Electronic Supplementary Information

Synthesis, Characterization, and Field-Effect Transistor Performance of Naphtho[1,2-b:5,6b']dithiophene-Based Donor-Acceptor Copolymers

Shaowei Shi^{1,2}, Xiaodong Xie³, Rui Qu¹, Song Chen⁴, Liwei Wang¹, Meng Wang¹, Haiqiao Wang^{1,2}*, Xiaoyu Li²*, and Gui Yu³*

 State Key Laboratory of Organic-Inorganic Composite, Beijing University of Chemical Technology, Beijing 100029, China

 Key Laboratory of Carbon Fiber and Functional Polymers, Ministry of Education, Beijing University of Chemical Technology, Beijing 100029, China

3. CAS Key Laboratory of Organic Solids, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

4. China Textile Academy, Beijing, 100025, China

* Corresponding author: e-mail: wanghaiqiao@mail.buct.edu.cn (H. Wang); yugui@iccas.ac.cn

(G. Yu); lixy@mail.buct.edu.cn (X. Li)

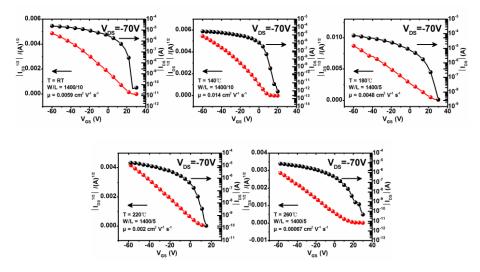


Figure S1. Typical transfer curves of the PzNDT-T-DPP-based OFETs with different channel length under different annealing temperature (T)

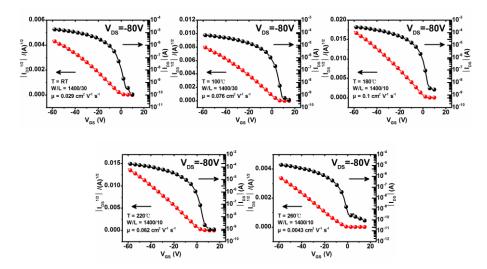


Figure S2. Typical transfer curves of the PzNDT-F-DPP-based OFETs with different channel length under different annealing temperature (T)

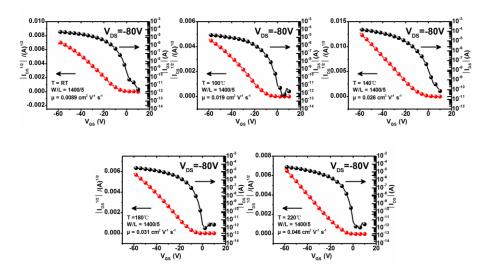


Figure S3. Typical transfer curves of the PzNDTTPD-based OFETs with different channel length under different annealing temperature (T)

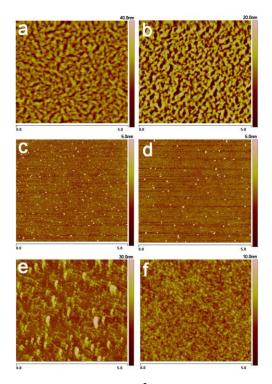


Figure S4. AFM topography images $(5 \times 5 \ \mu m^2)$ of polymer films on OTS-modified SiO₂/Si substrates. The PzNDT-T-DPP thin films: a) without annealing, and b) with annealing at 100 °C. The PzNDT-F-DPP thin films: c) without annealing, and d) with annealing at 140 °C. The PzNDTTPD thin films: e) without annealing, and f) with annealing at 260 °C.

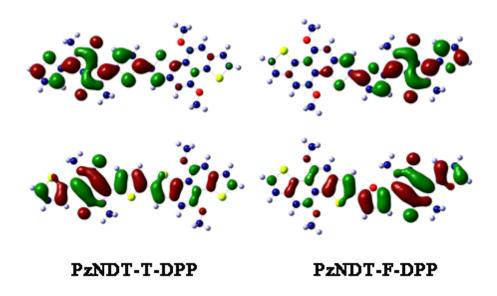


Figure S5. The frontier molecular orbital (LUMO, top; HOMO, bottom) obtained from density functional theory (DFT) calculations on the polymers with a chain length n=1 at b3lyp/6-31g(d,p) level of theory.