Supporting Information

Enhancing of the sensitivity of Nd^{3+}, Yb^{3+}:YVO_4 nanocrystalline luminescent thermometer by host sensitization

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KEYWORDS luminescent thermometers, relative sensitivity, host sensitization, neodymium, ytterbium

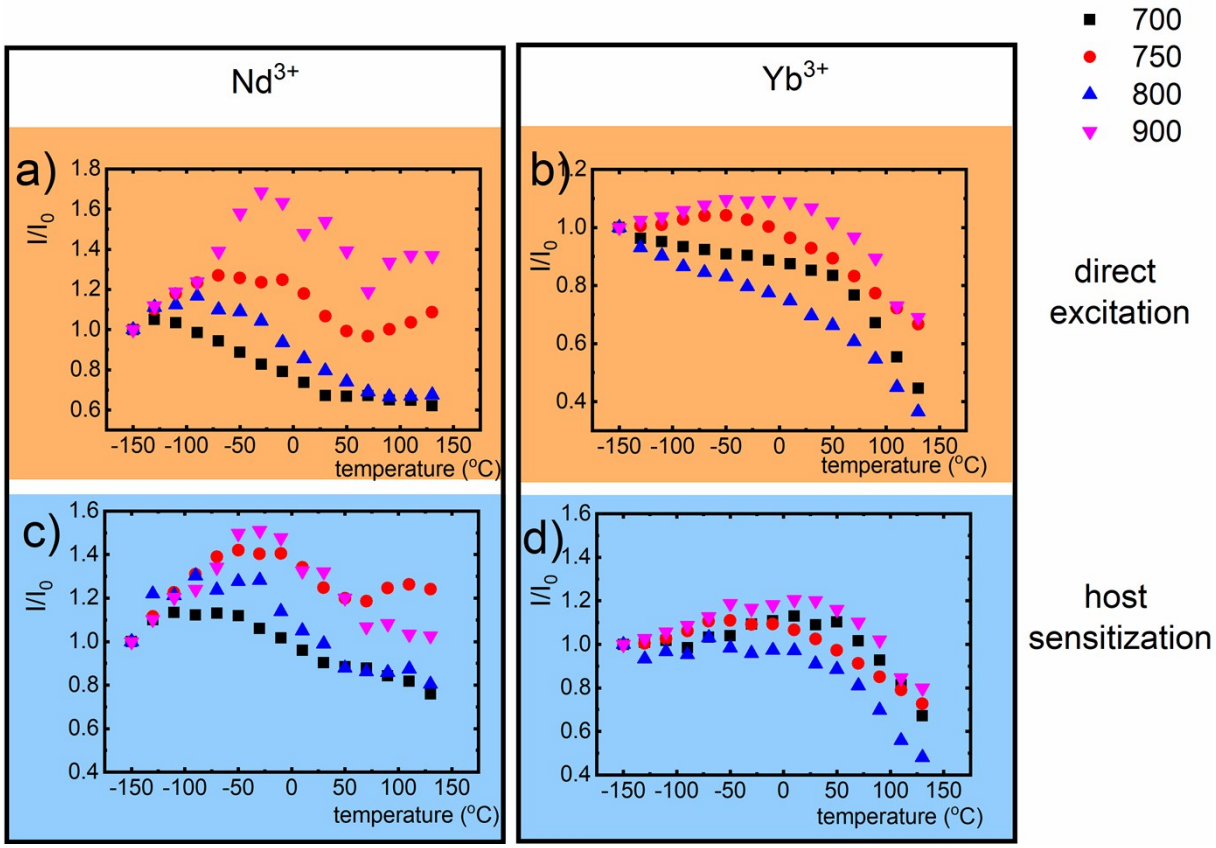

Figure S1. Thermal evolution of Nd^{3+} (a and c) and Yb^{3+} (b and d) emission intensity observed upon direct (a and b) and host (c and d) excitation.

