

Supporting information – 4 pages

Effect of ZnO and PEDOT:PSS Charge Selective Layers on Photovoltage of Cuprous Oxide (Cu_2O) Heterojunction Solar Cells

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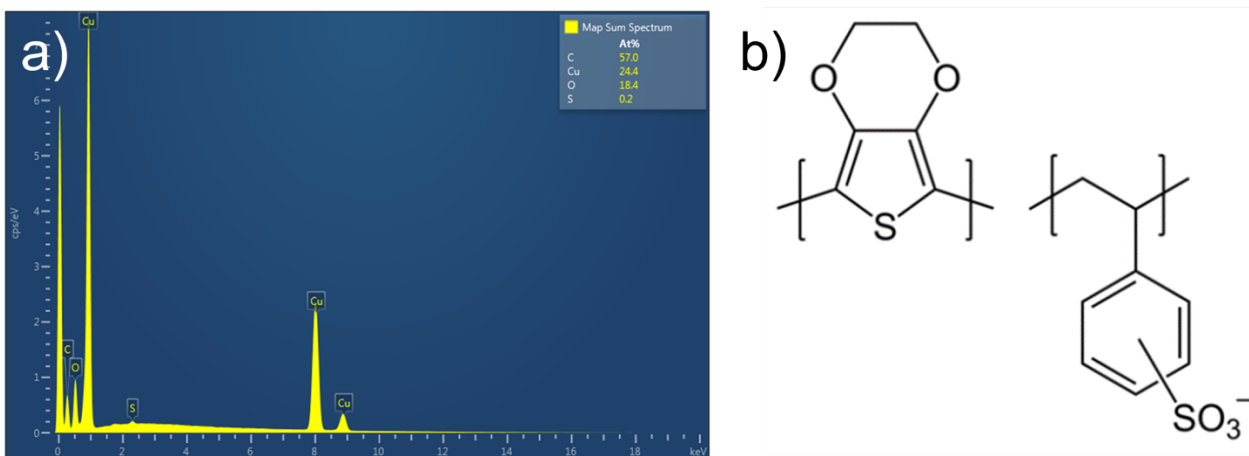


Figure S1. a) EDX data for PEDOT:PSS on Cu_2O on ZnO on FTO and b) chemical structure of PEDOT:PSS. No contribution of the ZnO and SnO_2 underlayers to the EDX signal is observed because the 20 kV electrons only probe the top 2 μm of the 3 μm Cu_2O /PEDOT:PSS stack.

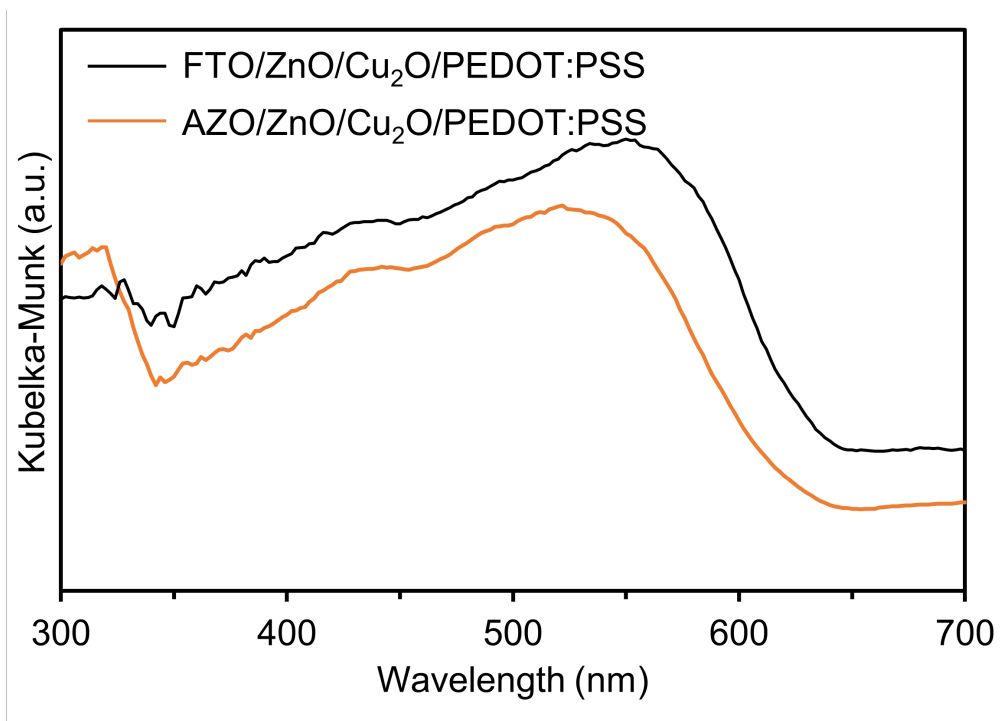


Figure S2. Diffuse reflectance optical spectra for FTO/ZnO/Cu₂O/PEDOT:PSS and AZO/ZnO/Cu₂O/PEDOT:PSS.

