

Supporting Information

LiYF₄:Yb³⁺, Er³⁺ Upconverting Submicro-Particles: Synthesis and Formation Mechanism Exploration

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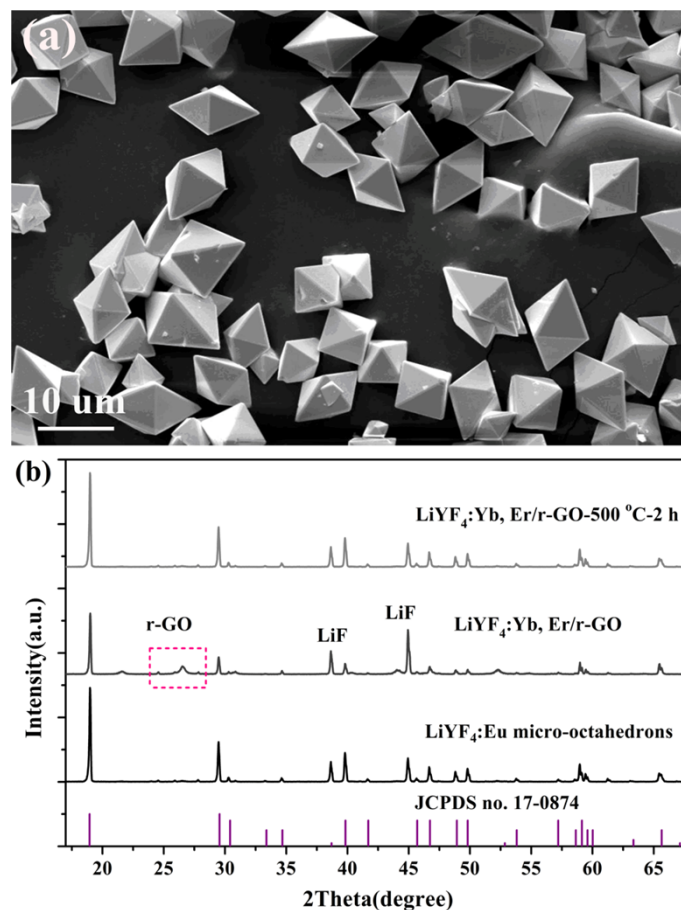


Figure S1. (a) SEM images of LiYF₄: 20 mol% Yb, 2 mol% Er micro-octahedrons and (b) XRD patterns of LiYF₄ micro-octahedrons and r-GO/LiYF₄ submicro-crystals obtained before and after annealing for 2 h at 500 °C. The standard peaks in the pure tetragonal LiYF₄ (JCPDS file number 17-0874) are used as a reference.

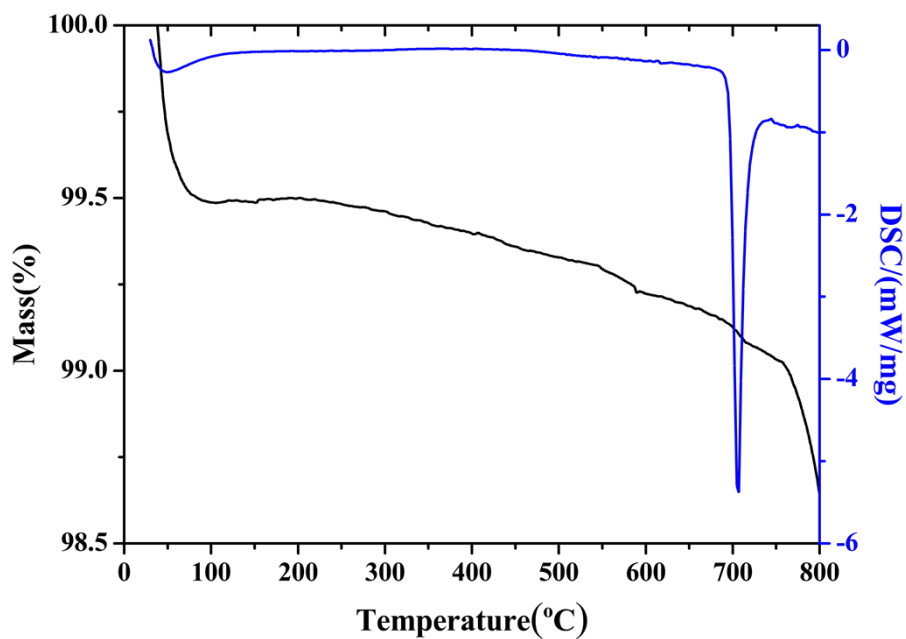


Figure S2. TG-DSC curves of $\text{LiYF}_4:\text{Yb}^{3+}$, $\text{Er}^{3+}/\text{r-GO}$ submicro-composites.

