

Supplementary Information

Ambient temperature CO oxidation using palladium-platinum bimetallic catalysts supported on tin oxide/alumina

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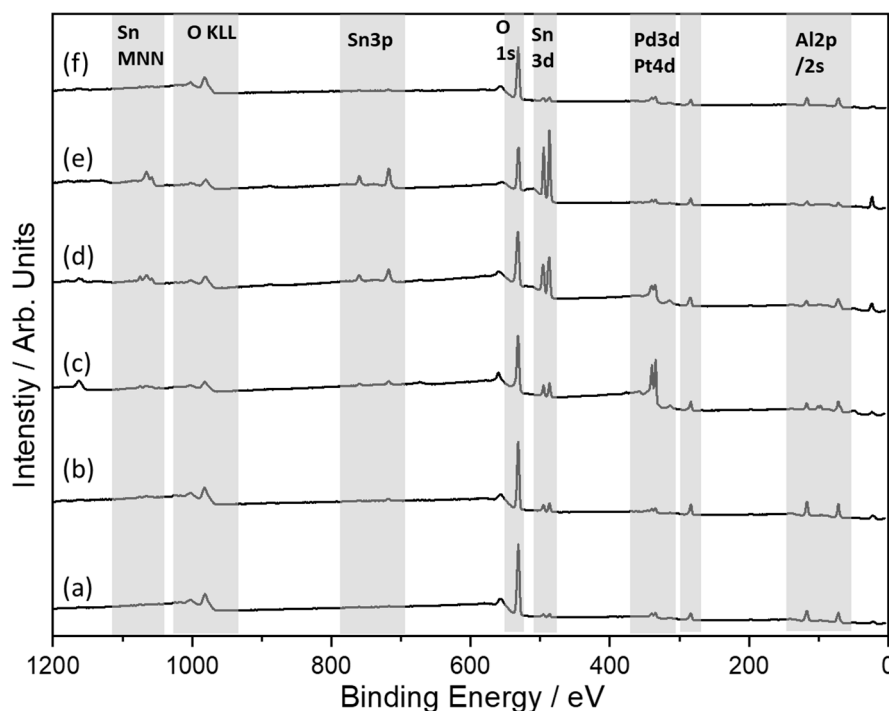


Figure S1. Full range survey spectra of all PtPd/SnO₂/Al₂O₃ catalysts, where (a) 4% SnO₂, (b) 8% SnO₂, (c) 1% SnO₂ from Na₂SnO₃, (d) 16% SnO₂ from Na₂SnO₃, (e) 0.5% SnO₂ from Sn(C₂O₄) and (f) 16% SnO₂ from Sn(C₂O₄)

SESSA Analysis

SESSA V2.1.1 is a NIST database which can be used to simulate XPS and AES of nanostructures. The SESSA package contains the physical data required to perform quantitative interpretation of an XPS spectrum for a given specimen composition and morphology- for example differential inverse inelastic mean free paths, total inelastic mean free paths, differential elastic-scattering cross sections, total elastic-scattering cross sections, transport cross sections, photoionization cross sections, photoionization asymmetry parameters, electron-impact ionization cross sections, photoelectron lineshapes. More details can be found in [1,2]

For simplicity, the spheres are modelled as planar substrates with different SnO₂ island sizes, a full, rigorous treatment of all island shapes and sizes has not been performed, regardless the effect on island size and spectral intensity is shown

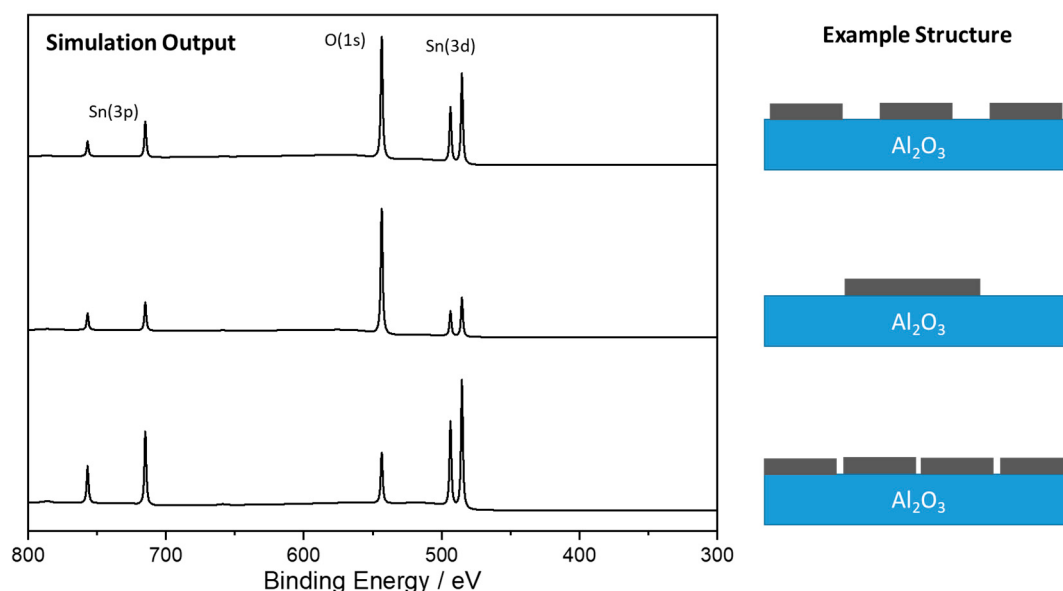


Figure S2. Simulated spectra over the range 300 – 800 eV, illustrating effect of the Sn(3d) intensity from different SnO₂ island sizes.

References

- [1] W. Smekal, W. S. M. Werner, and C. J. Powell, *Surf. Interface Anal.* 37, 1059 (2005).
- [2] Werner WSM, Smekal W, Powell CJ. NIST Database for the Simulation of Electron Spectra for Surface Analysis (SESSA), Version 2.1. U.S. Department of Commerce/NIST; Gaithersburg, Maryland: 2017. [accessed October 01: 2020]. <https://www.nist.gov/srd/nist-standard-reference-database-100>