

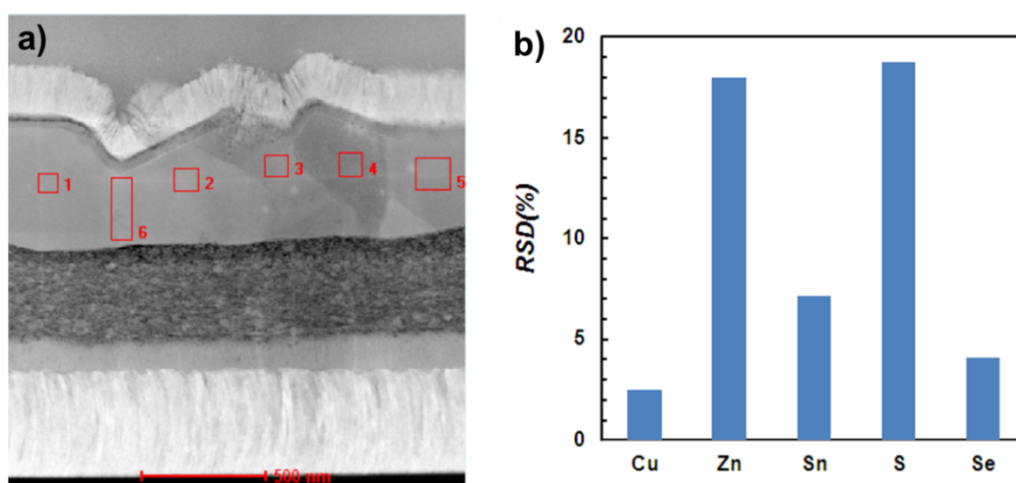
## Investigation of Local Compositional Uniformity in $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ Thin Film Solar Cells

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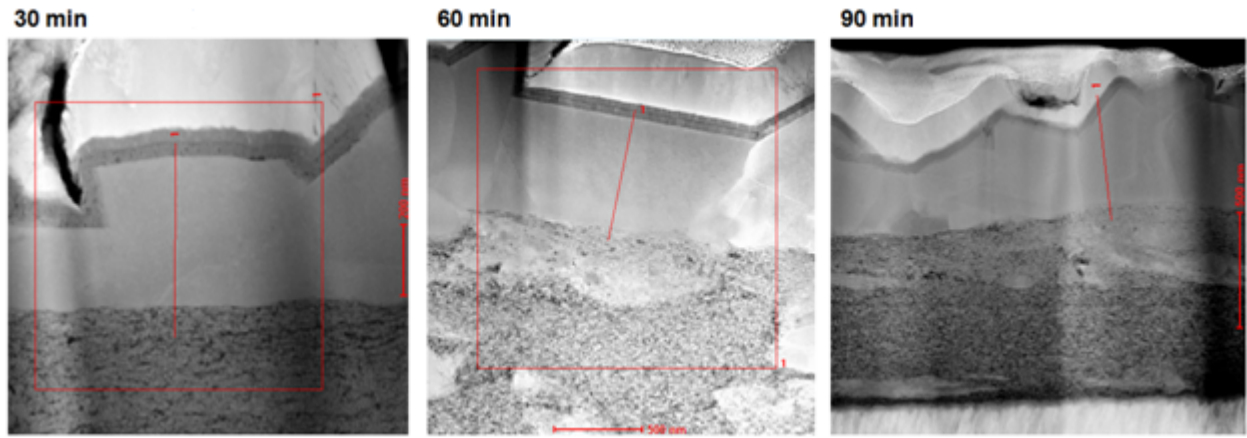
### Supporting Information



**Figure S1:** a) HAADF-TEM image showing the areas within the individual grains of the large-grain layer where EDS data were collected and b) relative standard deviations (*RSD%*) in the atomic percentages of the constituent elements determined from EDS. The observed compositional non-uniformity is in agreement with the STEM-EDS line scan laterally across the same region as shown in Figure 2. Please note that the measured Se/S atomic ratio is  $\sim 5$ , therefore the *RSD%* of S appears to be much larger than the *RSD%* of Se.

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**Figure S2.** HAADF-TEM images corresponding to the exact EDS line scan paths shown in Figure 4d-f, for solar cells fabricated with CZTSSe thin films annealed at 560 °C for 30 minutes, 60 minutes, and 90 minutes.