

SUPPLEMENTARY INFORMATION

Structural, optical and X-ray attenuation properties of Tb³⁺:Ba_xCe_{1-x}F_{3-x} (x=0.18 – 0.48) nanospheres synthesized in polyol medium.

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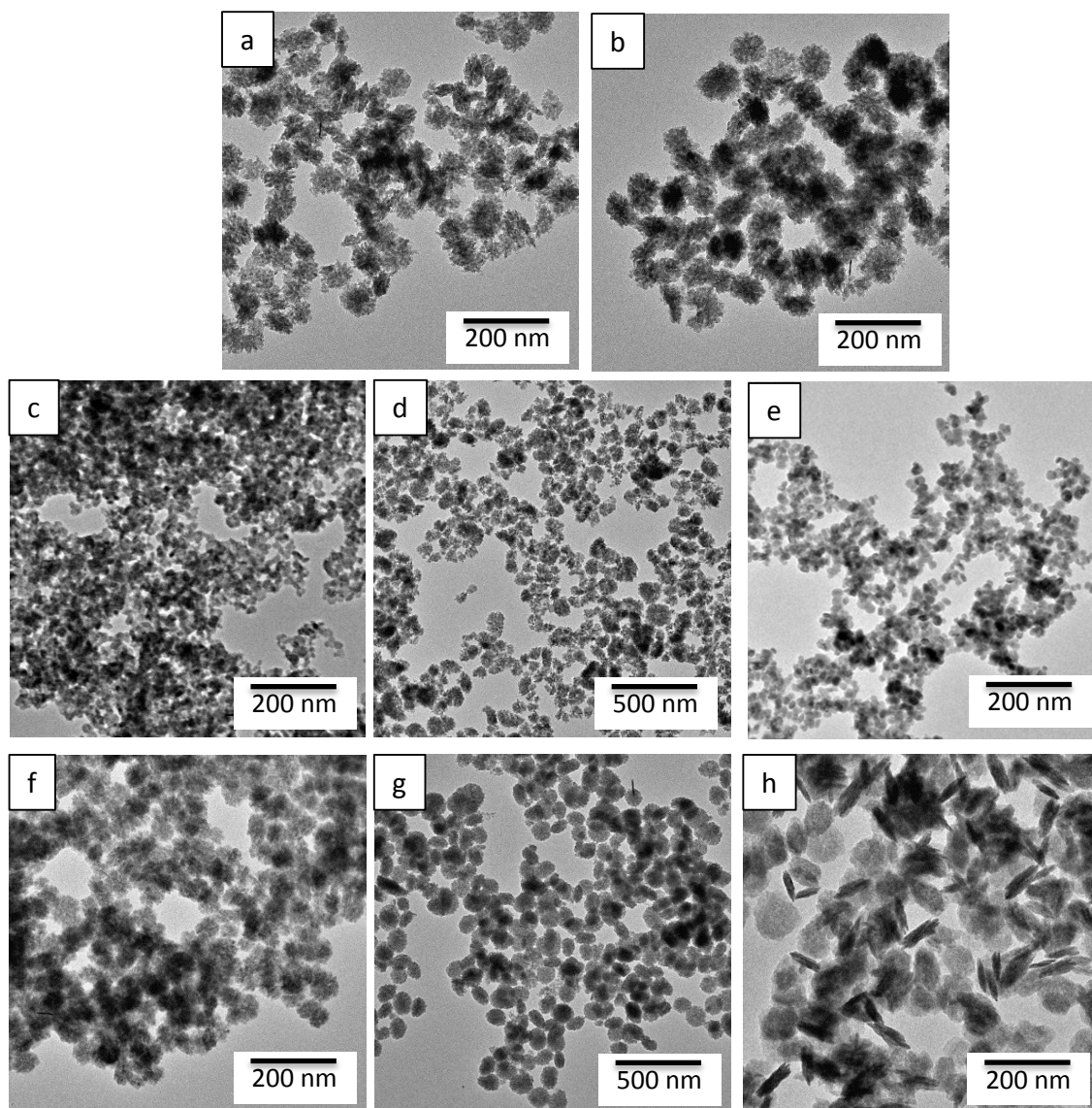


Figure S1: SEM micrographs of Nanoparticles (NPs) obtained after changing only one of the experimental parameters used to obtain the NPs reported in Figure 1c of the paper (EG/H₂O solution containing Ba(NO₃)₂ (0.05 M) and Ce(NO₃)₃ (0,05 M) and NaBF₄ (0.0875 M) aged at 120°C for 20 hours). Experimental parameters changed were: a) Concentration of Ba(NO₃)₂ and Ce(NO₃)₃ = 0.03 M; b) Concentration of Ba(NO₃)₂ and Ce(NO₃)₃ = 0.1 M; c) Fluoride precursor = NH₄F; d) Fluoride precursor = [BMIM]BF₄; e) Fluoride precursor = NaF; f) Polyol = Diethylene glycol; g) Polyol= Glycerol; h) Polyol= Butylene glycol.

