Electronic Supplementary Material (ESI) for CrystEngComm

Supporting information

Controllable Synthesis, Formation Mechanism and Upconversion Luminescence of β-$NaYF_4$:Yb^{3+}/Er^{3+} Microcrystals by Hydrothermal process

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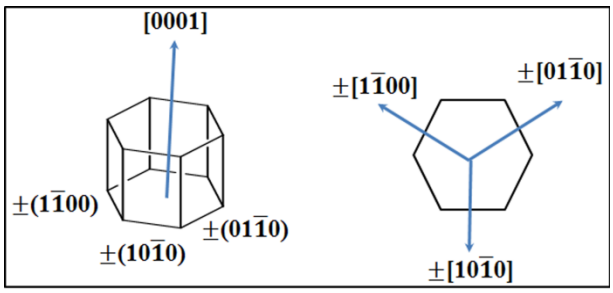

Fig. S1 Schematic diagram showing the anisotropy of the hexagonal $NaYF_4$ crystal.

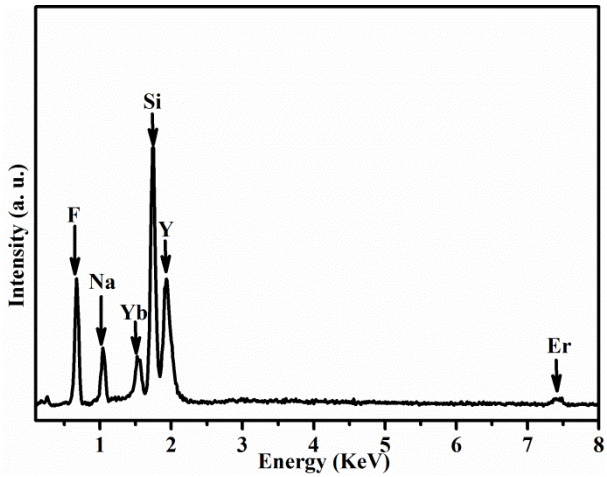

Fig. S2 Element analysis of $NaYF_4$:Yb/Er nanoparticles by energy dispersive X-ray spectroscopy.

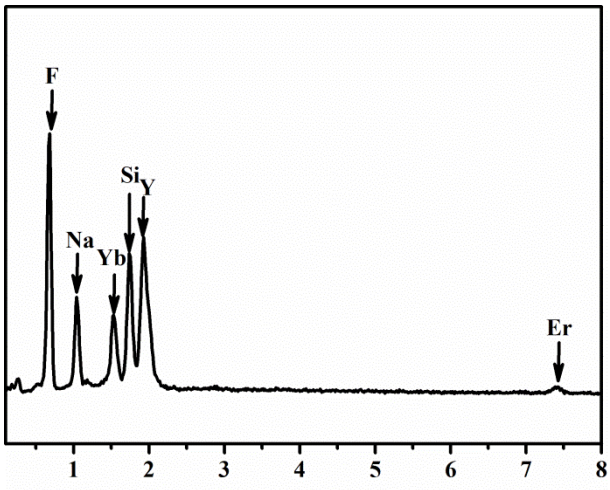

Fig. S3 Element analysis of $NaYF_4$:Yb/Er microdisks by energy dispersive X-ray spectroscopy.

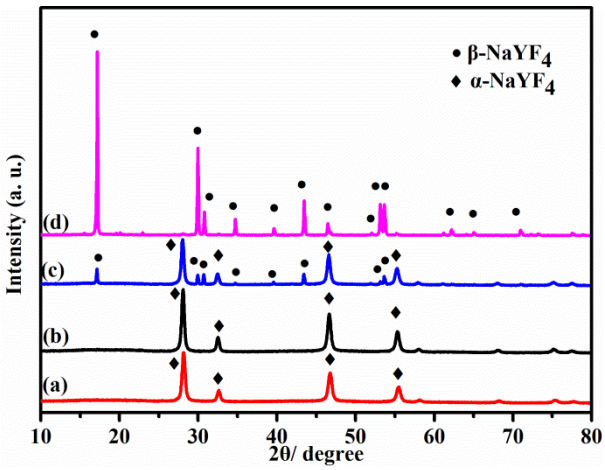

Fig. S4 XRD patterns for hexagonal $NaYF_4$ samples (NaF/RE^{3+} = 5) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