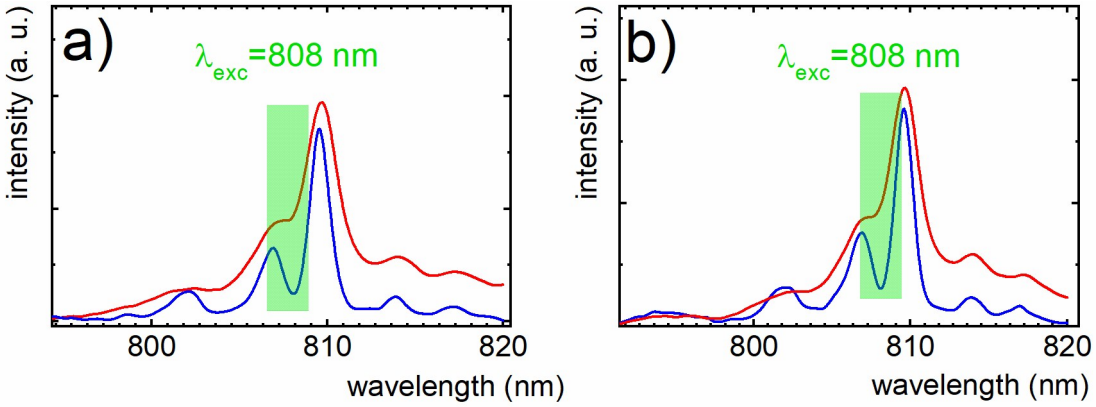

Figure S2. Excitation spectra of $YVO_4:Nd^{3+},Yb^{3+}$ nanocrystals annealed at 700°C –a and 900°C-b measured at -150°C (blue line) and at 0°C (red line).

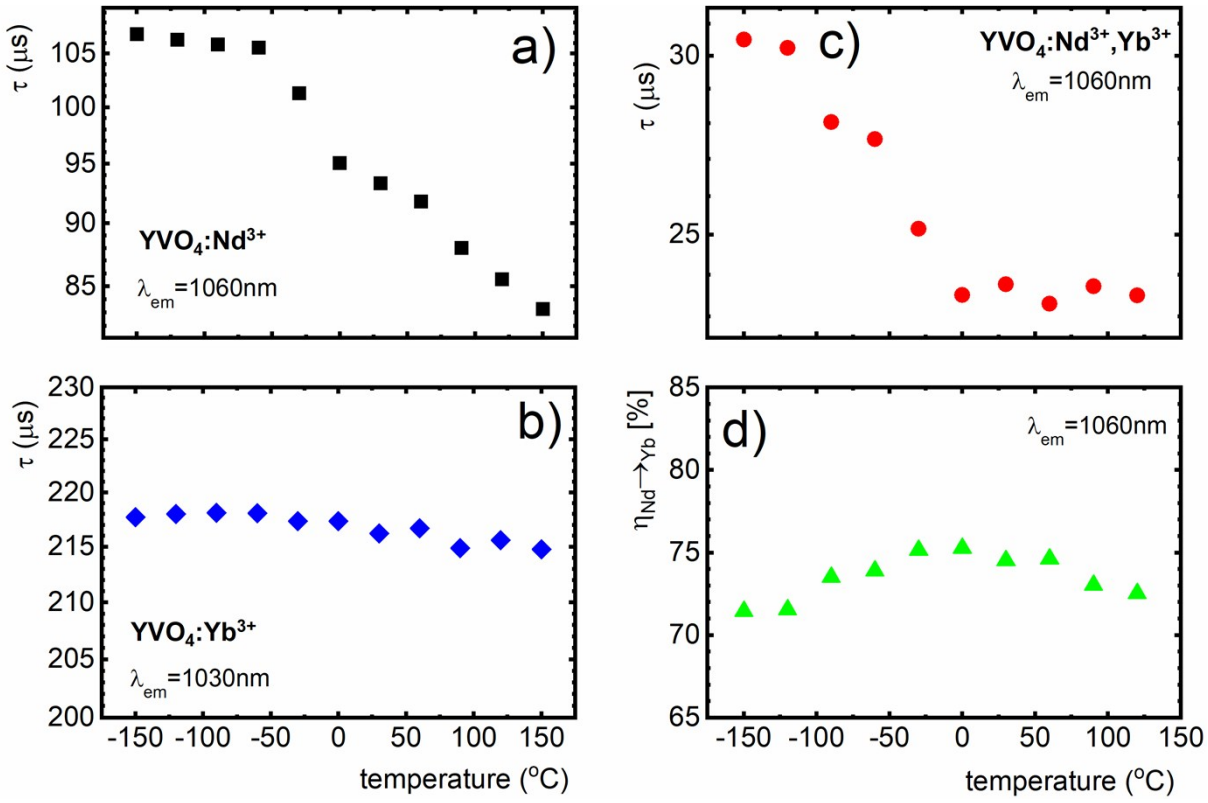

Figure S3. Temperature dependence of lifetime of: $^4F_{3/2}$ state of Nd^{3+} ions in $YVO_4:Nd^{3+}$ nanocrystals –a; $^4F_{3/2}$ state of Nd^{3+} ions in $YVO_4:Nd^{3+}$, Yb^{3+} nanocrystals –b; $^2F_{5/2}$ state of Yb^{3+} ions in $YVO_4:Yb^{3+}$ nanocrystals –c, quantum efficiency of Nd to Yb energy transfer, measured as $n_{Nd\rightarrow Yb}=1-\tau_{NdYb}/\tau_{Nd}$ -d

