

## Supplementary Information for

### Anisotropic Growth of SiO<sub>2</sub> and TiO<sub>2</sub> Mixed Oxides onto Au Nanostructures: Highly Thermal Stability and Enhanced Reaction Activity

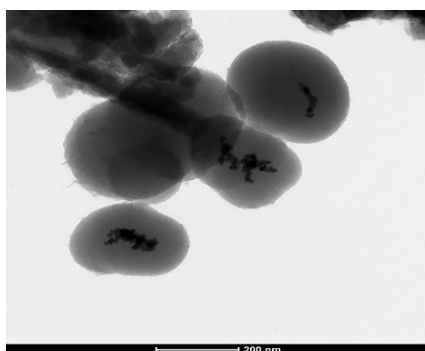


Fig. S1 TEM image of Au@SiO<sub>2</sub> particles without further addition of sodium citrate.

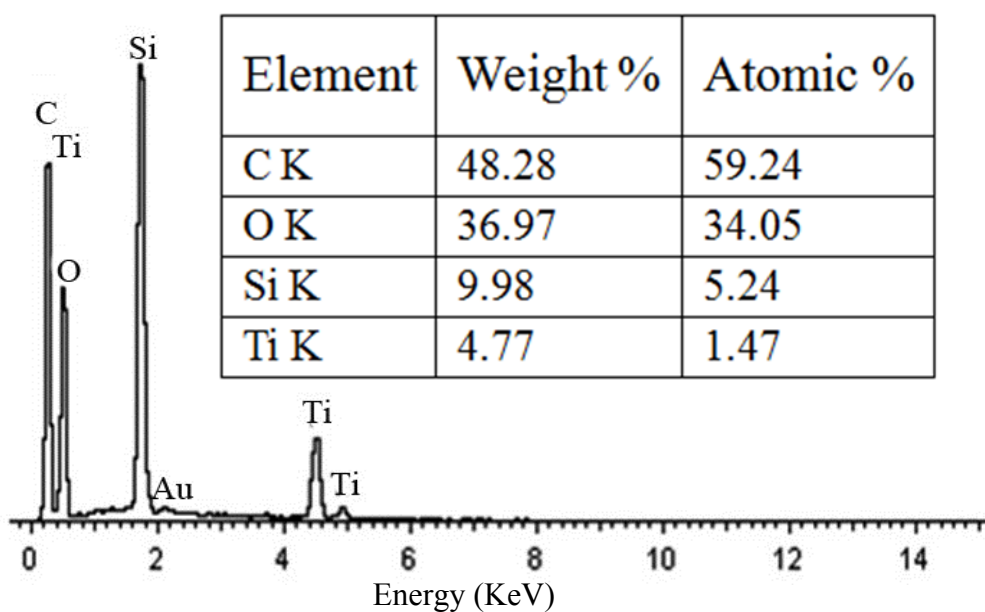


Fig. S2 EDS profile of the Au@(SiO<sub>2</sub>,TiO<sub>2</sub>) particles getting from SEM and the corresponding element content of the particle (inset). (The excessive content of C and O elements should be attributed to the substrate used in the SEM measurement)

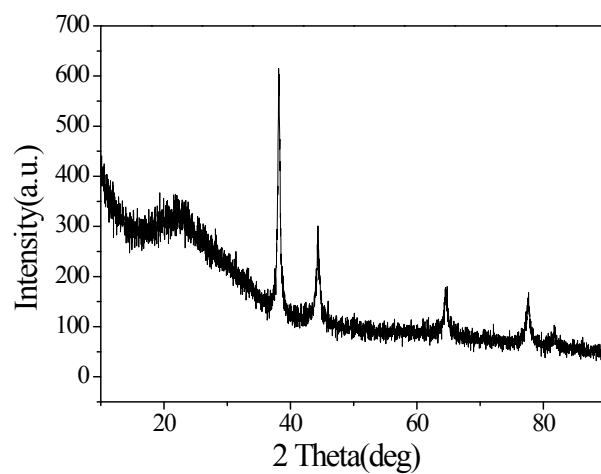


Fig. S3 XRD pattern of the calined Au@(SiO<sub>2</sub>,TiO<sub>2</sub>) at 550 °C

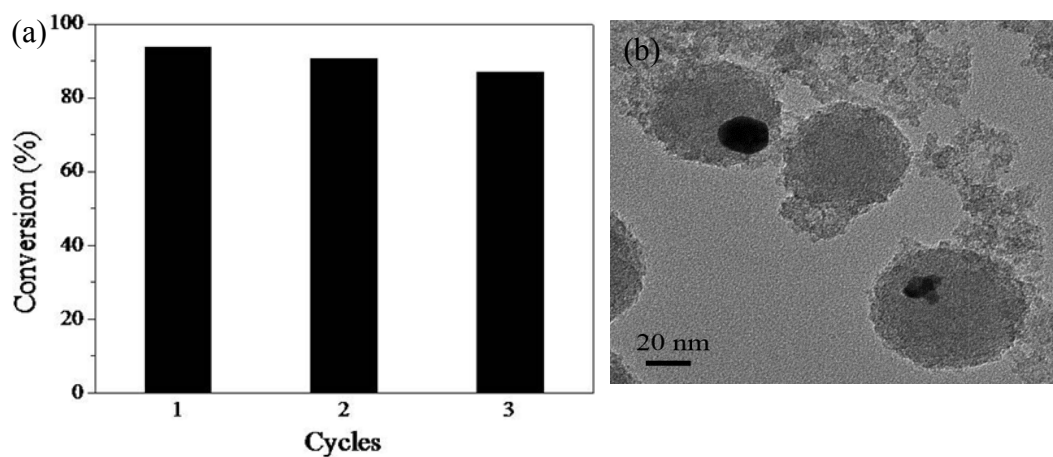


Fig.S4 (a) Conversion of 4-NP in 3 successive cycles of reduction with the Au@(SiO<sub>2</sub>,TiO<sub>2</sub>), and (b) TEM images of the used Au-S20@(SiO<sub>2</sub>, TiO<sub>2</sub>) catalyst