) characterization of CZTS nanoparticles as produced from the experimental apparatus (BA), and after annealing at two different temperatures.