

Morphology control and tunable color of LuVO₄:Ln³⁺ (Ln = Tm, Er, Sm, Eu) nano/micro-structures

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Table S1. Data fit results for the UV-vis absorbance spectra of the different morphologies (¹A₁-¹T₁ (with intensity *I*₁); ¹A₁-¹T₂ (with intensity *I*₂); V⁴⁺ (with intensity *I*₃)).

Sample	¹ A ₁ - ¹ T ₁ (nm)	<i>I</i> ₁	¹ A ₁ - ¹ T ₂ (nm)	<i>I</i> ₂	V ⁴⁺ (nm)	<i>I</i> ₃	<i>I</i> ₃ /(<i>I</i> ₁ + <i>I</i> ₂ + <i>I</i> ₃)
Nanoparticles	282.9	0.187	206.8	3.910	---	0	0
Sub-microflakes	323.4	0.091	210.8	0.809	384.6	0.013	0.014
microspheres	331.9	0.255	211.3	0.511	381.6	0.099	0.114

Table S2. The lattice parameters and the *I*₃/(*I*₁+*I*₂+*I*₃) of different morphologies.

Sample	<i>a</i>	<i>c</i>	<i>c/a</i>	<i>V</i>	<i>I</i> ₃ /(<i>I</i> ₁ + <i>I</i> ₂ + <i>I</i> ₃)
Nanoparticles	7.051	6.25	0.886	310.96	0
Sub-microflakes	7.027	6.23	0.887	307.75	0.014
Microspheres	6.998	6.25	0.893	305.88	0.114

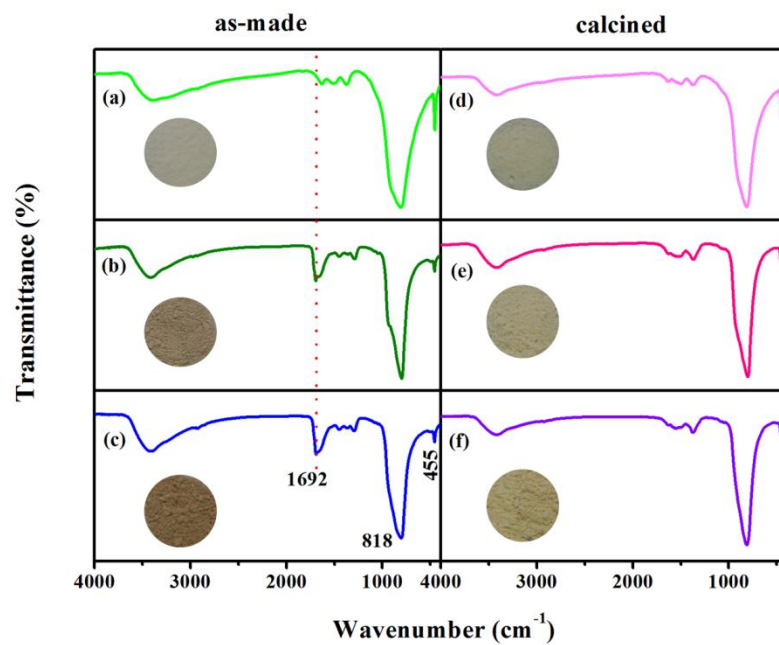


Figure S1. The FT-IR spectra of LuVO_4 products (as-made samples and calcined samples): (a) (d) nanoparticles, (b) (e) sub-microflakes, (c) (f) microspheres; Insets are the photographs of the corresponding sample color.

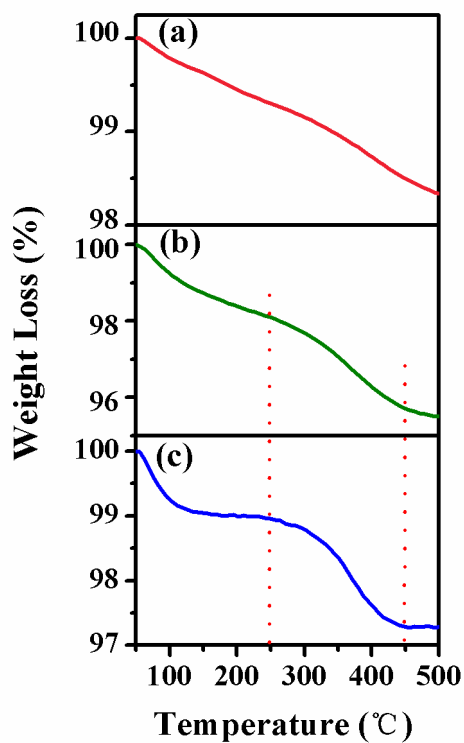


Figure S2. The DGA curves of LuVO_4 products: (a) nanoparticles, (b) sub-microflakes, (c) microspheres.

