

Electronic supplementary information

Dual-mode optical ratiometric thermometry using Pr³⁺-doped NaSrGd(MoO₄)₃

phosphors with tunable sensitivity

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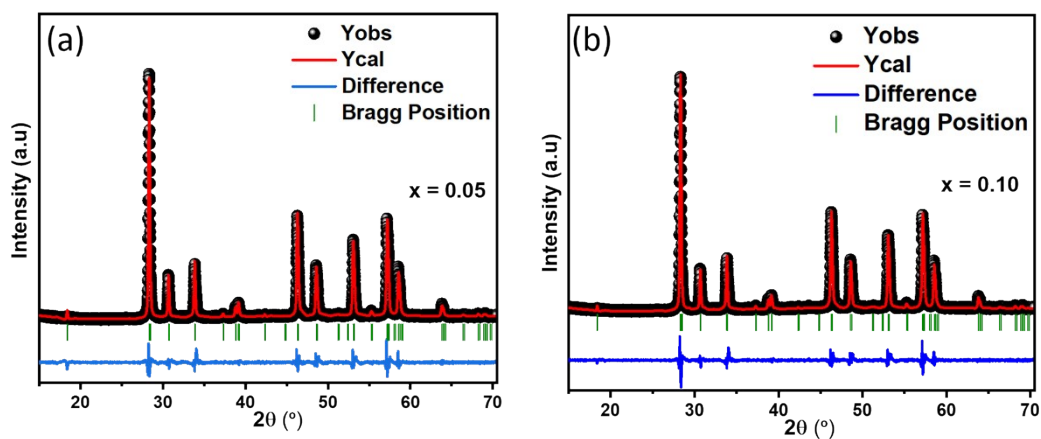


Fig.S1. a and b. Rietveld refinement patterns of NSGM: $x\text{Pr}^{3+}$ ($x = 0.05$ and $x = 0.10$).

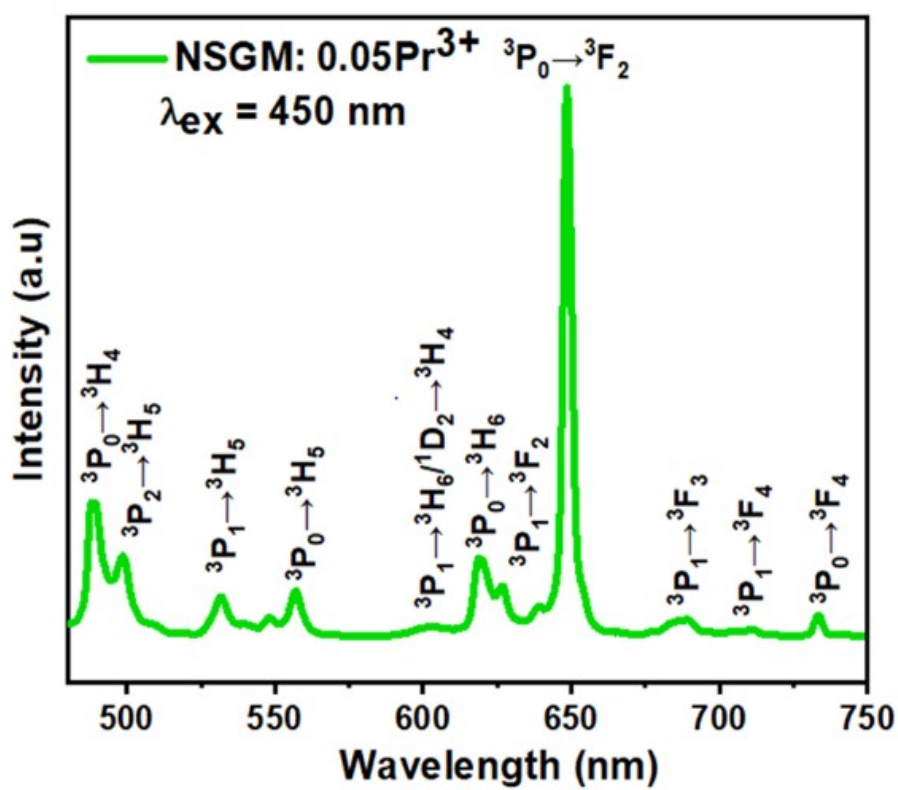


Fig.S2. Emission spectra measured at $\lambda_{\text{ex}} = 450$ nm excitation of NSGM: 0.05Pr^{3+} .