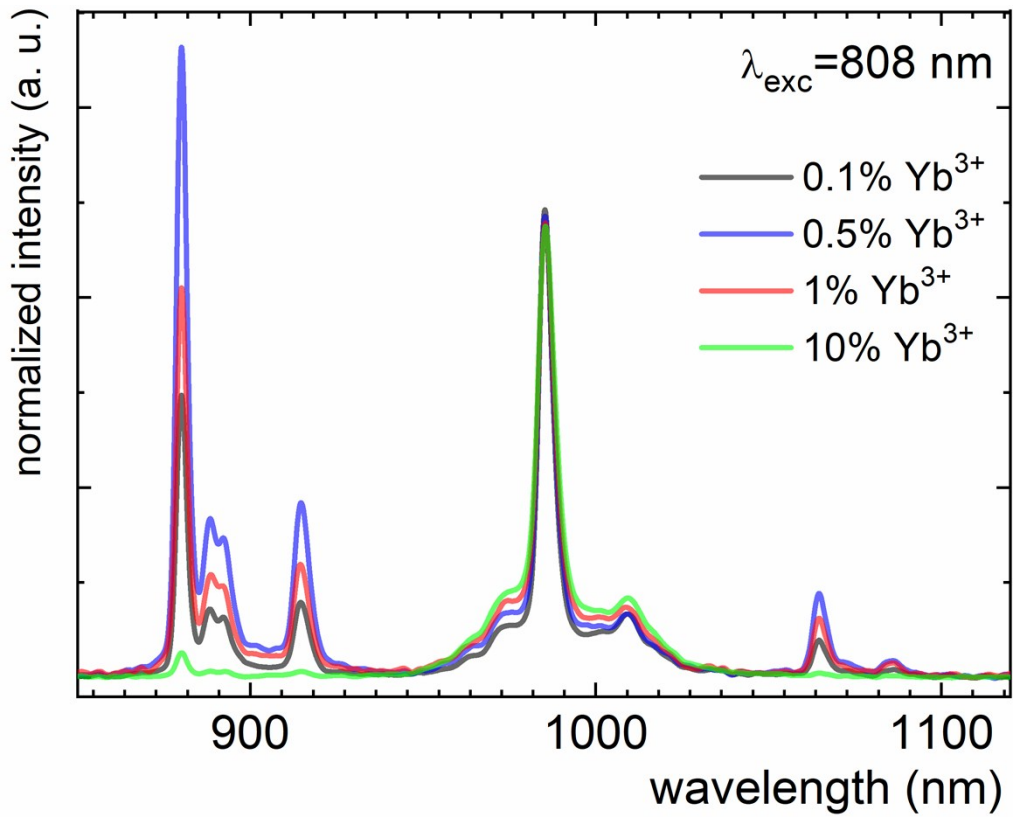

Figure S4. The comparison of emission spectra of YVO4:Nd^{3+},xYb^{3+} nanocrystals measured at -150°C (normalized to the 980 nm intensity).

