

## SUPPLEMENTARY MATERIAL

# Towards the standardization of photothermal measurements of iron oxide nanoparticles in two biological windows.

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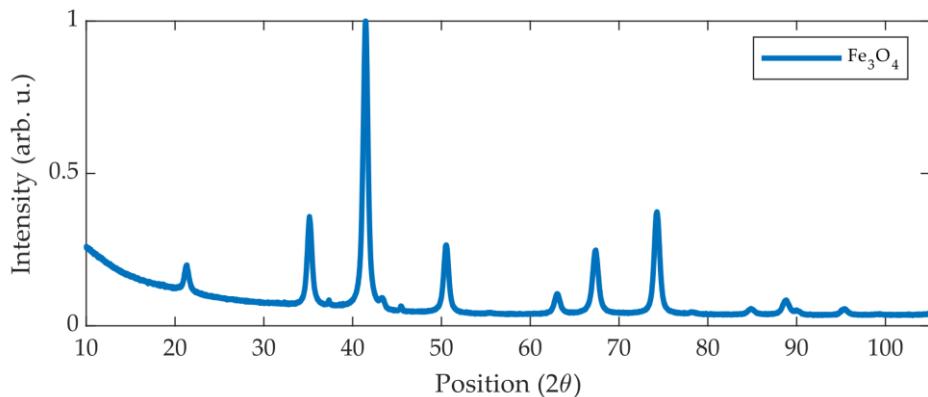
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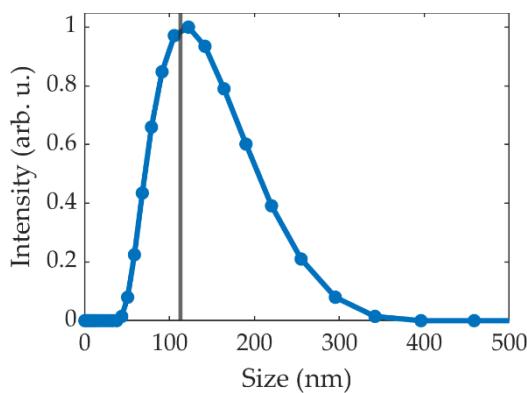
<sup>3</sup> Dpto. de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, Plaza de las Ciencias 1, 28040 Madrid, Spain; pmpresa@fis.ucm.es

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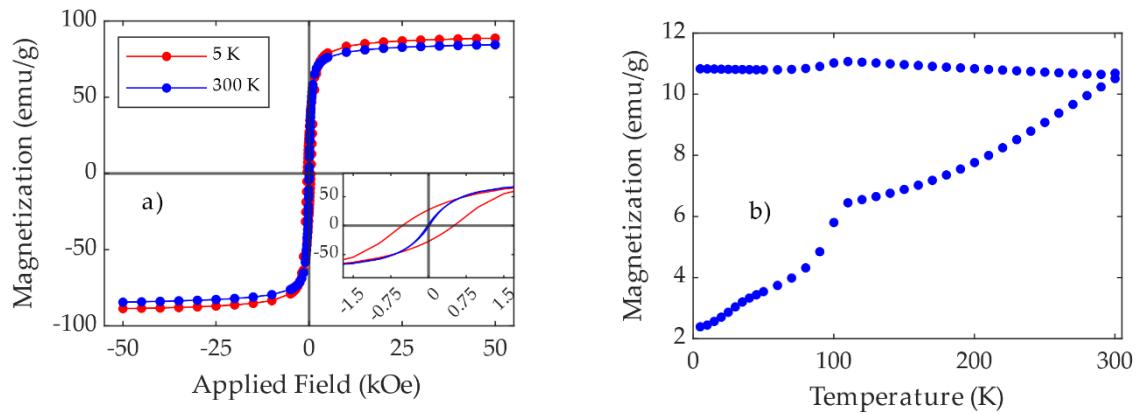
### 1. Structural and magnetic characterization