Table.S1. Refinement parameters of NSGM: $x\text{Pr}^{3+}$ ($x = 0.05$ and $x = 0.10$) phosphors.

Compound	NSGM: 0.05Pr^{3+}	NSGM: 0.10Pr^{3+}
Crystal system	Tetragonal	Tetragonal
Space group	$I4_1/a$ (88)	$I4_1/a$ (88)
a & b (Å)	5.2966	5.2969
c (Å)	11.6563	11.6566
$\alpha = \beta = \gamma$	90°	90°
V (Å ³)	327.0050	327.0509
Rwp, %	16.7	15.5
χ^2	2.65	2.50

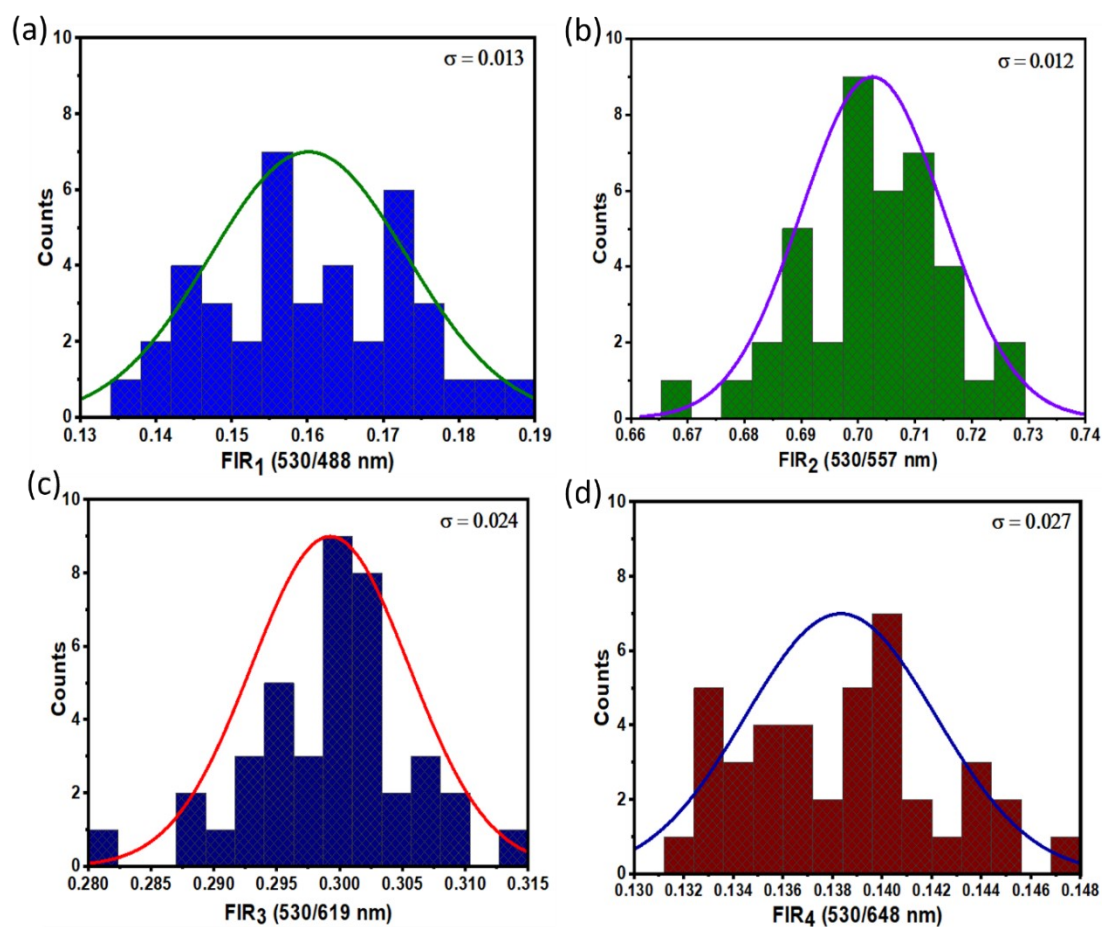


Fig.S3.a-d. Standard deviations at RT corresponding to (a) FIR₁ (530/488), (b) FIR₂ (530/557), (c) FIR₃ (530/619) and FIR₄ (530/648) for NSGM: 0.05Pr³⁺ obtained using 40 measurements at 300 K.

