Supporting Information

Stabilizing inorganic photoelectrodes for efficient solar-to-chemical energy conversion

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Received (in XXX, XXX) Xth XXXXXXXXX 20XX, Accepted Xth XXXXXXXXX 20XX
DOI: 10.1039/b000000x

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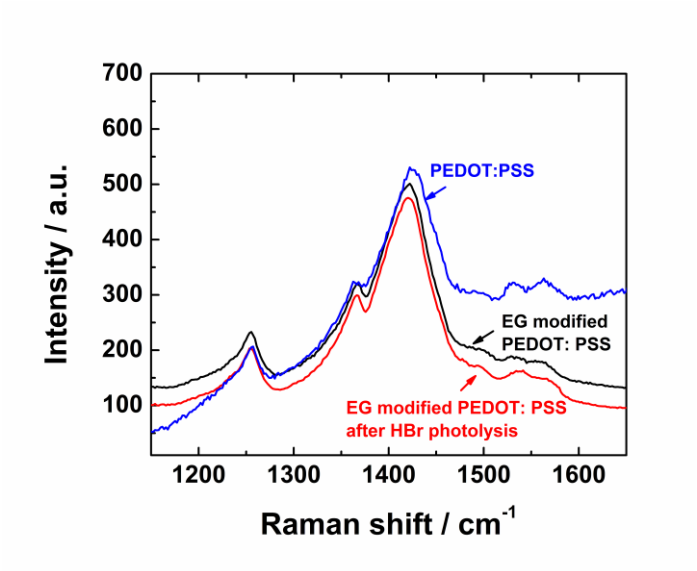

Figure S1. Raman spectroscopy of untreated PEDOT: PSS (blue trace) and ethylene glycol treated PEDOT:PSS (black trace). Raman spectroscopy of ethylene glycol treated PEDOT: PSS after 18 hours of HBr electrolysis is also shown (red trace). The Raman band between 1400 and 1500 cm^{-1} shows a slight red shift and becomes narrower after EG treatment. No change was observed in Raman spectra after HBr photolysis.

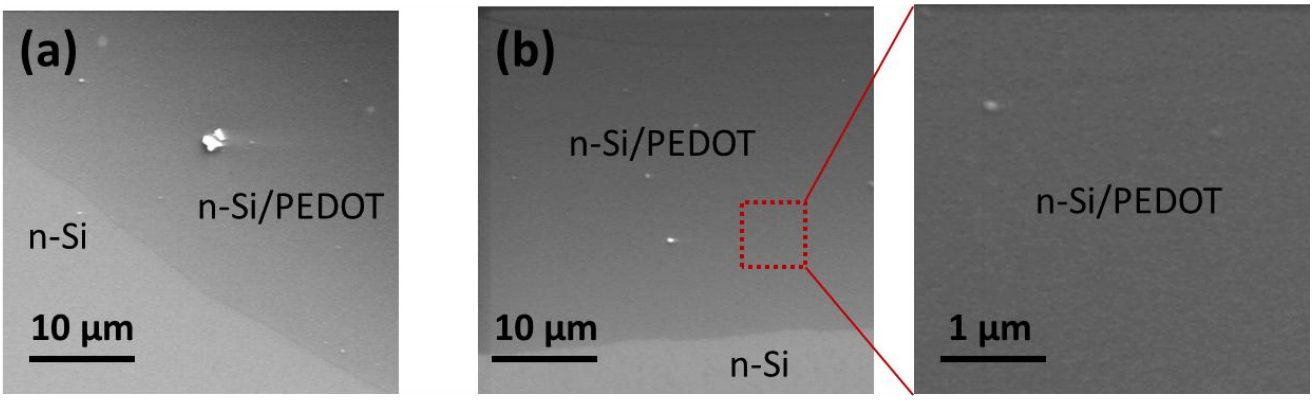

Figure S2. SEM image of EG-PEDOT: PSS coated n-Si anode before (a) and after HBr photolysis (b). Inset in (b) shows high magnification SEM image of EG-PEDOT: PSS coated n-Si anode.

