Electronic Supplementary Information

Double Faced γ -Fe₂O₃||SiO₂ Nanohybrids: Flame Synthesis, in-situ Selective

Modification and Highly Interfacial Activity

Yunfeng Li, Yanjie Hu*, Hao Jiang, and Chunzhong Li*

Key Laboratory for Ultrafine Materials of Ministry of Education, School of Materials Science and

Engineering, East China University of Science and Technology, Shanghai, China.

*To whom correspondence should be addressed.

E-mail: czli@ecust.edu.cn (C. Z. Li) and huyanjie@ecust.edu.cn (Y. J. Hu)

Fax: +86 21 64250624; Tel: 86- 21- 6425- 0949;



Fig. S1 XRD patterns of flame made nanocomposites with different Fe/Si mole ratios.



Fig. S2 (a) EDS of black Fe_2O_3 region. (b) EDS of gray SiO_2 region (The inset shows the HR-TEM image of a typical double faced γ -Fe₂O₃||SiO₂ particle).



Fig. S3 TEM images of double faced γ -Fe₂O₃||SiO₂ NHs with the tailoring Fe/Si mole ratios: (a) 5:1; (b) 4:1; (c) 3:1; (d) 1:1.



Fig. S4 Digital graphic images of (a) MEMO modified double faced γ -Fe₂O₃||SiO₂ NHs dispersed in different solvent; (b) MEMO modified double faced γ -Fe₂O₃||SiO₂ NHs assembled at the interface of water/air or water/organic solvent; (c) magnetic manipulation of small volumes of water in a mixture

solvent (a density close to water) of toluene and chloroform (MEMO modified double faced γ -Fe₂O₃||SiO₂ NHs assembled at the interface between water and organic solvent).

Video S1 Mechanical properties (i) compression

Video S2 Mechanical properties (ii) elasticity

Video S3 Manipulation ability_transportation