

Inorganic Chemistry in a Nanoreactor: Au-TiO₂ Nanocomposites by Photolysis of a Single-Source Precursor in Miniemulsion.

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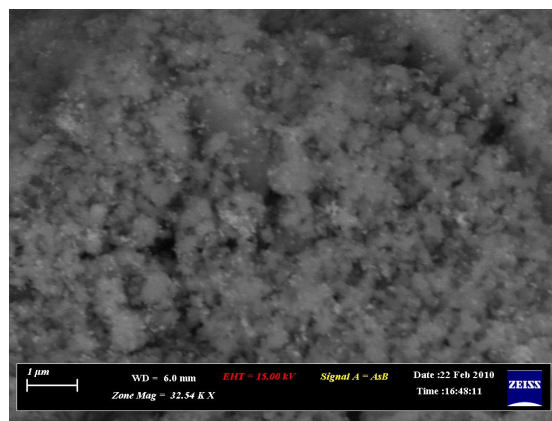
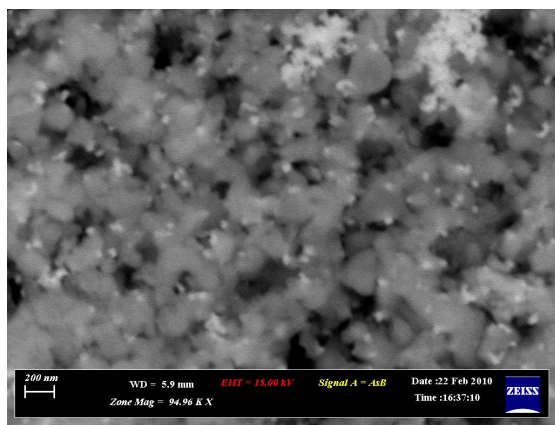
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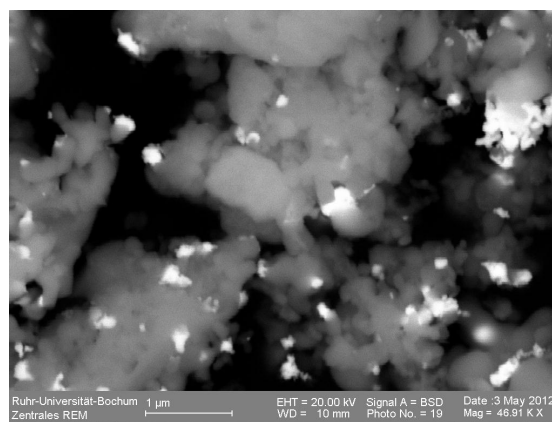
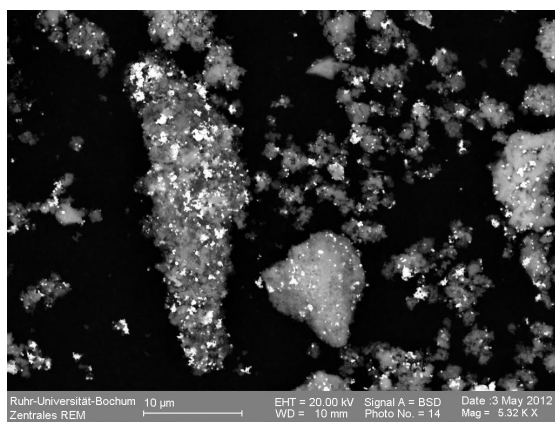
- SEM images of **SDS-4**, **SDS-8**, **T100-4** and **T100-8**
- XPS data of $\text{AuCl}_4(\text{NH}_4)_7[\text{Ti}_2(\text{O}_2)_2(\text{Hcit})(\text{cit})]_2$, **SDS-4**, **SDS-8**, **T100-4** and **T100-8**
- TEM, comment concerning the EDXS
- TGA of **SDS-4**
- XRD patterns of the catalyst samples
- Raman spectrum of $\text{AuCl}_4(\text{NH}_4)_7[\text{Ti}_2(\text{O}_2)_2(\text{Hcit})(\text{cit})]_2$

1. Scanning Electron Microscopy (SEM)

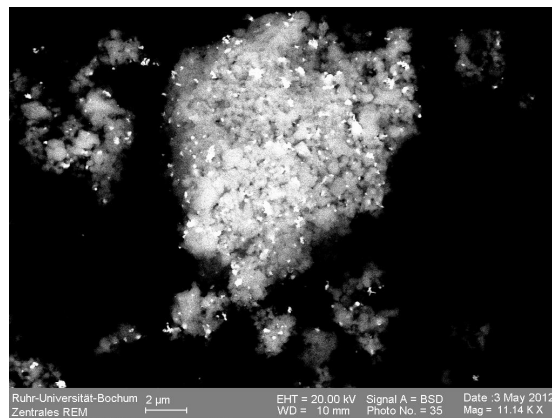
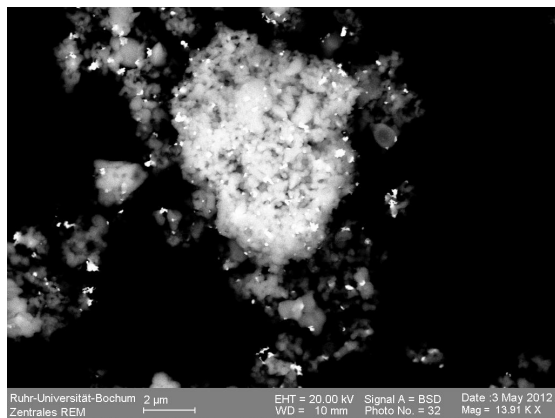
A



B



C



D

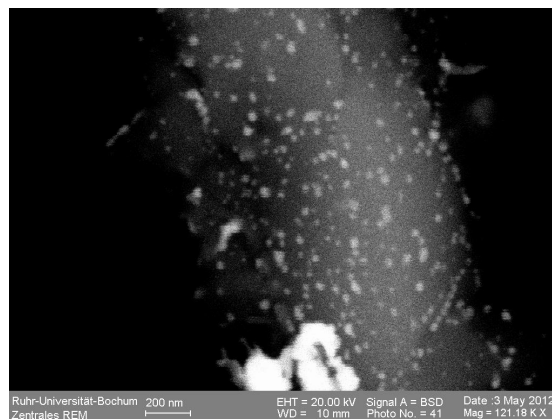
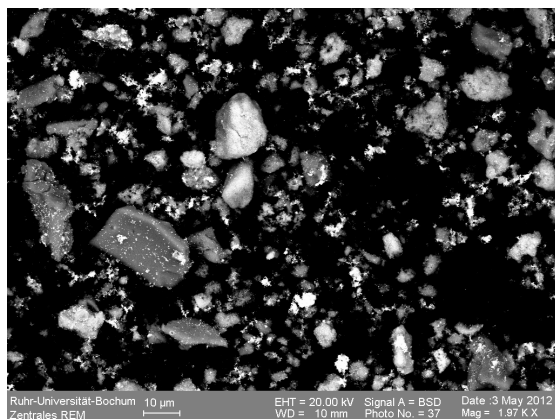


Fig. S-1- SEM micrographs of the Au-TiO₂ nanocomposites SDS-4 (A), SDS-8 (B), T100-4 (C) and T100-8 (D).

