Supplementary Materials

Support Engineering Strategy to Tackle the Trade-Off Between Catalytic Reactivity and H_2O_2 Selectivity in Electro-Oxygen Reduction

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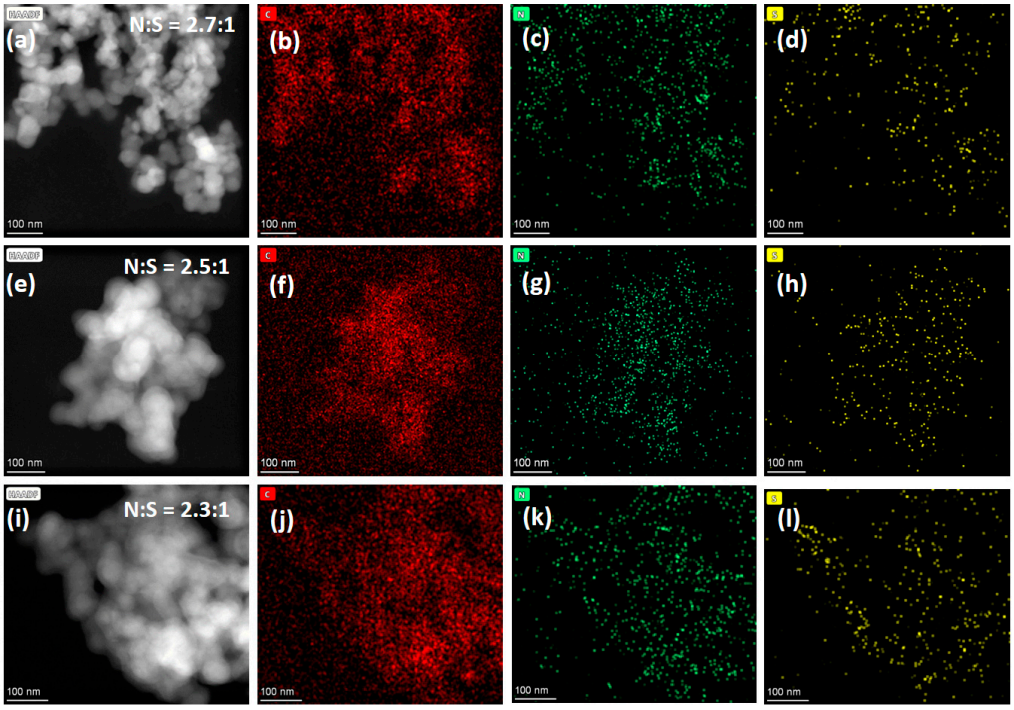


Figure S1. The energy-dispersive X-ray spectrometry (EDS) elementary mapping images of the NSC1 (a-d), NSC2 (e-h), and NSC3 (i-l) supports.

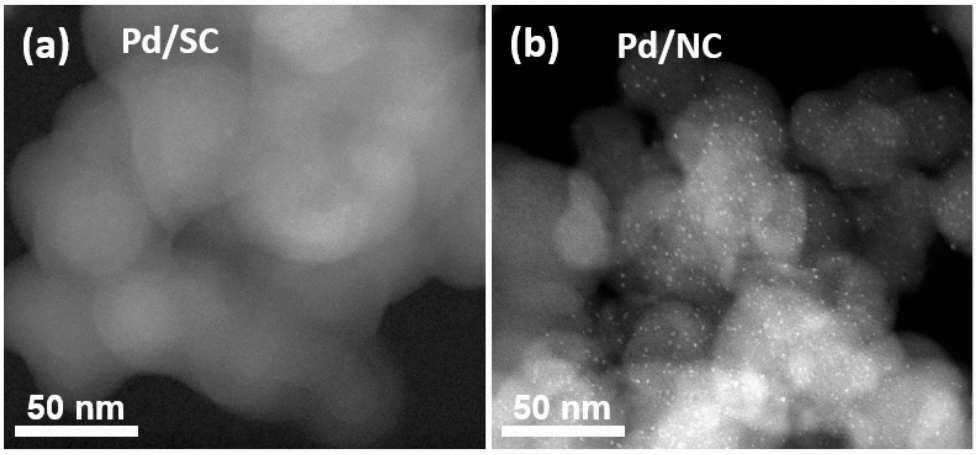


Figure S2. Low-magnification HAADF-STEM images of the Pd/SC (a) and Pd/NC (b), respectively.

