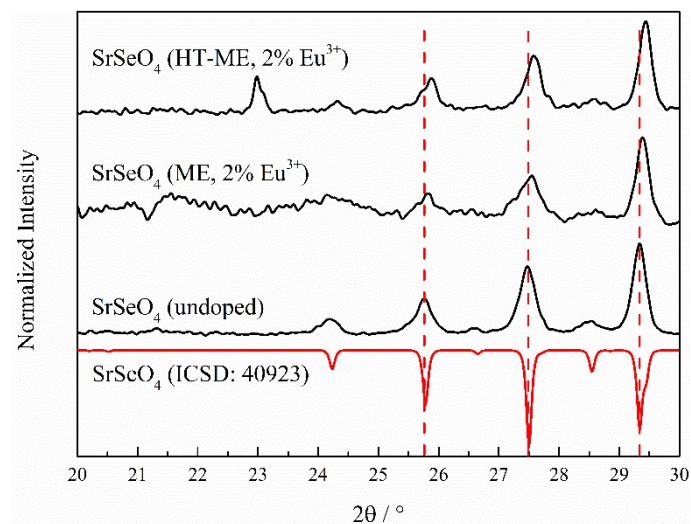
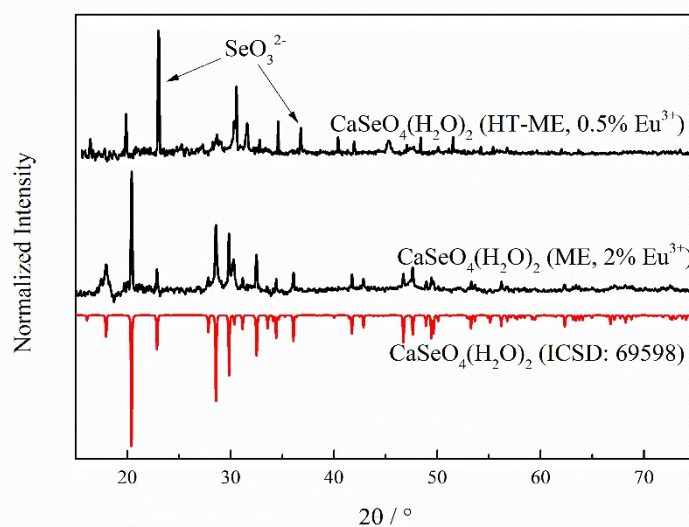


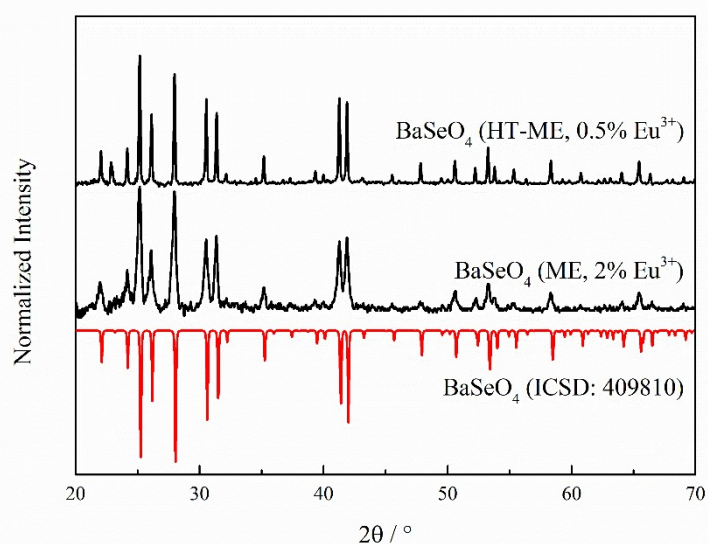
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S1: XRD pattern of SrSeO<sub>4</sub> compared to the theoretical pattern abstracted from ICSD<sup>1</sup>. Results of undoped SrSeO<sub>4</sub> and doped with 2 mol% Eu<sup>3+</sup> using micro emulsion synthesis (ME) and after thermal treatment at 200 °C (HT-ME). Inset to 20 – 30 ° shows a shift of reflections to larger 2θ in case of Eu<sup>3+</sup> doped samples due to smaller ionic radius of Eu<sup>3+</sup>-ion<sup>2</sup>.

