

Supporting Information

Energy Transfer Study between Ce^{3+} and Tb^{3+} ions in Doped and Core-Shell Sodium Yttrium Fluoride Nanocrystals

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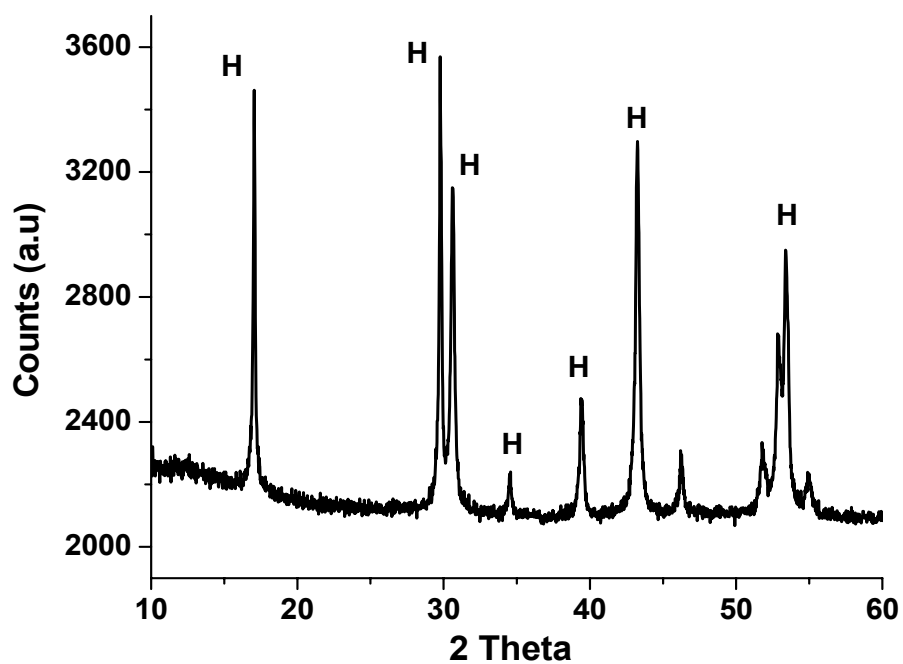


Figure S1. XRD pattern of 75°C dried sonicated $\text{Na}(\text{Y}_{1.5}\text{Na}_{0.5})\text{F}_6:\text{Ce}(1)$ nanocrystals.

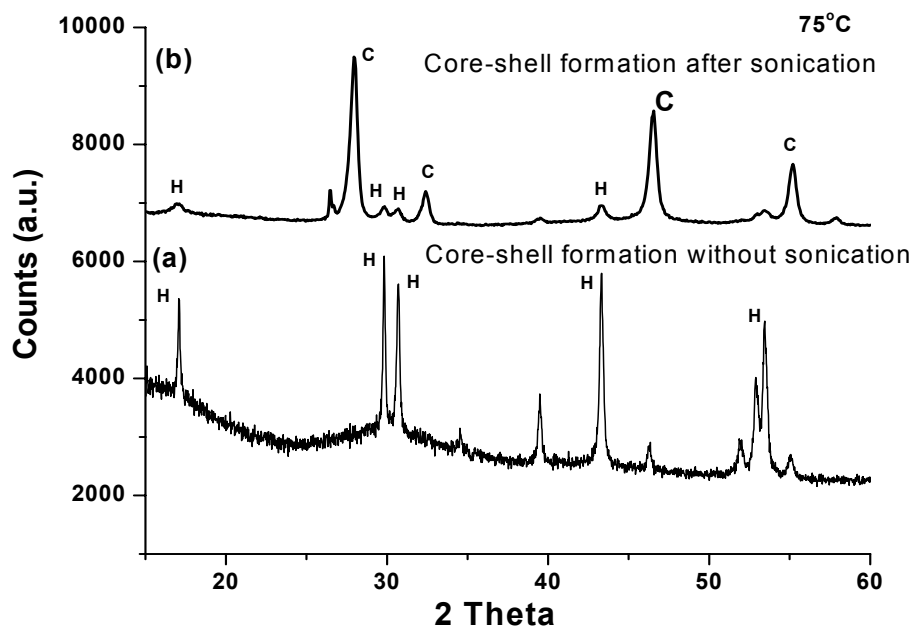


Figure S2. XRD pattern of $\text{Na}(\text{Y}_{1.5}\text{Na}_{0.5})\text{F}_6:\text{Ce}(1)$ nanocrystals coated with 0.5 mol% Tb (a) coating upon $\text{Na}(\text{Y}_{1.5}\text{Na}_{0.5})\text{F}_6:\text{Ce}(1)$ sample without sonication and (b) coating upon $\text{Na}(\text{Y}_{1.5}\text{Na}_{0.5})\text{F}_6:\text{Ce}(1)$ sample with sonication.

