

Supporting Information for

Environmental Impact on the Excitation Path of the Red Upconversion Emission of Nanocrystalline



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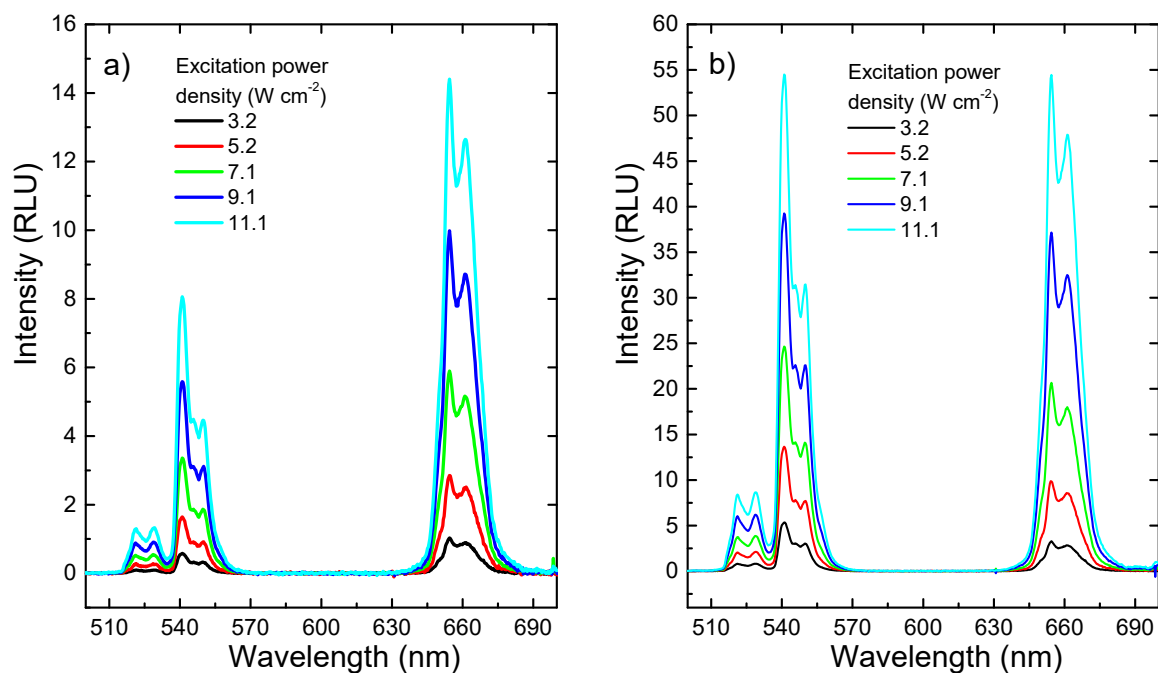


Figure S1. Upconversion luminescence spectra of $\text{NaYF}_4:\text{Yb}^{3+},\text{Er}^{3+}$ nanoparticles 10 mg ml^{-1} in a) H_2O and b) D_2O in increasing excitation power density. Intensity as relative luminescence units (RLU).

