

Supporting Information

The role of the gold-platinum interface in the AuPt/TiO₂-catalyzed plasmon-induced reduction of CO₂ with water

Leila Hammoud,^a Claire Strebler,^a Joumana Toufaily,^b Tayssir Hamieh,^b Valérie Keller^a and Valérie Caps*^a

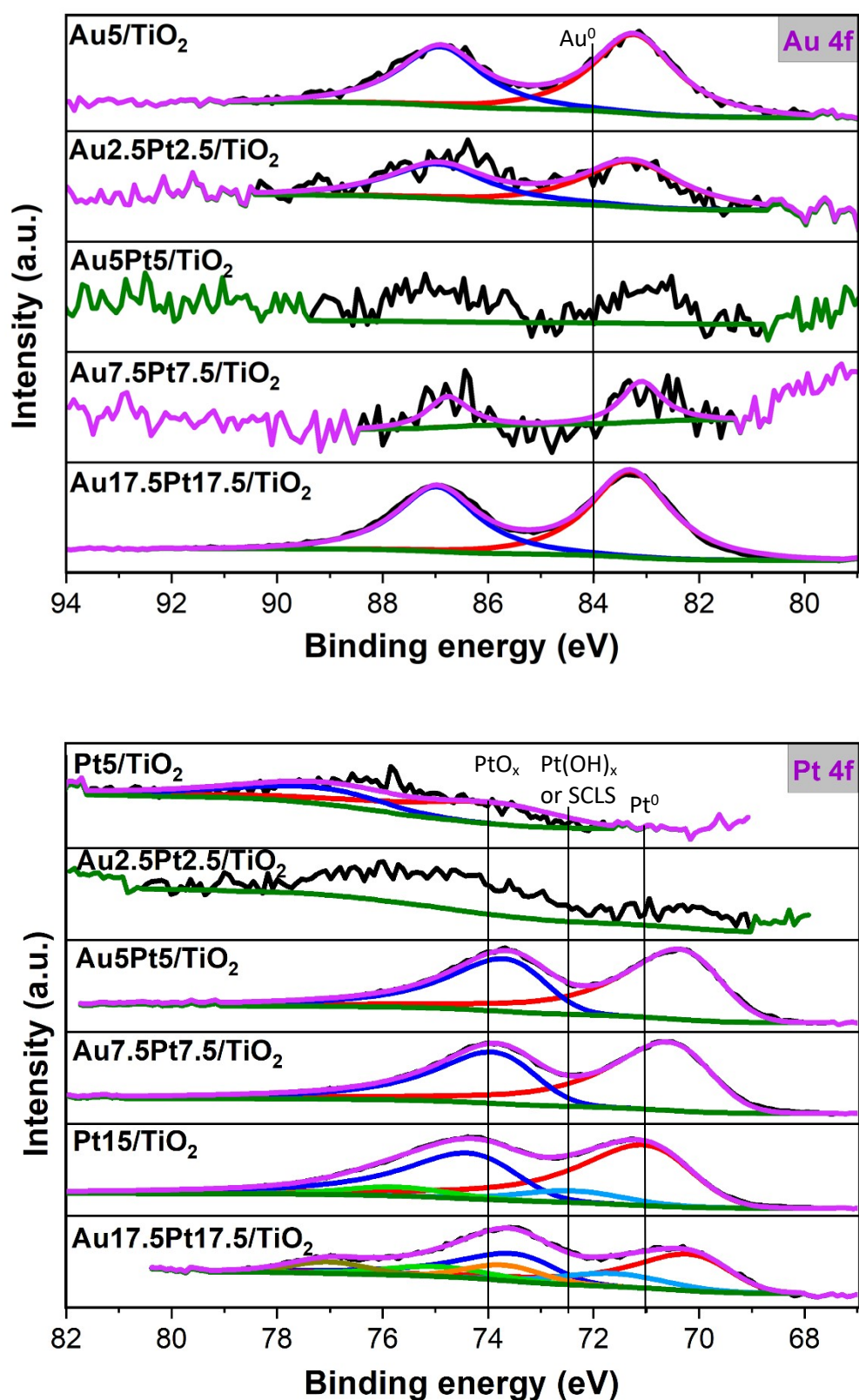


Figure S1. Deconvoluted XPS spectra of the Au4f and Pt 4f regions, showing the absence of any oxidized state of Au, the decrease in the Au4f peaks intensity with increasing Pt content for materials prepared by DMF thermal reduction (Pt5/TiO₂, Au5/TiO₂, Au2.5Pt2.5/TiO₂, Au5Pt5/TiO₂,

Au_{7.5}Pt_{7.5}/TiO₂), the absence of oxidized state of Pt for Au₅Pt₅/TiO₂ and Au_{7.5}Pt_{7.5}/TiO₂, and the presence of such states for materials prepared by NaBH₄ reduction in DMF.