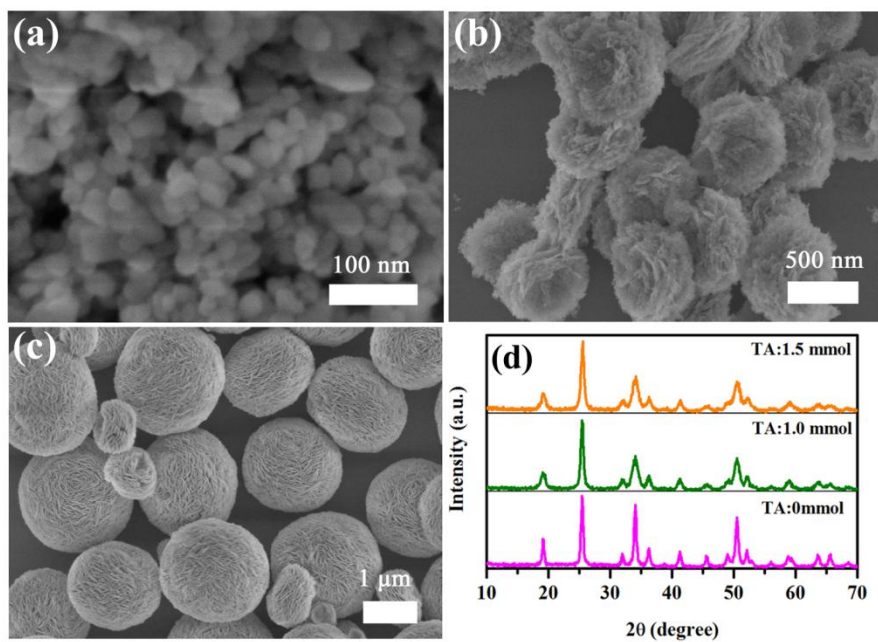


Figure S3. The SEM images of calcined $\text{LuVO}_4:\text{Eu}^{3+}$ products with different molar of TA: (a) 0 mmol, (b) 1.0 mmol, (c) 1.5 mmol; and the corresponding XRD patterns (d).

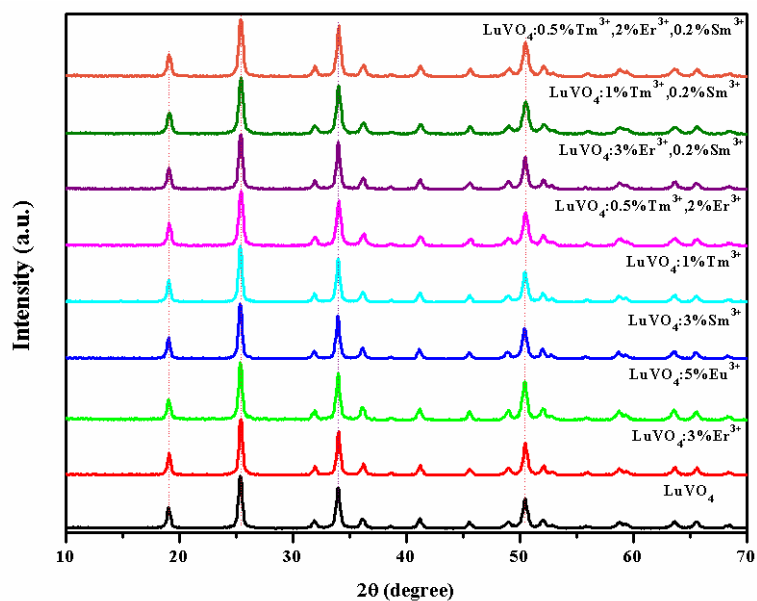


Fig. S4. The XRD patterns of $\text{LuVO}_4:\text{Ln}^{3+}$ samples.