Supporting Information

On the Catalytic Properties of AgPt Nanoshells as a Function of Size: Larger Outer Diameters Lead to Improved Performances

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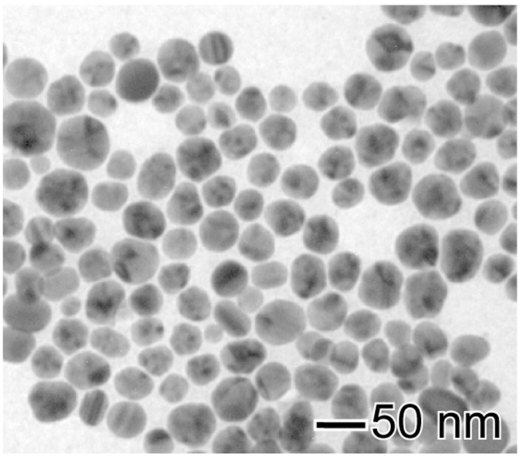

Figure S1. TEM image for Ag NPs employed as templates for the synthesis of Ag nanoparticles with different sizes as a function of the volume of $Ag^{+}_{(aq)}$ added to the reaction.

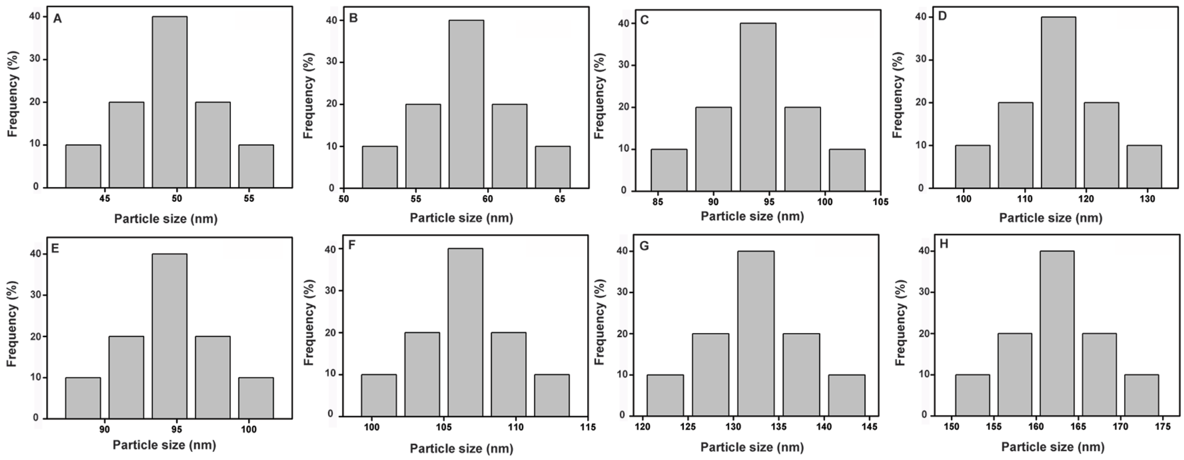

Figure S2. Histograms showing the size distribution for the obtained Ag nanoparticles (first row) A, B, C, and D for Ag 50 nm, Ag 59 nm, Ag 96 nm, and Ag 114 nm, respectively; and AgPt nanoshells (second row) E, F, G, and H for AgPt 95 nm, AgPt 105 nm, AgPt 133 nm, and AgPt 163 nm, respectively.