2. X-ray Photoelectron Spectroscopy (XPS) data

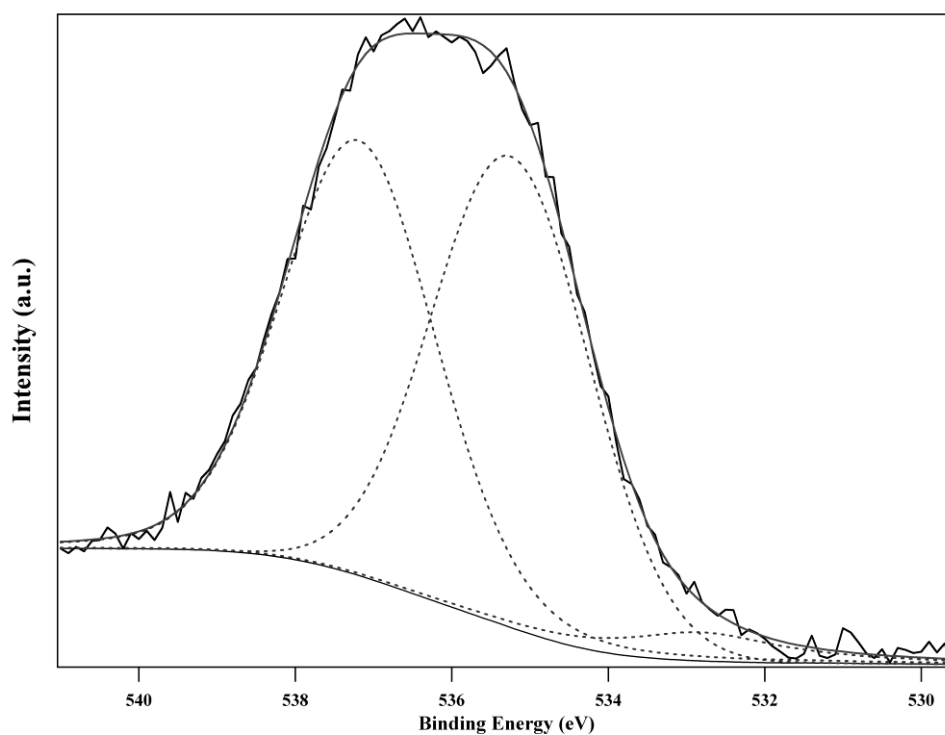


Fig. S-2: Deconvolution of O1s region of $\text{AuCl}_4(\text{NH}_4)_7[\text{Ti}_2(\text{O}_2)_2(\text{Hcit})(\text{cit})]_2$, not corrected for charging effects.

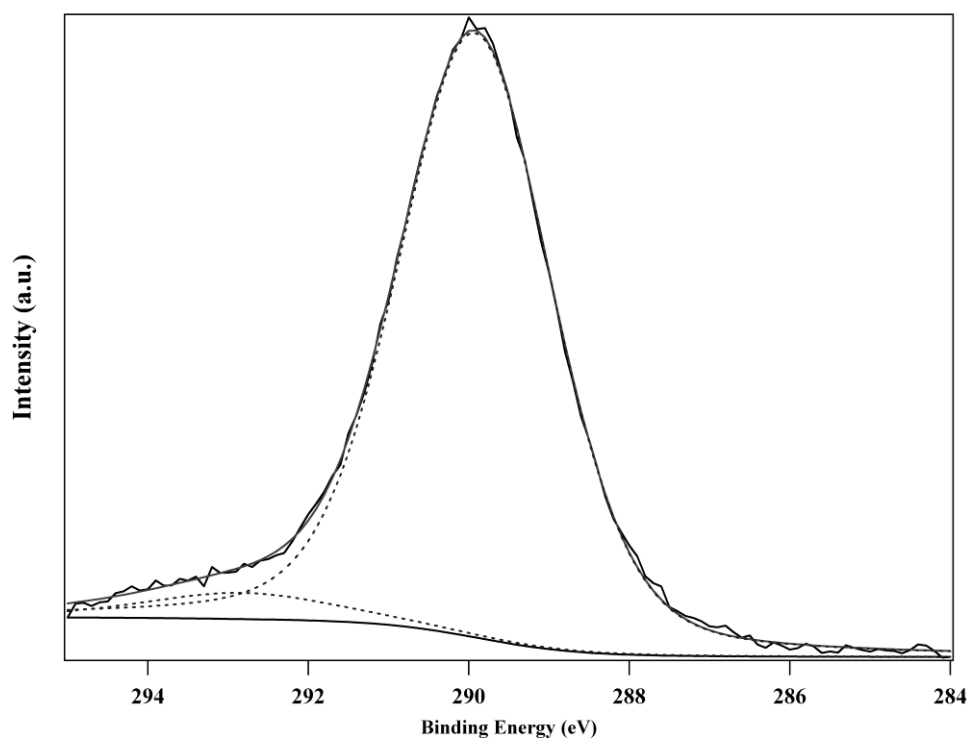


Fig. S-3: Deconvolution of C1s region of $\text{AuCl}_4(\text{NH}_4)_7[\text{Ti}_2(\text{O}_2)_2(\text{Hcit})(\text{cit})]_2$, not corrected for charging effects.

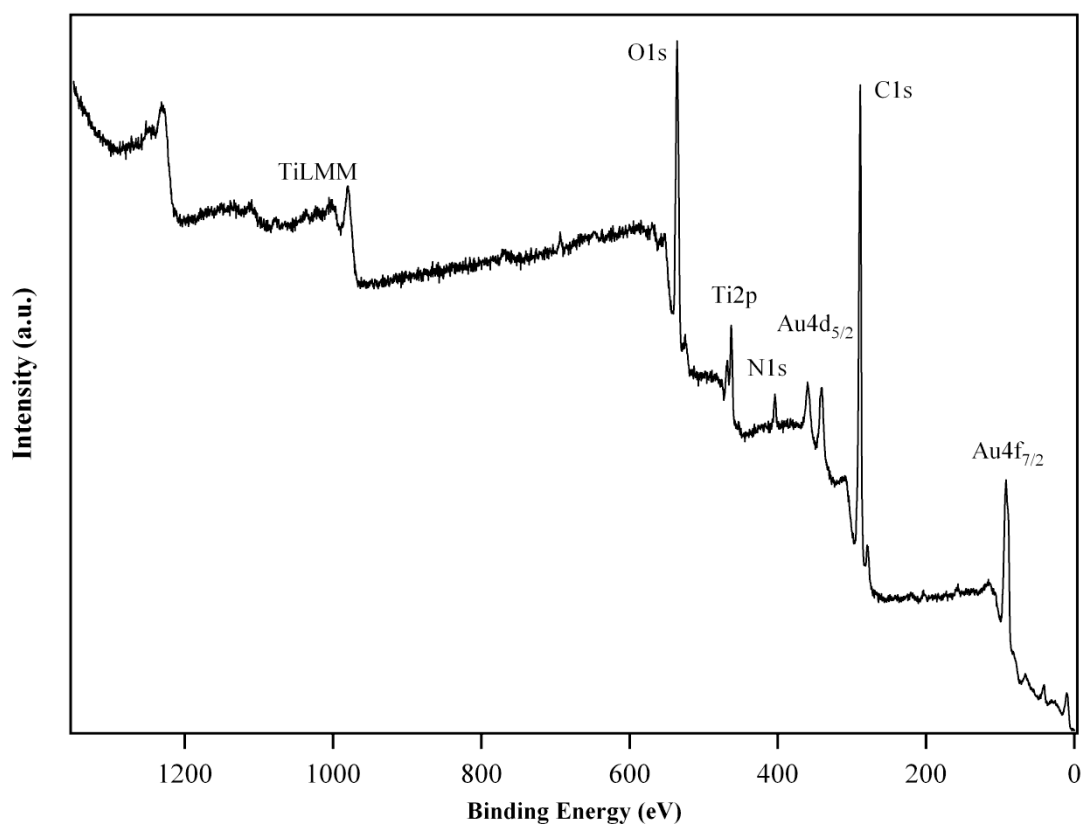


Fig. S-4 Survey spectrum of the Au/TiO₂-nanocomposite T100-4, not corrected for charging effects.