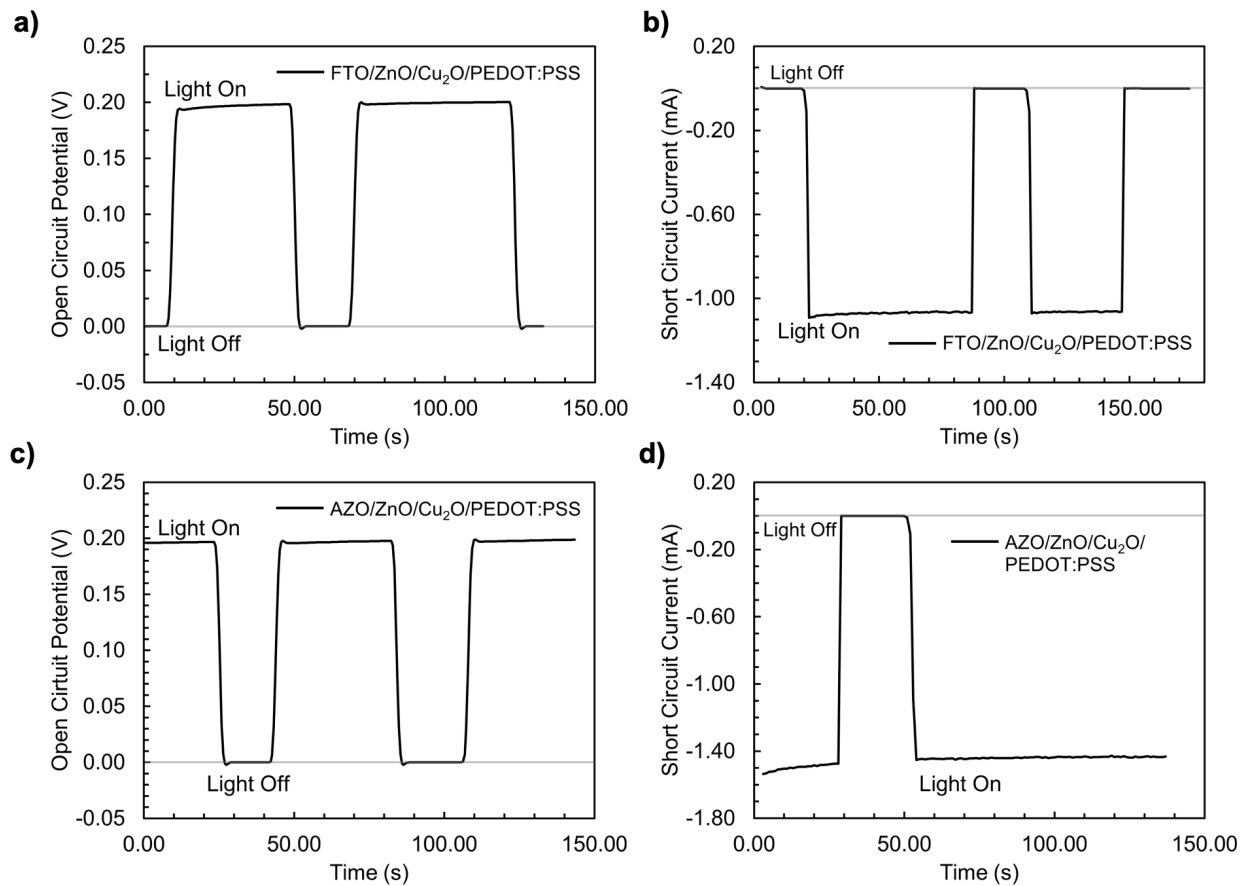


Figure S3. Open circuit voltage and short circuit current versus time under AM1.5 illumination for a,b) FTO/ZnO/Cu₂O/PEDOT:PSS and c,d) AZO/ZnO/Cu₂O/PEDOT:PSS.

Table S1. Photovoltaic data for FTO/ZnO/Cu₂O/PEDOT:PSS/Ni devices under AM 1.5 illumination.

	Trial 1	Trial 2	Trial 3	Trial 4	Average	STD
J_{sc} (mA/cm²)	0.9	1	0.7	0.8	0.85	0.11
V_{oc} (mV)	160	160	155	164	159.8	3.19
FF (%)	27.06	23	28	22	25.01	2.56
PCE (%)	0.039	0.037	0.030	0.029	0.034	0.004

Table S2. Photovoltaic data for AZO/ZnO/Cu₂O/PEDOT:PSS/Ni devices under AM 1.5 illumination.

	Trial 1	Trial 2	Trial 3	Trial 4	Average	STD
J_{sc} (mA/cm²)	1.15	1.00	0.93	1.28	1.09	0.14
V_{oc} (mV)	185	175	180	195	183.8	7.40
FF (%)	25.06	26.03	25.05	27.24	25.85	0.90
PCE (%)	0.05	0.05	0.04	0.07	0.05	0.01