Supporting Information

Transfer Printing of Polymer Light-Emitting Devices with a Small Molecular Seeding Layer Featuring Thermally Activated Delayed Fluorescence for Triplet Harvesting

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Experimental Section

General information: PDMS was a mixture of base and crosslinker (10:1 weight ratio, Sylgard 184, Dow Corning Co.) and cured on a hot plate at 60 ºC for 2 h. DMAC-DPS was synthesized in our lab according to the literature method[1]. All other materials were purchased from commercial sources and used as received. The contact angles of the films and substrates were measured by Dataphysics OCA25. The SEM images were measured by FEI VERIOS 460. The AFM images were measured by NT-MDT Ntegra Spectra. The absorption and PL spectra were measured by a Shimadzu UV-2700 UV-VIS spectrophotometer and a Hitachi F-4600 fluorescence spectrophotometer,

respectively. The transient PL spectra were measured by single photon counting spectrometer from Edinburgh Instruments (FLS920) with a Picosecond Pulsed UV-LASTER (LASTER377) as the excitation source.

OLED fabrication: The ITO substrates were cleaned in acetone and ethanol ultrasonic bath consecutively. Afterwards, the substrates were dried with N_2 and treated by UV-ozone for 20 min. A layer of 40 nm-thick PEDOT:PSS was spin-coated onto the ITO substrate and then baked at 120 ºC for 10 min. Then a layer of DMAC-DPS or mCP from chlorobenzene was spin-coated on PEDOT:PSS. In the process of transfer printing, the glass was cleaned and treated by UV-ozone before immersing in 0.5wt% MPTS-solution (95% EtOH and 1% HAc) for 1 h. Then a layer of SY was spin-coated from chlorobenzene on the MPTS-treated glass and peeled-off by the PDMS stamp. The SY coated PDMS was laminated on DMAC-DPS or mCP while treated at 50 ºC for 1 min before removing the PDMS stamp carefully. After the thermal evaporation of the composite Liq/Al cathode, all the devices were encapsulated with UV-curable resin. The voltage-current-luminance characteristics and the EL spectra were simultaneously measured with a PR735 SpectraScan Spectroradiometer and a Keithley 2400 source meter unit under ambient atmosphere at room temperature.

