

Supplementary Information

Photocatalytic reduction and scavenging of Hg(II) over templated-dewetted Au on TiO₂ nanotubes

Davide Spanu^{a,b}, Alessandro Bestetti^a, Helga Hildebrand^b, Patrik Schmuki^{b,c}, Marco

Altomare^b and Sandro Recchia^{a,*}

^a Department of Science and High Technology, University of Insubria, via Valleggio 11,
22100 Como, Italy

^b Department of Materials Science and Engineering WW4-LKO, University of Erlangen-
Nuremberg, Martensstrasse 7, D-91058 Erlangen, Germany

^c Chemistry Department, Faculty of Sciences, King Abdulaziz University, 80203 Jeddah,
Saudi Arabia Kingdom

* Corresponding author. Email: sandro.recchia@uninsubria.it

Figures

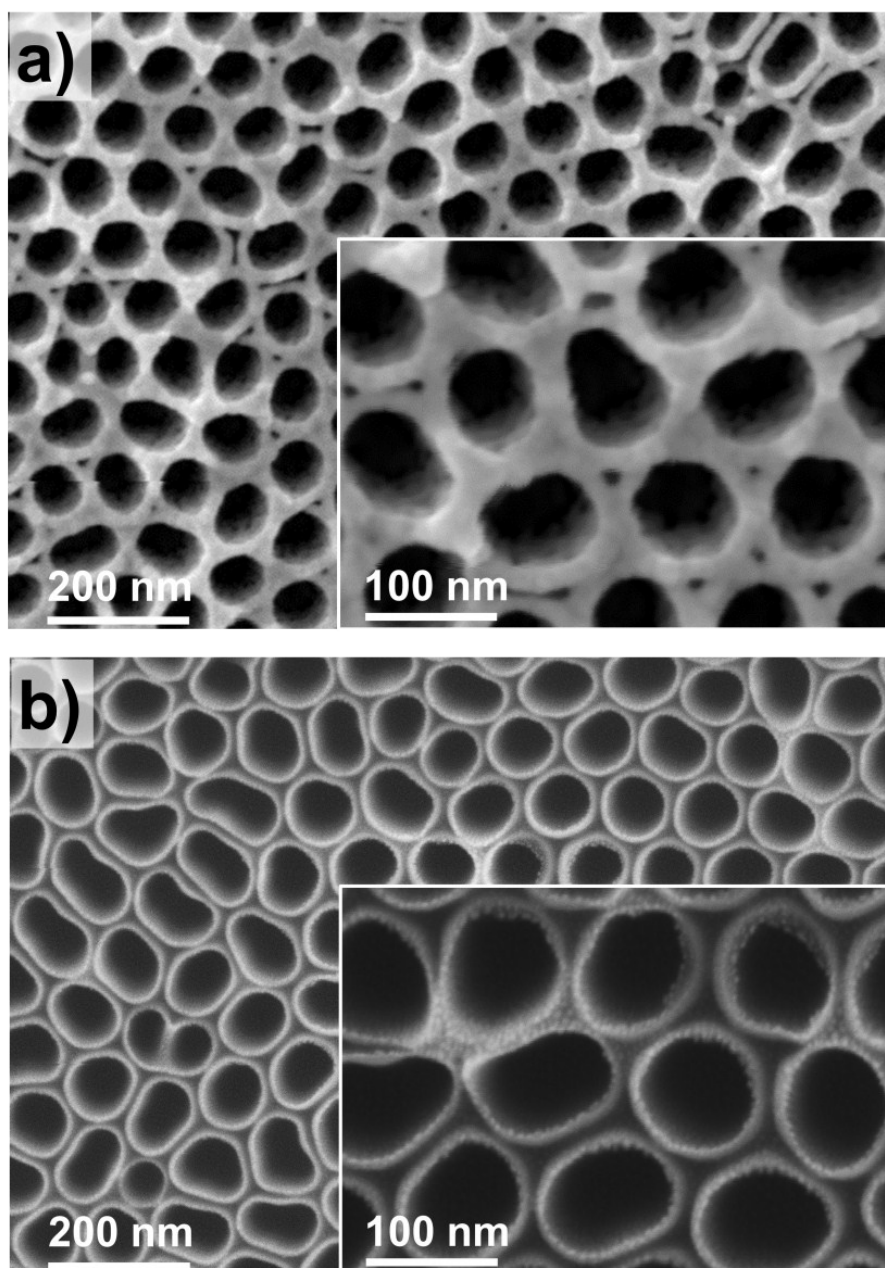


Fig. S1

(a) SEM top view of 20Au-TiO₂ nanotubes before dewetting. Inset: magnified top view; (b) top view of 1Au-TiO₂ nanotubes before dewetting. Inset: magnified top view.

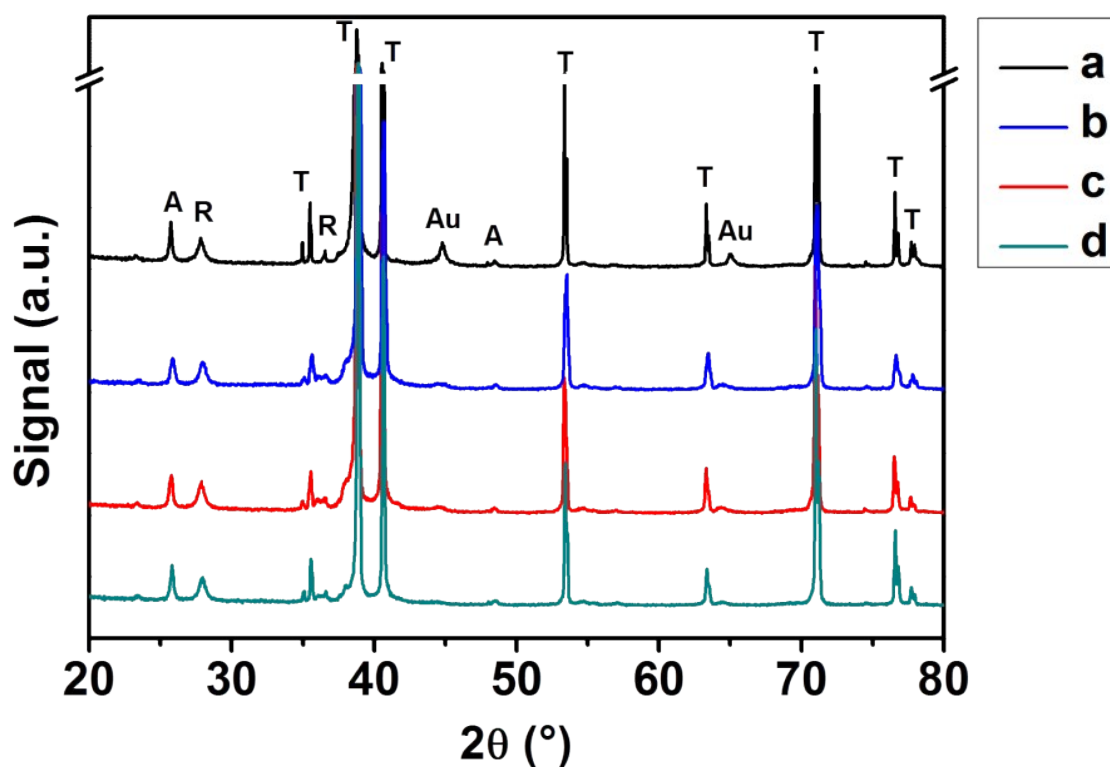


Fig. S2

XRD spectra of 20Au-TiO₂ (a) as prepared, (b) after photocatalytic reduction of 10 ppm of Hg(II) in the presence of chlorides, (c) the same material reported in (b) after PEC regeneration in KNO₃ and (d) after photocatalytic reduction of 10 ppm of Hg(II) in the absence of chlorides. The reflections in XRD spectra are assigned to anatase (A), rutile (R), gold (Au) and titanium (T).