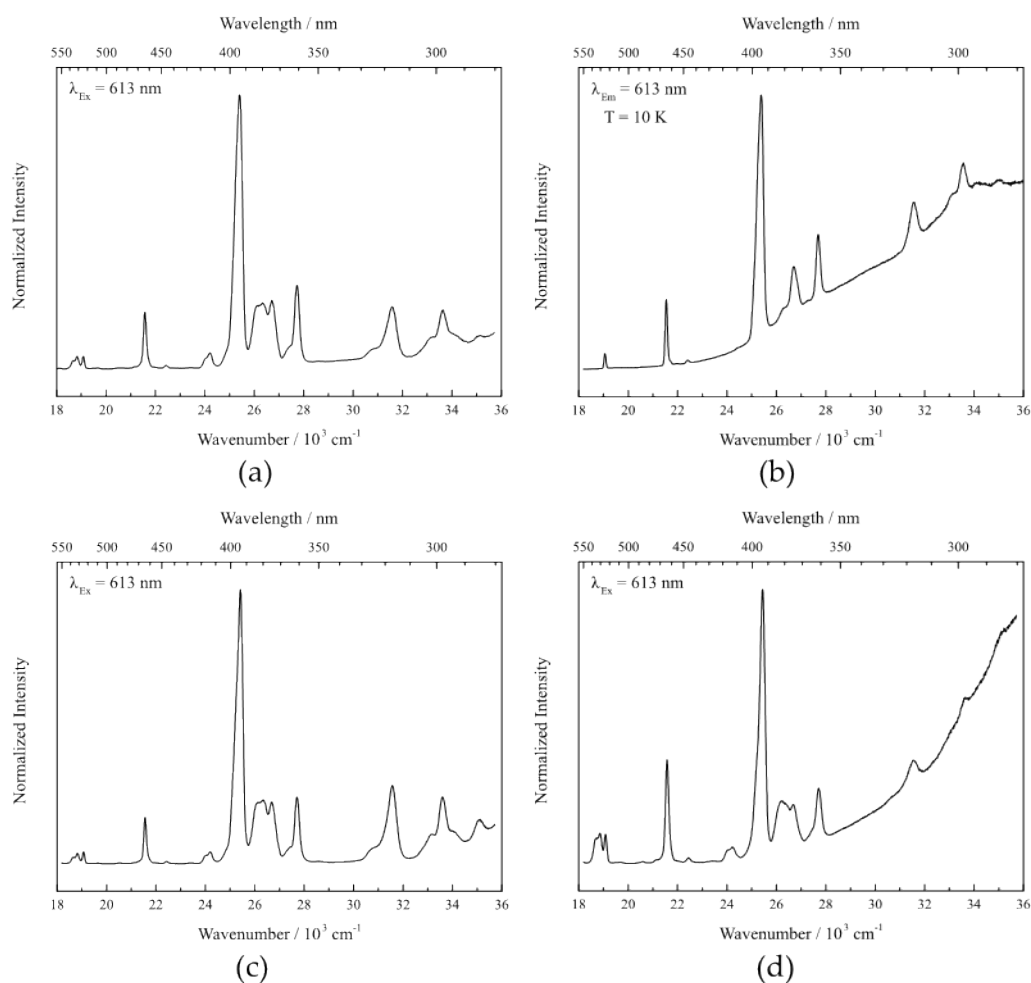


S2: XRD pattern of  $\text{CaSeO}_4 \cdot 2 \text{H}_2\text{O}$  compared to the theoretical pattern abstracted from ICSD<sup>3</sup>. Results of 2%  $\text{Eu}^{3+}$  doped  $\text{CaSeO}_4 \cdot 2 \text{H}_2\text{O}$  using micro emulsion synthesis (ME) and after thermal treatment at 200 °C (HT-ME).  $\text{CaSeO}_4$  already starts to decompose at 200 °C as it can be seen in the top of the figure. Some



reflections seem to arise from a selenite ion.

S3: XRD pattern of  $\text{BaSeO}_4$  compared to the theoretical pattern abstracted from ICSD<sup>4</sup>. Results of 2%  $\text{Eu}^{3+}$  doped  $\text{BaSeO}_4$  using micro emulsion synthesis (ME) and after thermal treatment at 200 °C (HT-ME).



S4: Excitation spectra of  $\text{Eu}^{3+}$  doped  $\text{MSeO}_4$  nanoparticles with emission wavelength of 613 nm. (a)  $\text{SrSeO}_4$  at 293 K, (b)  $\text{SrSeO}_4$  at 10 K, (c)  $\text{CaSeO}_4 \cdot 2 \text{H}_2\text{O}$  at 293 K, (d)  $\text{BaSeO}_4$  at 293 K.

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