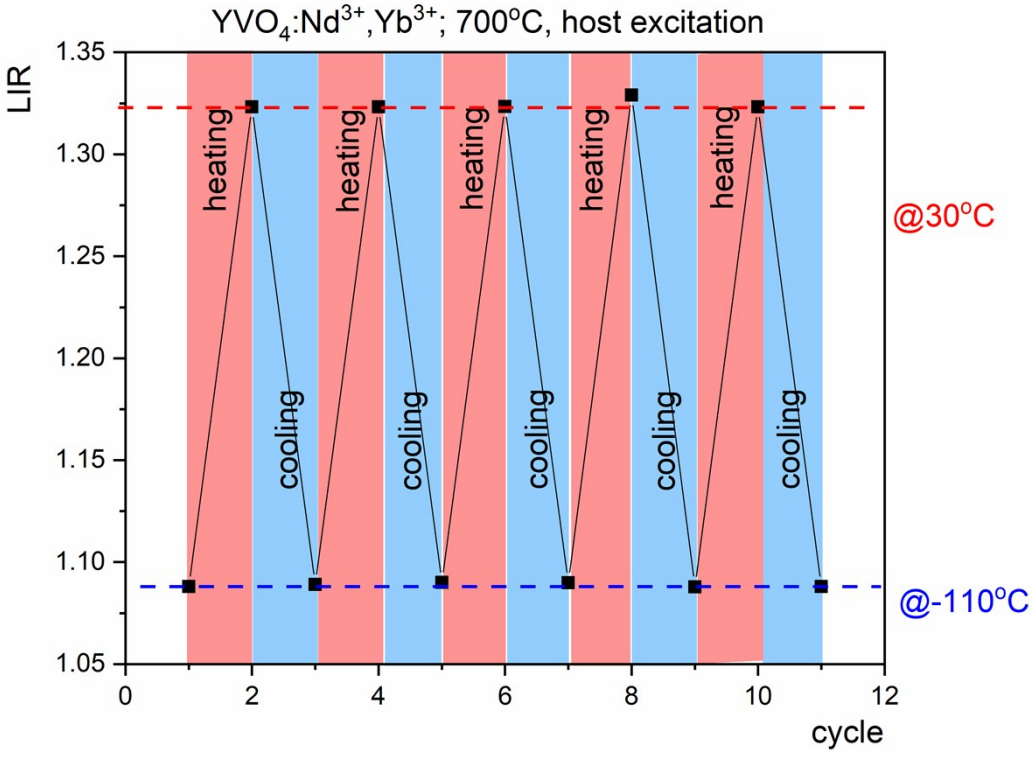

Figure S5. Thermal stability of LIR of YVO_4:Nd^{3+},Yb^{3+}, 700°C nanocrystals during cooling (-110°C) and heating (30°C) cycles upon host excitation

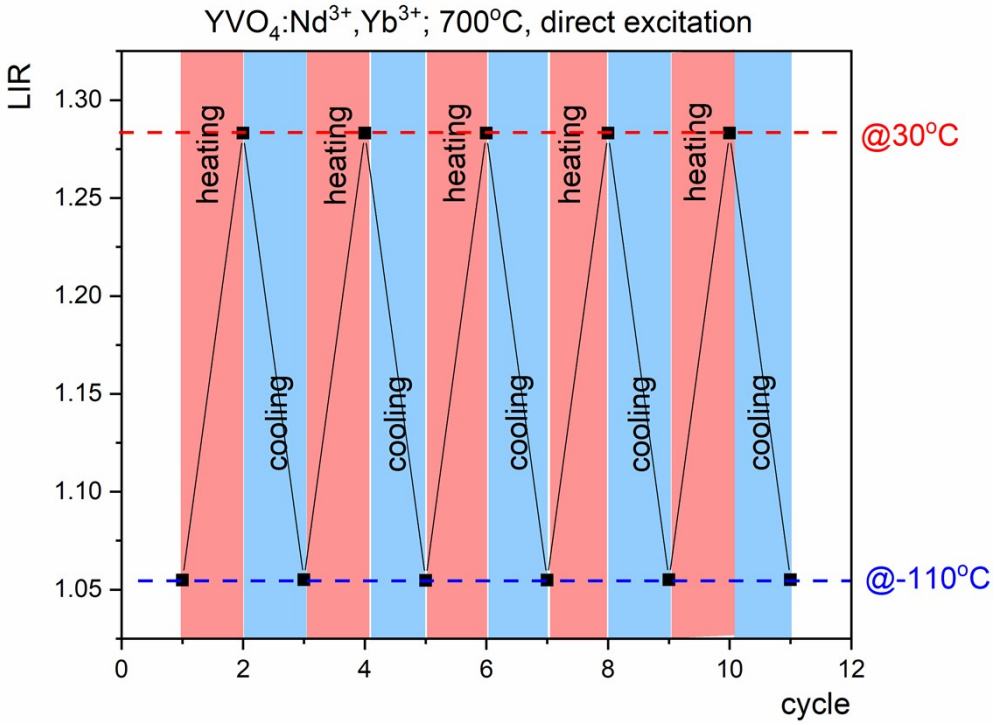

Figure S6. Thermal stability of LIR of $YVO_4:Nd^{3+},Yb^{3+}$, 700°C nanocrystals during cooling (-110°C) and heating (30°C) cycles upon host excitation