Electronic Supplementary Materials

New Heater@Luminescent Thermometer Nano-objects: Prussian Blue Core@Silica Shell loaded with β-diketonate Tb^{3+}/Eu^{3+} Complex

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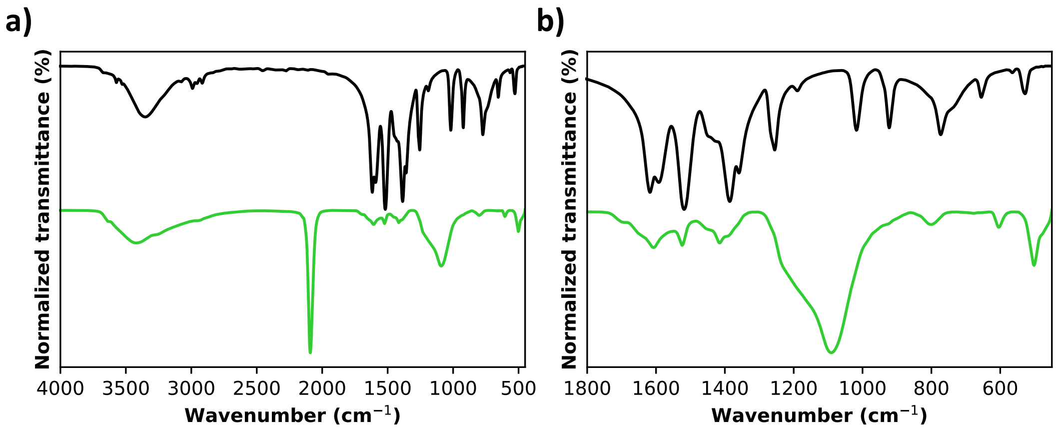

Figure S1. a) IR spectra for [(Tb/Eu)$_9$(acac)$_{16}$(μ$_3$-OH)$_8$(μ$_4$-O)(μ$_4$-OH)] H_2O compound (Tb/Eu = 9/1) (black) and PB@SiO_2-acac/(Tb/Eu)$_9$ nano-objects (green); b) Magnification of these spectra in the 500 - 1800 cm^{-1} window.