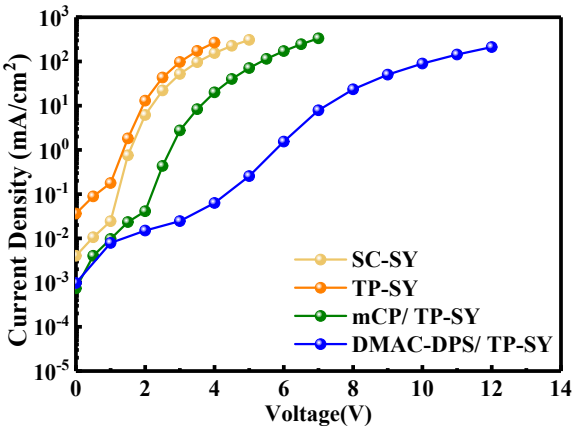

Figure S1. Current density-voltage curves of the devices

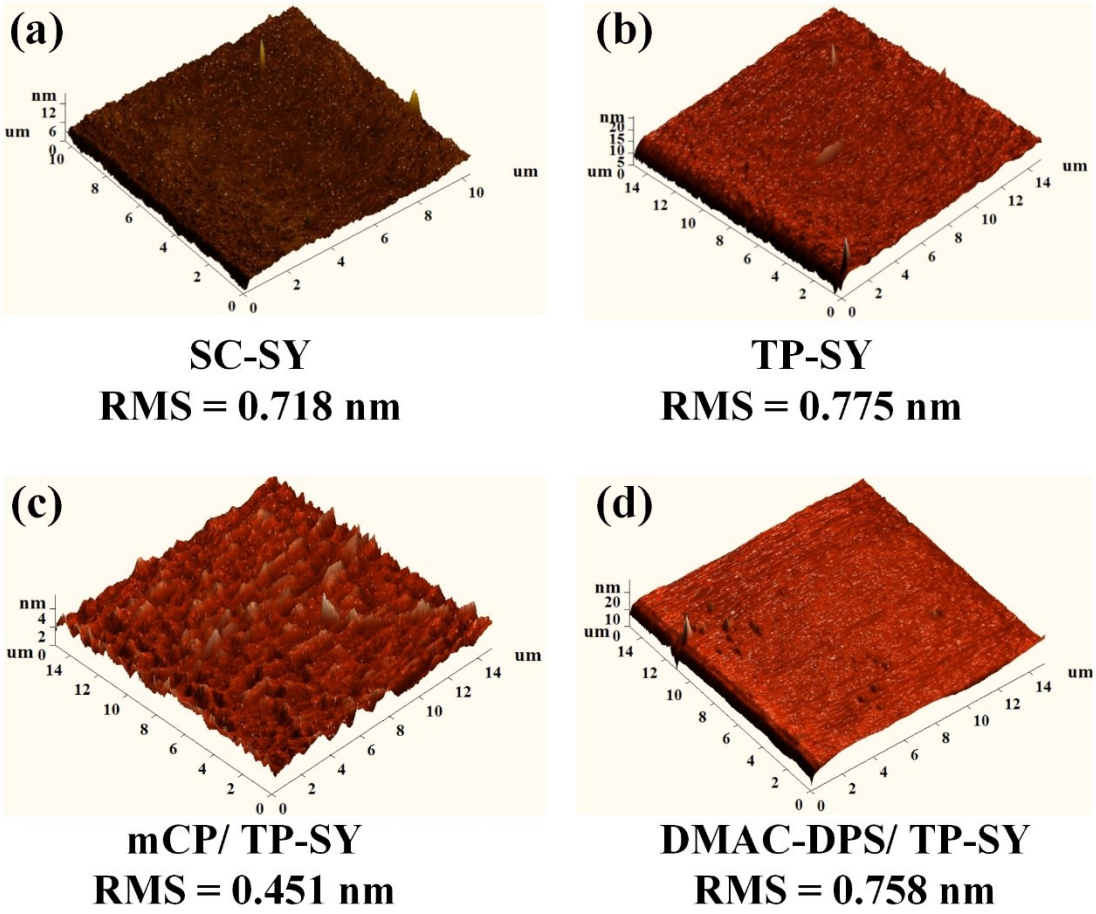

Figure S2. AFM topographic images of PEDOT:PSS/ (SC-SY (a), TP-SY (b), mCP/TP-SY (c), and DMAC-DPS/TP-SY (d)) on the glass substrates with the identical stacks to those in the EL devices.

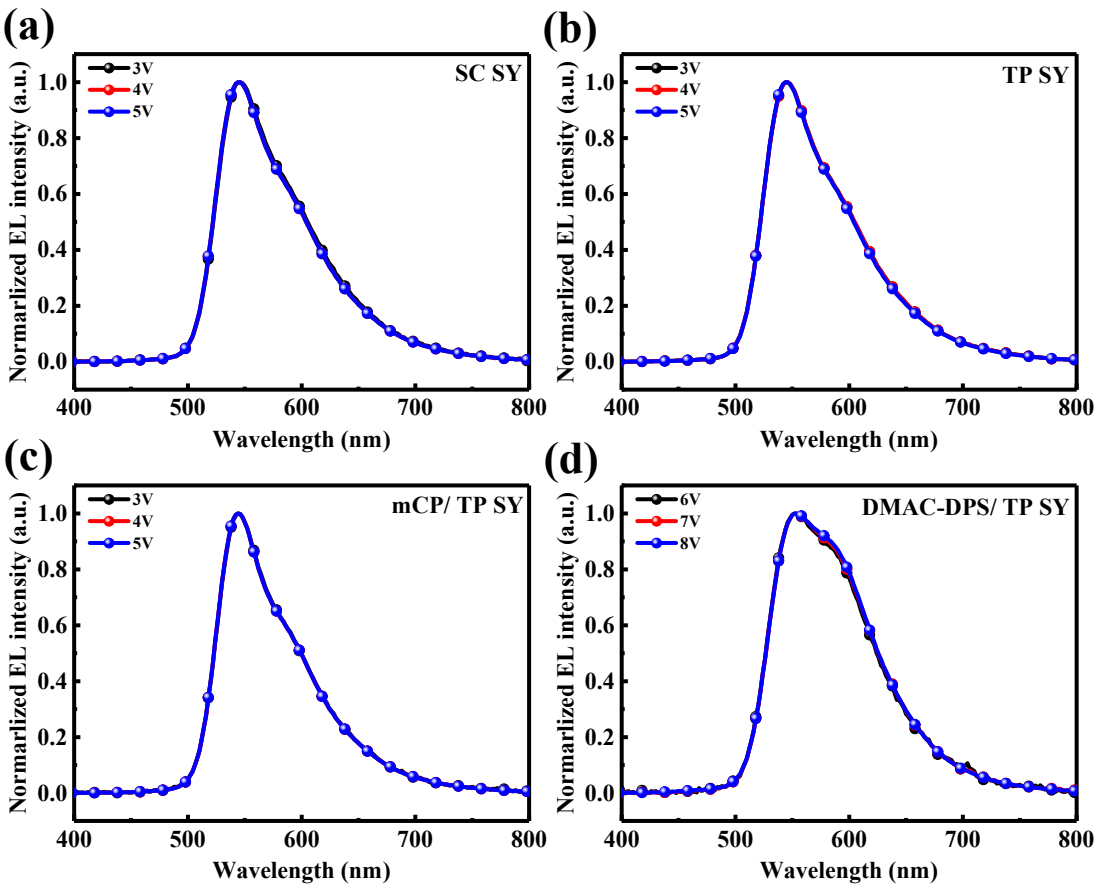

Figure S3. Normalized EL spectra of the devices A-D with the SC-SY (a), TP-SY (b), mCP/TP-SY (c), and DMAC-DPS/TP-SY (d).

Reference

1. K. Wu, Z. Wang, L. Zhan, C. Zhong, S. Gong, G. Xie and C. Yang, *J. Phys. Chem. Lett.*, 2018, **9**, 1547-1553.