

Supporting Information

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**A Simple Reducing Approach Using Amine To Give Dual Functional EuSe Nanocrystals and Morphological Tuning\*\***

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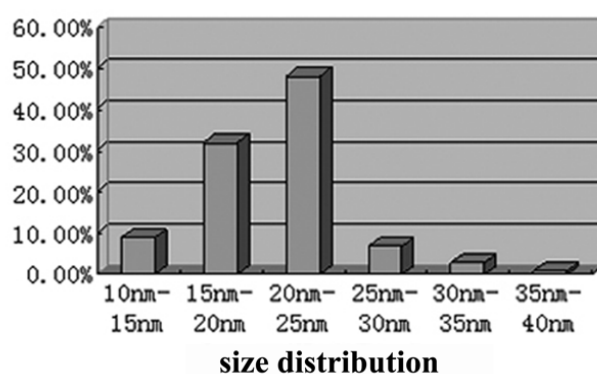


Figure S1. The size distribution of our spherically-shaped EuSe NCs prepared from a synthetic batch with the identical experimental condition as that of Figure1.

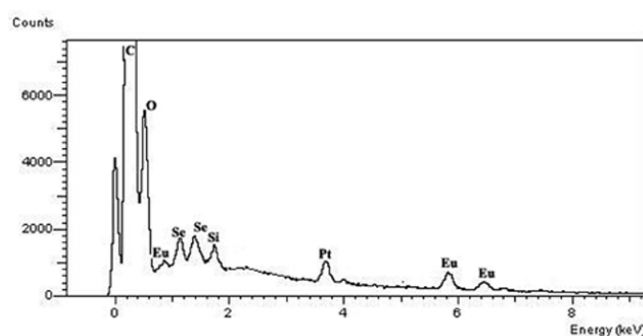


Figure S2. The EDS spectrum of our purified spherically-shaped EuSe NCs prepared from a synthetic batch with the identical experimental condition as that of Figure1.

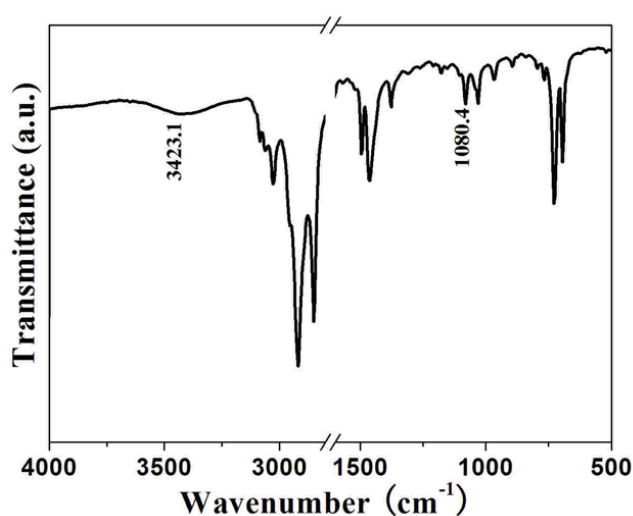


Figure S3. The FT-IR spectrum of our purified spherically-shaped EuSe NCs prepared from a synthetic batch with the identical experimental condition as that of Figure1.

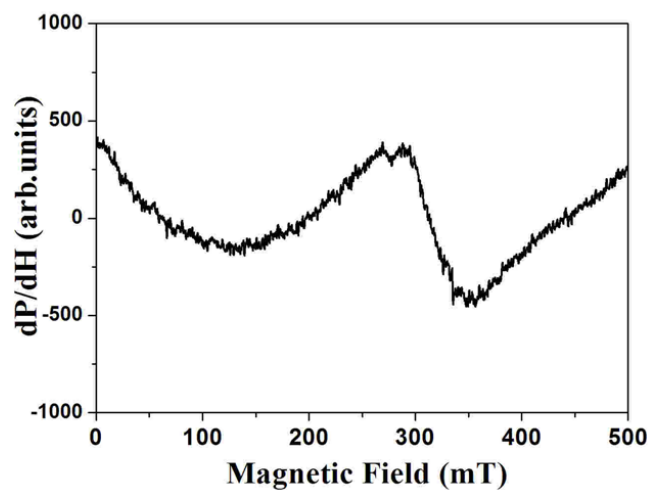


Figure S4. The ESR spectrum of our purified spherically-shaped EuSe NCs prepared from a synthetic batch with the identical experimental condition as that of Figure 1.

