

*Supporting information for*

## **Increasing the size of $\text{Fe}_{3-\delta}\text{O}_4$ nanoparticles by performing a multistep seed-mediated growth approach**

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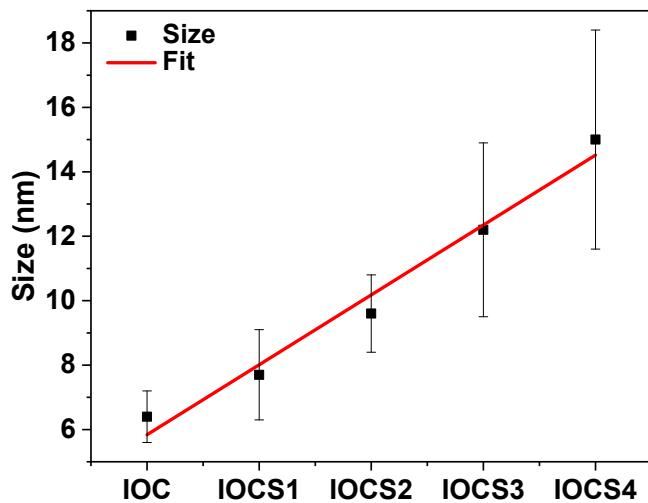
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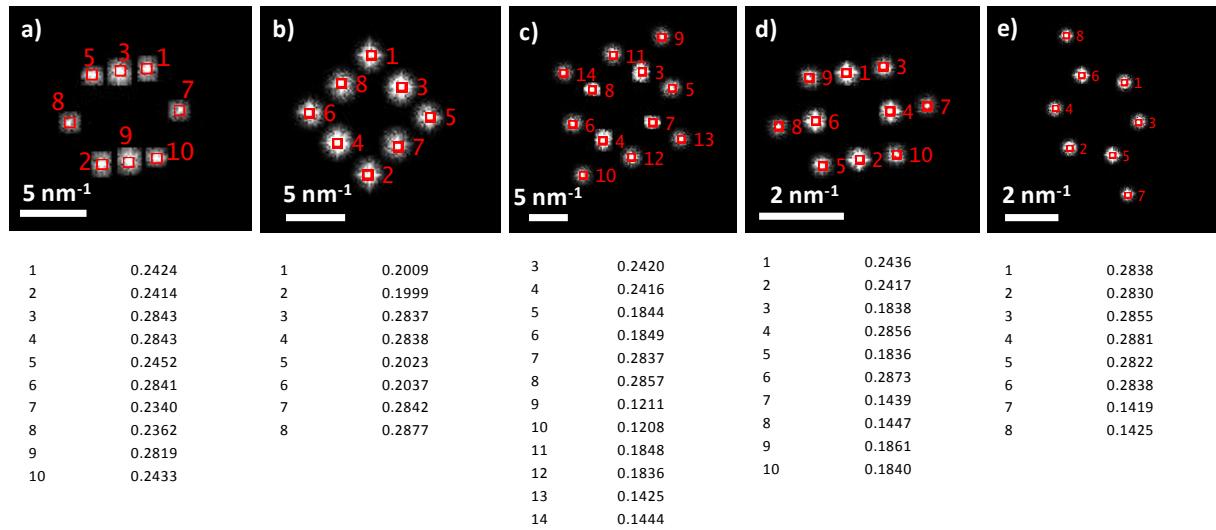
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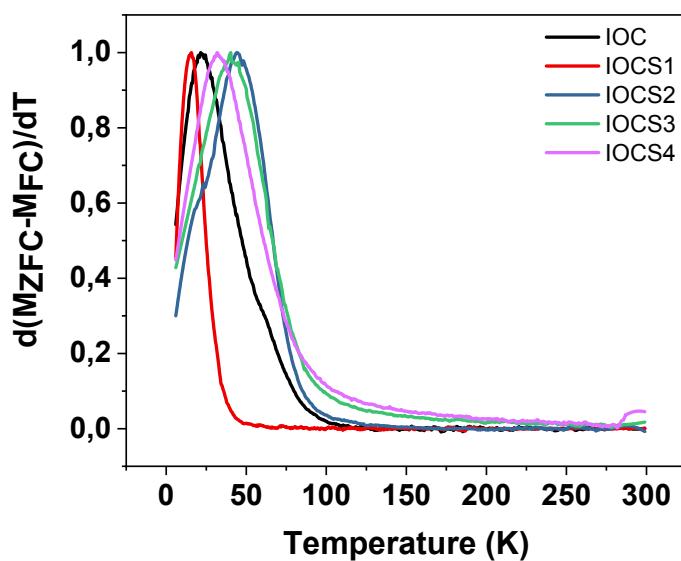
Tel : 0033 (0)3 88 10 71 33, Fax : 0033 (0)3 88 10 72 47



