Electronic Supplementary Material (ESI) for Nanoscale

Plasmonic enhancement of visible-light water splitting with Au–TiO_2 composite aerogels

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Supplemental Figures:

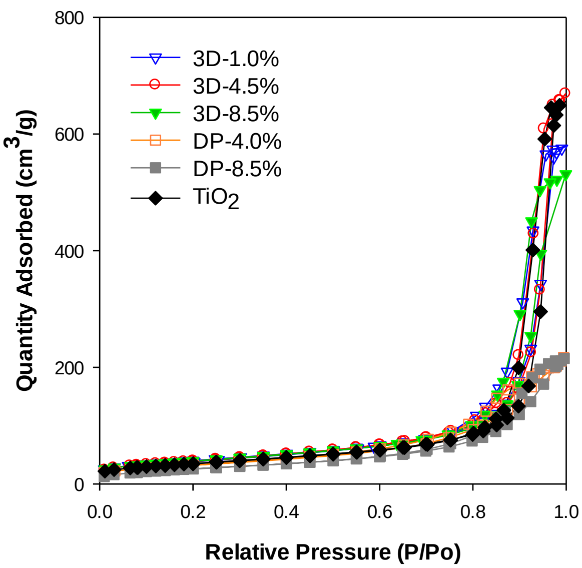


Fig. S1 Nitrogen physisorption isotherm of TiO_2, Au–TiO_2 and DP-Au/TiO_2 aerogels.

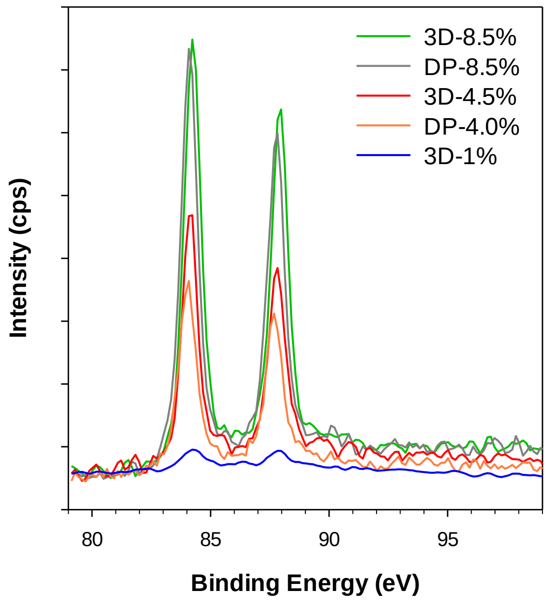
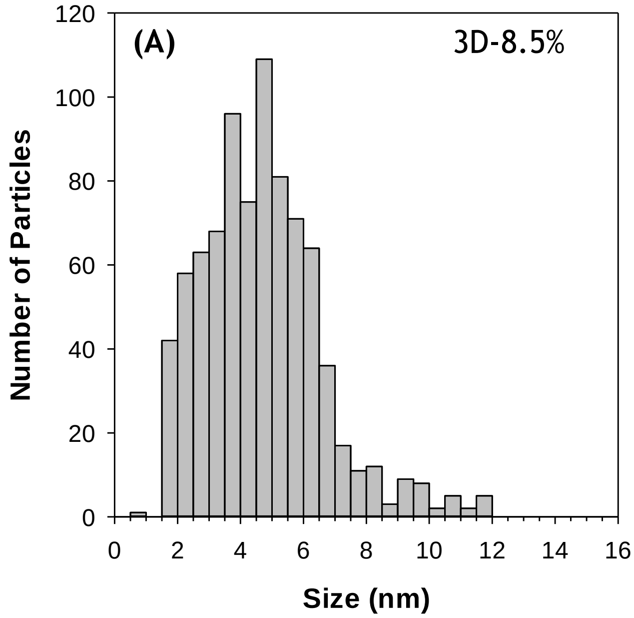


Fig. S2 The high-resolution X-ray photo-electron spectra of the Au*4f* binding energy region for Au–TiO_2 and DP Au/TiO_2 aerogels. The intensity of the Au*4f* peak is normalized to the intensity of the Ti2$p_{3/2}$ peak and scales linearly with increasing Au weight loading.



