SUPPORTING INFORMATION

$LiAl_5O_8:Fe^{3+}$ and $LiAl_5O_8:Fe^{3+}$, Nd^{3+} as a new luminescent nanothermometer operating in 1st biological optical window

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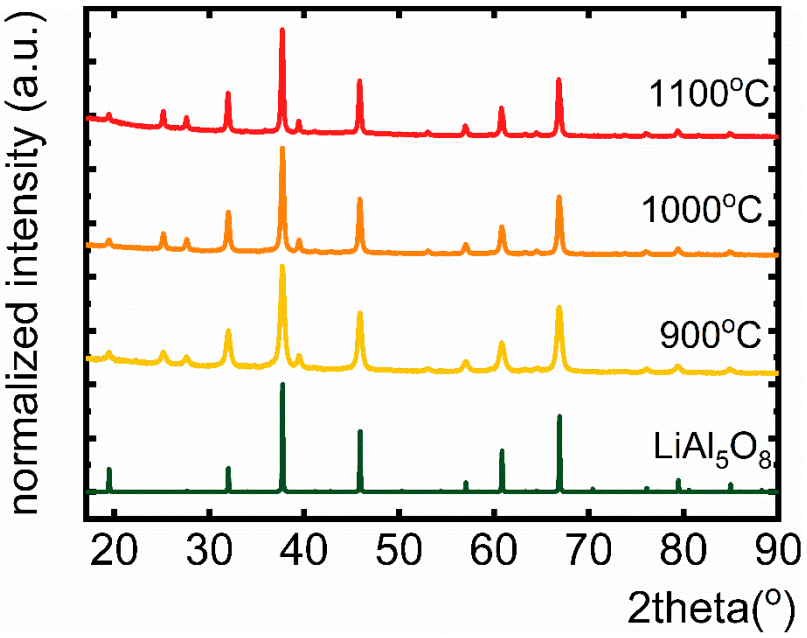

Figure S1. XRD patterns of $LiAl_5O_8$:0.05% Fe^{3+} nanocrystals annealed at different temperatures.

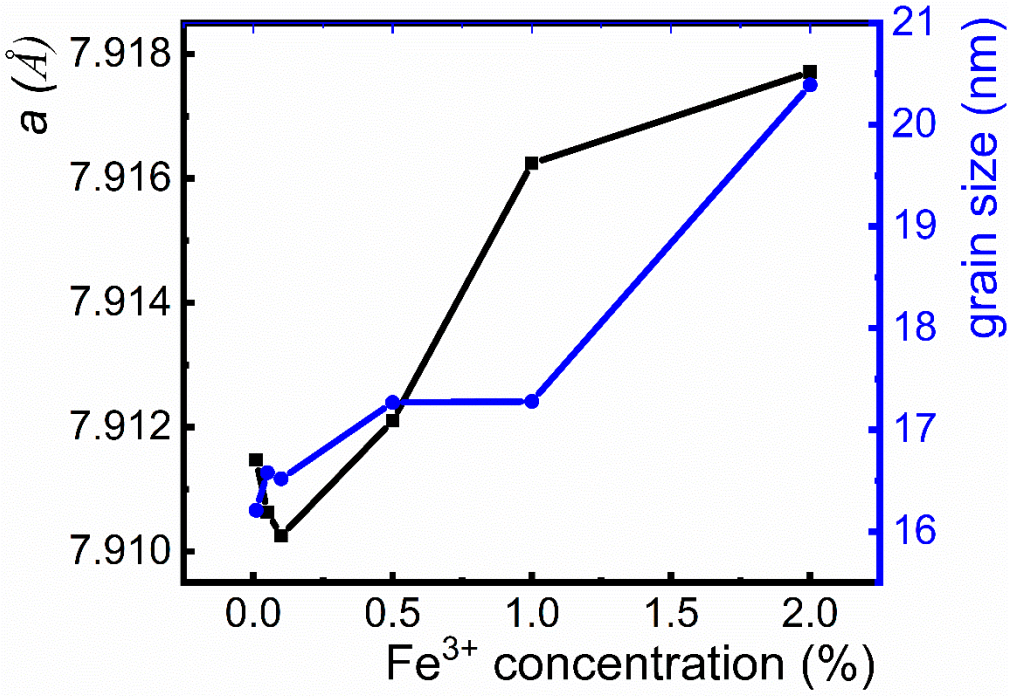

Figure S2. The influence of Fe^{3+} dopant concentration of a cell parameter and grain size.

