Electronic Supplementary Material (ESI) for CrystEngComm.

Support information

Supplementary Figure 1: XRD patterns of $NaEuF_4$ products obtained at different dosage of oxalic acid and the mole ratio of nEu^{3+}/nF^-.

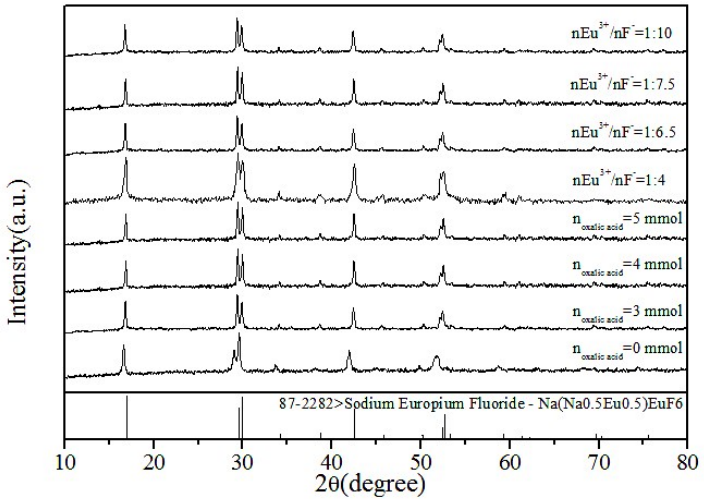
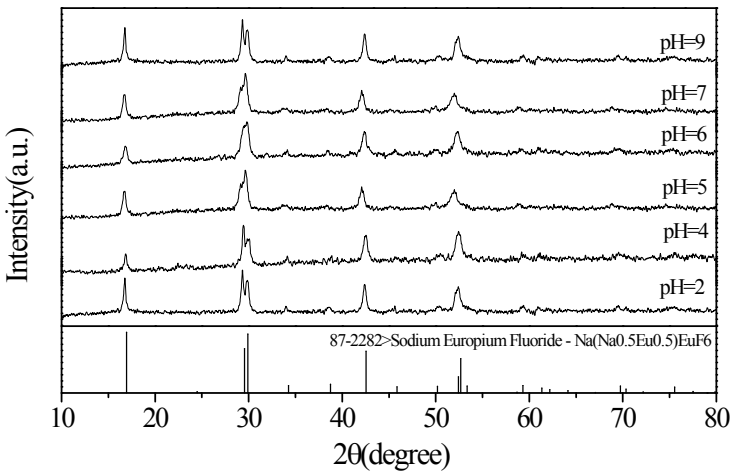


Fig.S1 shows the XRD patterns of the $NaEuF_4$ product synthesized at different dosage of oxalic acid and the mole ratio of nEu^{3+}/nF^- (no changed other condition). The samples exhibit the peaks of the pure hexagonal phase $Na(Na_{0.5}Eu_{0.5})EuF_6$ (JCPDS Card No.87-2282). No peaks of other impurity crystalline phases were detected.



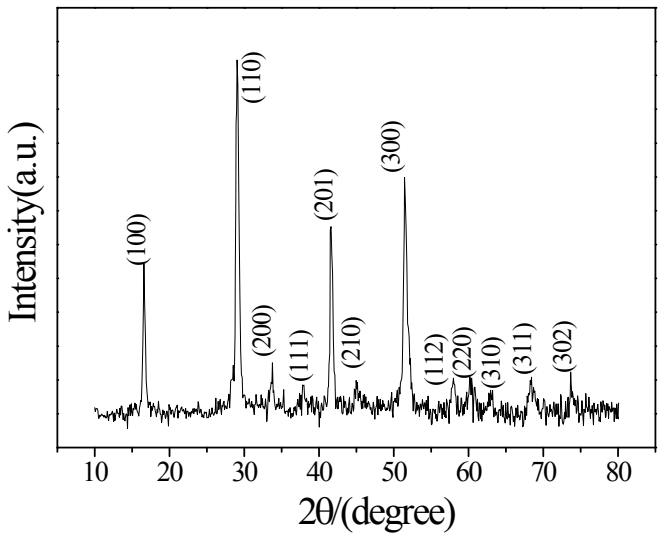
Supplementary Figure 2: XRD patterns of $NaEuF_4$ products obtained at different pH value.