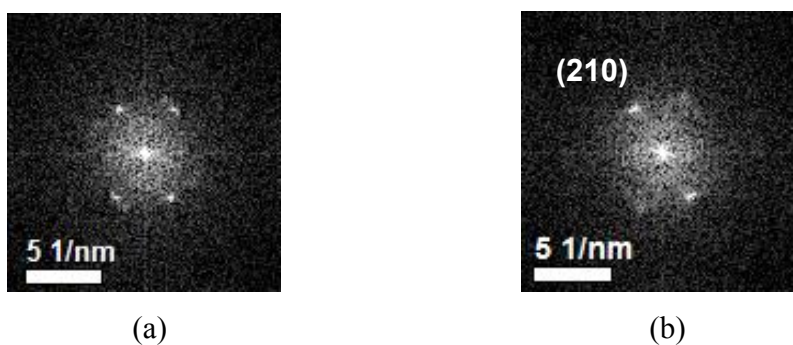


Figure S3. FFT pattern of core (a) and shell (b) of $\text{NaYF}_4:\text{Ce}/\text{Yb}$ core-shell nanoparticle.

Figure S3 (a) shows the FFT pattern of core of the $\text{NaYF}_4:\text{Ce}/\text{Yb}$ core-shell nanoparticle. The corresponding lattice spacing is due to cubic (111) plane and matches well with the XRD result. Similarly the FFT pattern obtained from shell (b) supports the formation of TbF_3 upon $\text{NaYF}_4:\text{Ce}$ nanoparticles. The lattice plane is due to (210) plane of TbF_3 nanocrystals (JCPDS File no 37-1487).

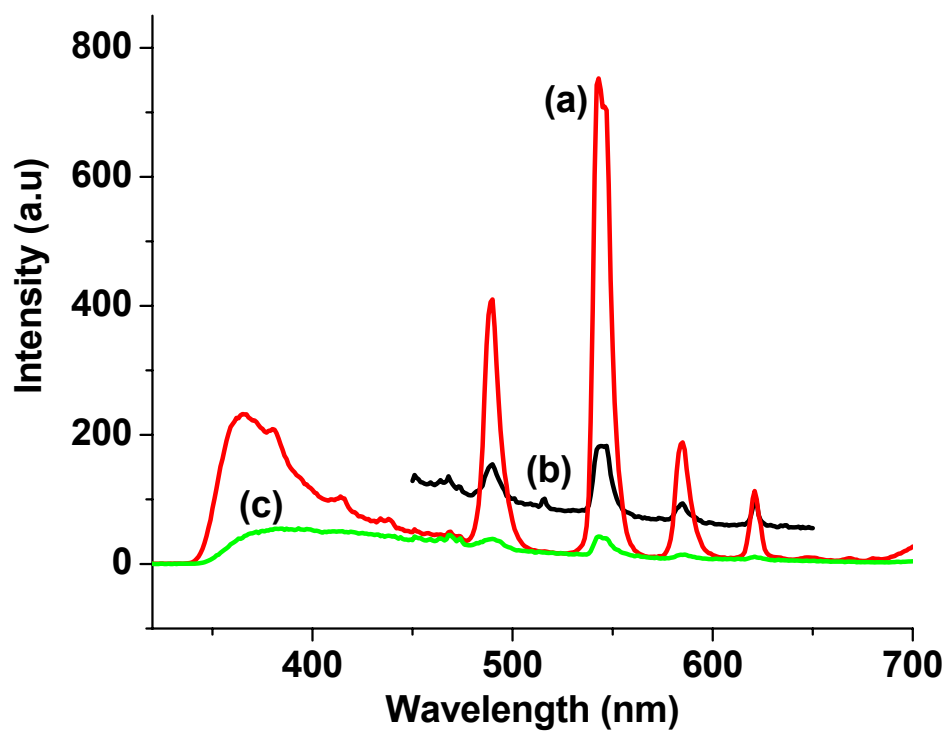


Figure S4. PL spectra of 1 mol% Ce^{3+} and 0.5 mol% Tb^{3+} doped $\text{Na}(\text{Y}_{1.5}\text{Na}_{0.5})\text{F}_6$ nanocrystals excited by (a) 255 nm and (b) 378 nm. PL spectrum of 0.5 mol% Tb^{3+} doped $\text{Na}(\text{Y}_{1.5}\text{Na}_{0.5})\text{F}_6$ nanocrystals excited by (c) 284 nm