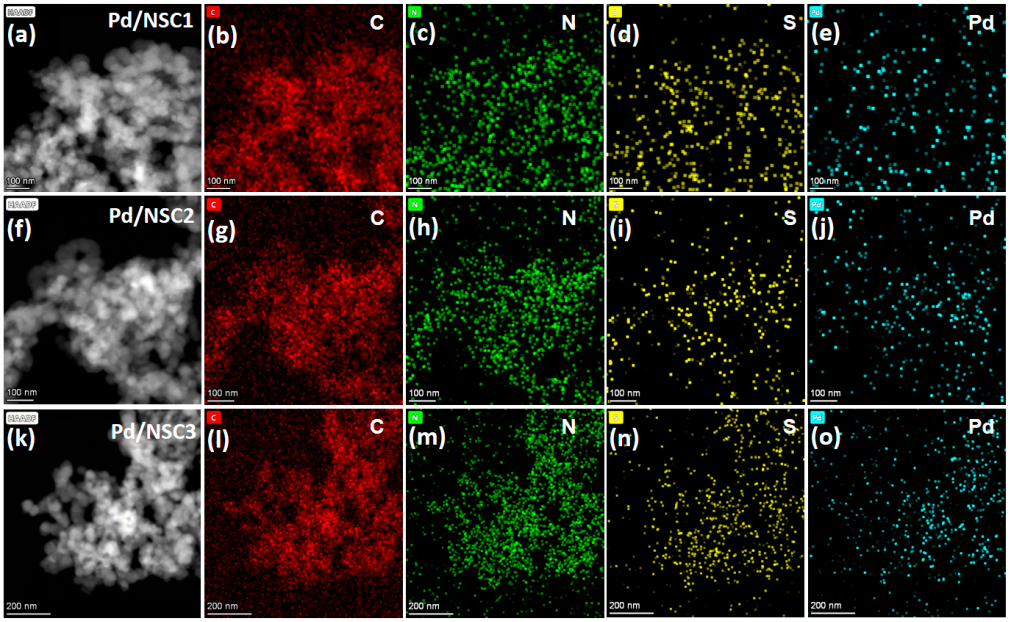


Figure S3. The energy-dispersive X-ray spectrometry (EDS) elementary mapping images of the Pd/NSC1 (a-e), Pd/NSC2 (f-j), and Pd/NSC3 (k-o).

