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## Size-, shape-, and assembly-controlled synthesis of Cu2-xSe nanocrystals via a non-injection phosphine-free colloidal method

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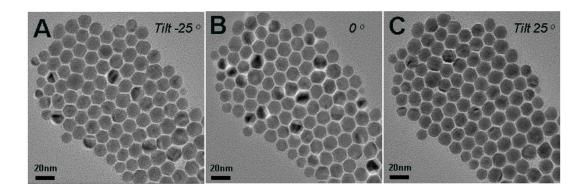
## Size-, Shape-, and Assembly-Controlled Synthesis of $Cu_{2\text{-}x}Se\ Nanocrystals\ via\ a\ Non-injection$ $Phosphine-Free\ Colloidal\ Method$

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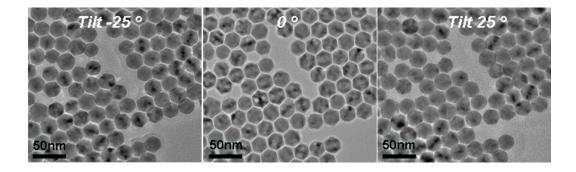
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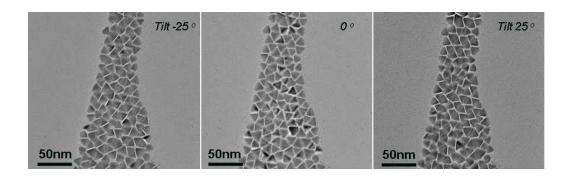
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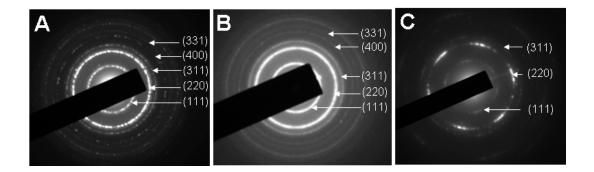
**Figure S1.** TEM images of typical  $Cu_{2-x}Se$  nanodiscs by tilting along the x-axis: A)  $+25^{\circ}$ , B)  $0^{\circ}$ , C) -  $25^{\circ}$ .



**Figure S2.** TEM images of typical elongated hexagonal bipyramid-shaped  $Cu_{2-x}Se$  nanocrystals by tilting along the x-axis:  $+25^{\circ}$  (right),  $0^{\circ}$  (middle),  $-25^{\circ}$  (left).



**Figure S3.** TEM images of typical triangular  $Cu_{2-x}Se$  nanocrystals by tilting along the x-axis:  $+25^{\circ}$  (right),  $0^{\circ}$  (middle),  $-25^{\circ}$  (left).



**Figure S4.** The selected-area electron diffraction (SAED) patterns of three different shaped  $Cu_{2-x}Se$  samples synthesized by Route 1 (A), Route 2 (B), and Route 3 (C).

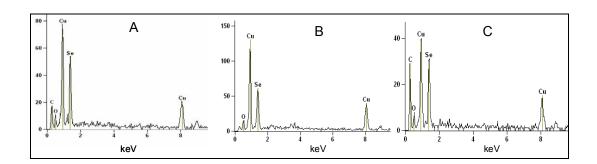
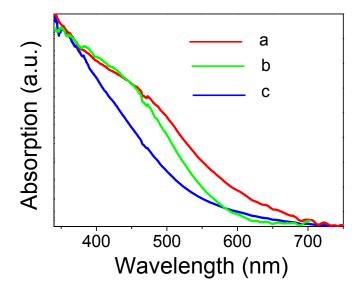


Figure S5. EDS spectra of three different shaped  $Cu_{2-x}Se$  samples synthesized by Route 1 (A), Route 2 (B), and Route 3 (C).



**Figure S6.** UV/vis absorption spectra of three different shaped  $Cu_{2-x}Se$  samples synthesized by Route 1 (a), Route 2 (b), and Route 3 (c).