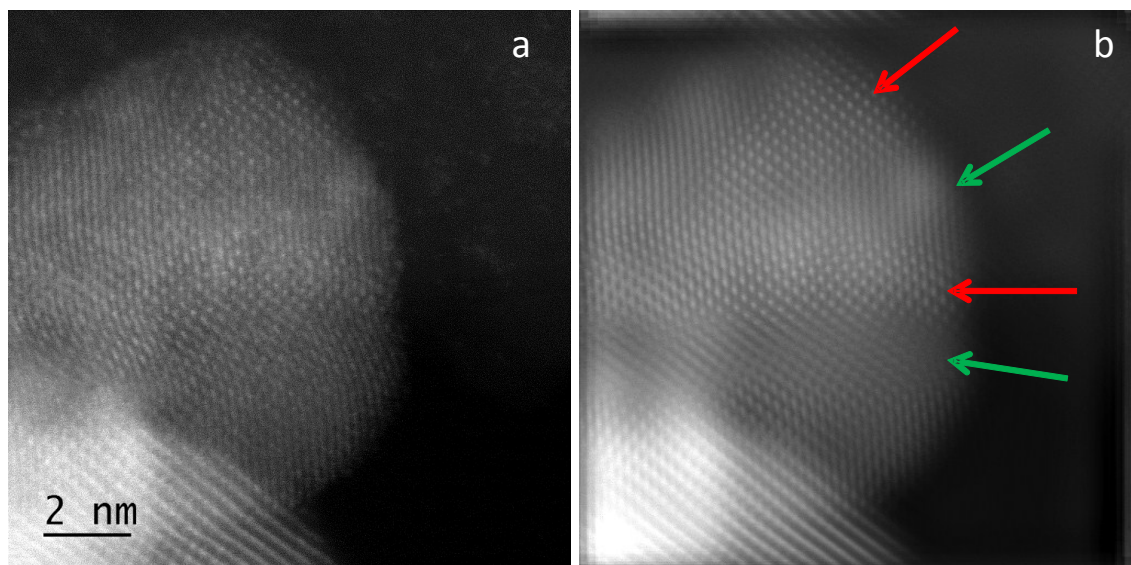


Figure S2: Raw (a) and filtered (b) STEM-HAADF micrographs on a single crystallite in a $\text{Ba}_{0.18}\text{Ce}_{0.82}\text{F}_{2.82}$ NP. The red arrows point to the areas oriented in zone axis while the green arrows point to the disoriented areas due to local distortions.

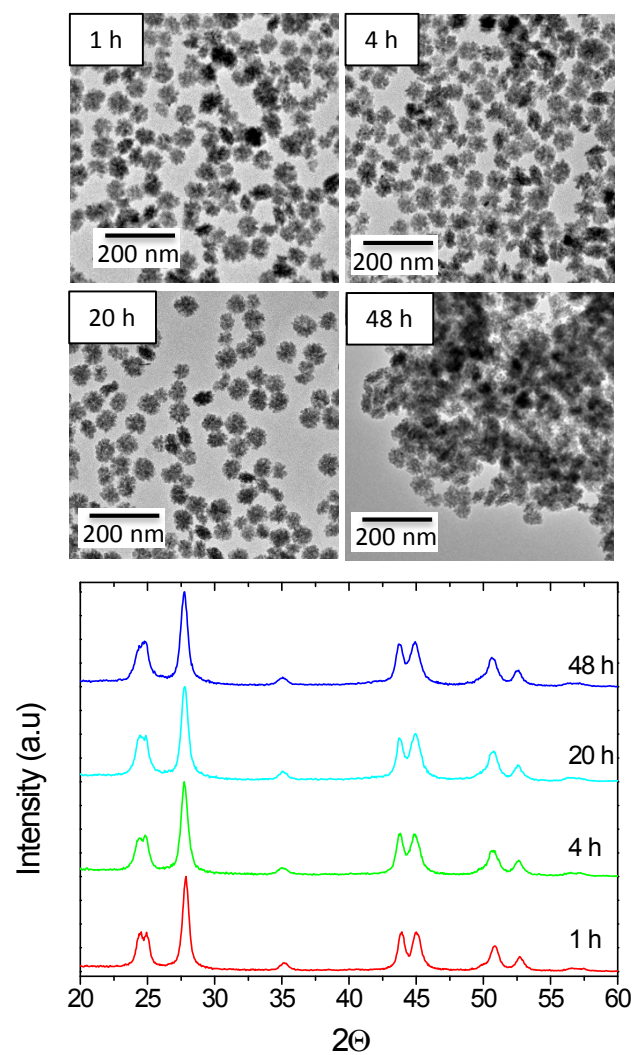


Figure S3: TEM micrographs (top) and XRD patterns (bottom) of fluoride nanoparticles (NPs) obtained after aging at 120°C during different times an EG/H₂O solution containing Ba(NO₃)₂ (0.05 M), Ce(NO₃)₃ (0,05 M) and NaBF₄ (0.0875 M).

