

Supplementary Information

White upconversion luminescence in $\text{CaF}_2: \text{Yb}^{3+}/\text{Eu}^{3+}$ powders
via incorporating Y^{3+} ions

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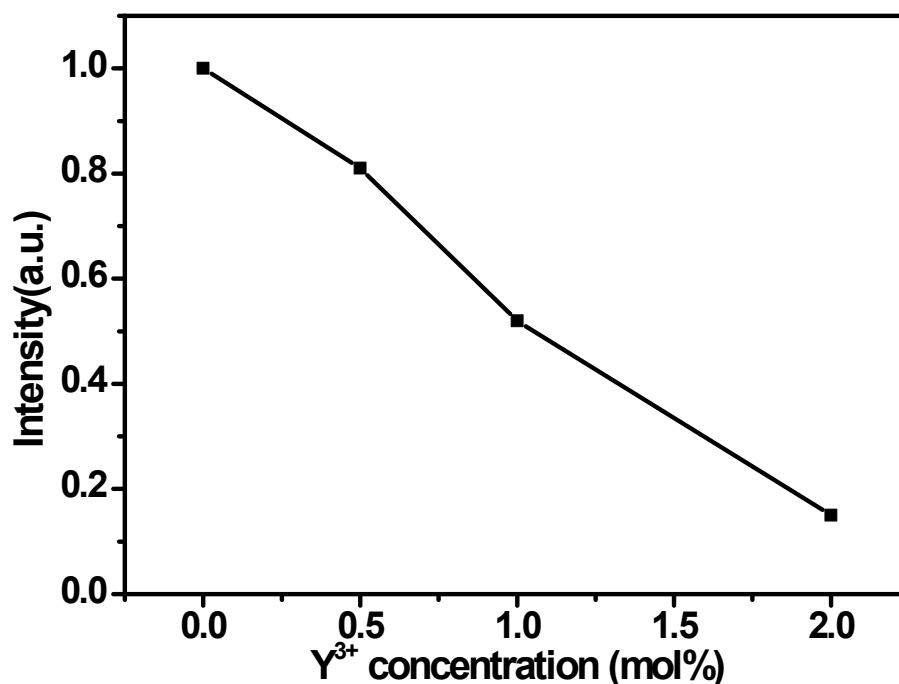


Fig. S1 Variation of the overall emission intensity with changing concentrations of Y^{3+} ions.

Fig. S1 shows the absolute emission intensity corresponding to the peak area, a significant drop in the overall intensity is observed with an

increasing concentration of Y^{3+} ions. When the concentration of Y^{3+} ions was 0.5%, 1% and 2%, the luminous intensity decreased to 81%, 52% and 15%, respectively.