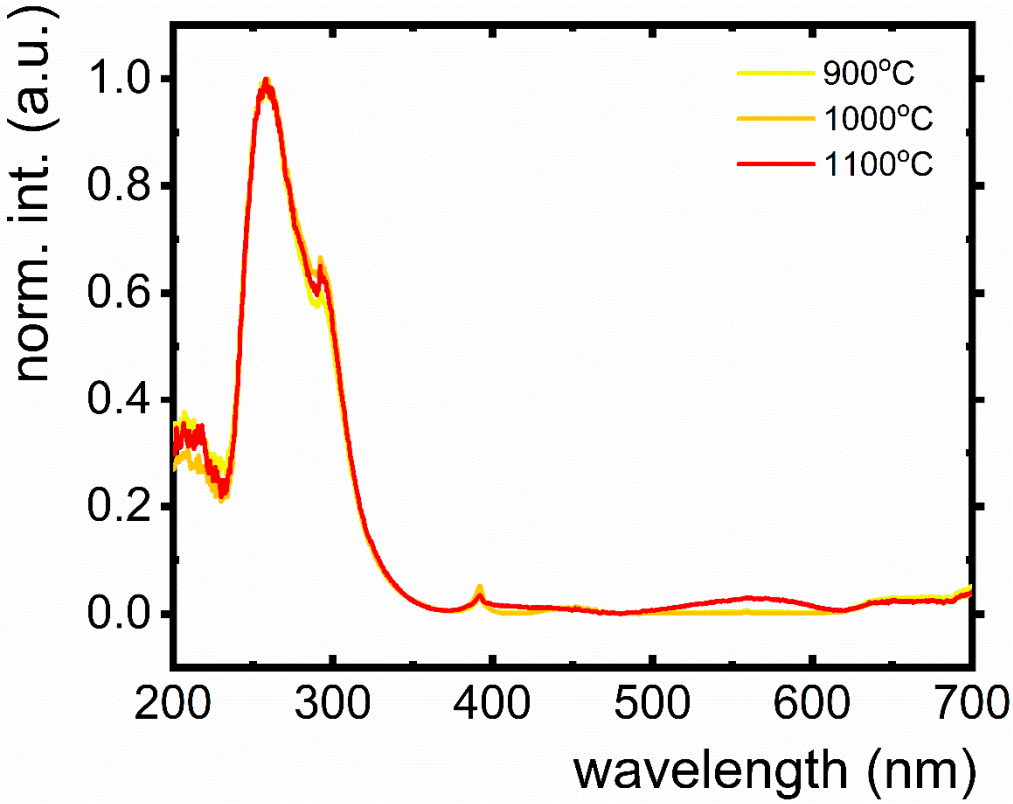

Figure S3. Excitation spectrum for $LiAl_5O_8$:0.05%Fe^{3+} nanocrystals annealed at different temperatures, for λ_{em}=720 nm.

