

Supporting Information

J.G. Simmons et. al., "How sulfidation of ZnO powders enhances visible fluorescence"

S1: Elemental Analysis of ZnO:S/ZnS

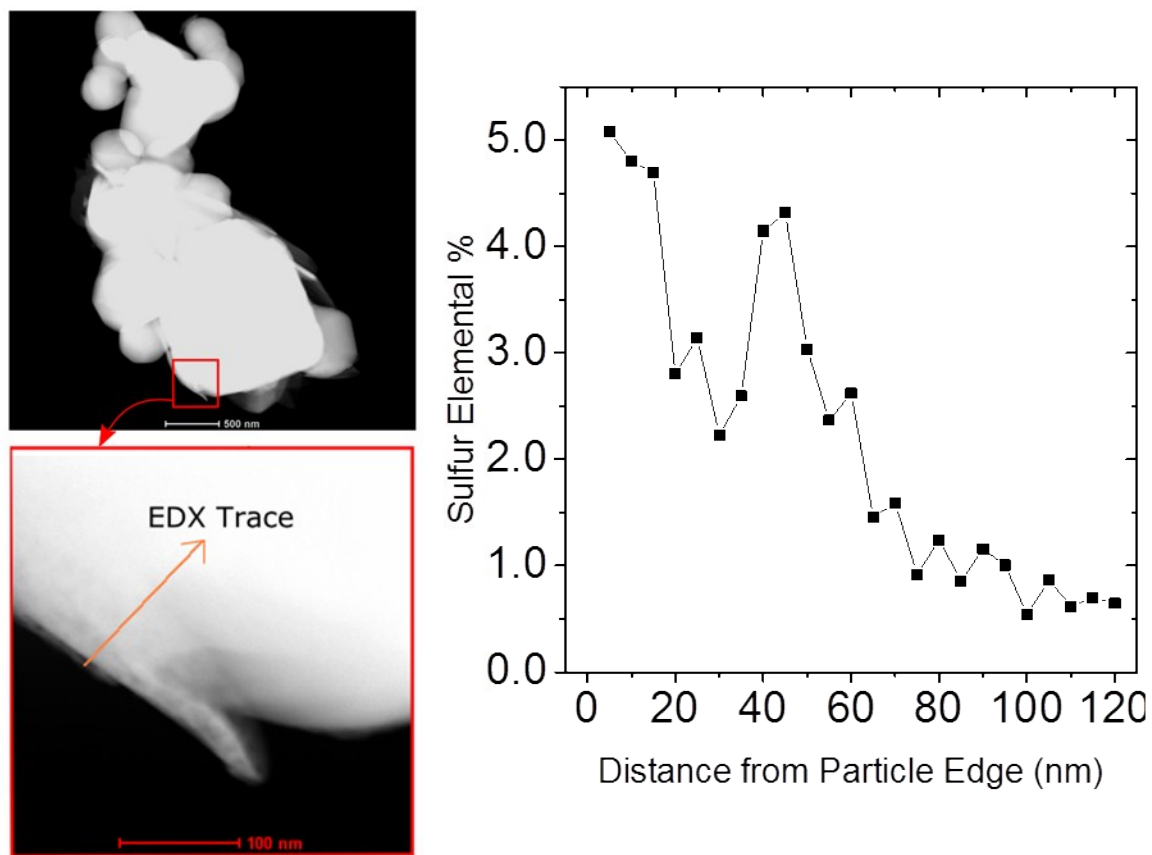


Figure S1. Top left - Shows the TEM Image of a typical ZnO:S/ZnS particle. Bottom left - Shows the area where energy dispersive x-ray spectroscopy (EDX) was used to map the elemental percentage of sulfur in ZnO. Right – Shows the percentage of sulfur detected by EDX as function of distance from the particle edge along the trace shown in the particle image.

The increase of detected sulfur towards the edge of the particle is expected for a ZnS Shell since the electron beam will have a greater interaction with the shell than the bulk at the edge of the particle. This is further indication that the sulfur deposited during the synthesis remains at the surface in a shell layer. This shell layer was also shown by X-Ray diffraction and photoluminescence excitation measurements to be made up of ZnS domains and therefore generates a type II band alignment with the sulfur-doped ZnO in particle core (see main text).