SUPPLEMENTARY INFORMATION

Unravelling the onset of the exchange bias effect in Ni(core)@NiO(shell) nanoparticles embedded in a mesoporous carbon matrix

Natalia Rinaldi-Montes,*a Pedro Gorria,b David Martínez-Blanco,c Zakariae Amghouz,c Antonio B. Fuertes,d Luis Fernández Barquin,e Imanol de Pedro,e Luca Olivi,f and Jesús A. Blancoa

*a Departamento de Física, Universidad de Oviedo, E-33007 Oviedo, Spain.
b Departamento de Física & IUTA, EPI, Universidad de Oviedo, E-33203 Gijón, Spain.
c Servicios Científico-Técnicos, Universidad de Oviedo, E-33006 Oviedo, Spain.
d Instituto Nacional del Carbón (CSIC), E-33080 Oviedo, Spain.
e CITIMAC, Facultad de Ciencias, Universidad de Cantabria, E-39005 Santander, Spain.
f Elettra-Sincrotrone Trieste S.p.A., 34149 Basovizza, Trieste, Italy.

Corresponding author E-mail: nataliarin@gmail.com
1. Size distribution of the nanoparticles

Figure S1. (Color online) Histograms of the particle size distributions of the samples together with log-normal fits, providing mean NP diameters ($D_{\text{TEM}}$) and standard deviations ($\sigma$).
2. \( M(H) \) curves measured at \( T = 300 \text{ K} \)

Figure S2. (Color online) (Left) \( M(H) \) curves for samples T673, T773 and T873 (empty circles) measured at room temperature (\( T = 300 \text{ K} \)). Lines represent the best fit of the experimental data to a combination of the Langevin function and the lognormal size distribution.\(^6\) (Right) Enlarged views of the central part of the left \( M(H) \) curves.
Figure S3. (Color online) (Left) $M(H)$ curves for samples T1023 and T1173 (empty circles) measured at room temperature ($T = 300$ K), showing a small hysteresis loop. Lines provide guides for the eyes. (Right) Enlarged views of the central part of the left $M(H)$ curves.