Supporting information for:

Electrochemically Deposited Film as Interface Layer to Improve the Performance of Polymer Light-emitting diodes

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1. Electrochemical redox behavior of TCPC on PEDOT:PSS

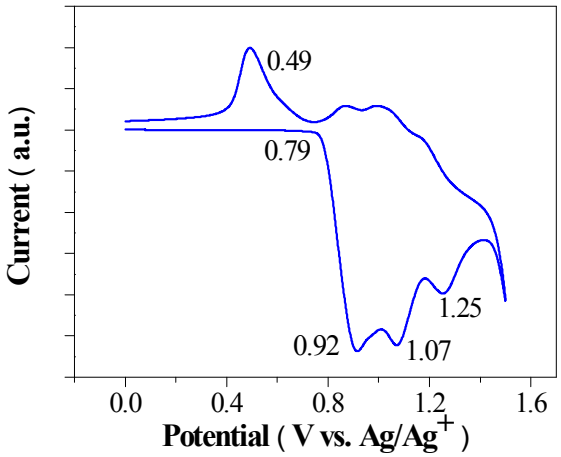

Figure S1. Cyclic voltammogram for electrochemical polymerization under conditions such as: 1 mg mL^{-1} TCPC, 0.1 M $TBAPF_6$, scanning potential region 0 V to + 1.5 V, mixtured solvents V_{CH2Cl2}:V_{CH3CN} = 2:3, scanning rate 50 mV/s.

2. AFM images of PEDOT:PSS and ECP layer

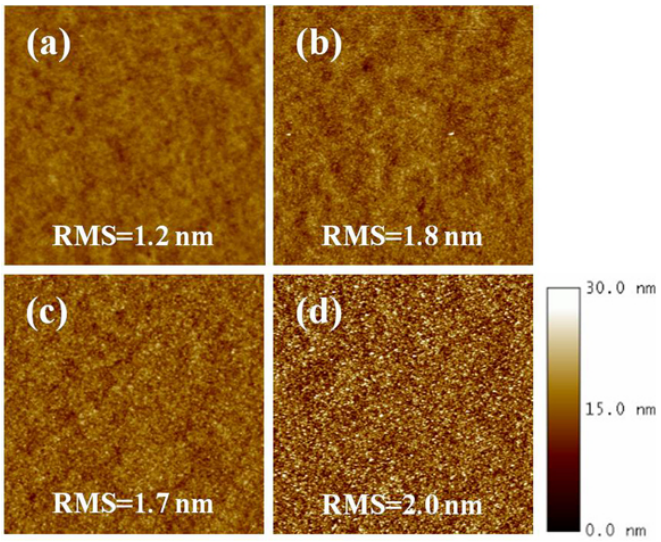

Figure S2. AFM height images of (a) ITO/PEDOT:PSS and (b,c,d) ITO/PEDOT:PSS/ECP (6, 12, 15 nm). The size of the images is 5×5 μm. The ECP film is prepared under conditions such as: 1 mg mL^{-1} TCPC, 0.1 M $TBAPF_6$, scanning potential region – 0.8 V to + 0.83 V, mixtured solvents V_{CH2Cl2}: V_{CH3CN} = 2:3, scanning rate 200 mV/s.

3. Absorption spectrum of ECP thin film on ITO/PEDOT:PSS substrate before and after rinse

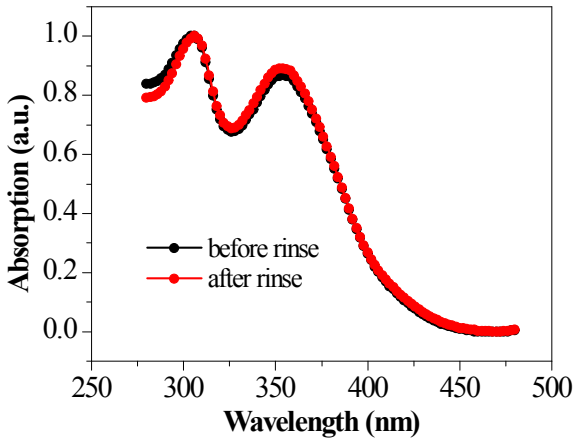

Figure S3. Absorption spectrum of ECP thin film on ITO/PEDOT:PSS substrate before and after rinse with *p*-xylene used to dissolve light-emitting P-PPV.

4. I-V characteristic of hole only device

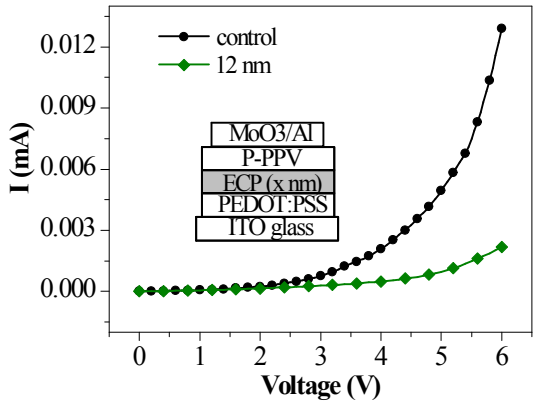

Figure S4. The I-V characteristic of hole only devices of ITO/PEDOT:PSS (40 nm)/ECP (x nm)/P-PPV (80 nm)/MoO_3 (10 nm)/Al (120 nm), x=0, 12 nm. X = 0 means that there was no ECP layer between PEDOT:PSS and P-PPV, which was actually a control device.

5. Electroluminescence (EL) spectrum of PLEDs device

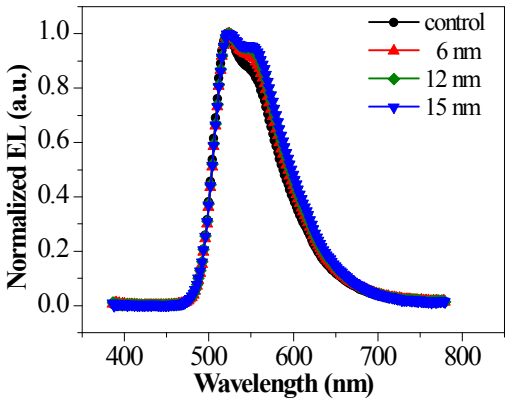

Figure S5. The EL spectra of PLEDs devices with ECP thin layer of different thickness.