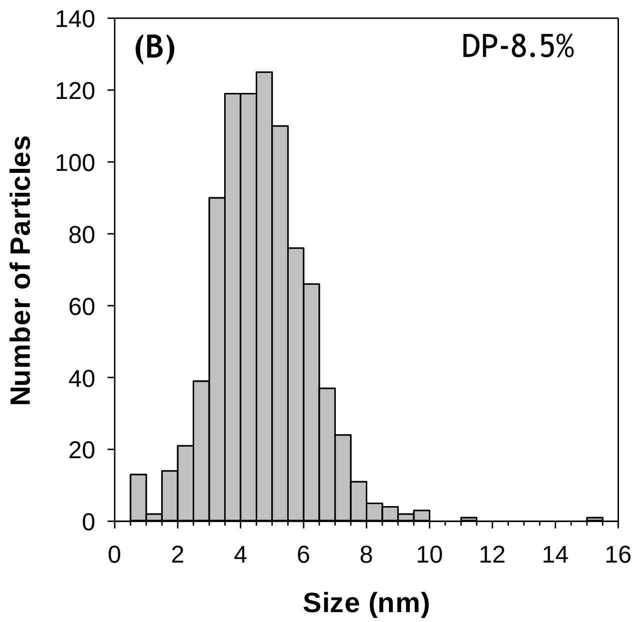
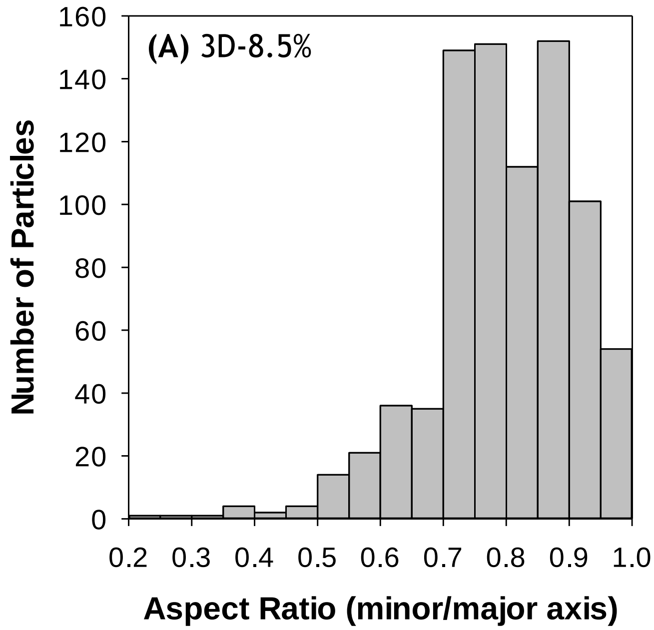


Fig. S3 The size distribution of Au-particle diameters in (a) 3D-8.5% and (b) DP-8.5% Au–TiO_2 aerogels. Particle diameter was estimated from transmission electron micrographs for a total of 882 particles for DP-8.5% and 838 particles for 3D-8.5%.



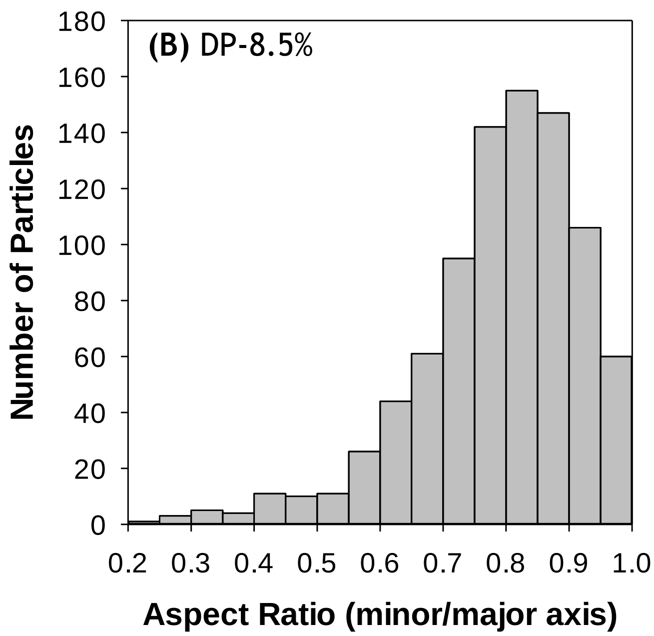


Fig. S4 The distribution of Au aspect ratio in (a) 3D-8.5% and (b) DP-8.5% Au–TiO_2 aerogels. Aspect ratio was estimated from transmission electron micrographs for a total of 882 particles for DP-8.5% and 838 particles for 3D-8.5%.