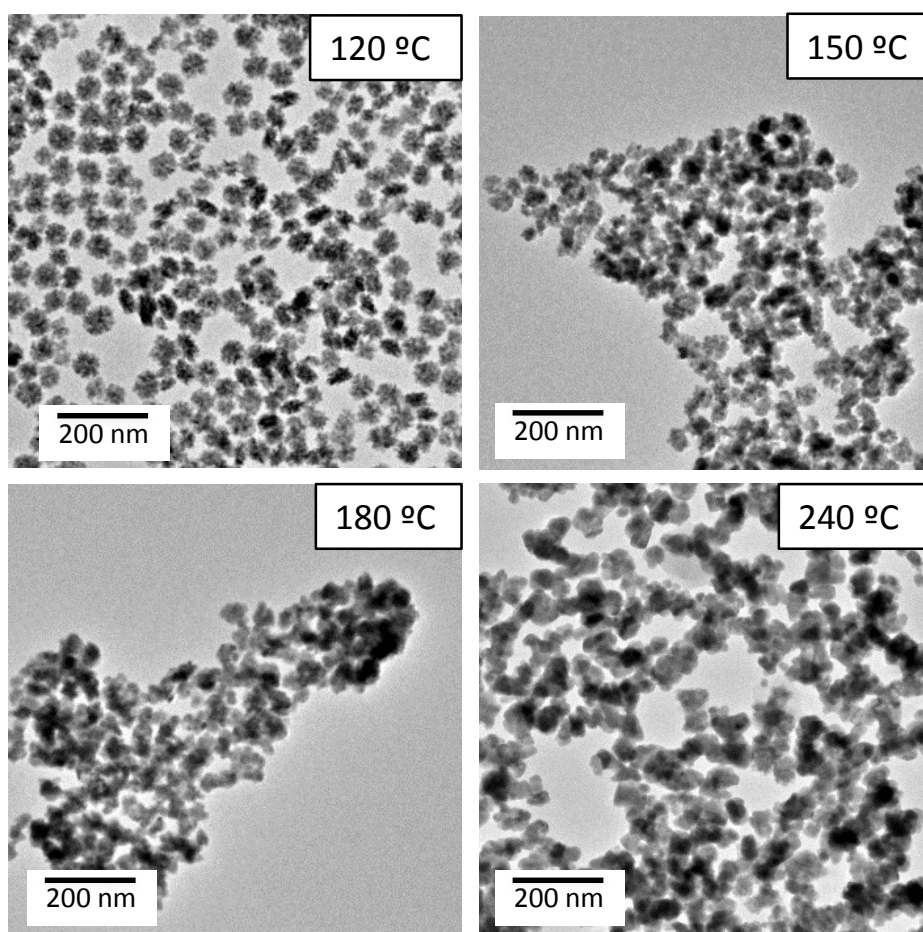


Figure S4: TEM micrographs of NPs obtained after aging at different temperatures for 20 hours in an EG/H₂O solution containing Ba(NO₃)₂ (0.05 M), Ce(NO₃)₃ (0.05 M) and NaBF₄ (0.0875 M).

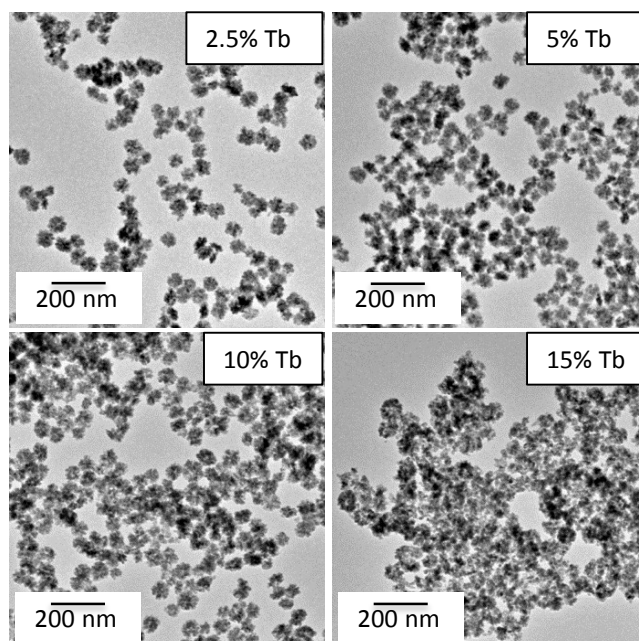


Figure S5: SEM micrographs of fluoride nanoparticles (NPs) obtained after aging at 120°C for 20 hours an EG/H₂O solution containing Ba(NO₃)₂ (0.05 M), Ce(NO₃)₃ (0.05 M), NaBF₄ (0.0875 M), and different concentrations of Tb(NO₃)₃.