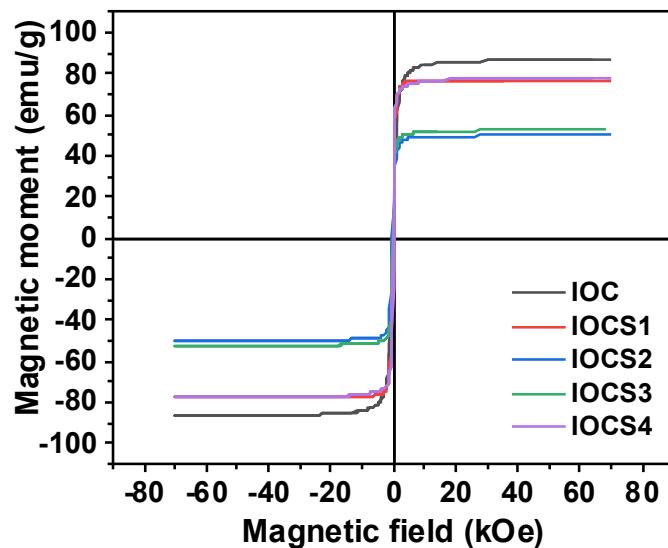
**Figure S1.** Evolution of the nanoparticle diameter as a function of the number of layer.



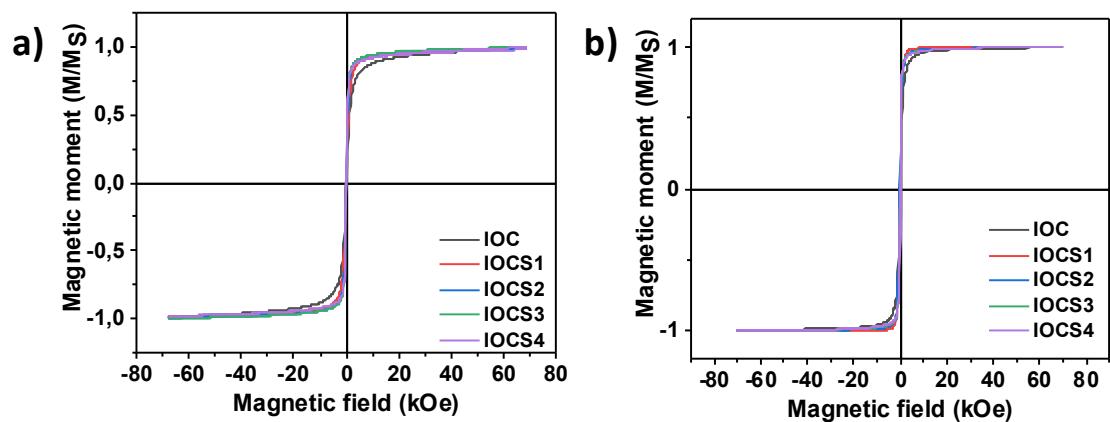
**Figure S2.** FFT corresponding to the zone of interest in TEM micrograph (red square in Figure 4) and calculated with a Bragg filter. Below each FFT pattern are listed numbered spots and the corresponding distance.



**Figure S3.**  $d(M_{ZFC} - M_{FC})/dT$  curve calculated for IOCS<sub>n</sub> nanoparticles.



**Figure S4.**  $M(H)$  curves recorded at 5 K and normalized to the mass of iron oxide nanoparticles determined from thermogravimetry analysis.



**Figure S5.** Full magnetic field dependent magnetization curves recorded at a) 300 K and b) 5 K.