**Figure S1.** XRD diffractometer pattern of  $\text{Fe}_3\text{O}_4$ .

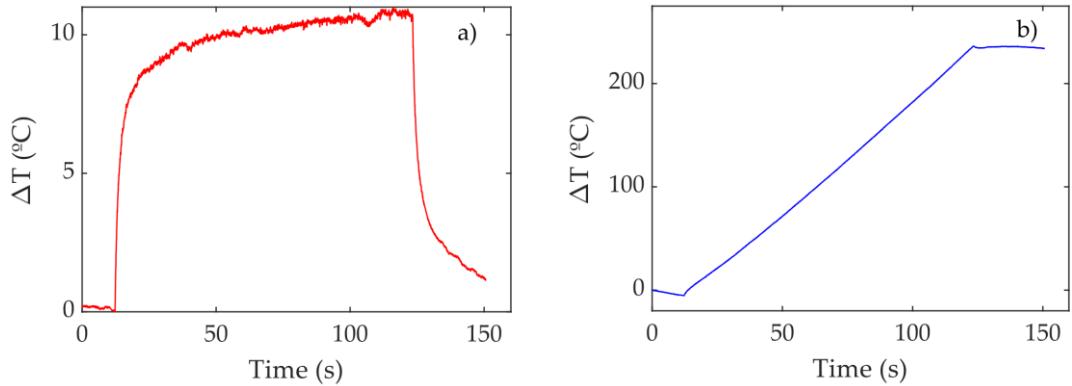


**Figure S2.** Hydrodynamic size of the colloidal nanoparticle. The black line indicate the mean hydrodynamic size.

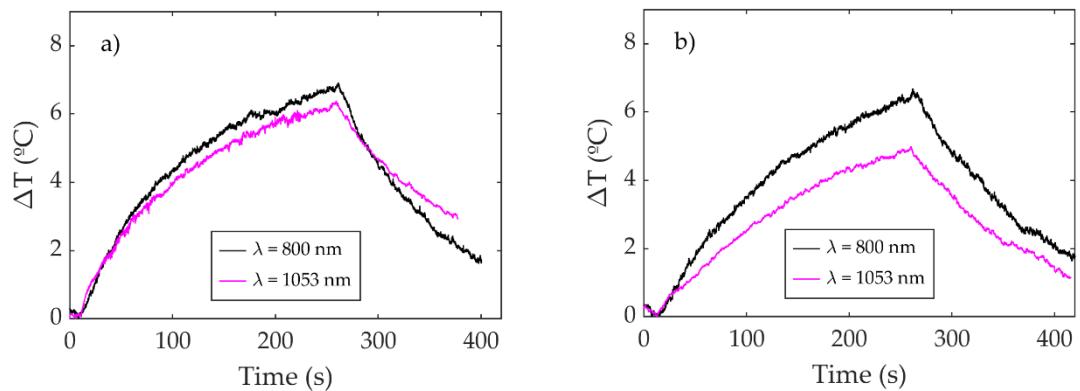


**Figure S3.** a) Hysteresis loop of  $\text{Fe}_3\text{O}_4$  at 5 K (red) and 300 K (blue). b) ZFC-FC curves of  $\text{Fe}_3\text{O}_4$  at 100 Oe.

