Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

Polydopamine-assisted decoration of ZnO nanorods with Ag nanoparticles: an improved photoelectrochemical anode

Yuefan Wei,[‡a] Junhua Kong,[‡b] Liping Yang,[b] Lin Ke,[c] Hui Ru Tan,[c] Hai Liu,[b] Yizhong Huang,[b] Xiao Wei Sun,[d] Xuehong Lu[*b] and Hejun Du[*a]

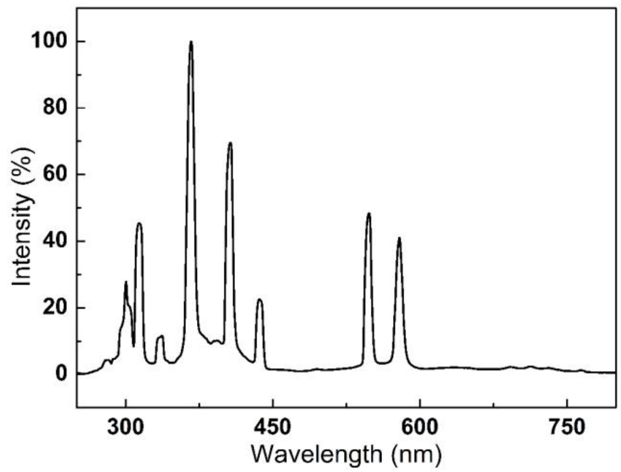

Fig. S1 The light spectrum of the light source (HAMAMATSU_LC-5) used in this experiment, obtained by using high-resolution fiber optic spectrometer (HR4000/HR4000CG-UV-NIR, Ocean Optics)

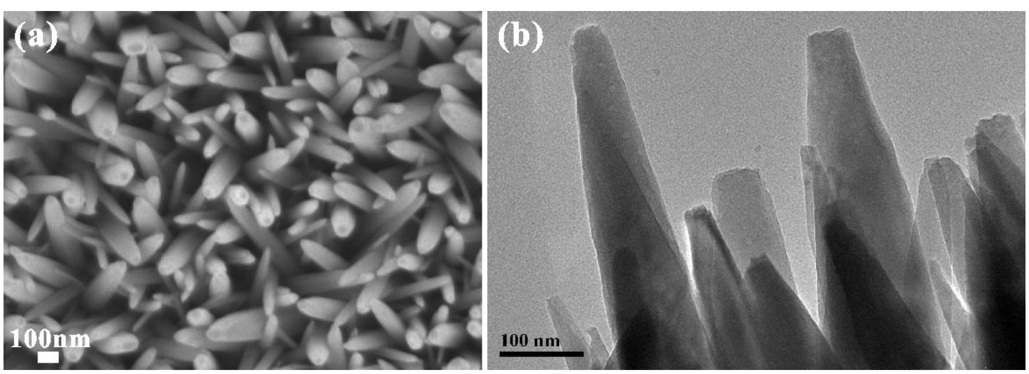

Fig. S2 Morphology of ZnO nanorods grown on FTO coated glass using (a) field emission scanning electron microscope (FESEM) and (b) transmission electron microscope (TEM).

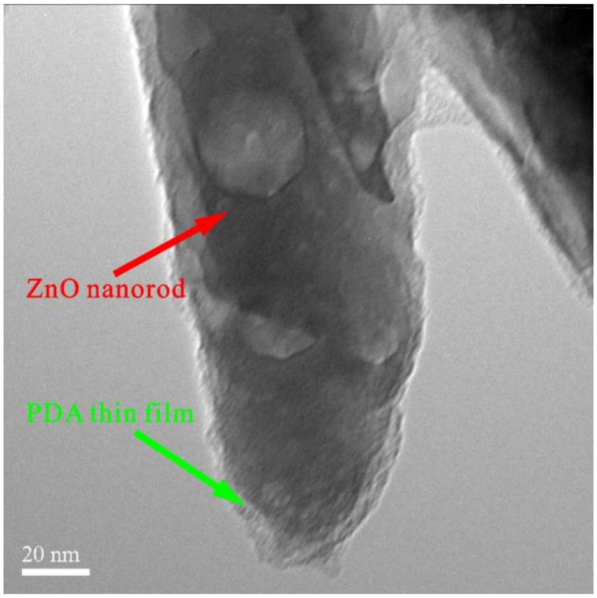

Fig. S3 Morphology of polydopamine (PDA) film on ZnO nanorods via simple immersion/in-situ polymerization process. The thickness of PDA film is around 5 nm as determined by TEM.