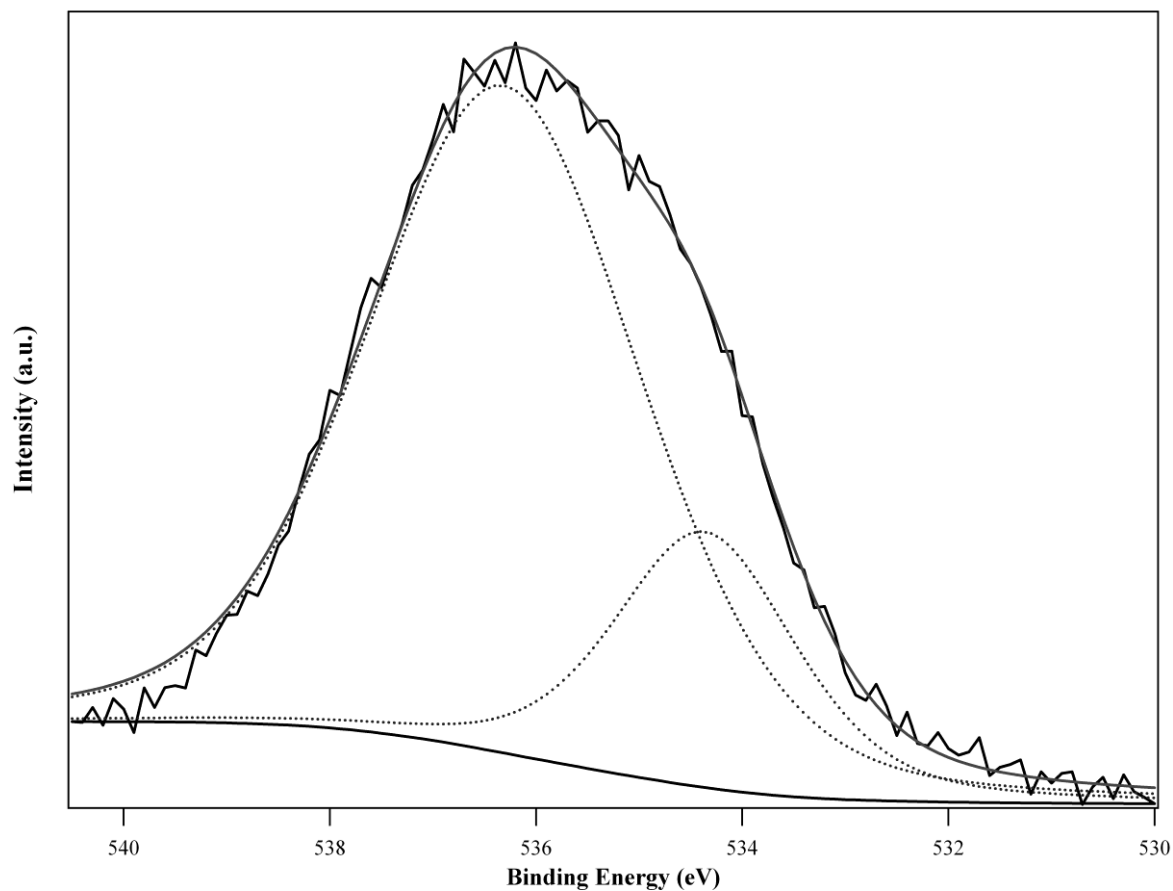


Fig. S-5 Deconvolution of O1s region of the Au/TiO₂-nanocomposite T100-4, not corrected for charging effects

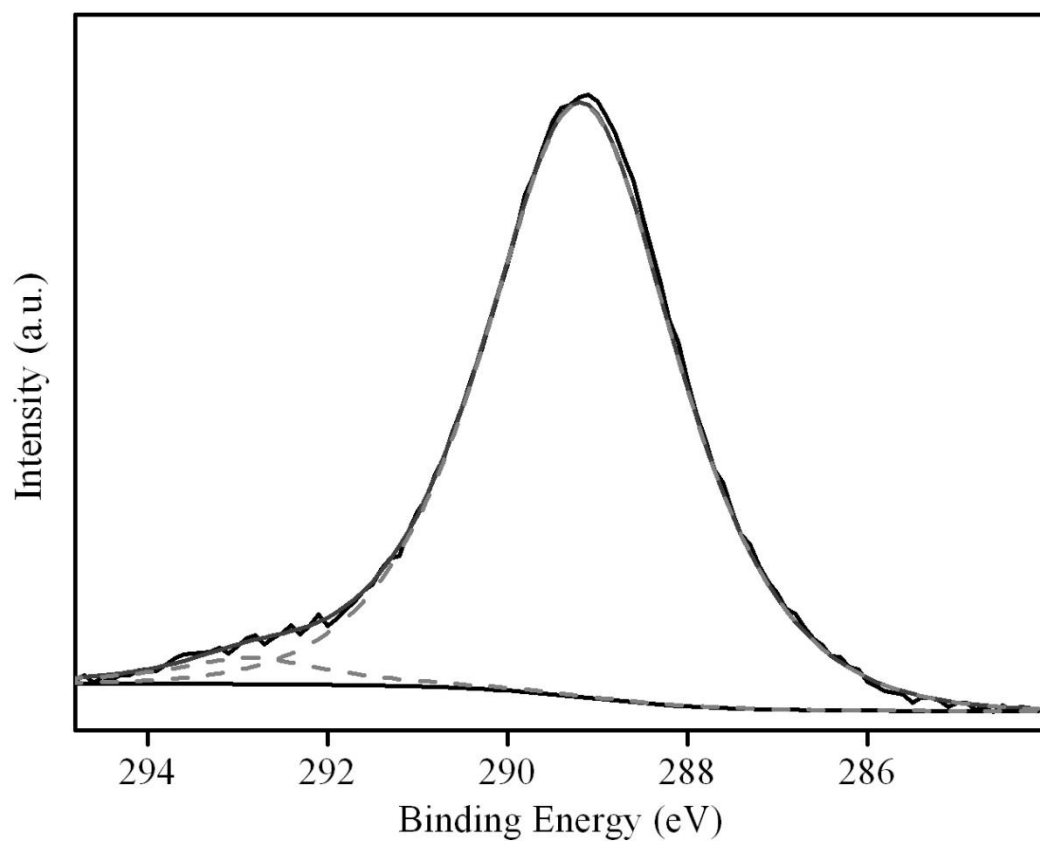


Fig. S-6 Deconvolution of C1s region of the Au/TiO₂-nanocomposite T100-4, not corrected for charging effects.

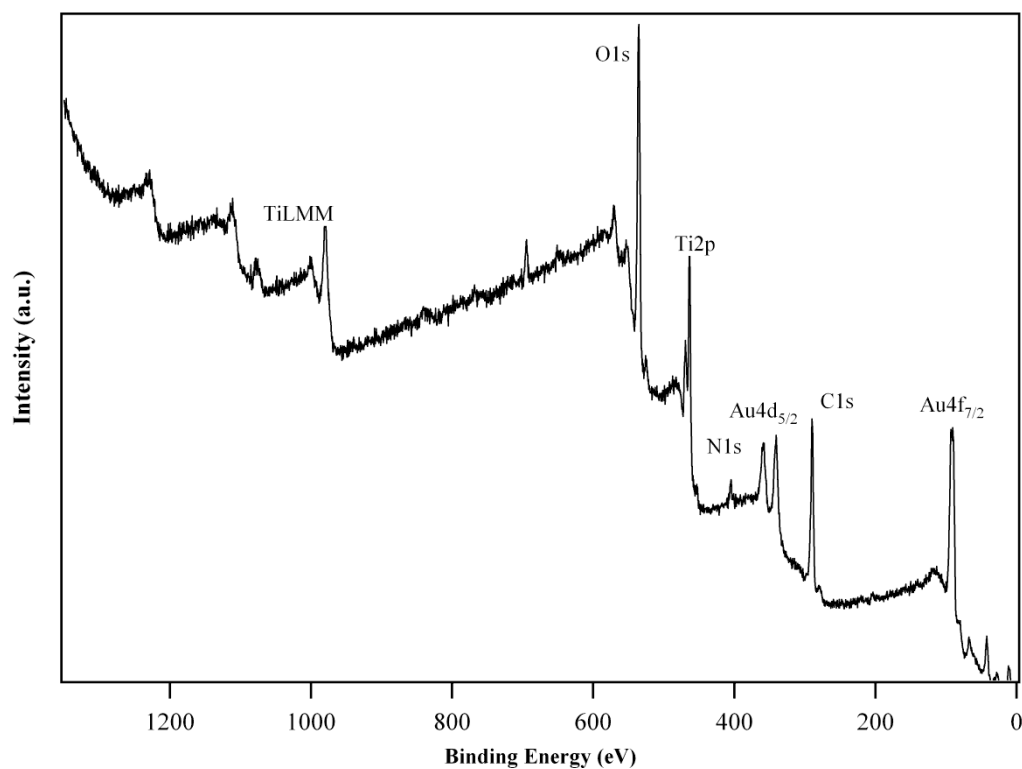


Fig. S-7 Survey spectrum of the Au/TiO₂-nanocomposite T100-8, not corrected for charging effects.