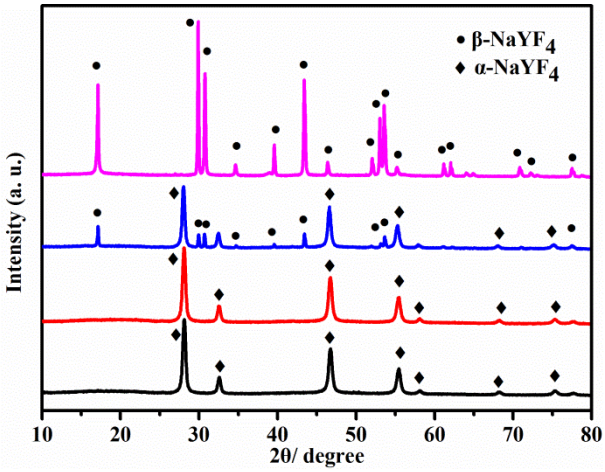

Fig. S5 XRD patterns for hexagonal $NaYF_4$ samples (NaF/RE^{3+} = 5.5) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

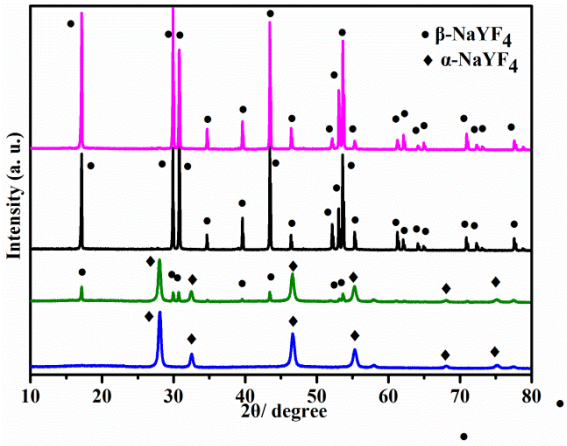

Fig. S6 XRD patterns for hexagonal $NaYF_4$ samples (NaF/RE^{3+} = 6) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

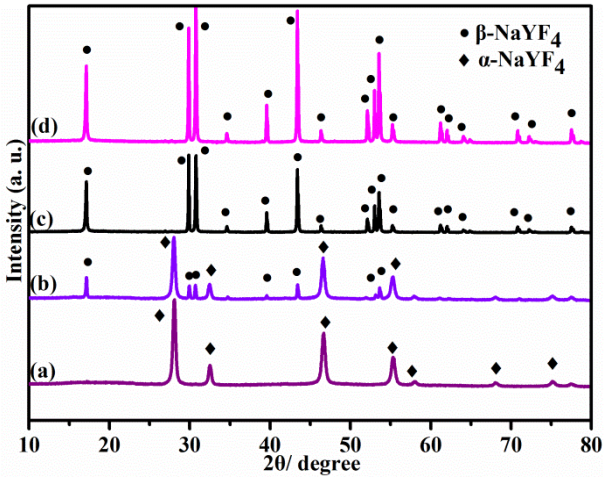

Fig. S7 XRD patterns for hexagonal $NaYF_4$ samples (NaF/RE^{3+} = 11) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

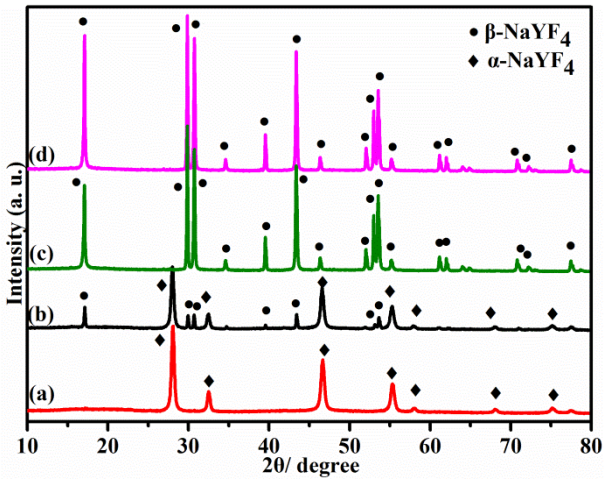

Fig. S8 XRD patterns for hexagonal $NaYF_4$ samples (NaF/RE^{3+} = 18) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

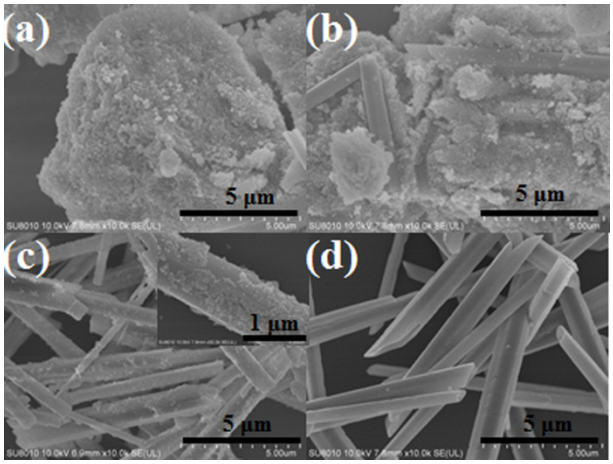

Fig. S9 FE-SEM images for $NaYF_4$ samples (NaF/RE^{3+} = 5) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

