Supporting information

Multifunctional $Tm^{3+}/Yb^{3+}:Na_5Y(MoO_4)_4$ nanocrystals for simultaneous luminescent nanothermometry, photothermal therapy and deep bioimaging in the NIR-I window.

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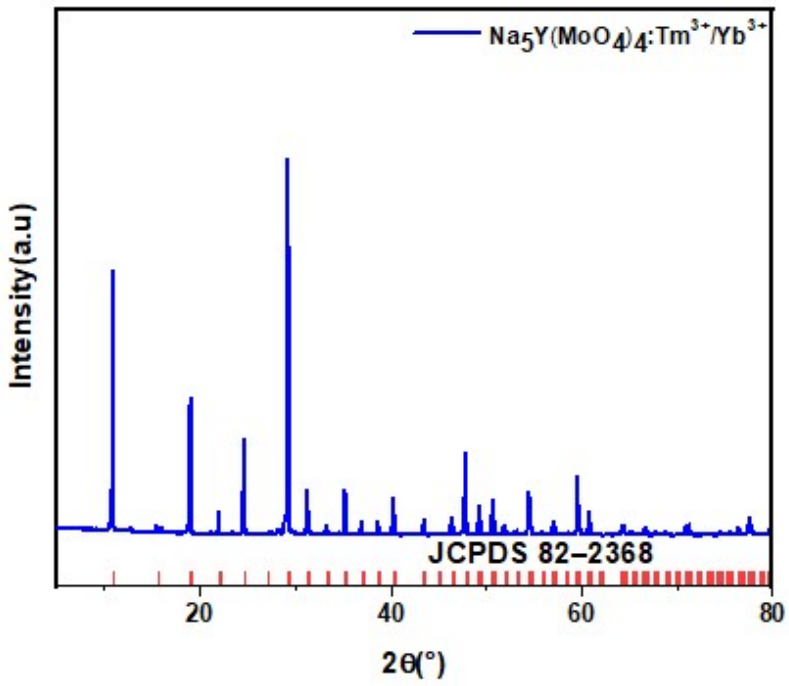

Figure S1. X-ray diffraction pattern of NYMO: 0.01 Tm^{3+}/0.15 Yb^{3+} powder and the diffraction pattern of the JCPDS card number 82-2368 for comparison.

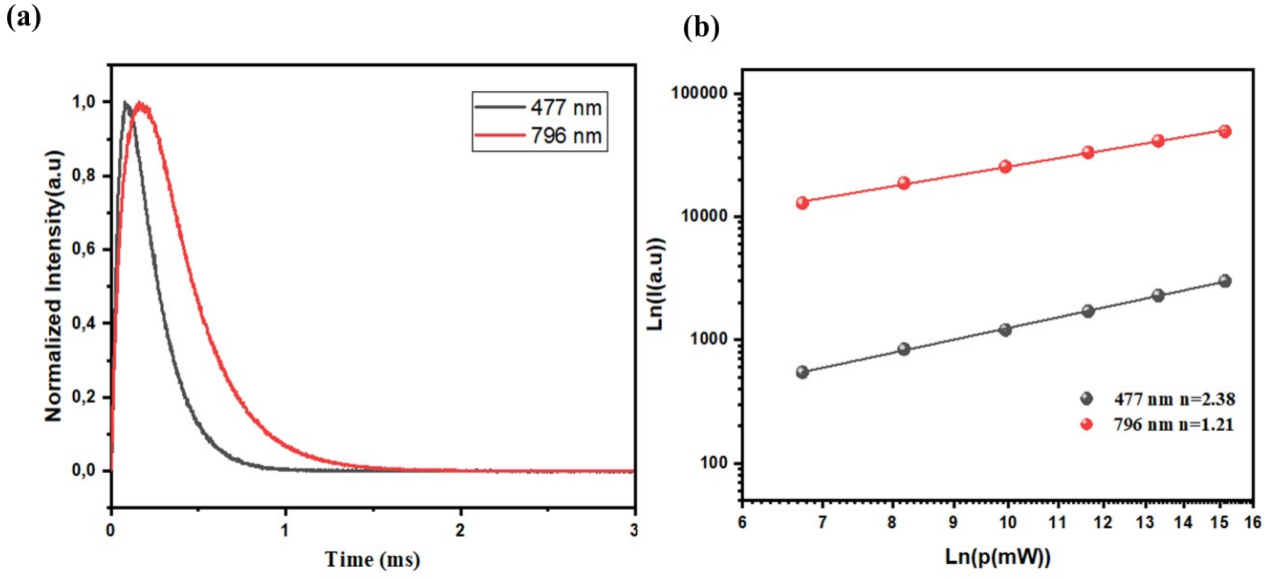

Figure S2.a) Decay curves.**b)** Logarithmic graph of the relationship between UC emission intensity and pump power of NYMO: 0.01 Tm^{3+}/0.15 Yb^{3+}.