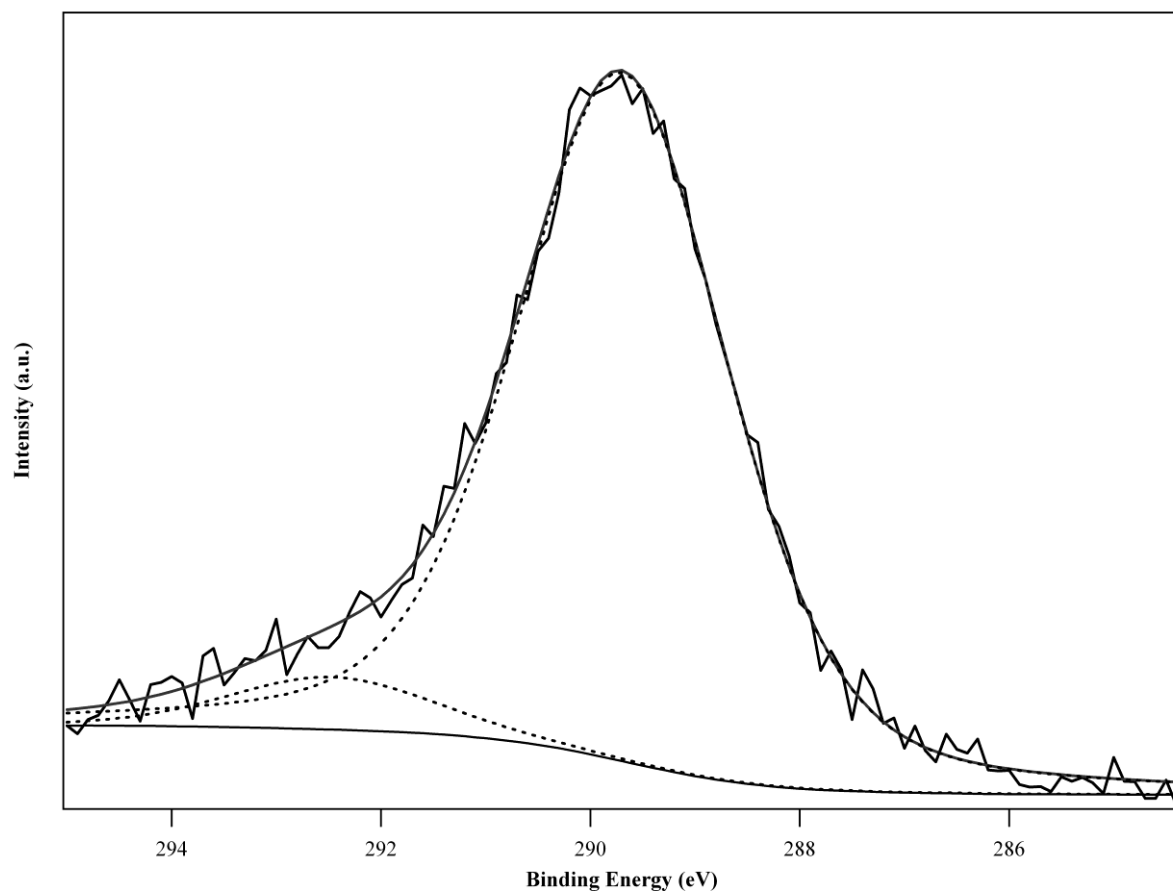


Fig. S-8 Deconvolution of C1s region of the Au/TiO₂-nanocomposite T100-8, not corrected for charging effects.

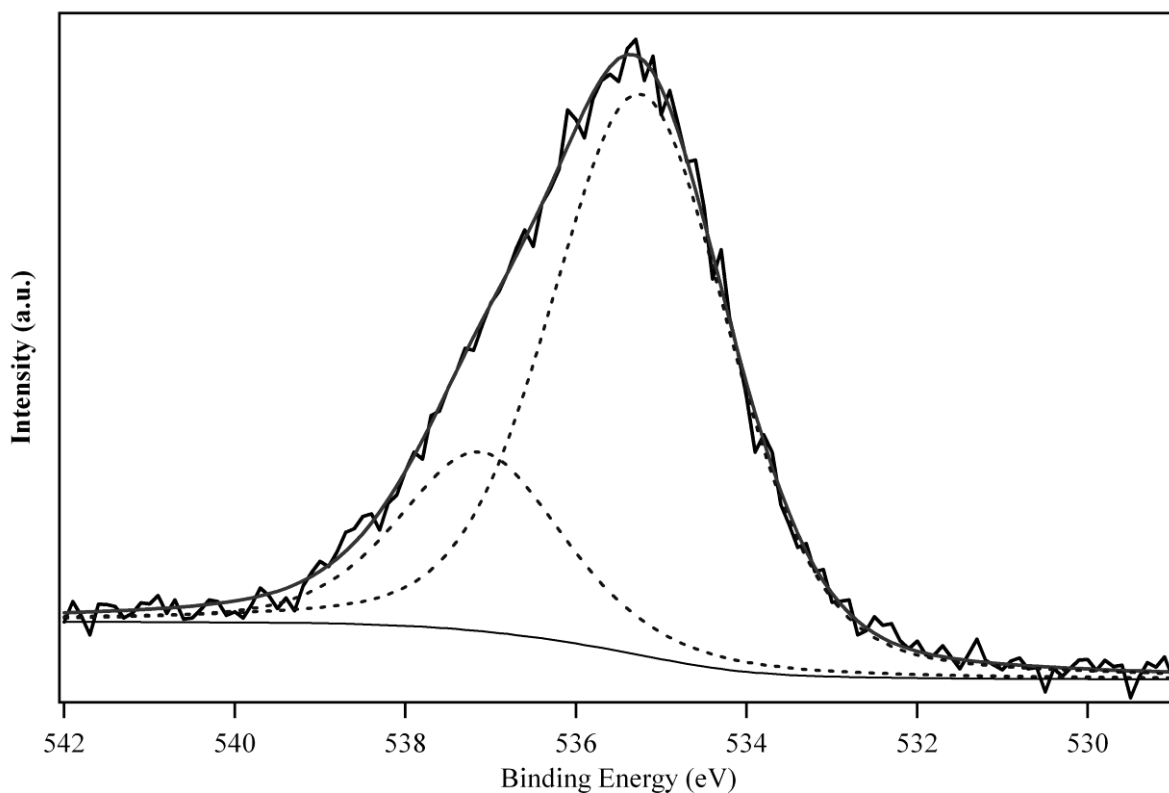


Fig. S-9 Deconvolution of O1s region of the Au/TiO₂-nanocomposite T100-8, not corrected for charging effects.

