Electronic Supplementary Information

Double Faced $\gamma$-$\text{Fe}_2\text{O}_3$$|$SiO$_2$ Nanohybrids: Flame Synthesis, in-situ Selective Modification and Highly Interfacial Activity

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

**Fig. S2** (a) EDS of black Fe$_2$O$_3$ region. (b) EDS of gray SiO$_2$ region (The inset shows the HR-TEM image of a typical double faced γ-Fe$_2$O$_3$||SiO$_2$ particle).
**Fig. S3** TEM images of double faced $\gamma$-Fe$_2$O$_3||$SiO$_2$ 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 $\gamma$-Fe$_2$O$_3||$SiO$_2$ NHs dispersed in different solvent; (b) MEMO modified double faced $\gamma$-Fe$_2$O$_3||$SiO$_2$ 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
$\gamma$-Fe$_2$O$_3$|$\text{SiO}_2$ 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