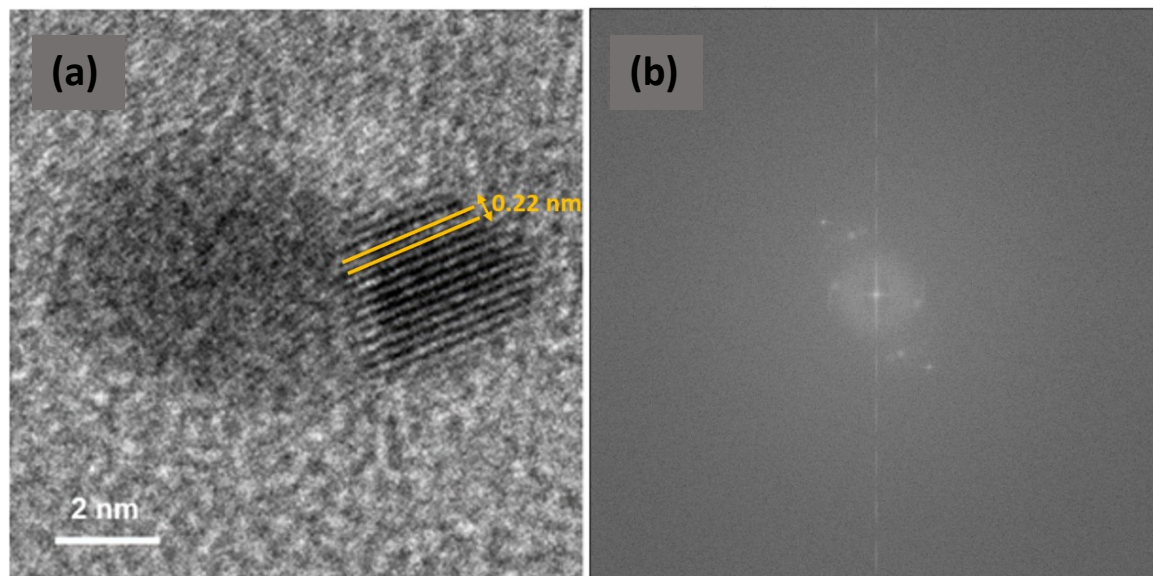


Figure S2. HRTEM picture of a Janus particle in Au_{17.5}Pt_{17.5}/TiO₂ showing interplanar spacing of 0.22 nm for the particle on the right (a) and the corresponding FFT pattern (b). This can be attributed to the (111) interplanar spacing of fcc Pt.¹⁻³

References

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- ² S. A. Abbas, S.-H. Kim, M. I. Iqbal, S. Muhammad, W.-S. Yoon & K.-D. Jung, *Sci. Rep.* 2018, 8, 2986.
- ³ R. V. Maligal-Ganesh, C. Xiao, T. W. Goh, L.-L. Wang, J. Gustafson, Y. Pei, Z. Qi, D. D. Johnson, S. Zhang, F. (Feng) Tao, and W. Huang, *ACS Catal.* 2016, 6, 1754.