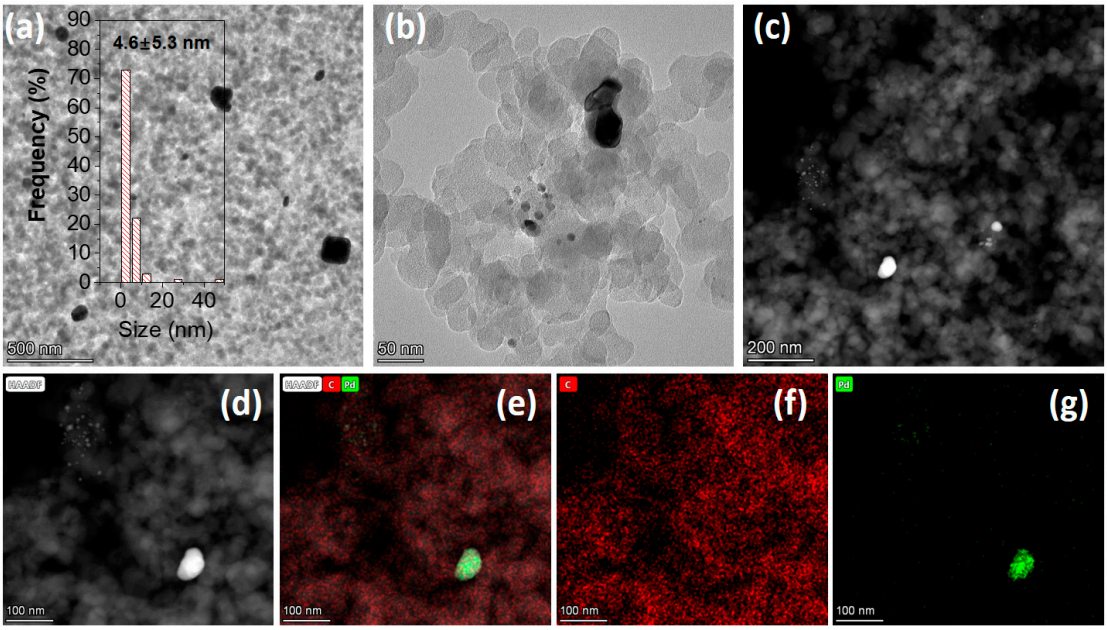


Figure S4. Pd NPs that were prepared on pure carbon support (Pd/C). (a,b) Bright-field TEM and (c,d) dark-field TEM images of the Pd/C. (e)-(g) EDS elementary mapping images of the Pd/C.

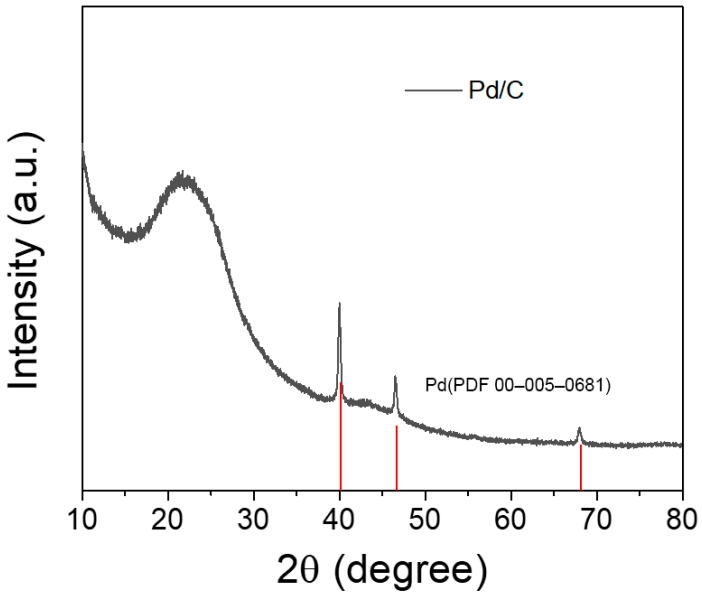


Figure S5. XRD patterns of the Pd/C. The vertical lines represent for the standard peaks of the Pd (PDF no. 46-1043).

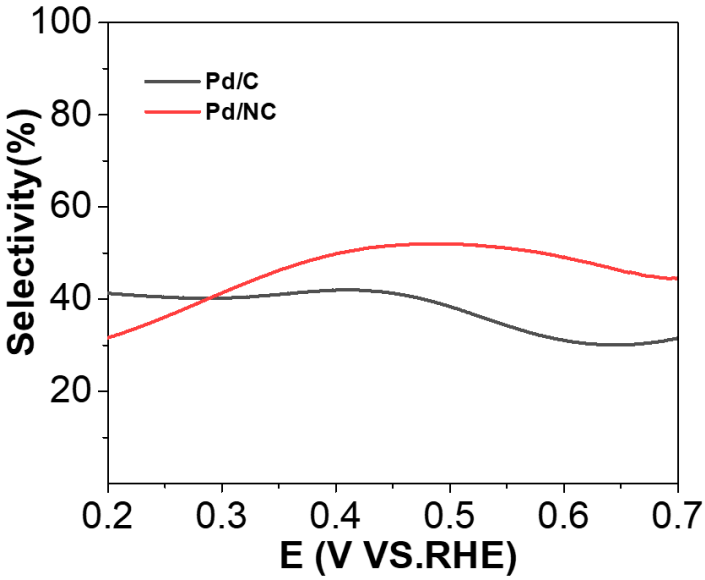


Figure S6. H_2O_2 selectivity curves of the Pd/NC and Pd/C, respectively, testing in a neutral electrolyte (0.2 M phosphate-buffered saline, PBS, pH ≈7).