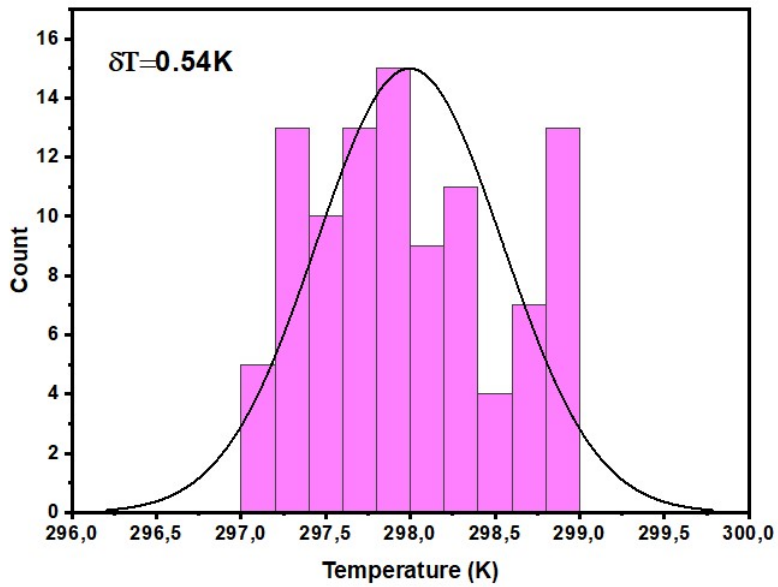

Figure S3. Temperature resolutions (δT) for NYMO: 0.01 Tm^{3+}/0.15 Yb^{3+} as a function of temperature.

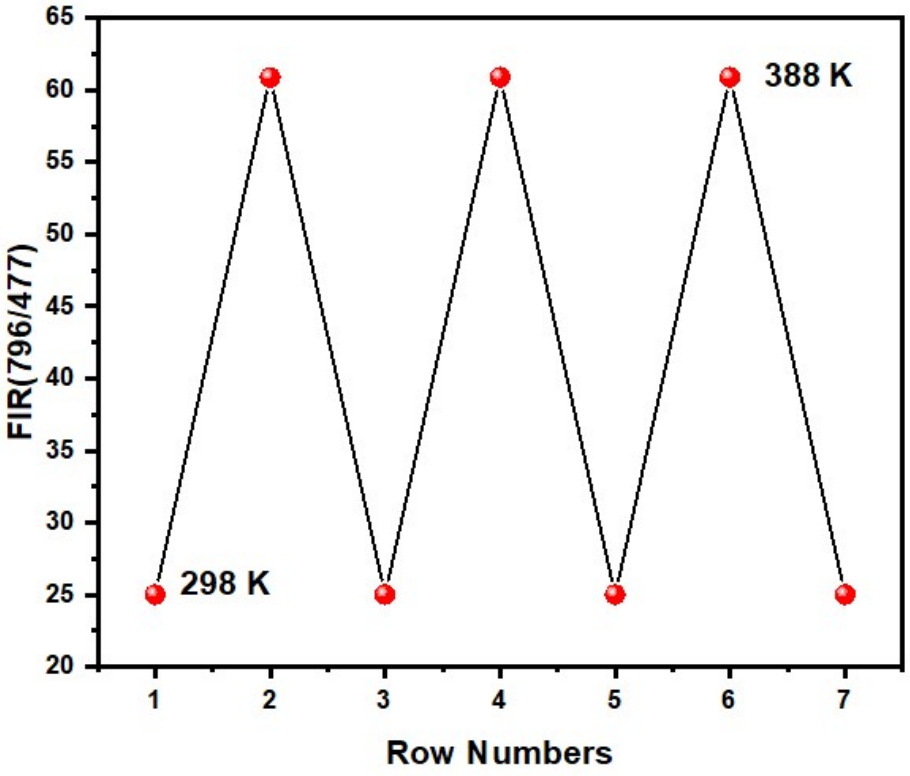

Figure S4. Cyclic repeatability plots of NYMO: 0.01 Tm^{3+}/0.15 Yb^{3+} for FIR (796/477).

Table S1. Structural parameters for nanocrystalline particles obtained by the Rietveld refinement method.

Parameters	**Samples**
Crystal system	Tetragonal
Space group	$I4_1/a$
Cell parameters	A=b=11.33729 A˚ C=11.4280 A˚ α=□=δ= 90°
Z	4
R_{wp}	5.8 %
χ^2	2.3