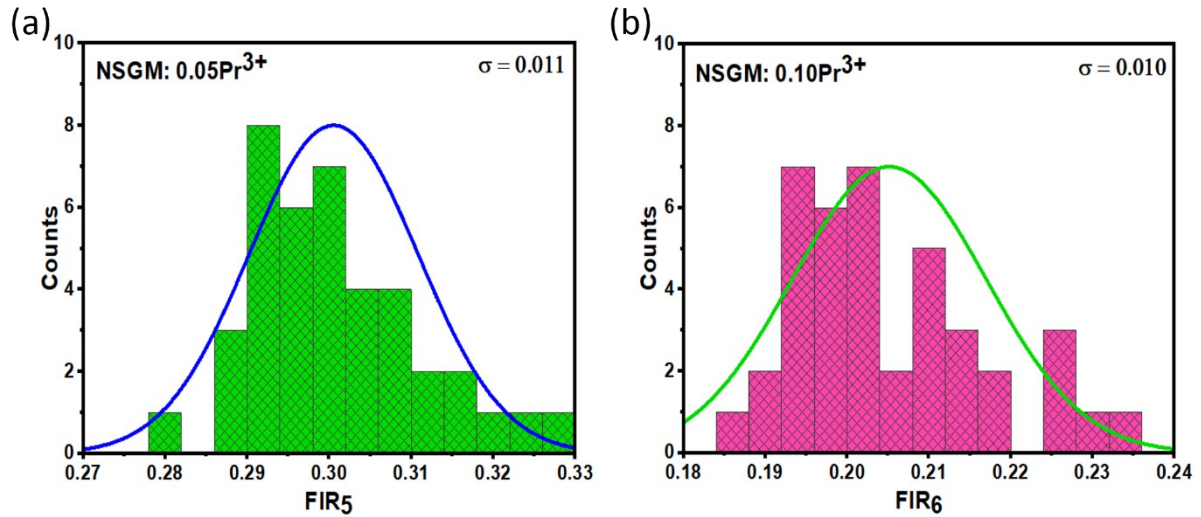


Fig.S4.a and b. Standard deviations at RT for (a) FIR₅ and (b) FIR₆, based on SBR obtained using 40 measurements at 300 K for NSGM doped 5%Pr³⁺ and 10%Pr³⁺, respectively.