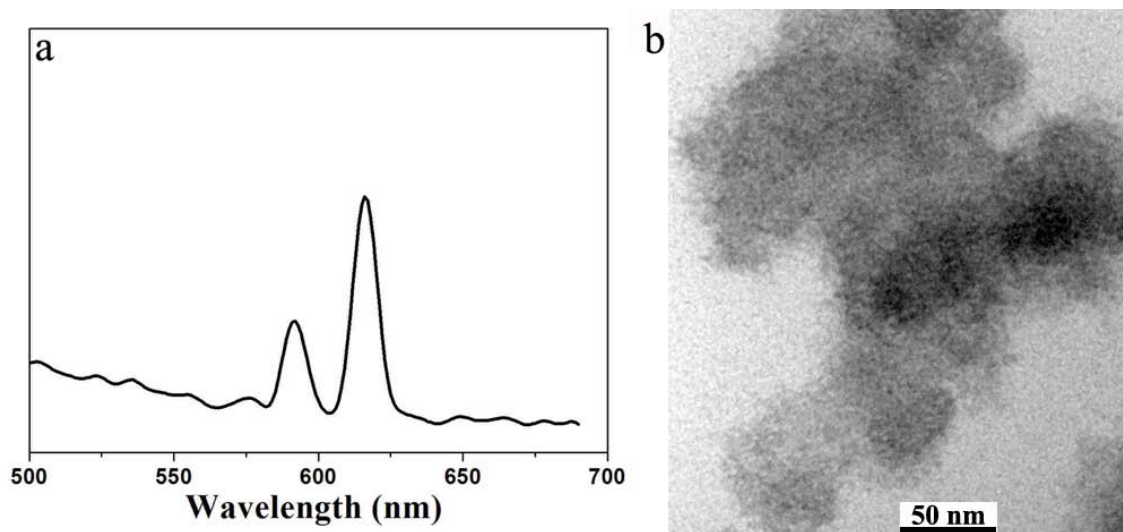


Figure S5. The PL spectrum (a) and TEM image (b) of the EuSe NCs prepared in the absence of OLA and with a precursor feed molar ratio of 1Eu : 4Se and 2.0 mmol OA in ODE at 290 °C.

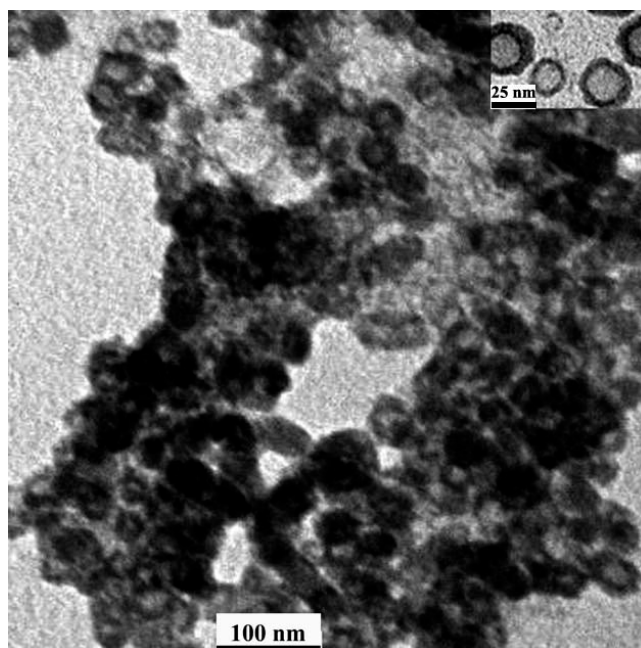


Figure S6. A TEM image of the hollow EuSe NCs with a precursor feed molar ratio of 4Eu : 1Se and 3.2 mmol OLA at 290 °C. The inset shows the image with a larger magnification; the scale bar is 25 nm.