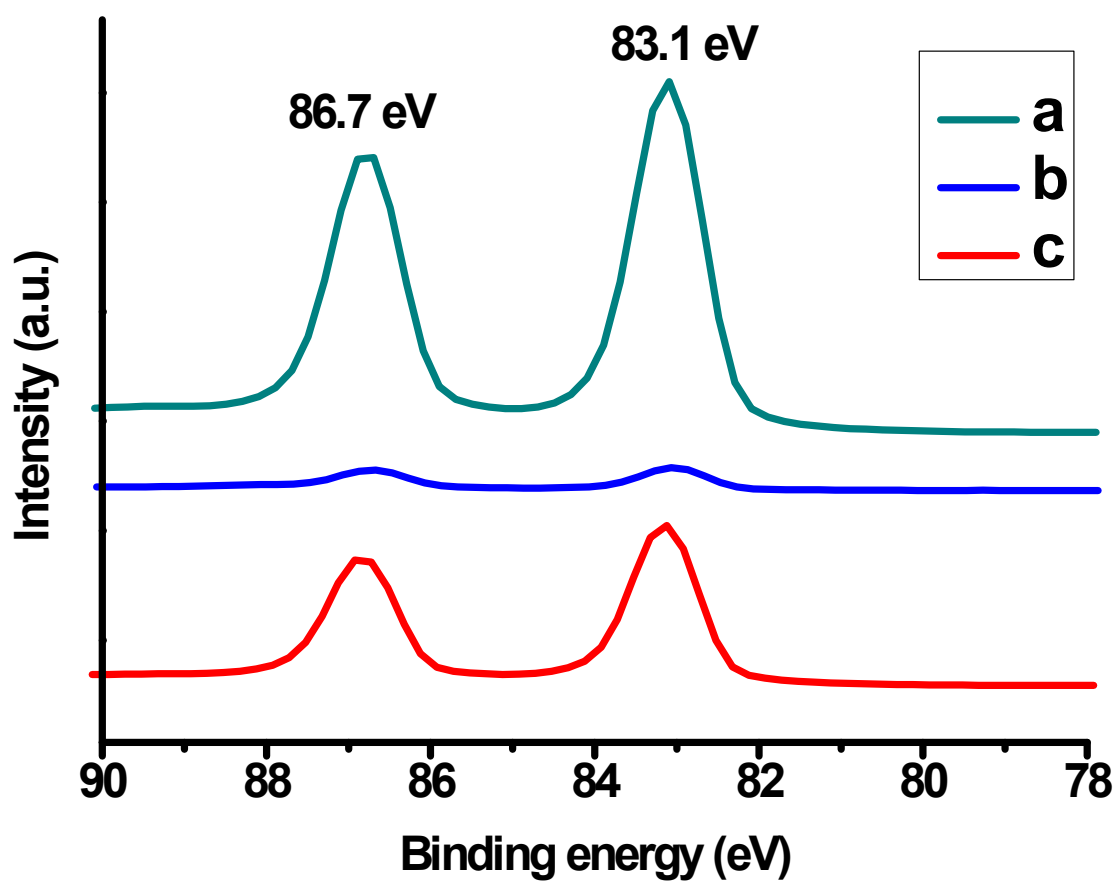


Fig. S3

Au4f XPS spectra of (a) 20Au-TiO₂ as prepared, (b) 20Au-TiO₂ after photocatalytic reduction of 10 ppm of Hg(II) in the presence of chlorides, (c) 20Au-TiO₂ after photocatalytic reduction of 10 ppm of Hg(II) in the absence of chlorides.