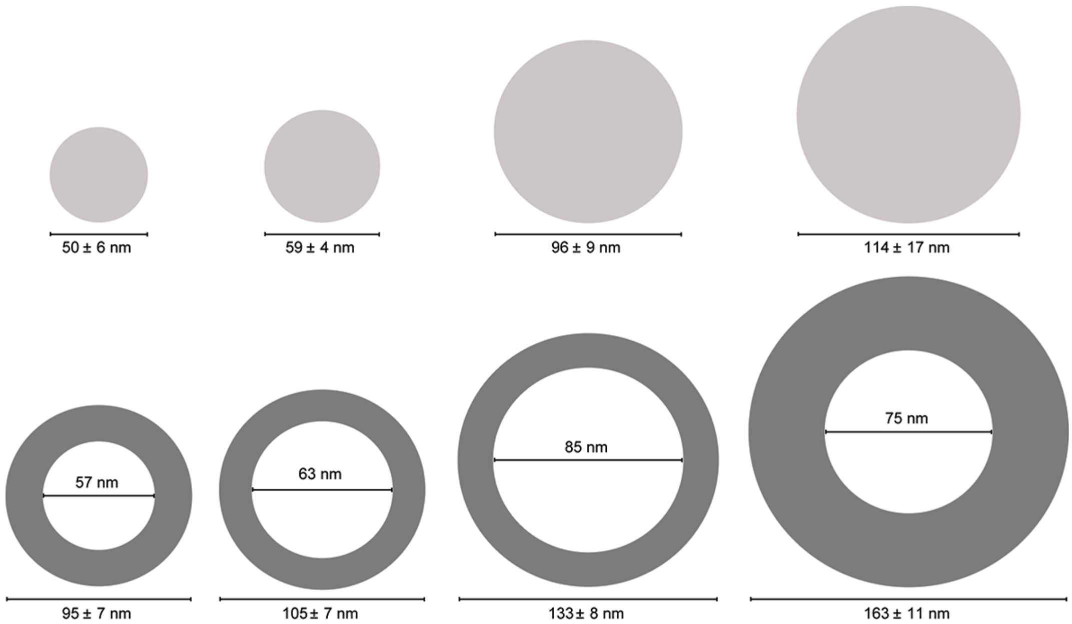

Figure S3. Scheme showing the average outer diameters for Ag nanoparticles with controlled sizes (top row) and average outer and inner diameters for the AgPt nanoshells (bottom row).

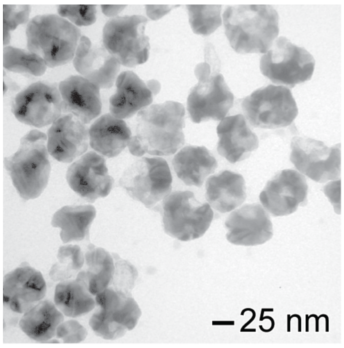

Figure S4. TEM image for AgPt nanoshells obtained by the addition of $PtCl_6^{2-}{}_{(aq)}$ to a suspension containing the Ag 50 nm nanoparticle and PVP under absence of hydroquinone.

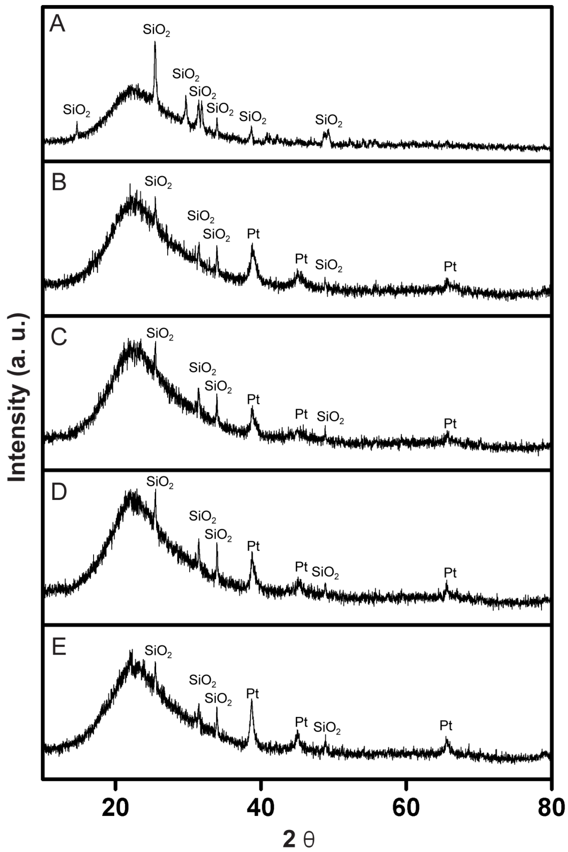

Figure S5. X-ray diffraction patterns for the (A) pure commercial SiO_2, (B) AgPt 95 nm/SiO_2, (C) AgPt 105 nm/SiO_2, (D) AgPt 133 nm/SiO_2, and (E) AgPt 163 nm/SiO_2 catalysts.