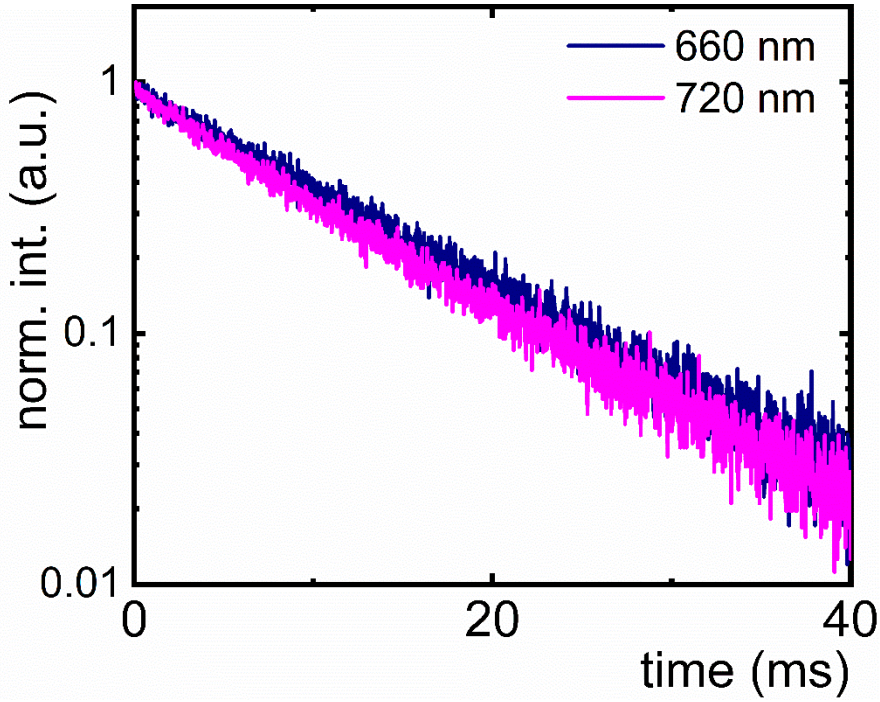

Figure S4. Luminescence life time for 660 nm and 720 nm emission intensity, corresponding to the $^4T_1 \rightarrow {}^6A_1$ transition at λ_{em}=266 nm.

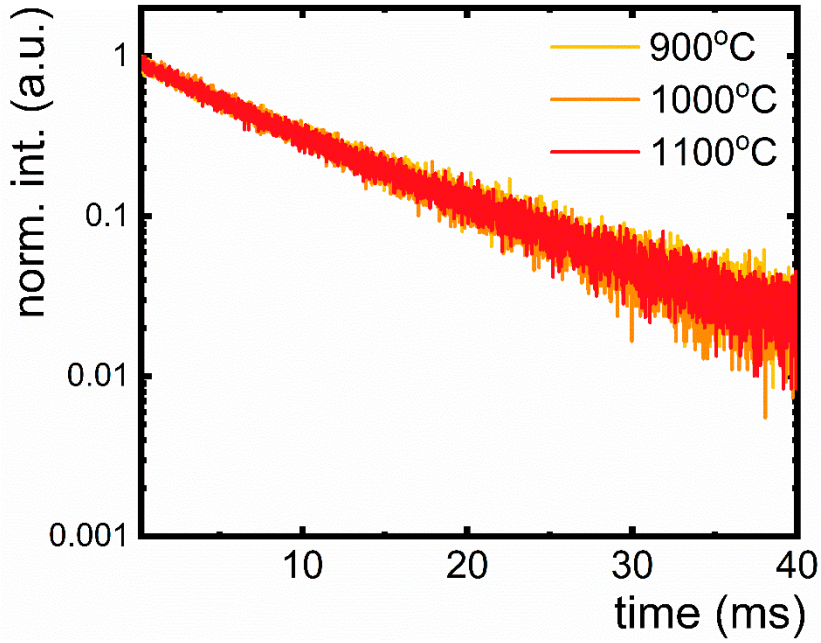

Figure S5. Luminescence lifetime for $LiAl_5O_8$:0.05%Fe^{3+} nanocrystals annealed at different temperatures, for λ_{em}=720 nm.