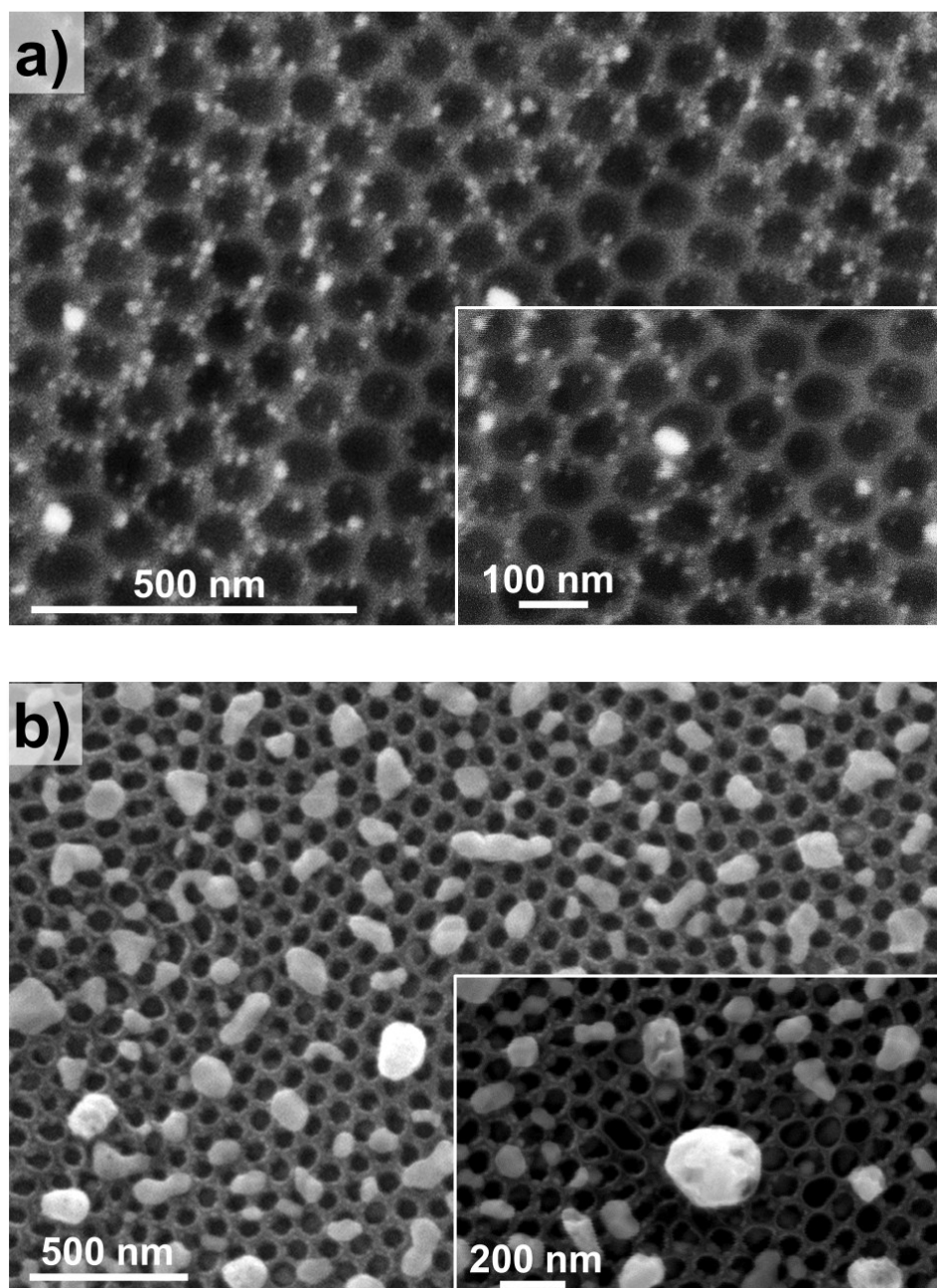


Fig. S4

(a) Backscattering SEM image of 1Au-TiO₂ after photocatalytic reduction of 10 ppm of Hg(II) in the presence of chlorides. Inset: magnified image. (b) SEM top view of 20Au-TiO₂ nanotubes after photocatalytic reduction of 500 ppb of Hg(II) in the presence of chlorides. Inset: magnified image.