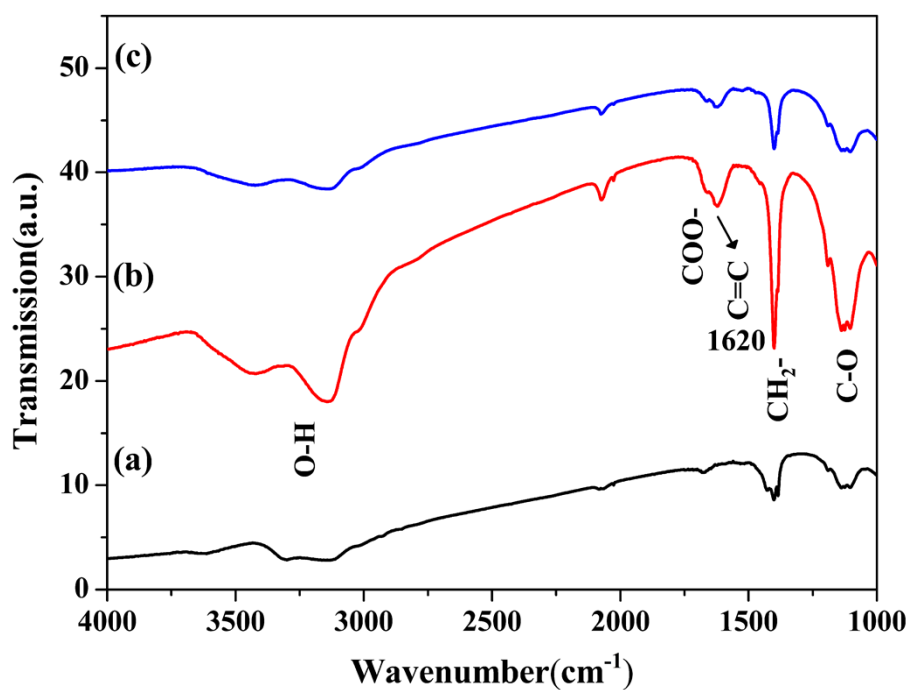


Figure S3. FTIR spectra of tetragonal $\text{LiYF}_4:20$ mol% Yb, 2 mol% Er micro-octahedrons (a) and $\text{r-GO}/\text{LiYF}_4$ submicro-crystals with (c) and without (b) annealing at $500\text{ }^\circ\text{C}$ for 2 h.

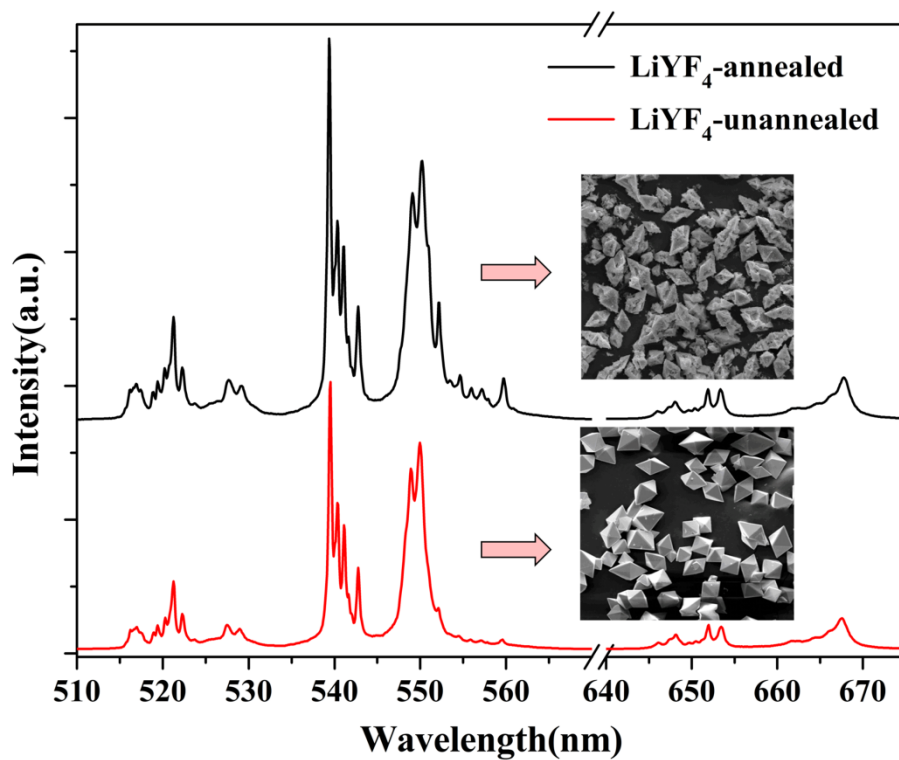


Figure S4. Upconverting emission spectra of LiYF₄: 20 mol% Yb, 2 mol% Er micro-octahedrons with and without sintering at 500 °C for 2 h. The wavelength of excitation is 977 nm.