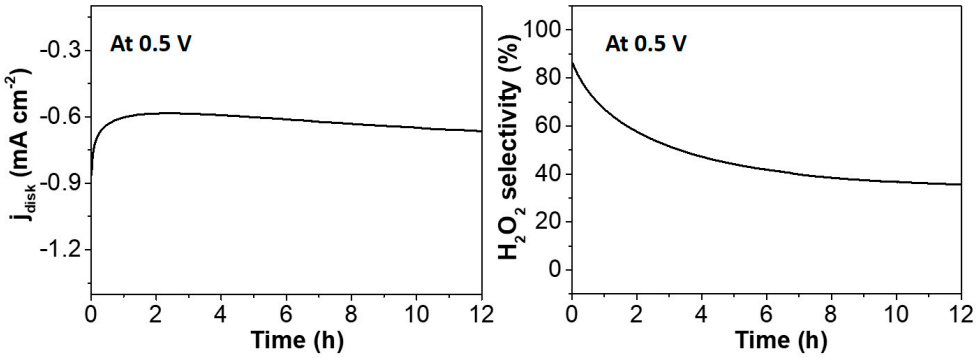


Figure S7. Stability test over the Pd/NSC2 catalysts for 12 hours at 0.5 V in a neutral electrolyte (0.2 M phosphate-buffered saline, PBS, pH≈7).

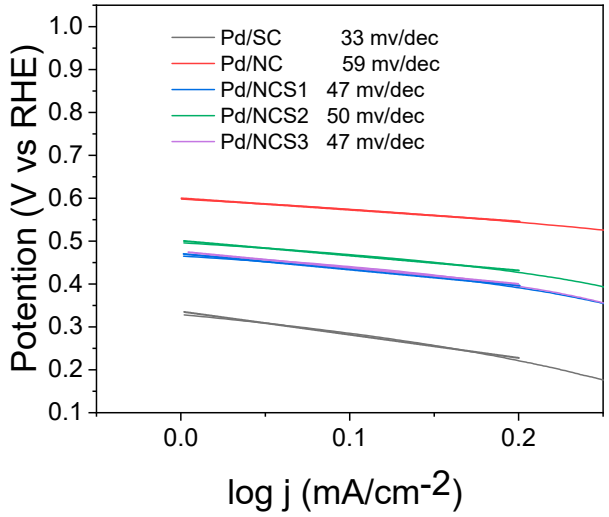


Figure S8. Tafel plots derived from ORR polarization curves.

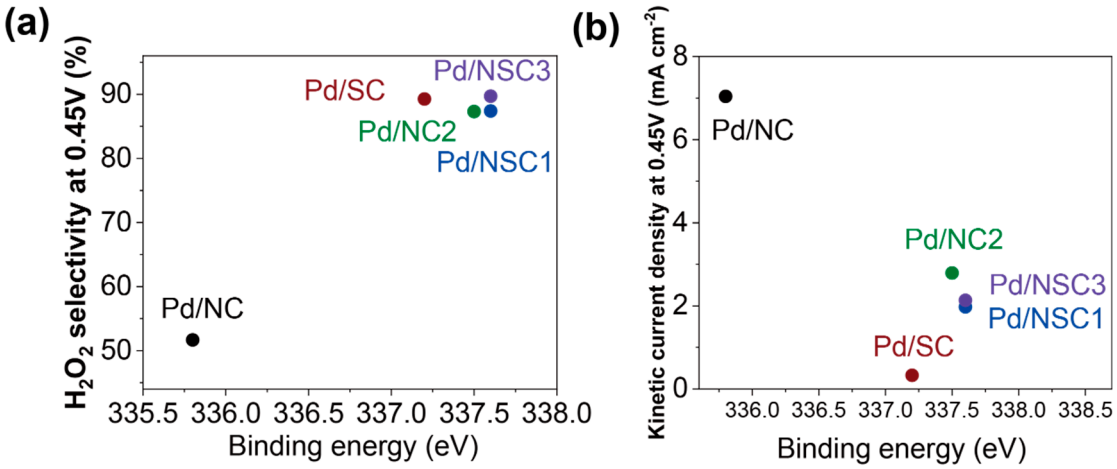


Figure S9. Correlation between the Pd $3d_{5/2}$ binding energy and (a) H_2O_2 selectivity and (b) kinetic current density at 0.45 V vs. RHE for Pd/NC, Pd/SC, and Pd/NSC catalysts.