Supporting Information

White phosphorus derived PdAu-P ternary alloy for efficient methanol

electrooxidation

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Fig. S1 (a) Typical TEM image and (b) EDS spectrum of PdAu sample.

Figure S1a shows the TEM image of the PdAu catalyst. As can be seen, a large number of largesized PdAu particles was achieved, which is much larger than that of PdAu-P catalyst. Figure S1b displays the EDS spectrum of PdAu sample, from which we can see that the atomic ratio of Pd/Au is 48.91: 51.09, consistent with the ratios of Pd/Au (50:50) in the precursors.



Fig. S2 and Table S1. The relationship between the dosage of P_4 and atom content of P in PdAu-P.



Fig. S3 (a) Typical TEM image and (b) XRD pattern of Pd black.

A typical TEM image reveals that the particles-size of Pd black is larger than that of PdAu-P sample. Figure S3b shows the XRD pattern of Pd black which consistent well with the pure Pd. The average particle-size for Pd black was calculated to be 11.3 nm according to the Debye-Scherrer equation.



Fig. S4 Mass-normalized CV curves versus cycle numbers of three catalysts in N₂-saturated 0.1 M KOH + 0.5 M CH₃OH solution: (a) PdAu-P; (b) PdAu and (c) Pd black.