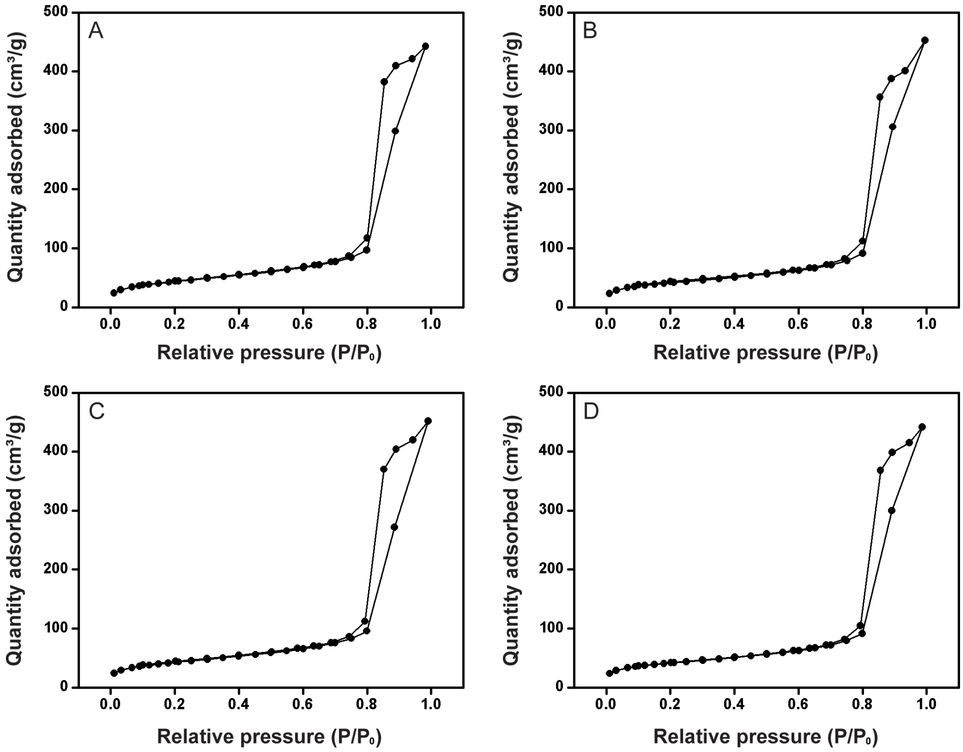

Figure S6. Adsorption/desorption N_2 isotherms for (A) AgPt 95 nm/SiO_2, (B) AgPt 105 nm/SiO_2, (C) AgPt 133 nm/SiO_2, and (D) AgPt 163 nm/SiO_2 catalysts.

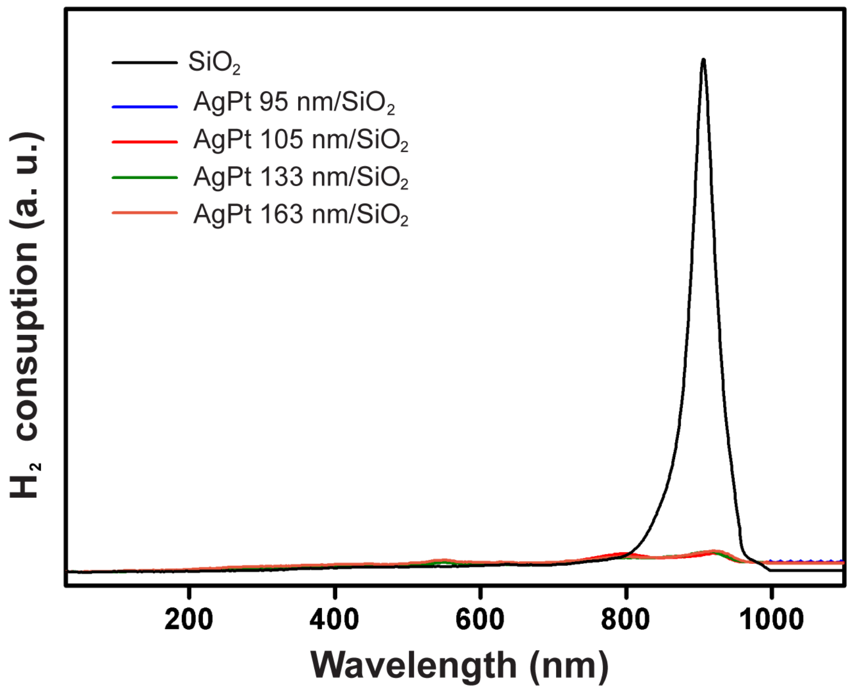

Figure S7. (A) TPR profiles for pure SiO_2 (black trace), AgPt 95 nm/SiO_2 (blue trace), AgPt 105 nm/SiO_2 (red trace), AgPt 133 nm/SiO_2 (green trace), and AgPt 163 nm/SiO_2 (orange trace).