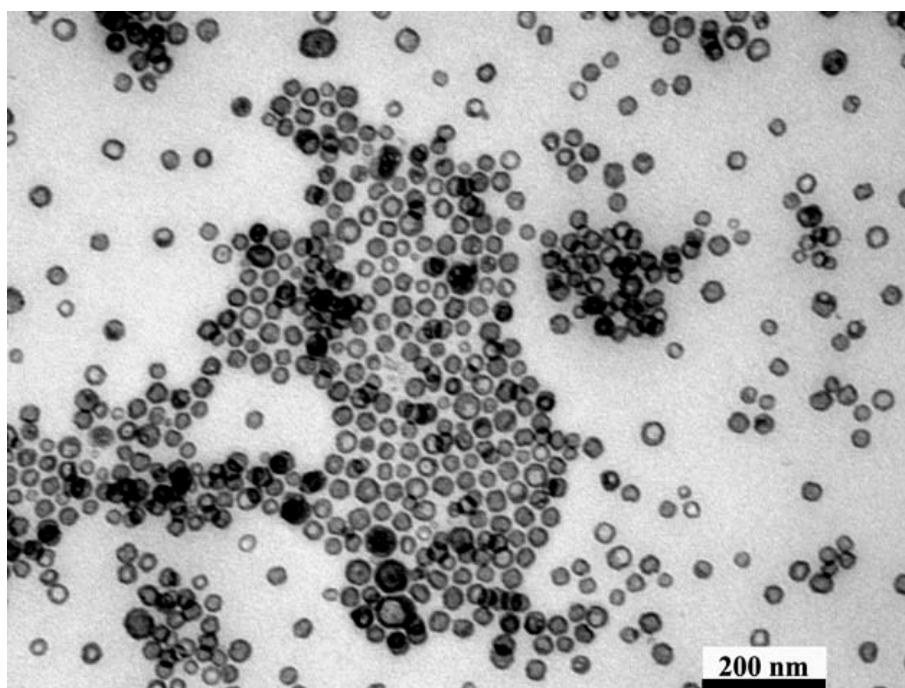


Figure S7. The TEM image but with a larger magnification of the hollow EuSe NCs showed in Figure 5c prepared with the feed molar ratios of 1Eu : 4Se and 4OLA : 1OA at 290 °C.

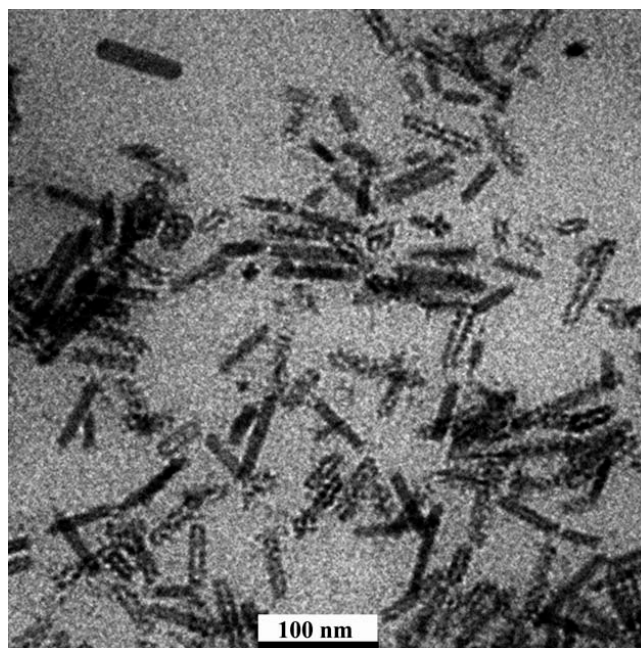


Figure S8. The TEM image of the EuSe NCs prepared with the feed molar ratios of 1Eu : 4Se and 4OLA : 1OA at 280 °C.