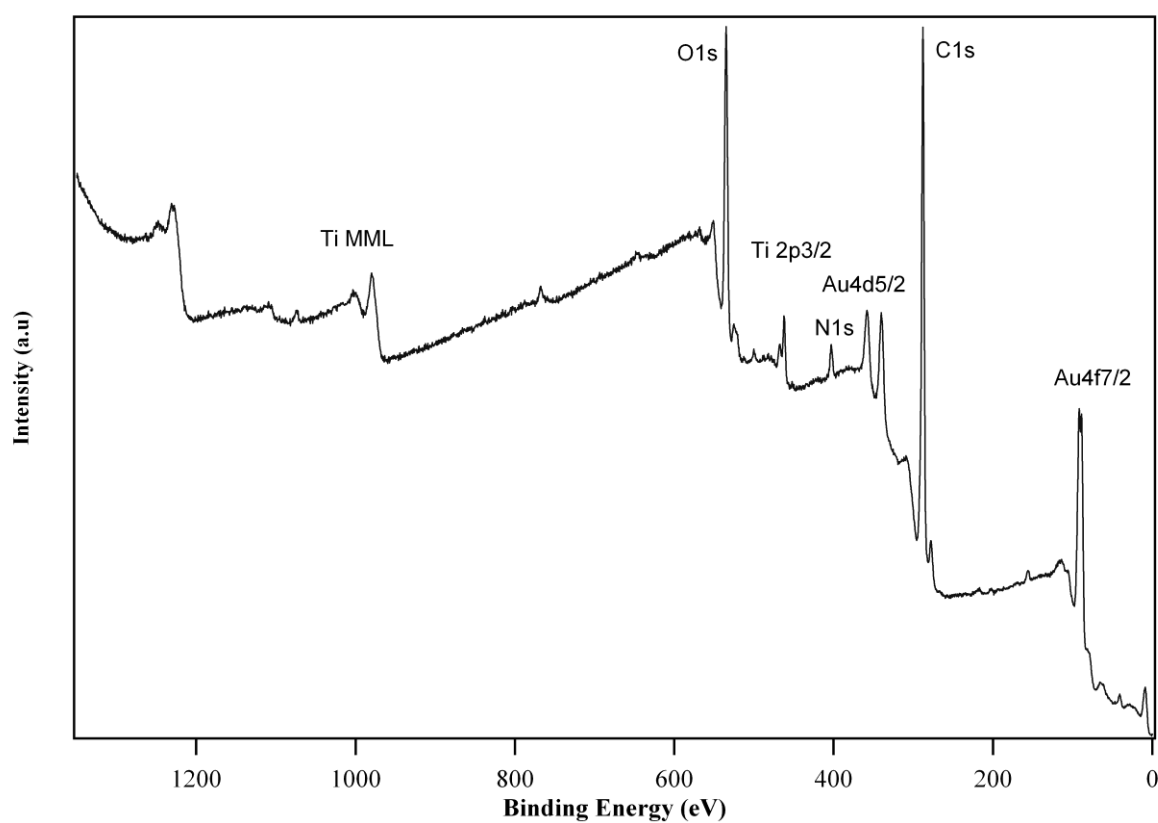


Fig. S-10 Survey spectrum of the Au/TiO₂-nanocomposite SDS-4, not corrected for charging effects

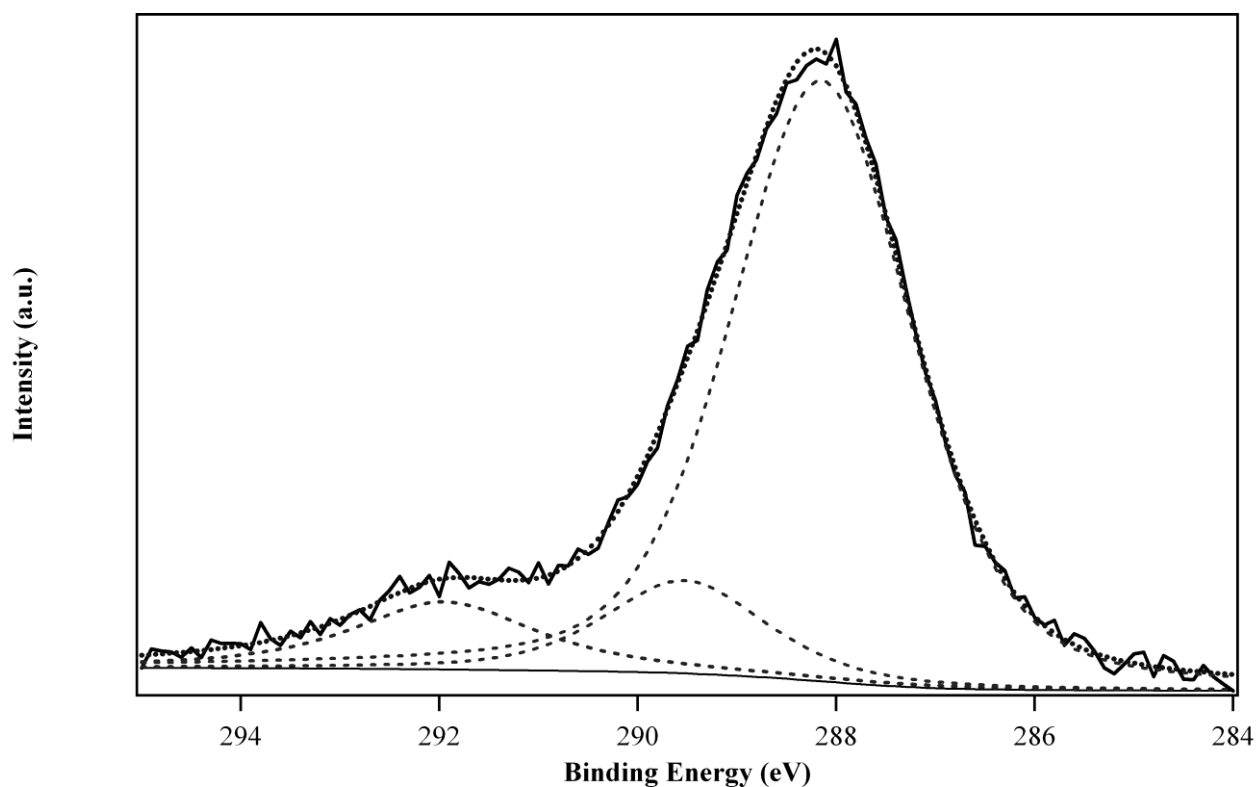


Fig. S-11 Deconvolution of C1s region of SDS-4, not corrected for charging effects

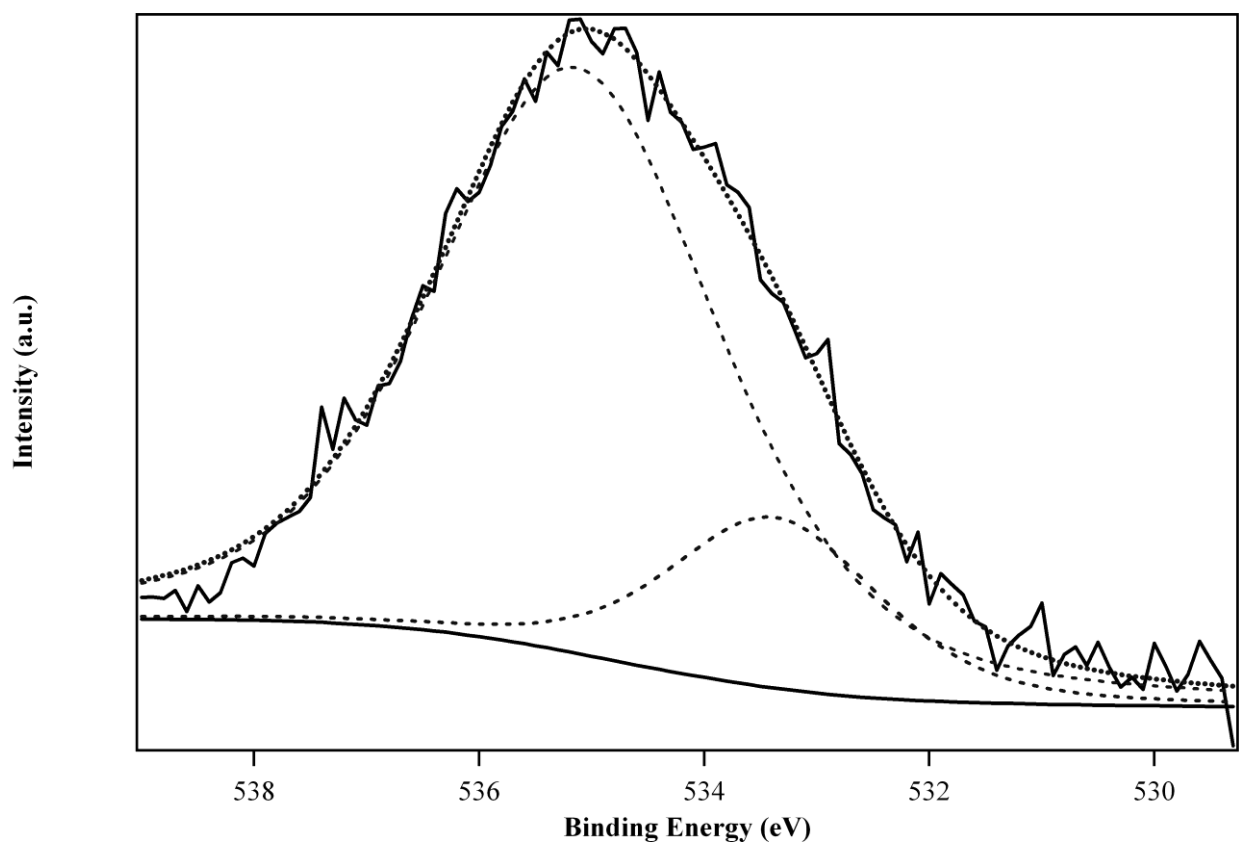


Fig. S-12 Deconvolution of O1s region of SDS-4, not corrected for charging effects