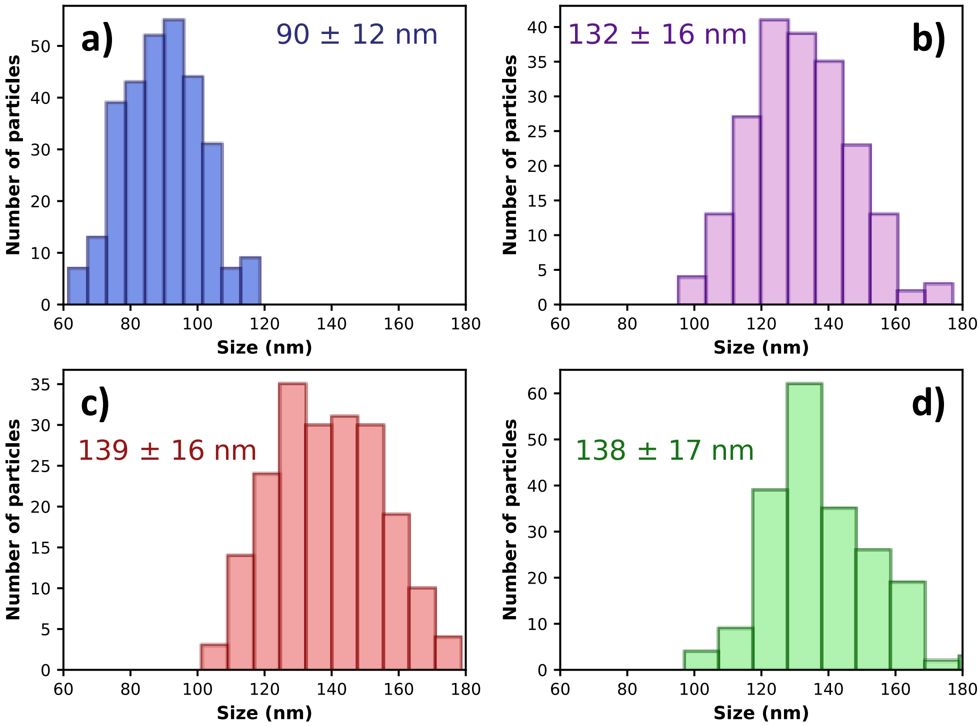

Figure S2. Size distribution histograms for PB (a), $PB@SiO_2$ (b), $PB@SiO_2$-acac (c) and $PB@SiO_2$-acac/(Tb/Eu)$_9$ (d) nano-objects.

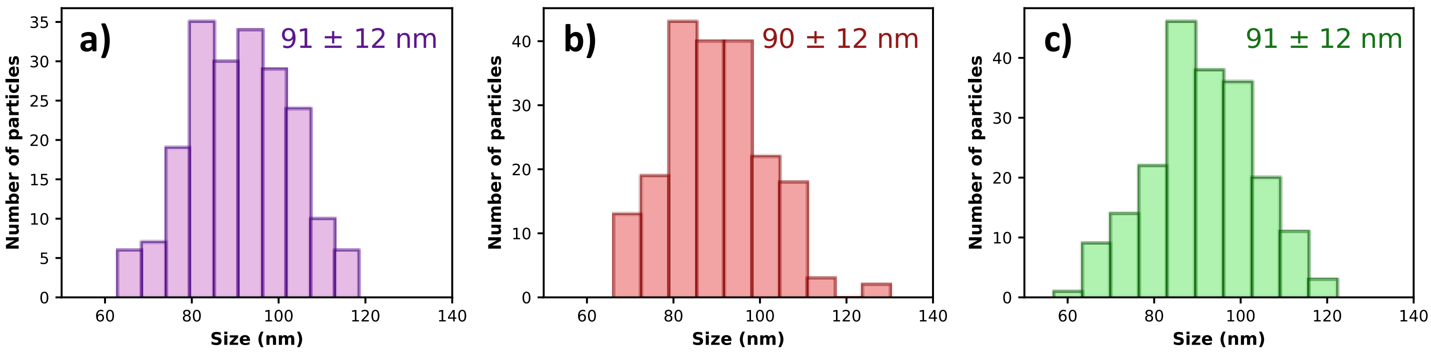

Figure S3. Size distribution histograms for the PB core of $PB@SiO_2$ (a), $PB@SiO_2$-acac (b) and $PB@SiO_2$-acac/(Tb/Eu)$_9$ (c) nano-objects.