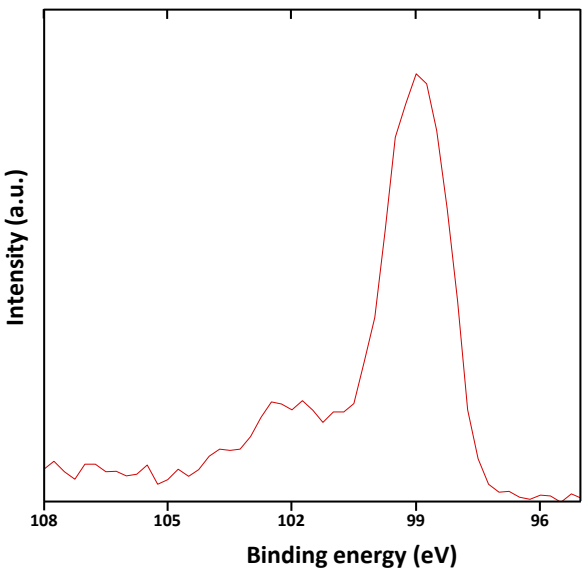

Figure S3. X-ray photoelectron spectrum of underlying silicon substrate after EG-PEDOT: PSS delamination. Prior to delamination and XPS measurements, photoelectrochemical measurements in HBr were performed at a bias of 0.6 V with respect to platinum electrode for 6 hours.

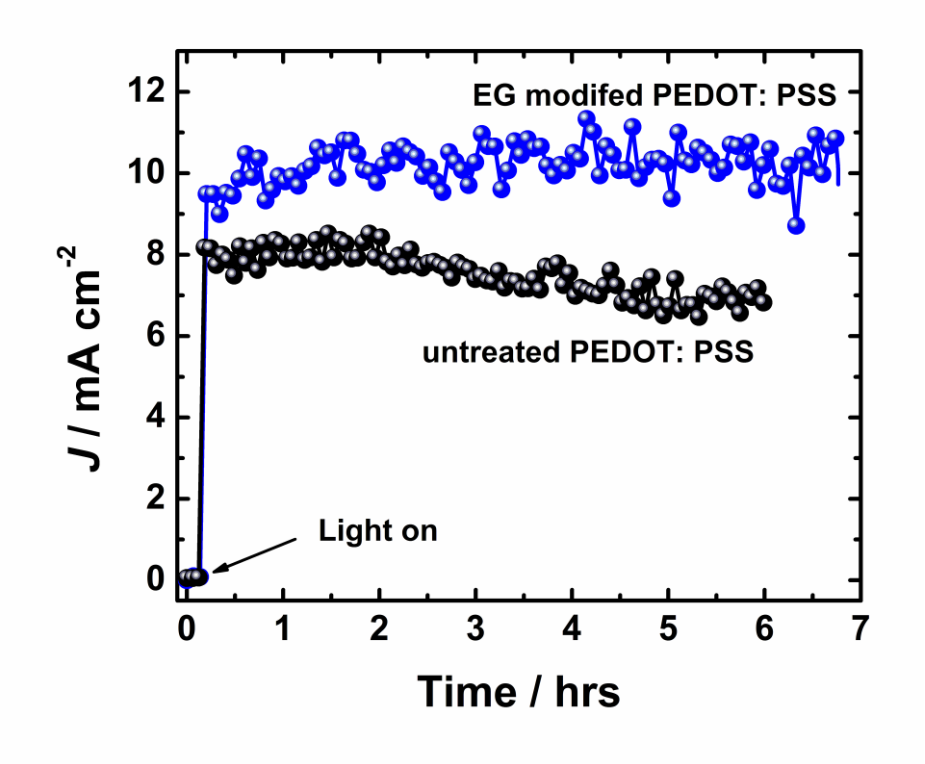

Figure S4. Photocurrent performance of PEDOT: PSS coated n-Si anode illuminated at 35 mW cm-2 in HBr. Ethylene glycol treated PEDOT: PSS (blue trace) showed higher photocurrents with superior stability compared to untreated PEDOT: PSS (black trace). HBr electrolysis was performed at a bias of 0.6 V with respect to platinum electrode.