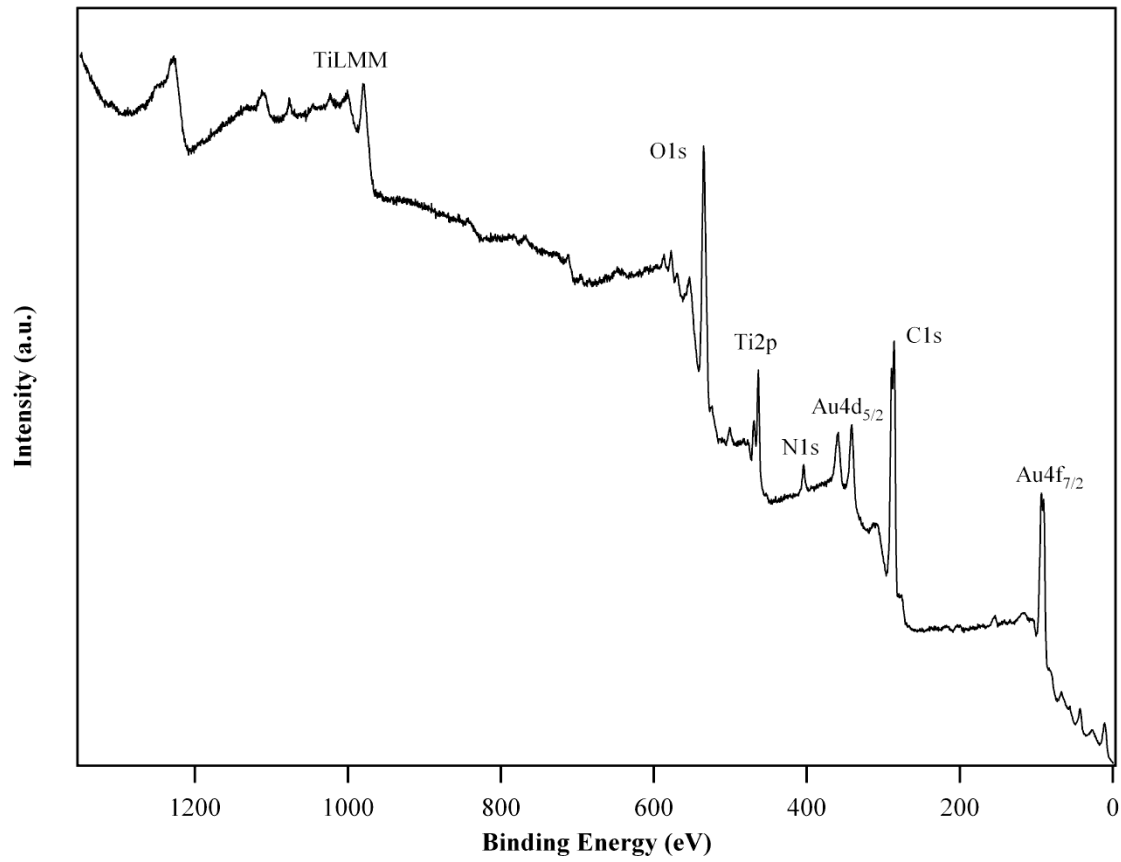


Fig. S-13 Survey spectrum of the Au/TiO₂-nanocomposite SDS-8, not corrected for charging effects

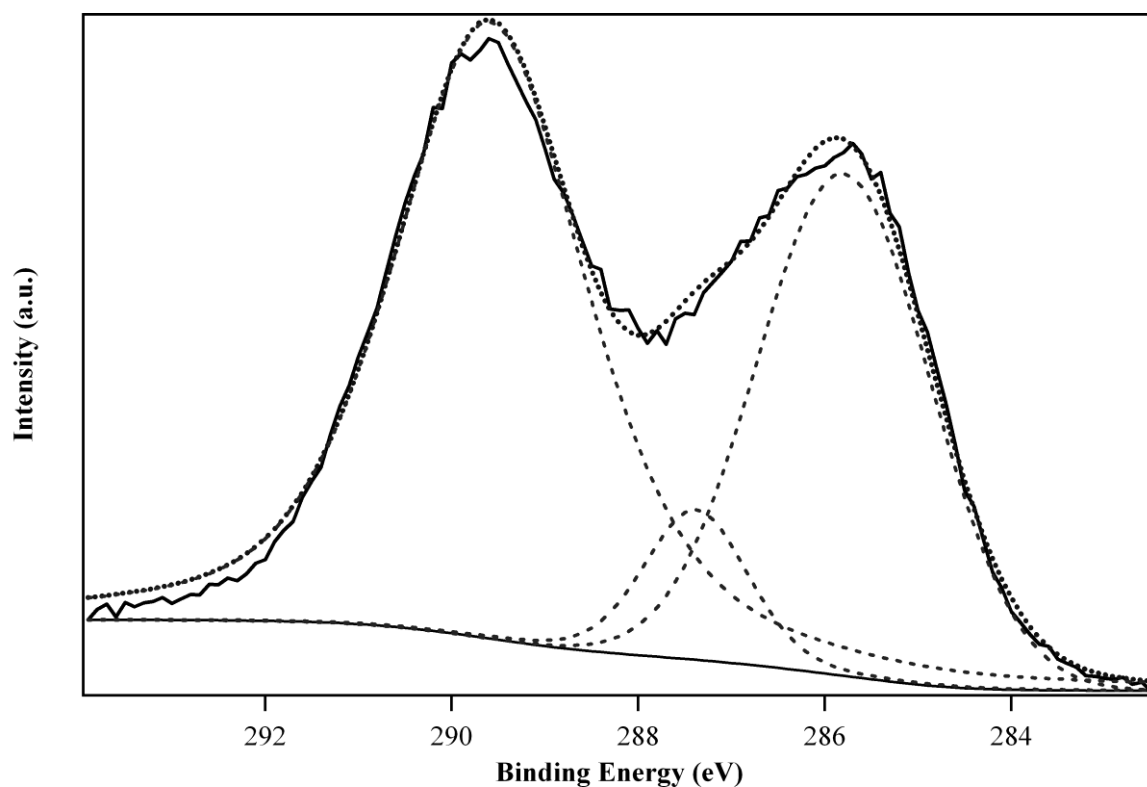


Fig.S-14 Deconvolution of C1s region of the Au/TiO₂-nanocomposite SDS-8, not corrected for charging effects