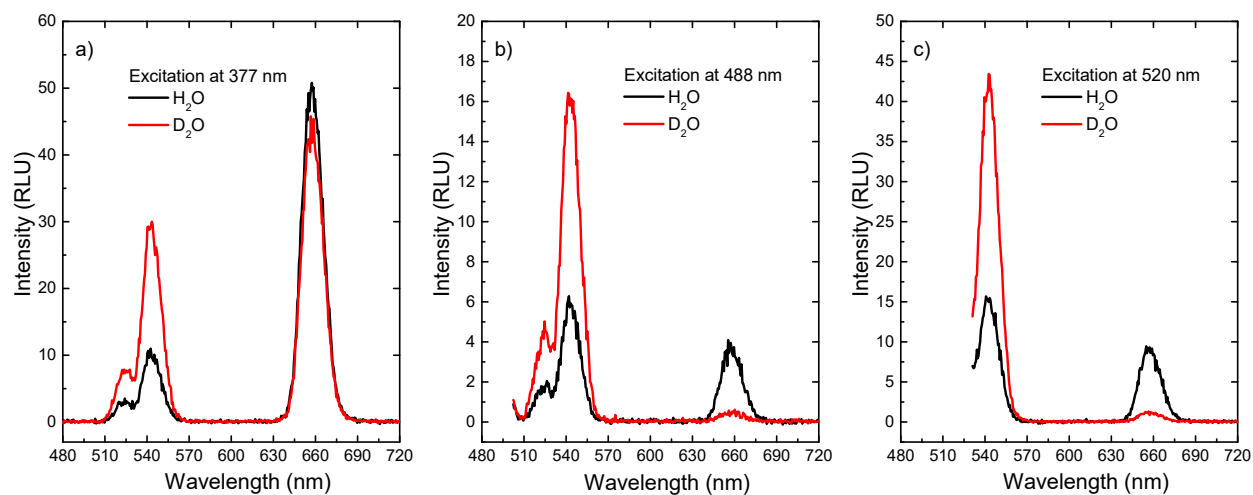


Figure S2. Downshifted emission spectra of $\text{NaYF}_4:\text{Yb}^{3+},\text{Er}^{3+}$ nanoparticles in H_2O and D_2O with excitation at a) 377 nm, b) 488 nm and c) 520 nm.

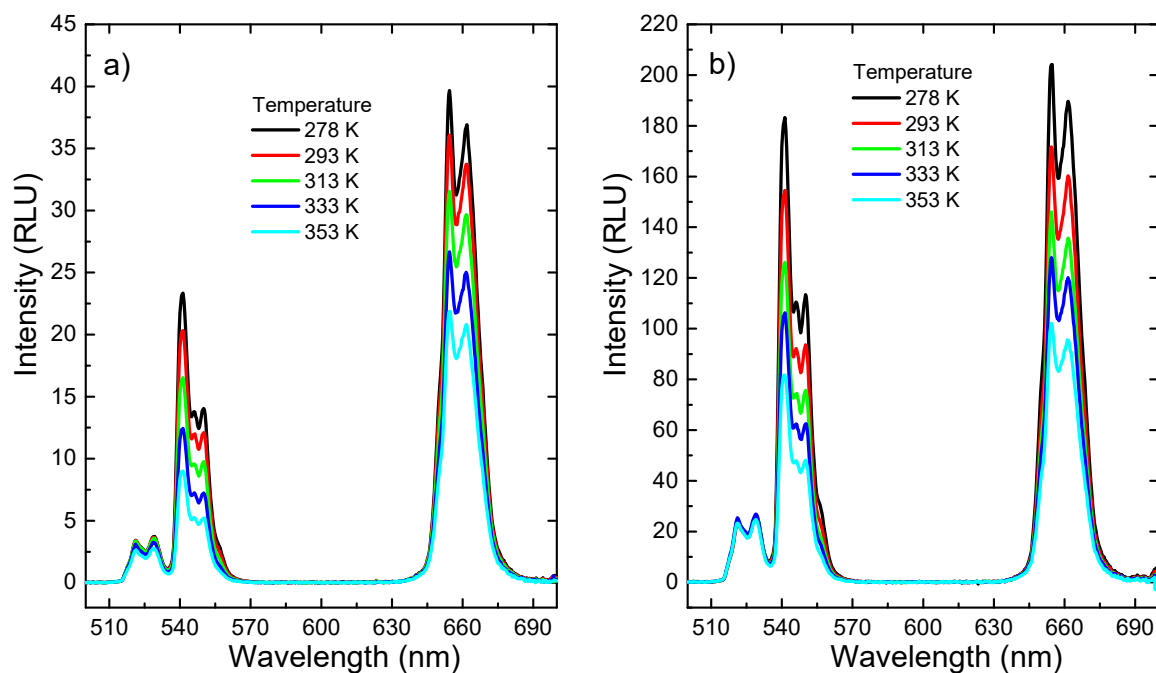


Figure S3. Upconversion emission spectra of NaYF₄:Yb³⁺,Er³⁺ nanoparticles at different temperatures in a) H₂O and b) D₂O. Excitation power density 11.1 W cm⁻².

