

**Electronic Supplementary Information**

for:

**A plasma-assisted approach for the controlled dispersion of CuO aggregates into  $\beta$  iron(III) oxide matrices**

*G. Carraro,<sup>a</sup> A. Gasparotto,<sup>a</sup> C. Maccato,<sup>a</sup> E. Bontempi,<sup>b</sup> F. Bilo,<sup>b</sup>  
D. Peeters,<sup>a</sup> C. Sada,<sup>c</sup> and D. Barreca<sup>\*d</sup>*

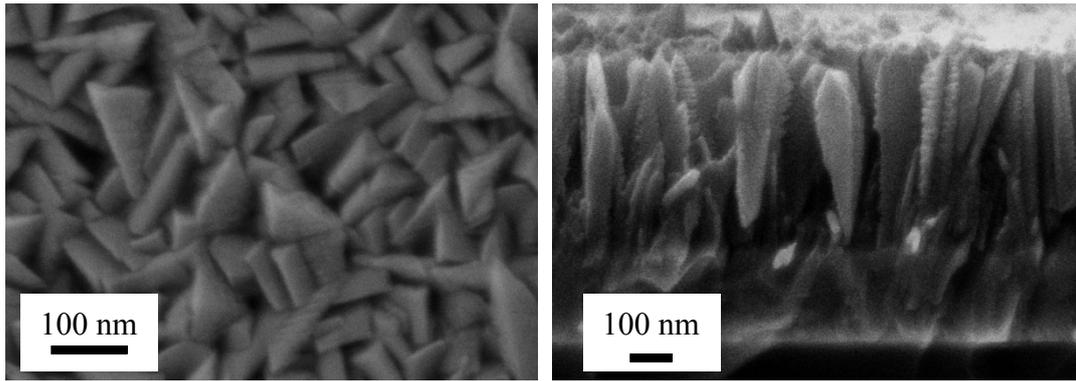
<sup>a</sup> *Department of Chemistry - Padova University and INSTM - 35131 Padova, Italy.*

<sup>b</sup> *Chemistry for Technologies Laboratory - Brescia University and INSTM - 25123 Brescia, Italy.*

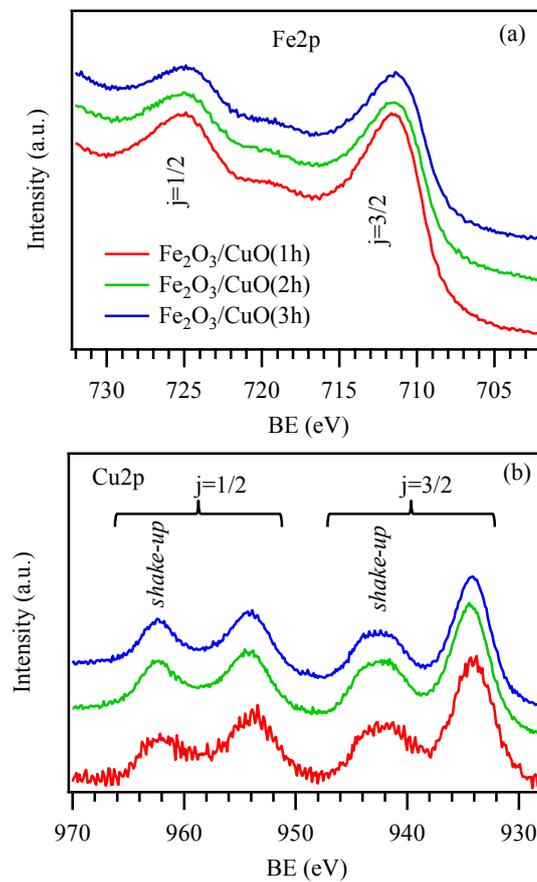
<sup>c</sup> *Department of Physics and Astronomy - Padova University, 35131 Padova, Italy.*

<sup>d</sup> *CNR-IENI and INSTM - Department of Chemistry - Padova University - 35131 Padova, Italy.*

\*Corresponding author: Tel: + 39 049 8275170; E-mail: [davide.barreca@unipd.it](mailto:davide.barreca@unipd.it) (D.B.).



**Figure S1.** Plane-view and cross-sectional FE-SEM micrographs of pure  $\beta$ - $\text{Fe}_2\text{O}_3$  nanosystems.



**Figure S2.** Core-level Fe2p (a) and Cu2p (b) surface peaks for  $\text{Fe}_2\text{O}_3/\text{CuO}$  nanocomposites with different Cu sputtering times.