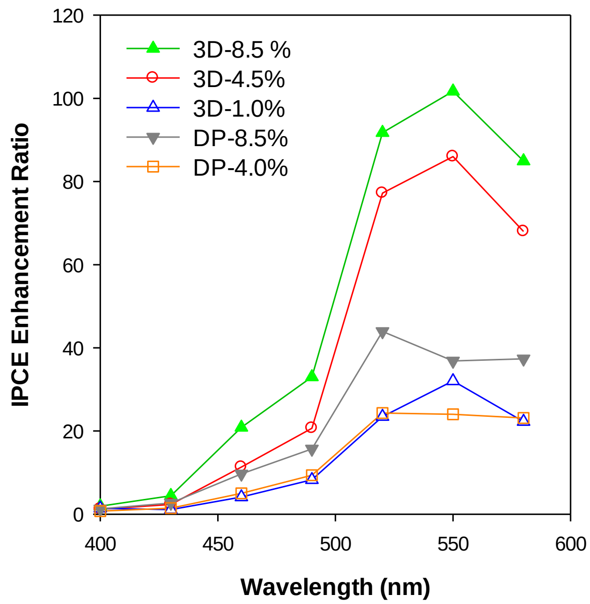


Fig. S5 Ratio of IPCE for 3D Au–TiO_2 and DP Au/TiO_2 aerogel photoanodes relative to TiO_2 aerogel photoanodes between 400 and 580 nm.

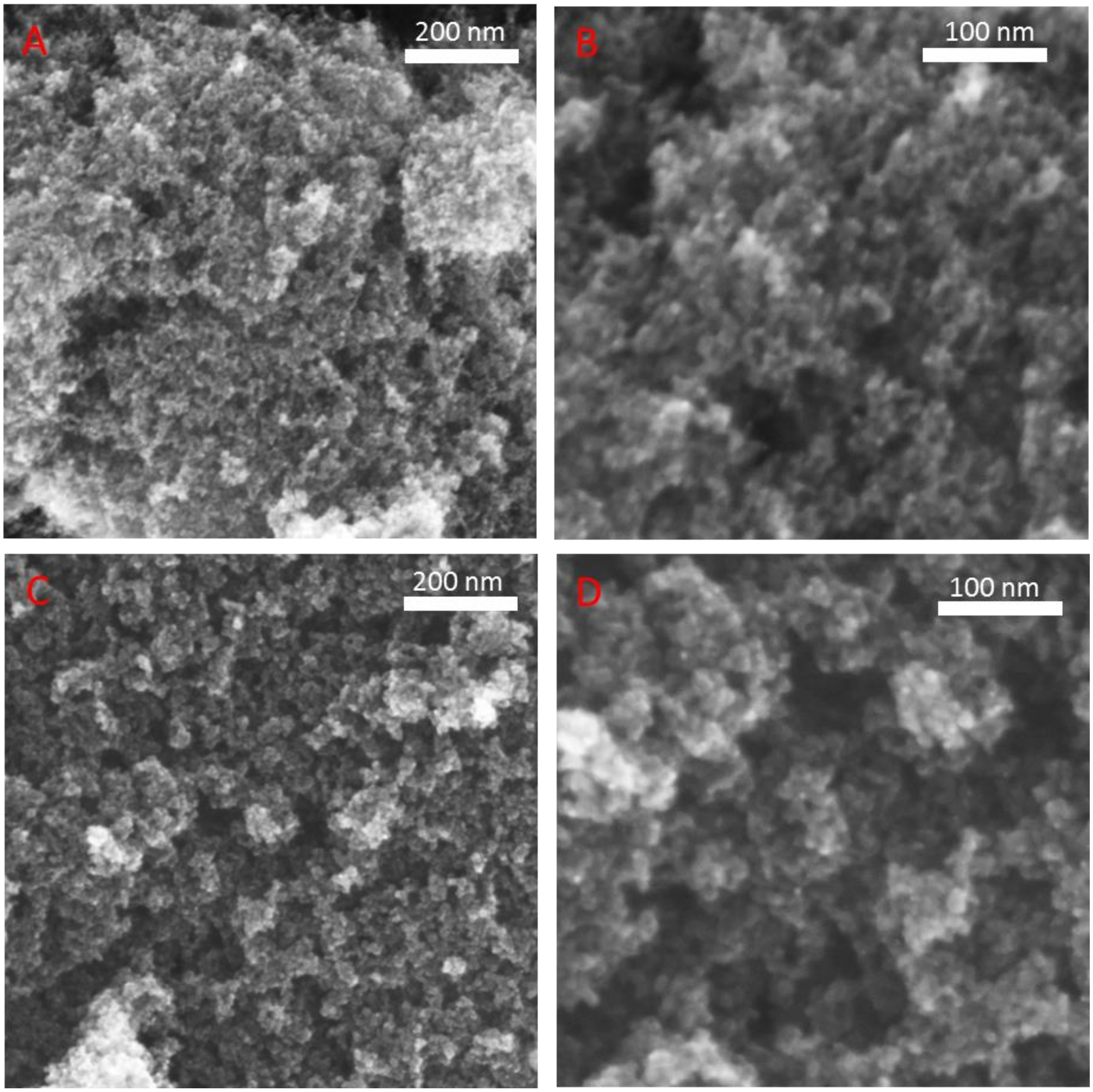


Fig. S6 Scanning electron microscope (SEM) micrographs for (A and B) 3D-8.5% and (C and D) DP-8.5%