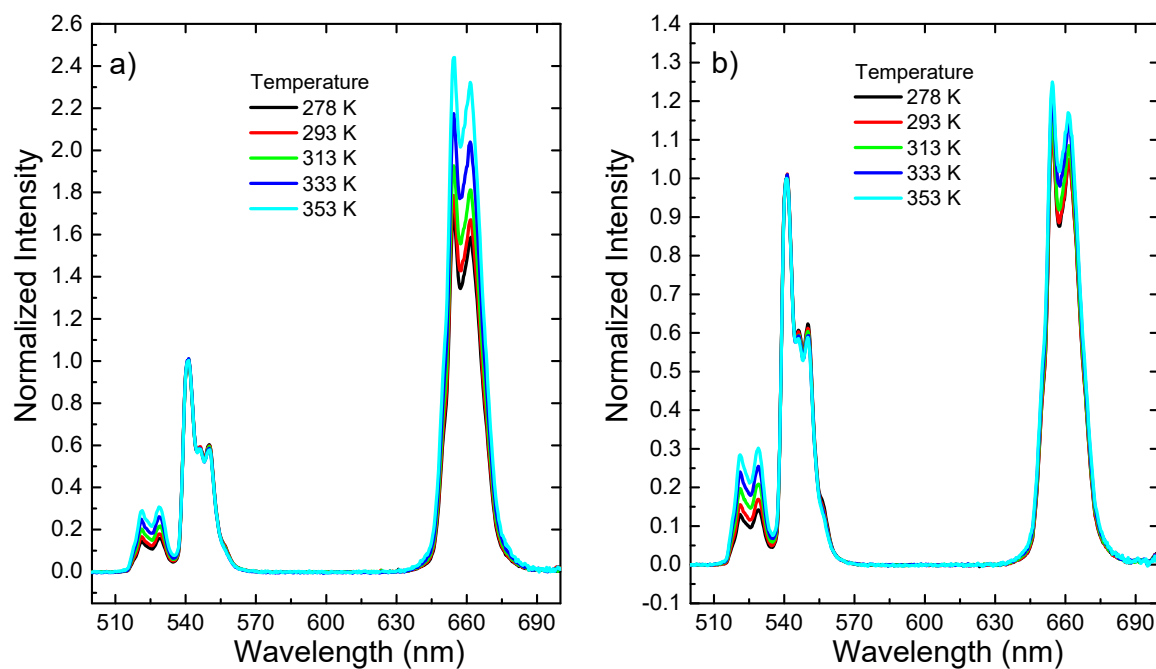


Figure S4. Normalized upconversion emission spectra of NaYF₄:Yb³⁺,Er³⁺ nanocrystals 10 mg ml⁻¹ at different temperatures in a) H₂O and b) D₂O. Spectra are normalized at 541 nm. Excitation power density 11.1 W cm⁻².

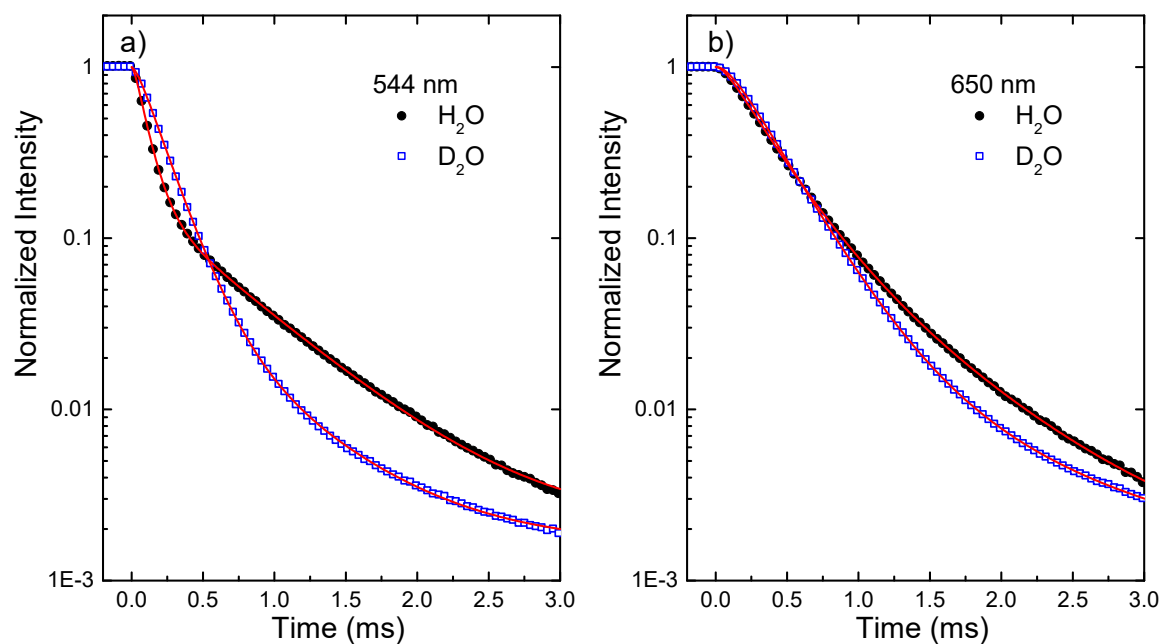


Figure S5. Upconversion luminescence decay curves and exponential fitting of NaYF₄:Yb³⁺,Er³⁺ nanocrystals 10 mg ml⁻¹ in H₂O and D₂O with emission monitored at a) 544 nm, and b) 650 nm. For visual clarity, only every third data point is drawn.