Fig.S2 shows the XRD patterns of the $NaEuF_4$ product synthesized at different pH value. The samples exhibit the peaks of the pure hexagonal phase $Na(Na_{0.5}Eu_{0.5})EuF_6$ (JCPDS Card No.87-2282). No peaks of other impurity crystalline phases were detected.

Synthesis of $NaSmF_4$ flowerlike structure

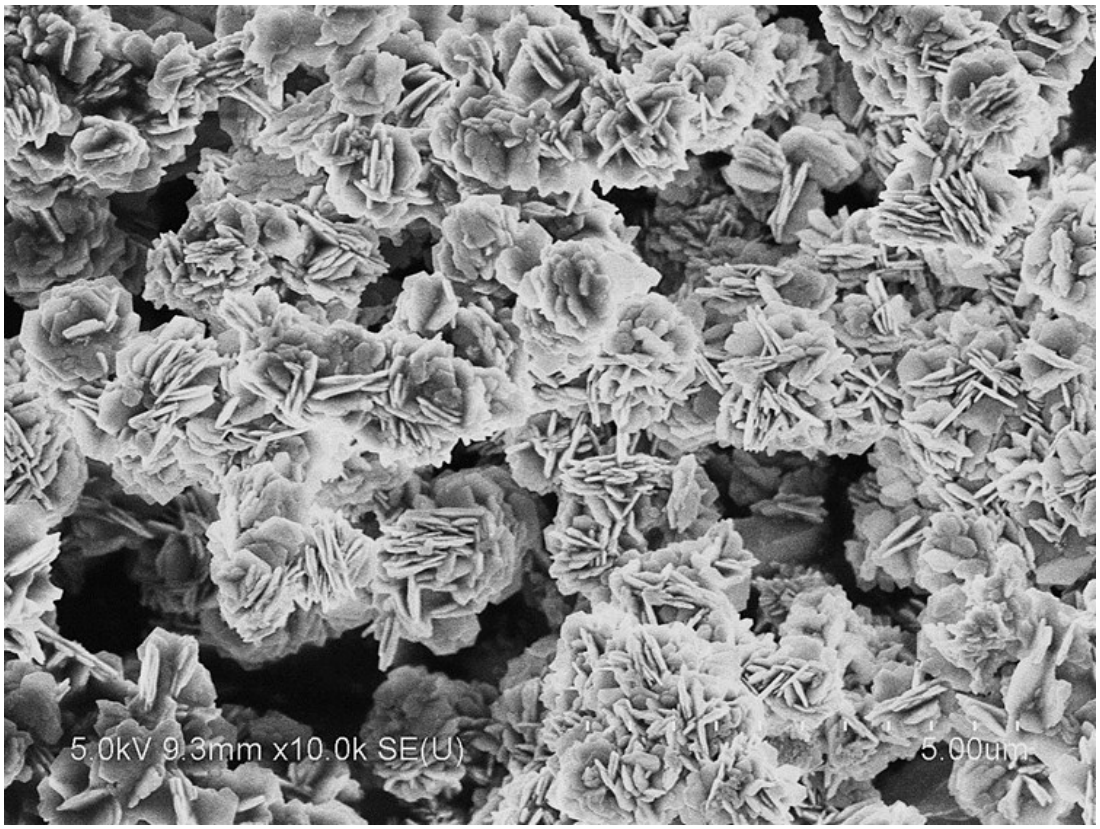
0.5 mmol Sm_2O_3 were dissolved in a dilute HNO_3 (3mol L^{-1}, 40 mL),and then added 4 mmol oxalic acids (10 mL) to form the metal-oxalic complex with magnetic stirring. After that, 4 mmol NaF was added to the above solution under vigorous stirring and adjusted the pH = 6 using a dilute NaOH solution. The mixture was transferred into a 30 mL Teflon-lined autoclave. The autoclave was tightly sealed and heated at 180 ^oC for 12h. Finally, it was cooled to room temperature naturally, and the products were collected, washed several times with distilled water and absolute ethanol in turn, and then dried in air at 60 ^oC for 12h.

Supplementary Figure 3: XRD patterns of $NaSmF_4$ samples



XRD patterns show well-resolved diffraction peaks consistent with high crystallinity, which can be indexed to hexagonal phase $NaSmF_4$ (JCPDS No.27-0779). The XRD result indicates that the phase of the as-obtained flowerlike structure is very pure.

Supplementary Figure 4: FESEM of $NaSmF_4$ flowerlike structure



Supplementary Figure 5: FESEM of $NaSmF_4$ oblate structure