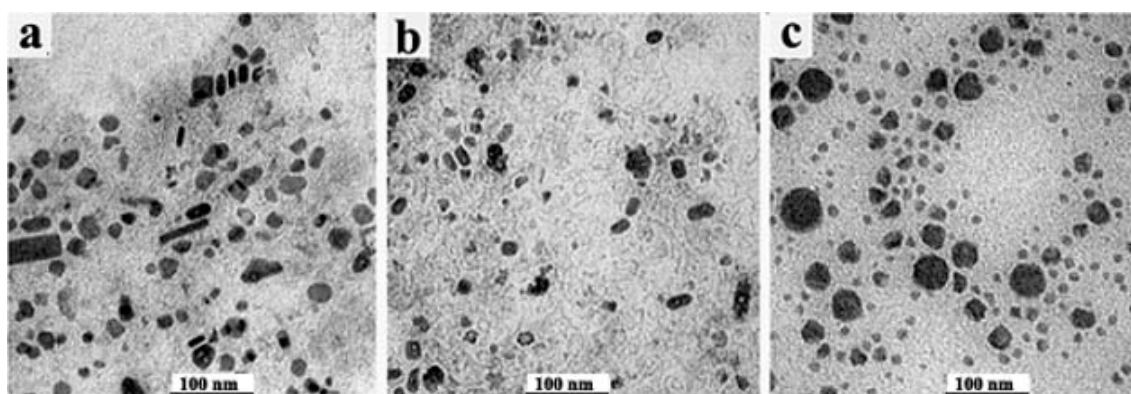


Figure S9. The TEM images of our EuSe NCs prepared with the feed molar ratios of 1Eu : 4Se and 1OLA : 1OA at: (a) 220 °C, (b) 250 °C, and (c) 290 °C.

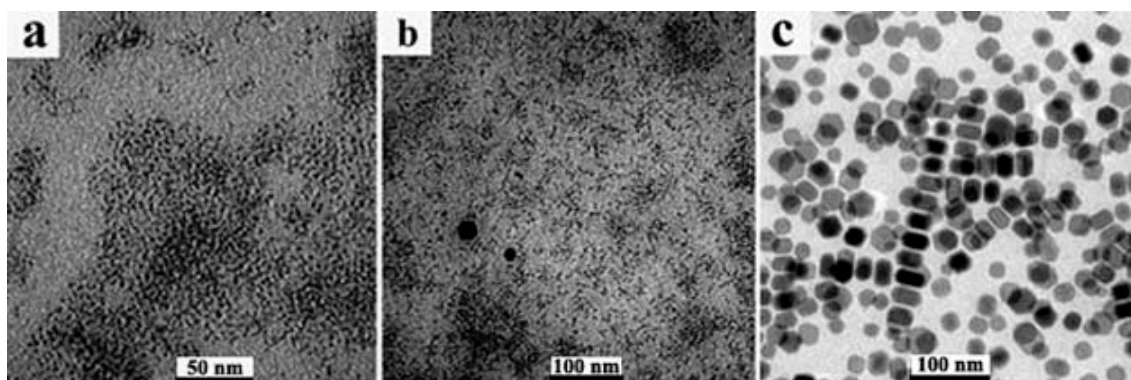


Figure S10. The TEM images of our EuSe NCs prepared with the feed molar ratios of 1Eu : 4Se and 9OLA : 1OA at: (a) 220 °C, (b) 250 °C, and (c) 290 °C.

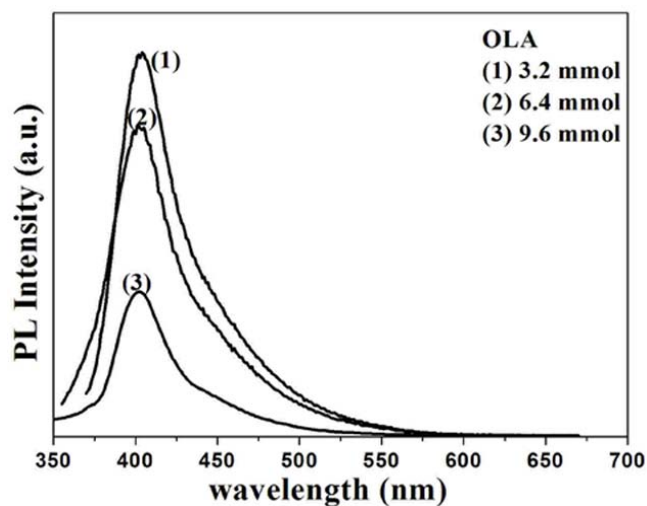


Figure S11. The emission spectra of our different morphology EuSe NCs synthesized by increasing the amount of OLA with the feed molar ratio of 1Eu : 4Se and OA 0.38 mmol and ODE 47.5 mmol.

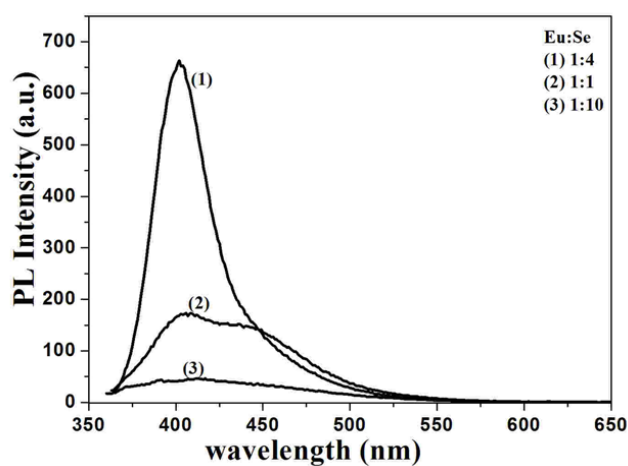


Figure S12. The emission spectra of our EuSe NCs with different morphologies synthesized by different precursor feed molar ratios (Eu/Se) indicated, with 3.2 mmol OLA and 0.38 mmol OA and 47.5 mmol ODE.



