JOURNAL OF SYNCHROTRON RADIATION

Volume 26 (2019)

Supporting information for article:

Water-mediated photo-induced reduction of platinum films

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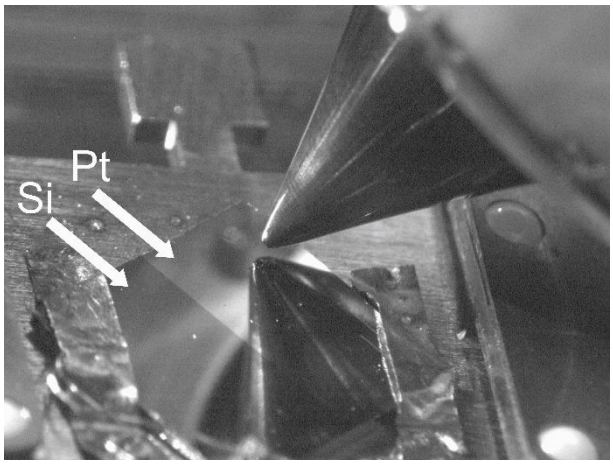

Figure S1 Image of the sample mounted on the Peltier sample holder with the entrance of the analyser nose at working distance (less than 1 mm) on the platinum region.

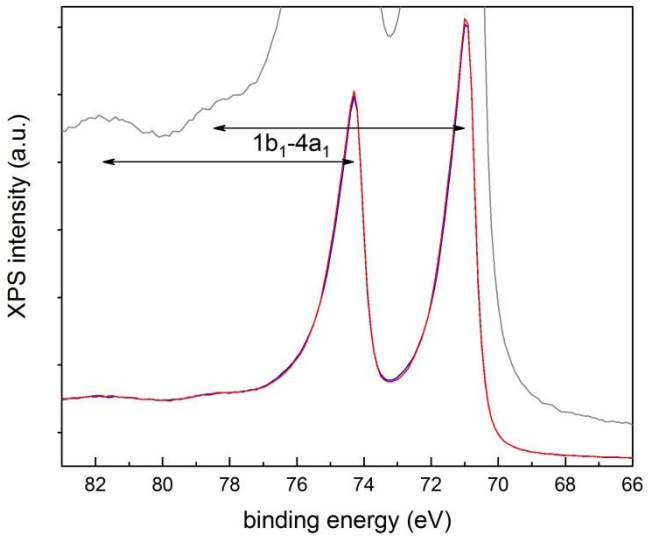

Figure S2 XPS spectra of the Pt4f line acquired under 3 mbar water vapour pressure and at 0 degrees C. The continuous red line shows the spectrum obtained after continuous exposure to the beam during 45 min and the continuous blue line to a spectrum acquired at the same sample region after 25 min without exposure to the photon beam. For completion, the figure includes a zoom of one of the spectra to magnify the high energy region with the shakeup satellites arising from the $1b_1$-$4a_1$ HOMO-LUMO band gap, 7.5 eV, as deduced from the spectra and from previous measurements using the O1s line of the gas phase (not shown). This is to be compared to 8.7 eV (Ouerdane *et al*., 2010) and 8.2 eV from DFT calculations (Fraxedas, 2014).

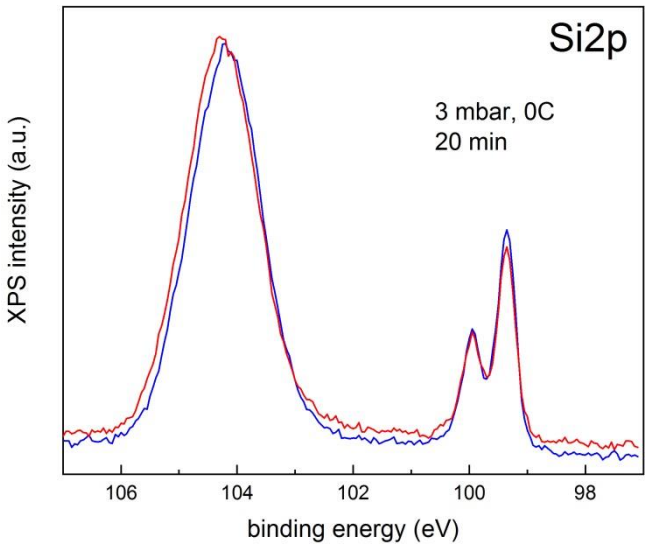

Figure S3 XPS spectra of the Si2p line acquired under 3 mbar water vapour pressure and at 0 degrees C with 20 min. difference: continuous blue line (first) and continuous red line (last).

Ouerdane, H., Gervais, B., Zhou, H., Beuve, M. & Renault, J.-Ph. (2010) J. Phys. Chem. C 114, 12667–12674

Fraxedas, J. Water at Interfaces: A Molecular Approach (2014). CRC Press, Taylor & Francis, Boca Raton.