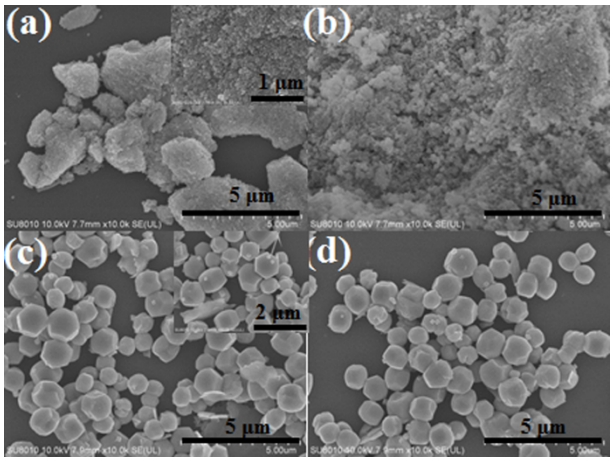

Fig. S10 FE-SEM images for $NaYF_4$ samples (NaF/RE^{3+} = 5.5) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

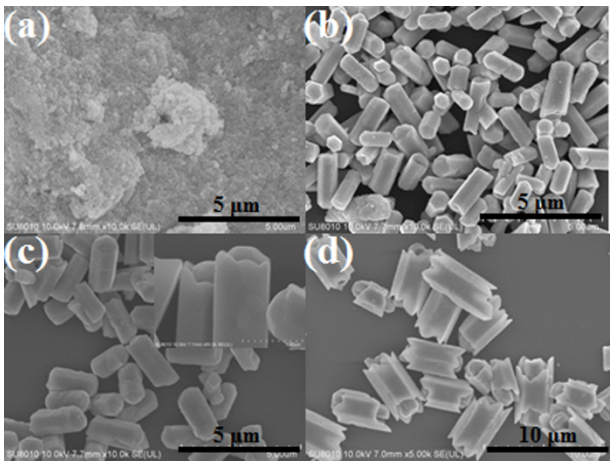

Fig. S11 FE-SEM images for $NaYF_4$ samples (NaF/RE^{3+} = 6) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

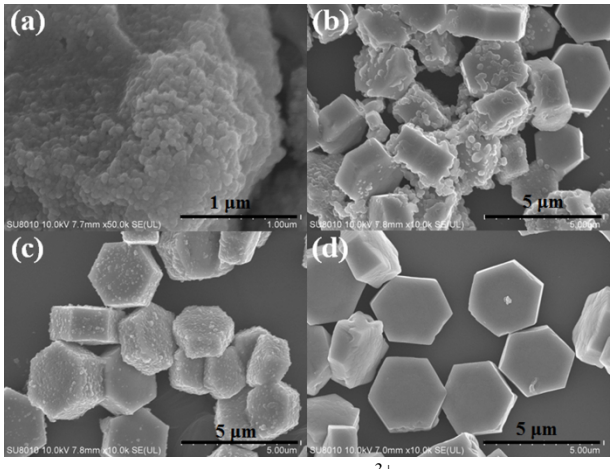

Fig. S12 FE-SEM images for $NaYF_4$ samples (NaF/RE^{3+} = 11) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.

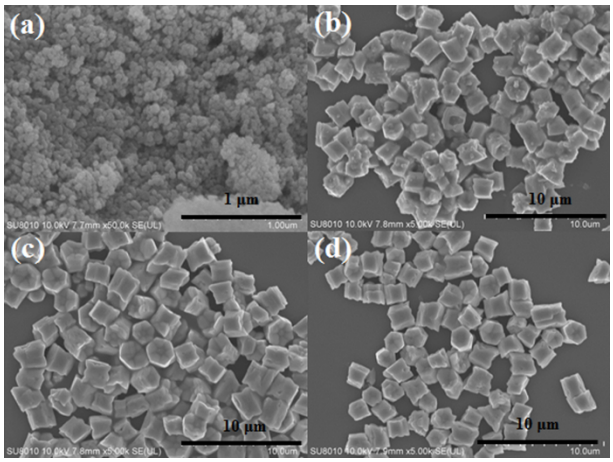

Fig. S13 FE-SEM images for $NaYF_4$ samples (NaF/RE^{3+} = 18) as a function of reaction time. (a) 3 h, (b) 4 h, (c) 12 h, (d) 24 h.