

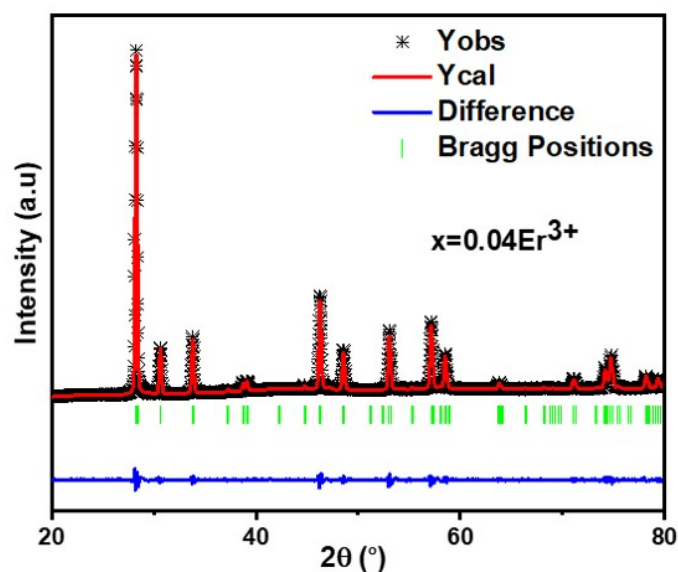


Fig.S1. Rietveld refinement patterns of NSGM: 0.04Er³⁺.

Table S1. Refinement parameters of NSGM: 0.04Er³⁺ phosphor.

Compound	NSGM: 0.04Er ³⁺
Crystal system	Tetragonal
Space group	I4 ₁ /a (88)
a & b (Å)	5.3019
c (Å)	11.6656
$\alpha = \beta = \gamma$	90°
V (Å ³)	327.92
Rwp, %	12.62
χ^2	2.02

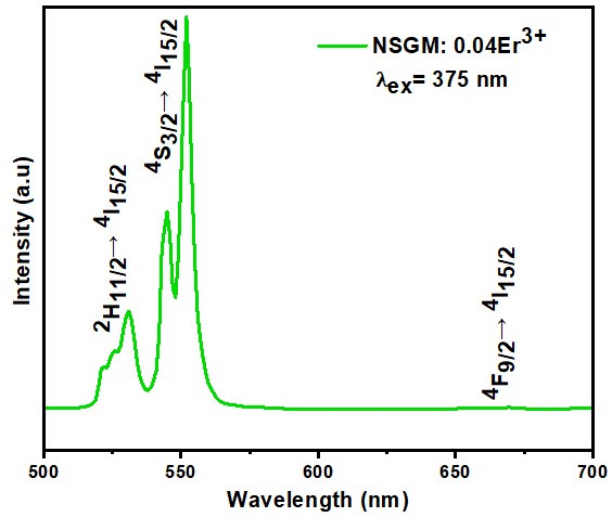


Fig.S₂ Emission spectra measured at $\lambda_{\text{ex}} = 375$ nm excitation of NSGM: 0.04Er³⁺.

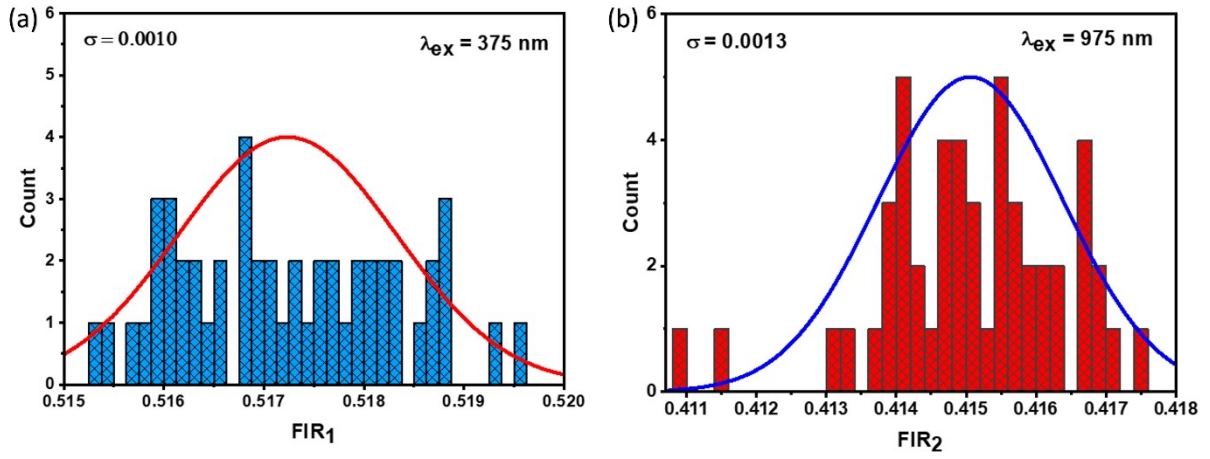


Fig.S₃ Standard deviations at RT corresponding to (a) FIR₁ (down-conversion), (b) FIR₂ (up-conversion) for NSGM: 0.04Er³⁺ obtained using 50 measurements at 300 K.

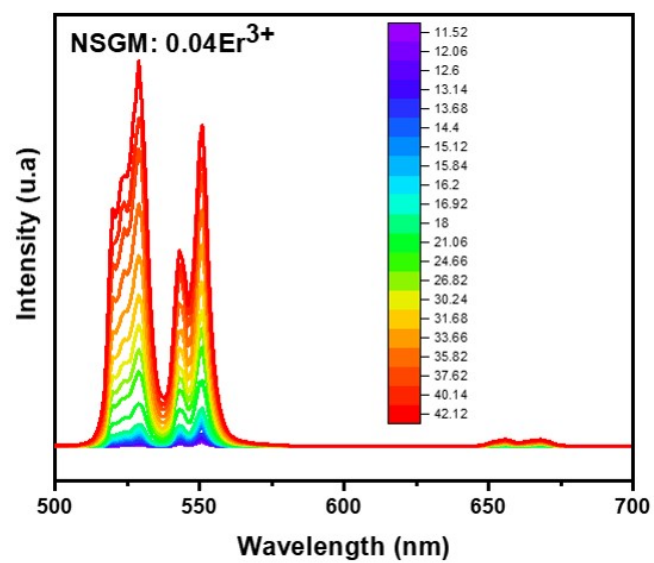


Fig.S₄ The UC emission intensities of the NSGM: 0.04 Er³⁺ under NIR excitation at 975 nm at different power densities.