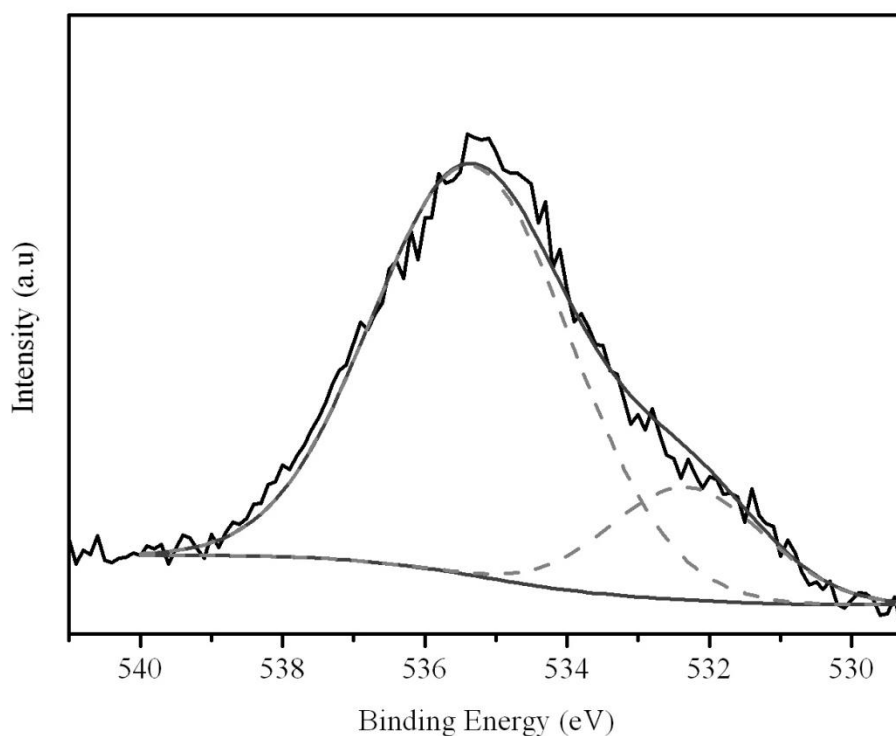


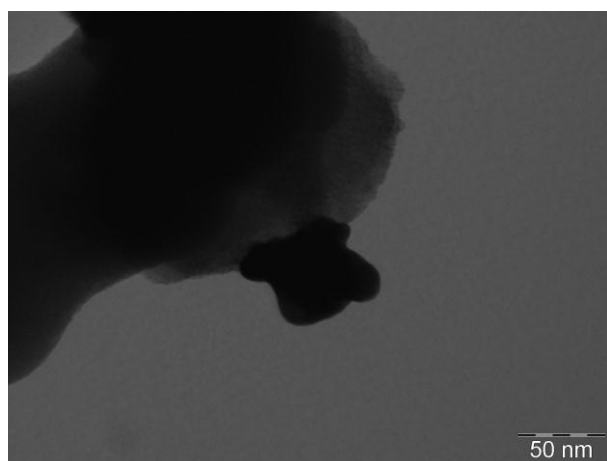
Fig. S-15 Deconvolution of O1s region of the Au/TiO₂-nanocomposite SDS-8, not corrected for charging effects

Table S-1: XPS Parameters and values derived from Ti2p and TiLMM regions

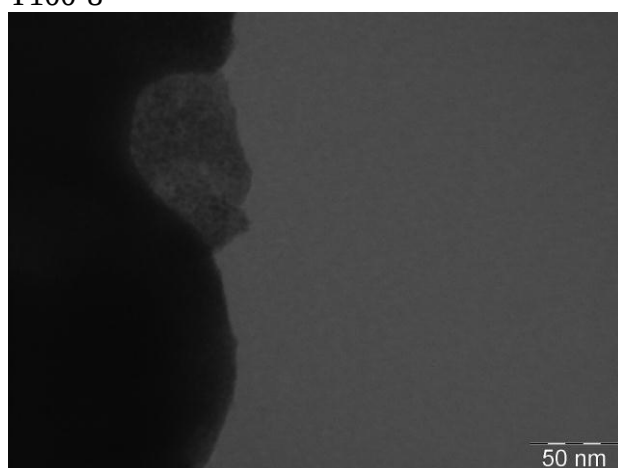
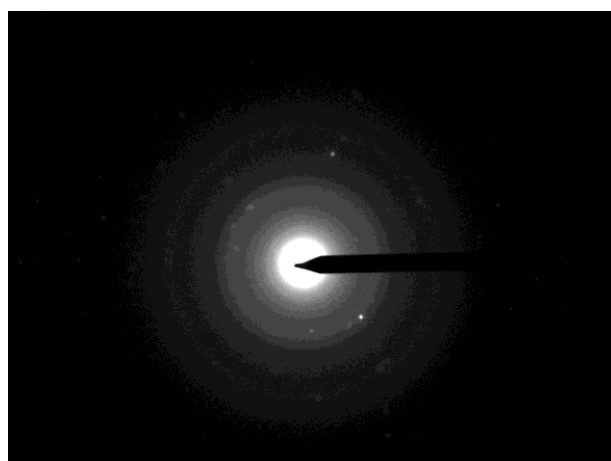
Sample	SDS-4	SDS-8	T100-4	T100-8
Auger parameter α' (eV)	875.15	873.9	872.95	872.85
Kinetic Energy (eV)	412.4	410.1	409.8	409.2
Binding Energy LMM (eV)	1074.2	1076.5	1076.8	1077.4
BE Ti 2p (eV)	459.2	461.1	460.2	458.6
Au/Ti	1.5	1	0.83	0.45

3. TEM

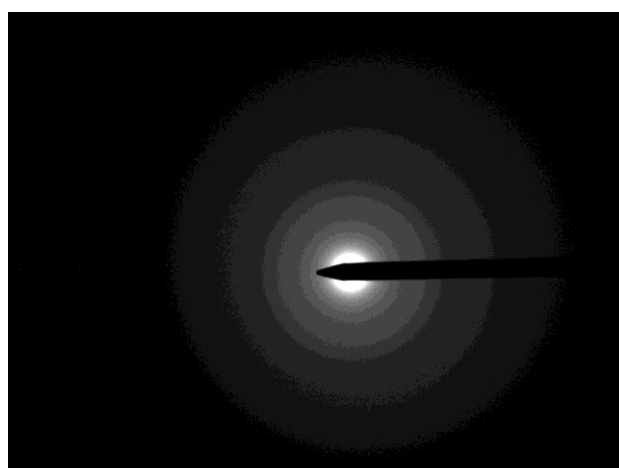
Incidentally, it is worth noticing that in the EDX spectra acquired during TEM observations some spurious lines are present: Cu and part of the C lines are from the copper grids coated with a carbon support film; Si line is mostly due to the inner fluorescence of the detector.”