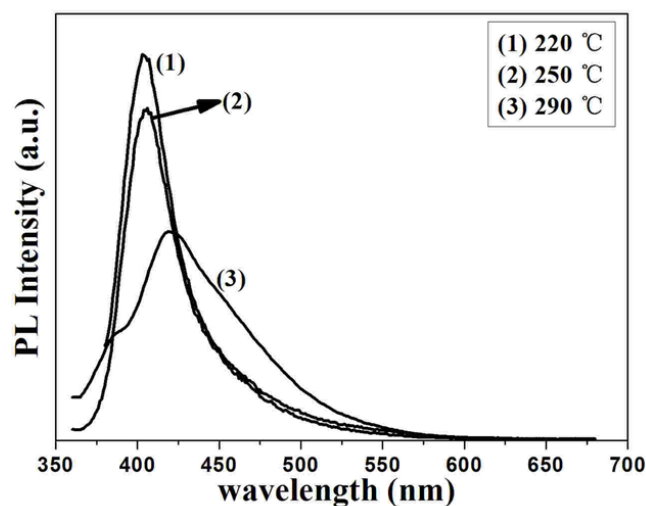


Figure S13. The emission spectra of our different morphology EuSe NCs synthesized by the different reaction temperature indicated with the feed molar ratios of 1Eu : 4Se and 4OLA : 1OA.

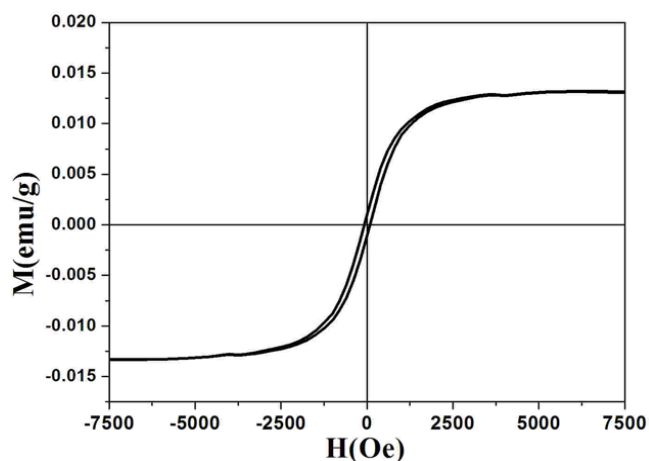


Figure S14. Magnetic characterization of our rod-shaped EuSe NCs shown in figure 4b. The hysteresis loop suggests the rod-shaped NCs exhibit the magnetic property with coercively ( $H_c$ ) of 84.7 Oe at 298K.

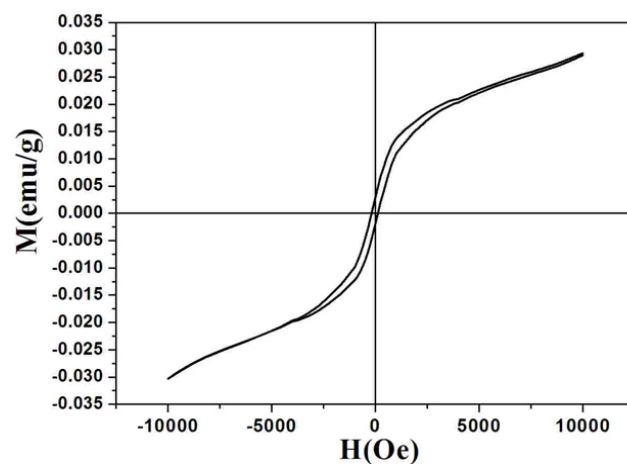


Figure S15. Magnetic characterization of our hollow EuSe NCs showed in Figure 5c. The hysteresis loop suggests the hollow NCs exhibit the magnetic property with coercively ( $H_c$ ) of 120.1 Oe at 298K.