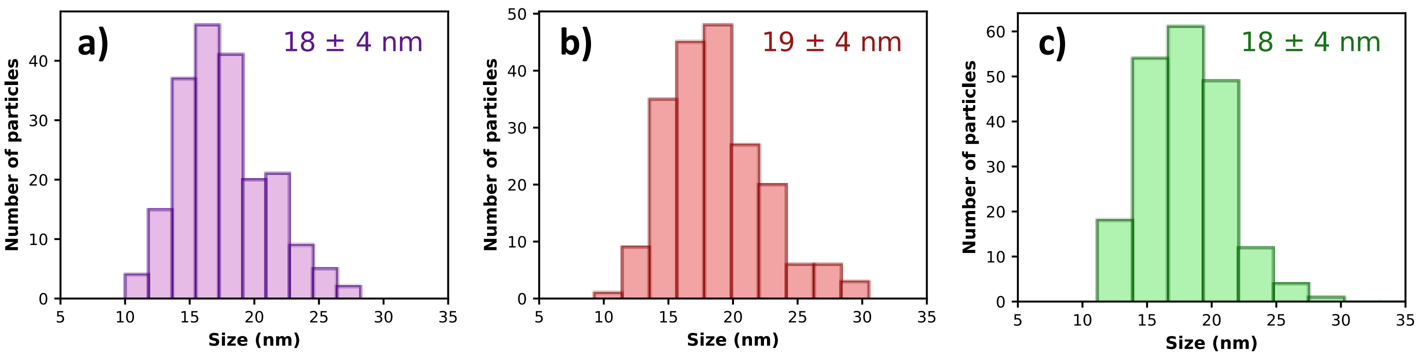

Figure S4. Size distribution histograms for the silica shell of $PB@SiO_2$ (a), $PB@SiO_2$-acac (b) and $PB@SiO_2$-acac/(Tb/Eu)$_9$ (c) nano-objects.

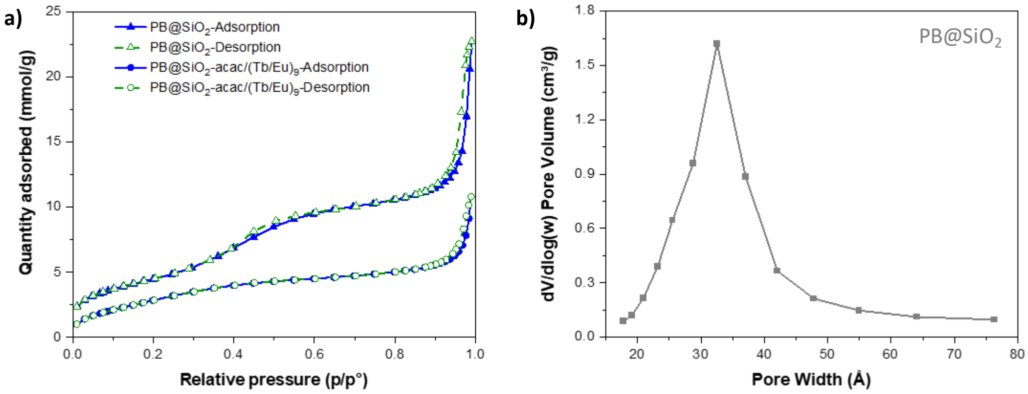

Figure S5. a) N_2 sorption isotherms of the PB@SiO_2 and PB@SiO_2-acac/(Tb/Eu)$_9$ nano-objects; b) distribution of pore size of the PB@SiO_2.

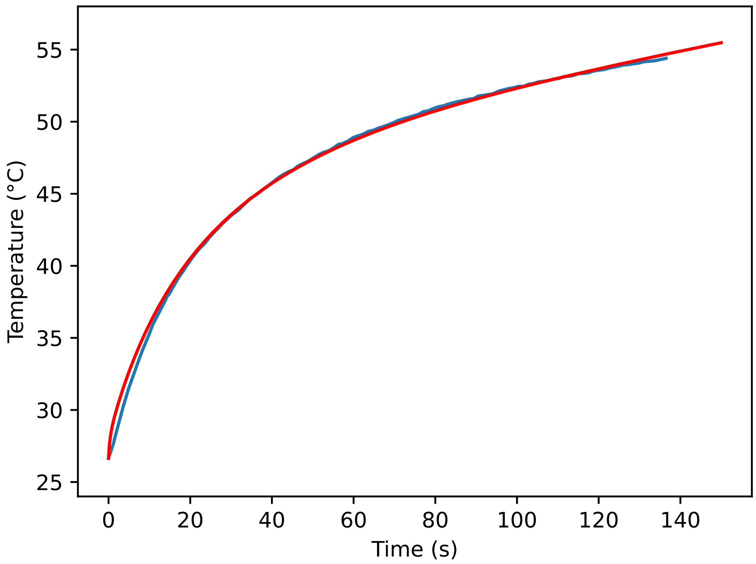

Figure S6. Temperature as a function of the time of the sample prepared for the extraction of the light-to-heat conversion coefficient irradiated with a 808 nm laser at a power of 2.58 W.cm^{-2} (blue curve) and its fit realized with the model developed and solved with the COMSOL software (red curve).