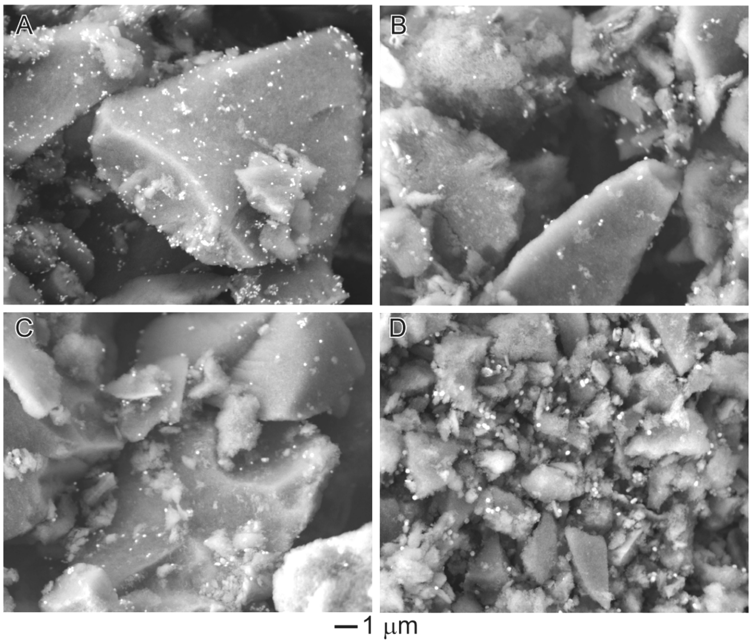

Figure S8. SEM images of (A) AgPt 95 nm/SiO_2, (B) AgPt 105 nm/SiO_2, (C) AgPt 133 nm/SiO_2, and (D) AgPt 163 nm/SiO_2 catalysts after the stability experiments at 5000x magnification.

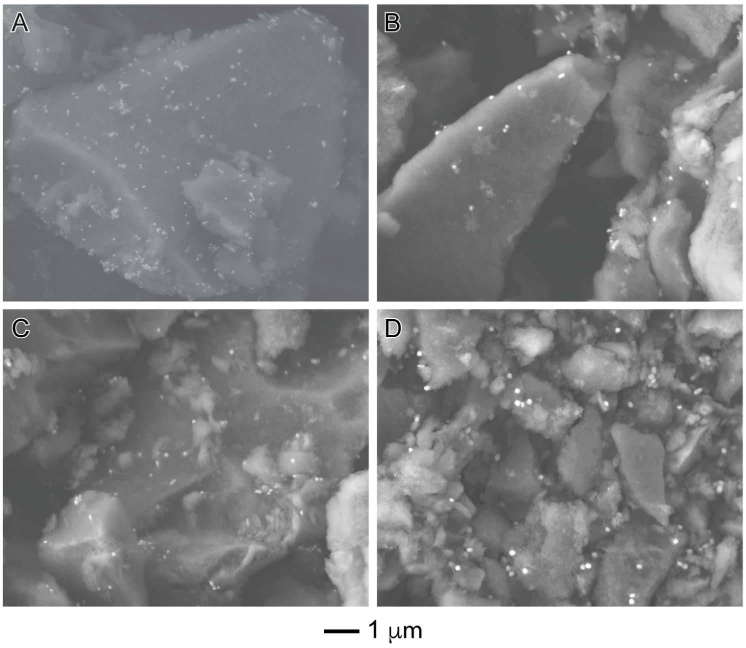

Figure S9. SEM images of (A) AgPt 95 nm/SiO_2, (B) AgPt 105 nm/SiO_2, (C) AgPt 133 nm/SiO_2, and (D) AgPt 163 nm/SiO_2 catalysts after the stability experiments at 10000x magnification.

Table S1. Containing of Ag and Pt in the AgPt nanoparticles obtained by ICP-OES.

Sample	**Ag (mol %)**	**Pt (mol%)**
AgPt 95 nm	68	32
AgPt 105 nm	47	53
AgPt 133 nm	43	57
AgPt 163 nm	42	58