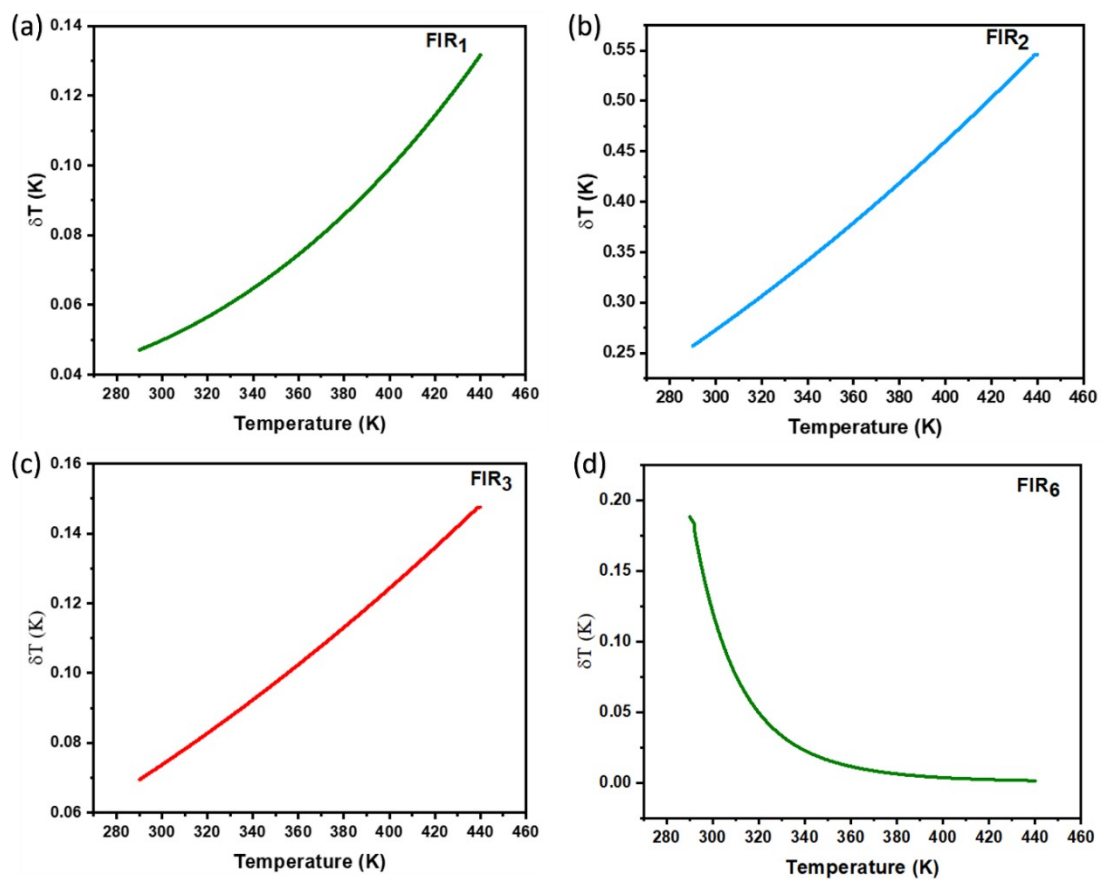


Fig.S5.a-d. Temperature resolution values δT , corresponding to (a) FIR₁ (530/488),

(b) FIR_2 (530/557), (c) FIR_3 (530/619) based on FIR-technique and for NSGM: 0.05Pr^{3+} and FIR_6 for NSGM: 0.10Pr^{3+} based on SBR.

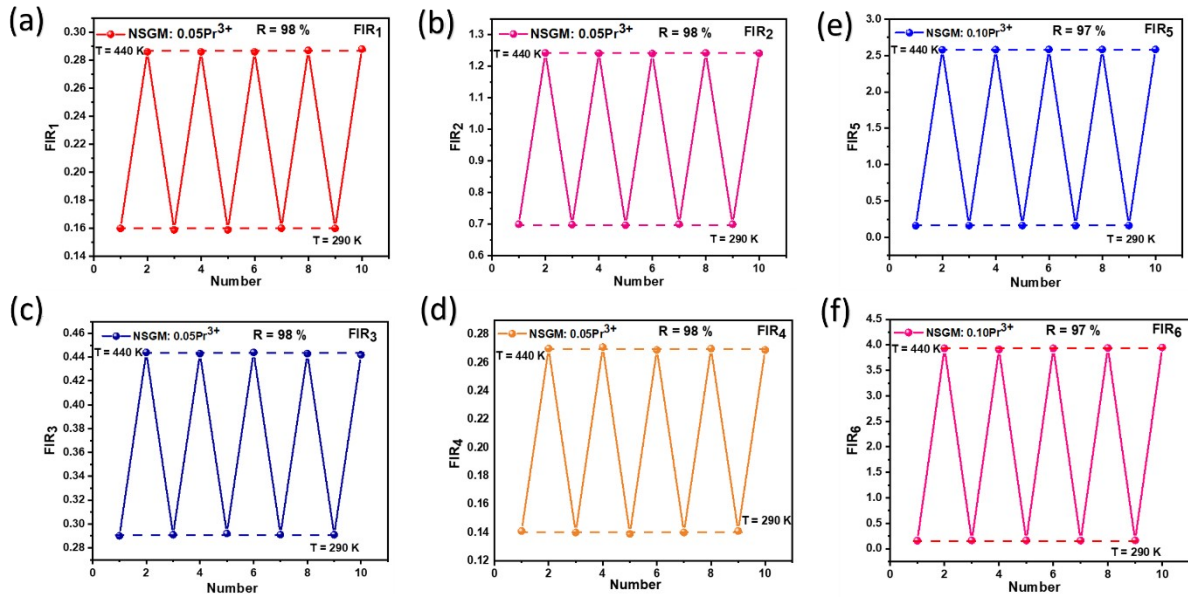


Fig.S.6. Repeatability assessment (R) (a-d) for NSGM: 0.05Pr^{3+} and (e-f) for NSGM: 0.10Pr^{3+} .