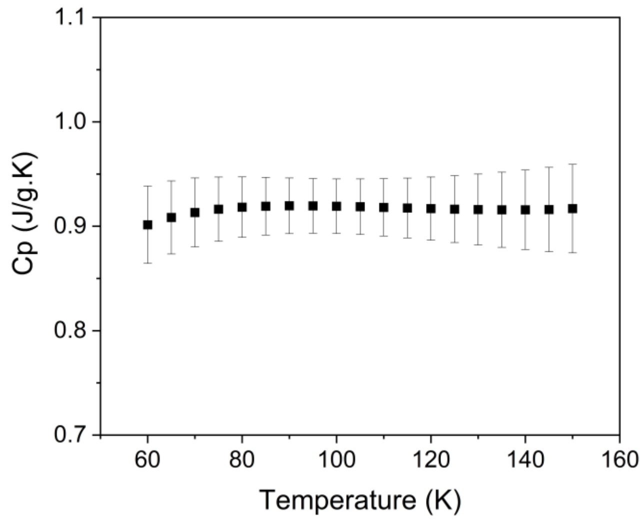

Figure S7. Specific heat of the pristine PB nano-object with the standard deviation obtained on 5 cycles.

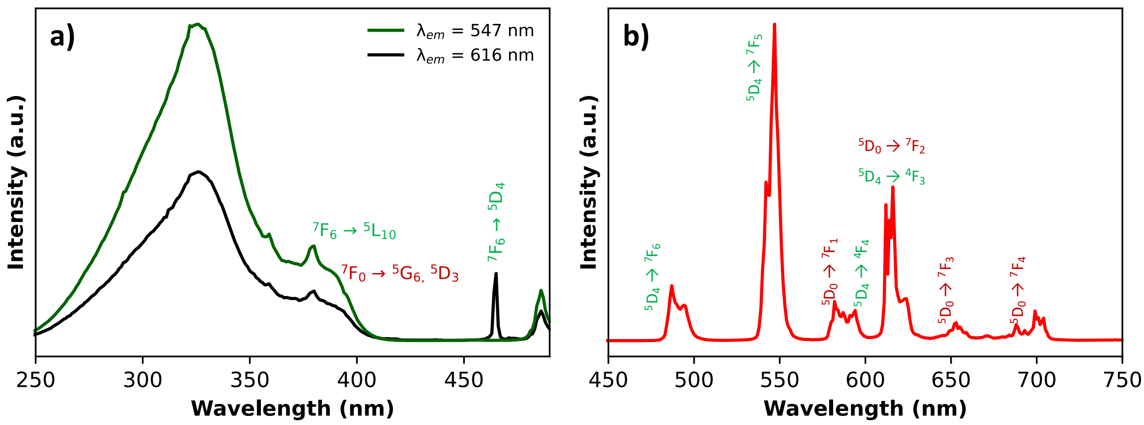

Figure S8. a) Excitation spectra of the $[(Tb/Eu)_9(acac)_{16}(\mu_3\text{-}OH)_8(\mu_4\text{-}O)(\mu_4\text{-}OH)].H_2O$ compound (Tb/Eu = 9/1) monitored at λ_{em} = 547 nm (green) and λ_{em} = 616 nm (black) measured in solid state at room temperature; b) Emission spectra of the $[(Tb/Eu)_9(acac)_{16}(\mu_3\text{-}OH)_8(\mu_4\text{-}O)(\mu_4\text{-}OH)]$ H_2O (Tb/Eu = 9/1) compound performed at room temperature in solid state with the excitation at λ_{em} = 325 nm. Eu^{3+} and Tb^{3+} linked transitions are labelled in red and green, respectively.