

The Effect of Metallic Ions on the Enhanced Upconversion Emission of NaGdF₄ Nanostructures

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Abstract - Co-doping of NaGdF₄ doped with Yb³⁺ and Er³⁺ with Fe³⁺ have shown to improve the intensity of upconversion emissions of green and red wavelengths. The maximum emission intensity was obtained at a Fe concentration of 0.3 mmols in the precursor and using a laser excitation at 980nm wavelength. The green emission was found to be enhanced to 10 times and red emissions was enhanced to about 3 times as compared to the intensity of the emissions without the Fe co-doping. Characterisation techniques like XRD and EDS is used to investigate the reason for this observation.

Keywords: Upconversion nanostructures, photoluminescence, metallic ion, doping