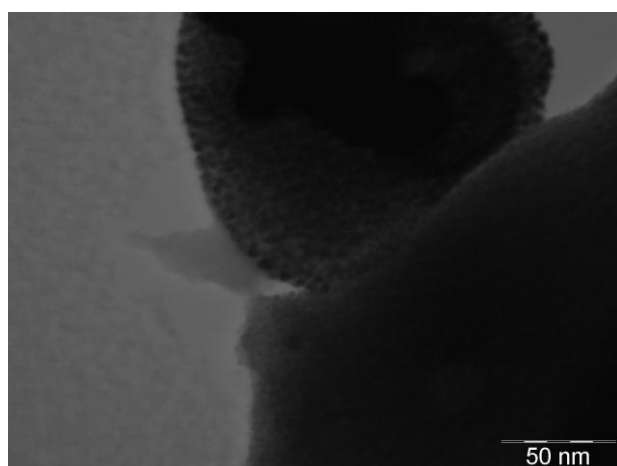


T100-8



T100-4





SDS-8

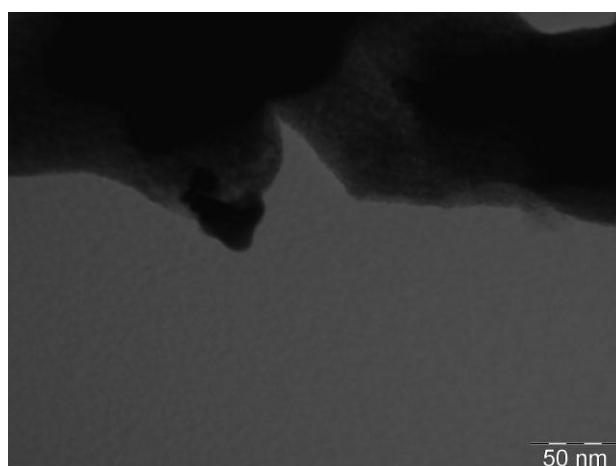


Fig. S-16 TEM images of SDS-4, SDS-8, T100-4, and T100-8

4. Thermogravimetric Analysis (TGA)

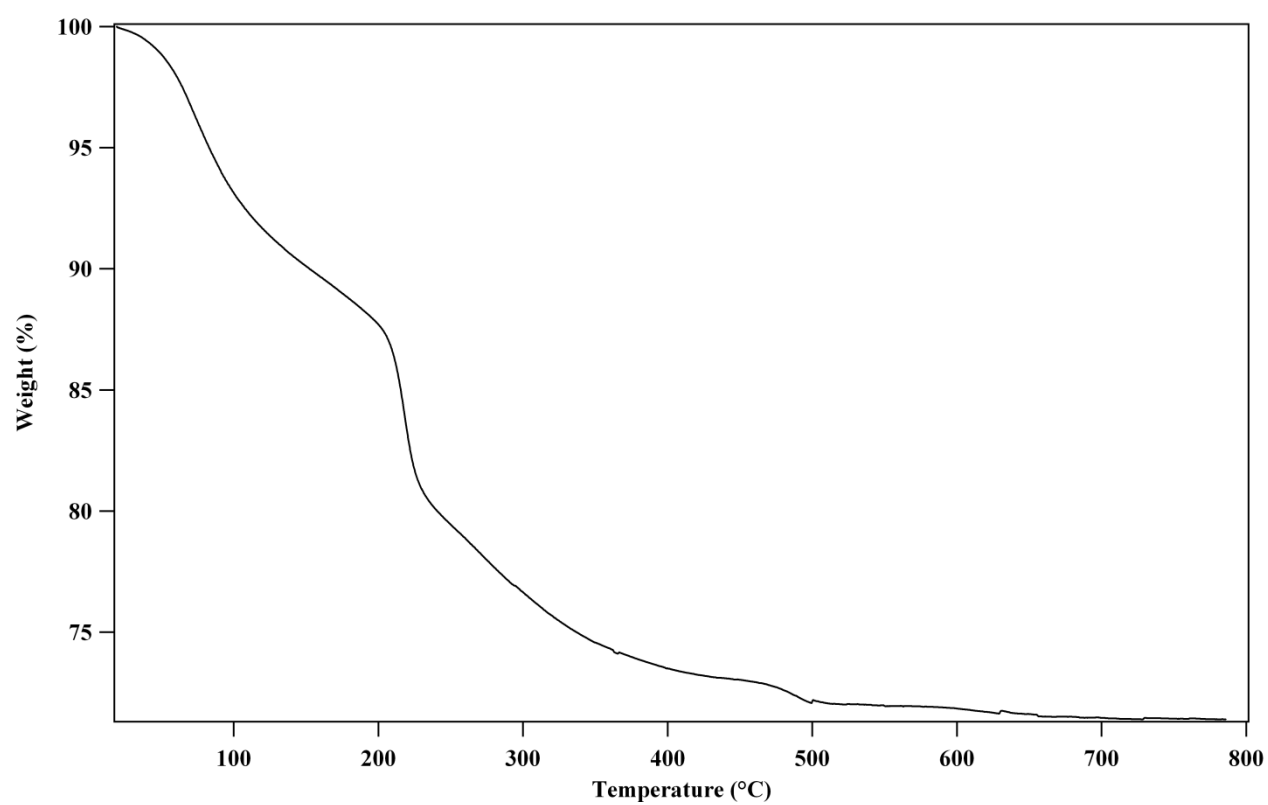


Fig. S-17 - TGA of the Au-TiO₂ nanocomposite SDS-4.

5. XRD of catalysis samples

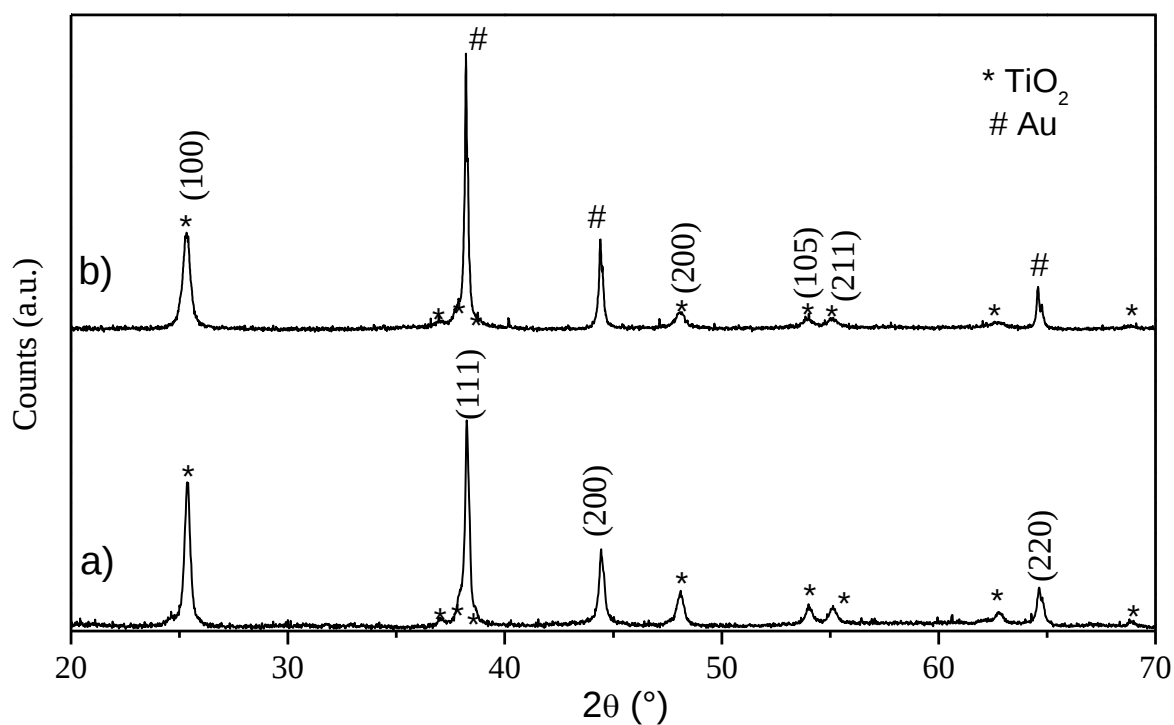


Fig. S-18 XRD patterns of Au/TiO₂ samples obtained from a) miniemulsion and b) water, after thermal treatment at 600°C.

6. Raman Spectroscopy

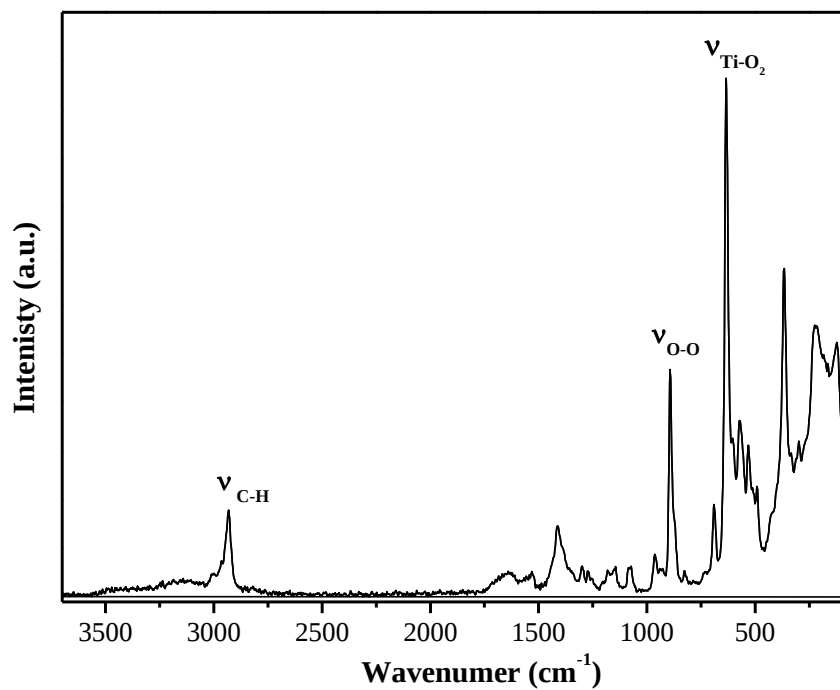


Fig. S-19: Raman spectrum of $\text{AuCl}_4(\text{NH}_4)_7[\text{Ti}_2(\text{O}_2)_2(\text{Hcit})(\text{cit})]_2$