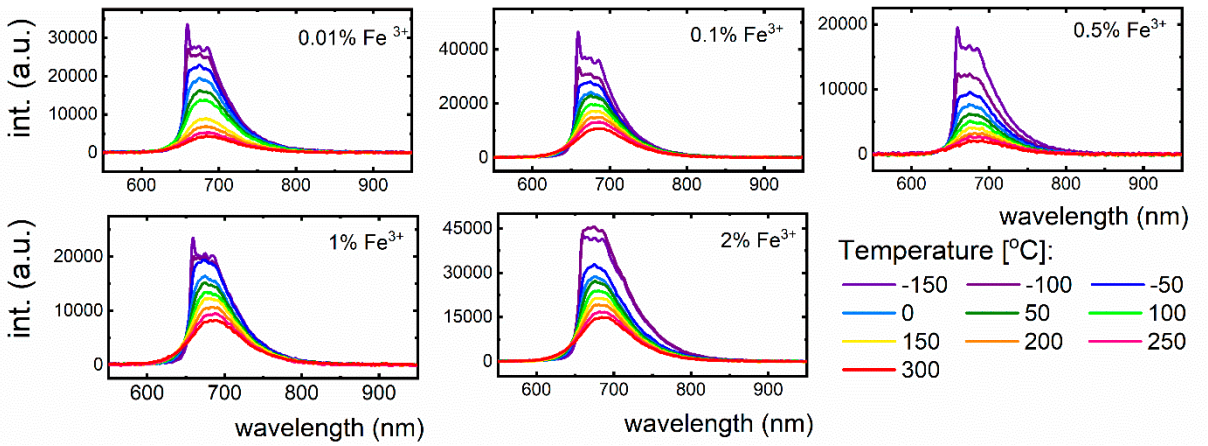

Figure S6. The emission intensity of $LiAl_5O_8:Fe^{3+}$ nanocrystals with different dopant concentration, annealed at 850°C and recorded under 266 nm excitation.

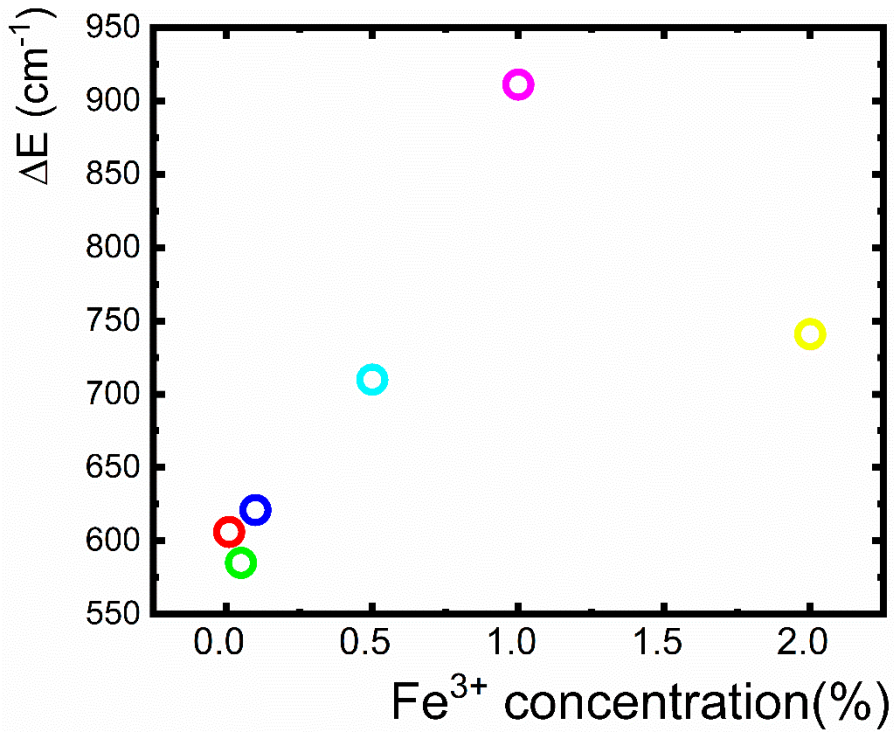

Figure S7. Activation energy defined for $LiAl_5O_8$ nanocrystals, annealed at 850°C, doped with different Fe^{3+} concentration.