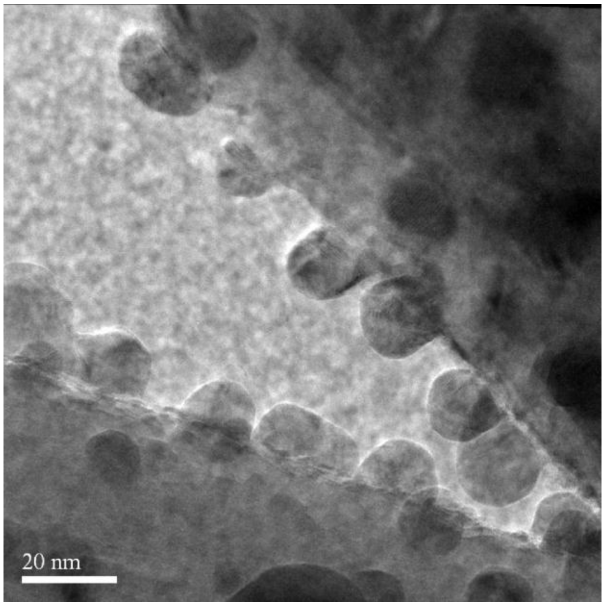

Fig. S4 TEM images of Ag nanoparticles-decorated ZnO nanorods before annealing from $AgNO_3$ concentration of 0.01 M. It is shown that the attached Ag NPs are naked without being covered by PDA film.

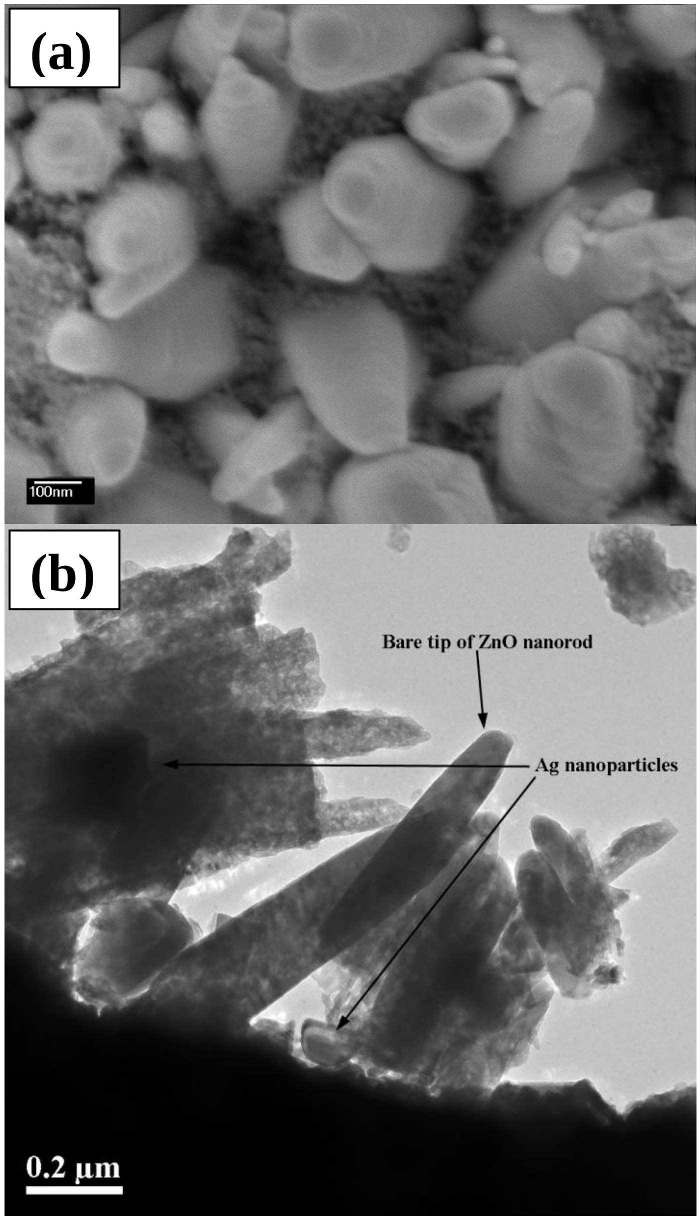

Fig. S5 (a) SEM and (b) TEM of Ag nanoparticles on ZnO nanorods prepared from direct immersion of bare ZnO nanorods into Ag-containing solution followed by annealing. The Ag nanoparticles fall down to the interspaces of ZnO nanorods rather than being attached to the surface of ZnO nanorods, indicating the critical role of PDA film in the decoration of ZnO with Ag nanoparticles.

Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

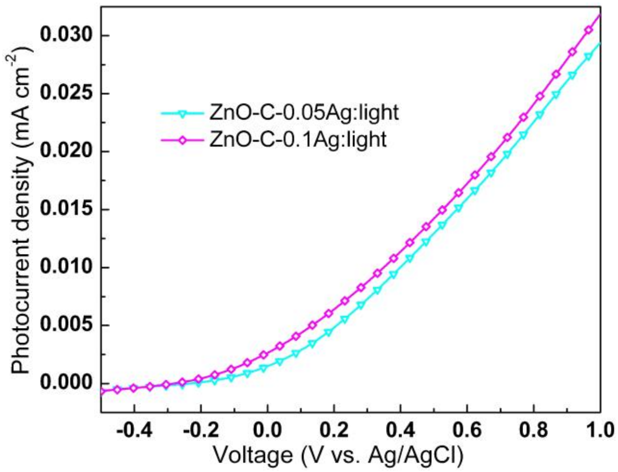

Fig. S6 Photocurrent density-voltage (*J*-*V*) characteristic of Ag nanoparticles-decorated ZnO nanorods with different Ag nanoparticles loading under illumination. Further increasing the Ag nanoparticles loading induces short circuit which sucks the electrons and thus higher photo-induced current density is not achievable.