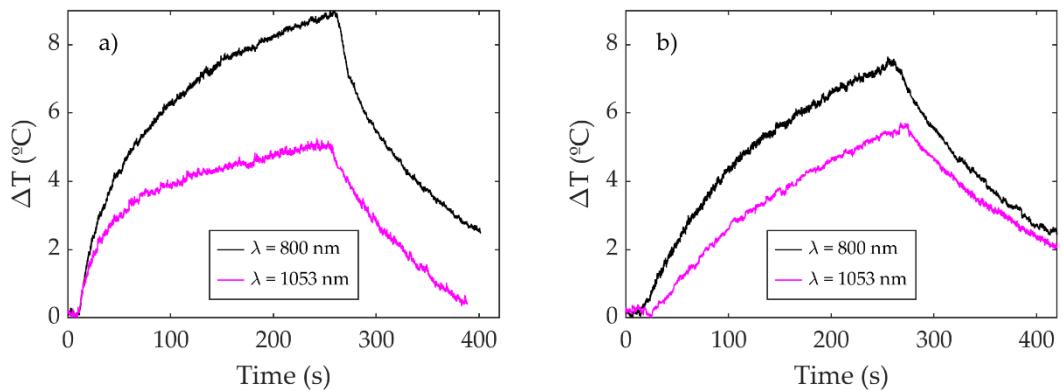
## 2. Photothermal characterization



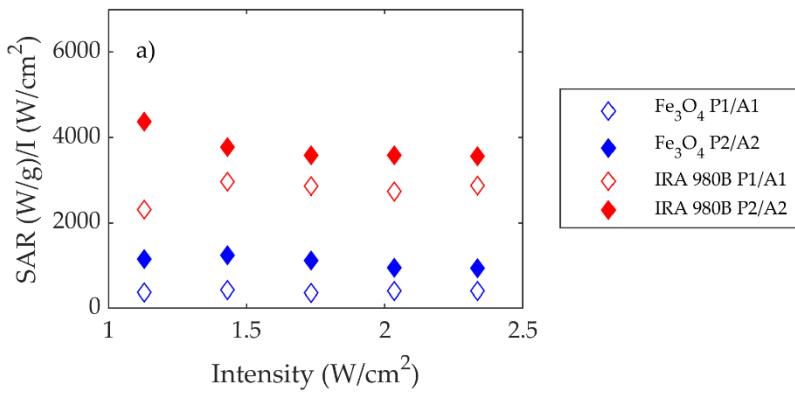
**Figure S4.** a) Typical thermal curve of a photothermal measure, b) The transformed graph where the linear behavior of  $\Delta T$  is observed.



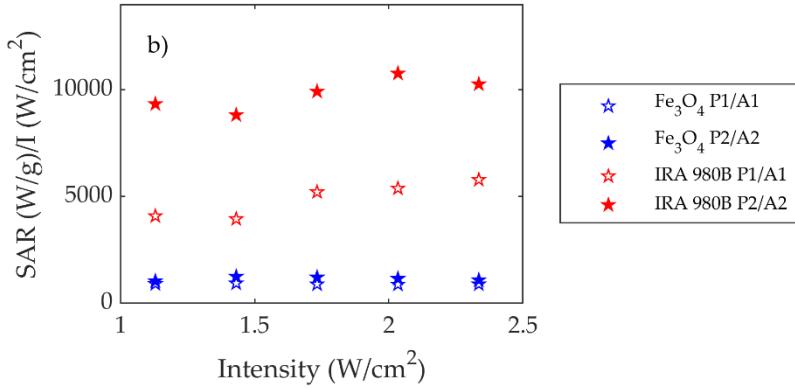
**Figure S5.** Heating curves for  $\text{Fe}_3\text{O}_4$  using Eppendorf tubes, irradiated a) from the top and b) from the side. Wavelengths used are 800 nm and 1053 nm,  $P = 50 \text{ mW}$ , spot size S2 and concentration 0.4 mg/mL.



**Figure S6.** Heating curves for IRA 980B using Eppendorf tubes, irradiated a) from above and b) from the side. Wavelengths used are 800 nm and 1053 nm,  $P = 50$  mW, spot size S2 and concentration 0.4 mg/mL.



**Figure S7.** SAR divided by intensity for  $\text{Fe}_3\text{O}_4$  and IRA 980B using laser at 800 nm and measured in a Teflon vessel.



**Figure S8.** SAR divided by intensity for  $\text{Fe}_3\text{O}_4$  and IRA 980B using laser at 1053 nm and measured in a Teflon vessel.