Beneficial Impurities and Phase Control in Colloidal Synthesis of Tin Monoselenide

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Experimental (TGA)

Thermal gravimetric analysis (TGA) was performed with a TA Instruments Q500 analyzer, using an alumina crucible at a scan rate of 5°C/min. The oleylamine sample was placed in an alumina crucible that was constantly purged with argon gas. The sample was heated to 150°C so that the residual evolved CO₂ was effectively removed. The sample was then...
cooled to 110 °C and exposed to CO₂ and the mass gain was recorded over time. This temperature was chosen in order to simulate the absorption of CO₂ at the reaction temperature of colloidal synthesis of SnSe. The results were corrected to compensate for mass loss due to evaporation.

![TGA curve of oleylamine exposed to CO₂ at 110°C](image)

Figure S2. TGA curve of oleylamine exposed to CO₂ at 110°C. The mass gain is expressed as percentage of mass gained with respect to the initial mass. The molar concentrations were calculated from this mass gain curve.
Figure S3. Scanning TEM micrographs of SnSe nanoparticles synthesized by replacing specific amount of oleylamine with 0.63M OAOC. The inset yellow rectangles are intensity line scans integrated over the rectangle short edge. The corresponding integration is presented to the right (a-d). The red lines are guiding lines which demonstrate linear slopes, indicating flat surfaces.
Figure S4. Scanning TEM micrographs of SnSe nanoparticles synthesized by replacing specific amount of oleylamine with 1M OACL. The inset yellow rectangle is intensity line scan integrated over the rectangle short edge. The corresponding integration is presented to the right. The red lines are guiding lines which demonstrate linear slopes, indicating flat surfaces.