Electronic Supplementary Material (ESI) for Materials Advances.
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Supplementary information

Anisotropic valence band dispersion of 2D molecular crystals of C6-DPA and its charge transport dependence

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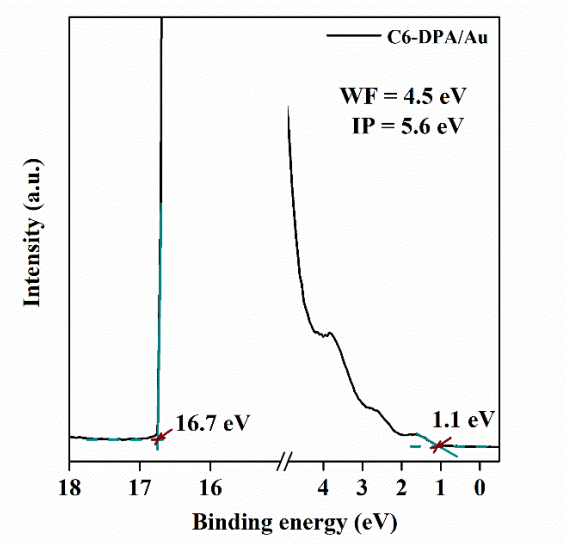

Fig. S1 He I ultraviolet photoelectron spectrum of 2DMCs of C6-DPA. The work function (WF) is 4.5 eV calculated by subtracting high binding-energy cutoff from the HeI radiation energy of 21.2 eV. The onset value of highest occupied molecular orbitals (HOMO) is 1.1 eV determined by intersection of tangent of feature Ha and the baseline. The ionization potential (IP) is 5.6 eV.

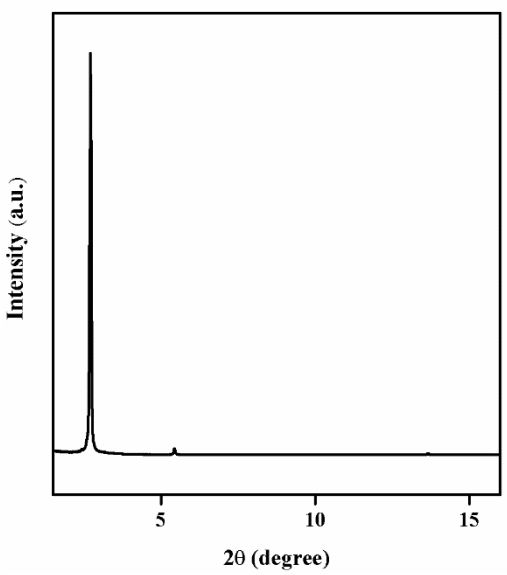

Fig.S2 X-ray diffraction of 2DMCs of C6-DPA. The first diffraction peak was at 2θ=2.74°, indicating the interlayer spacing of 3.22 nm.

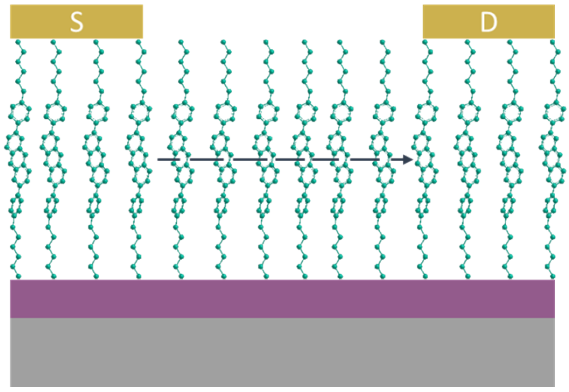

Fig. S3 The molecular packing within active layer in OFETs. The arrow indicates the moving of charge carrier.

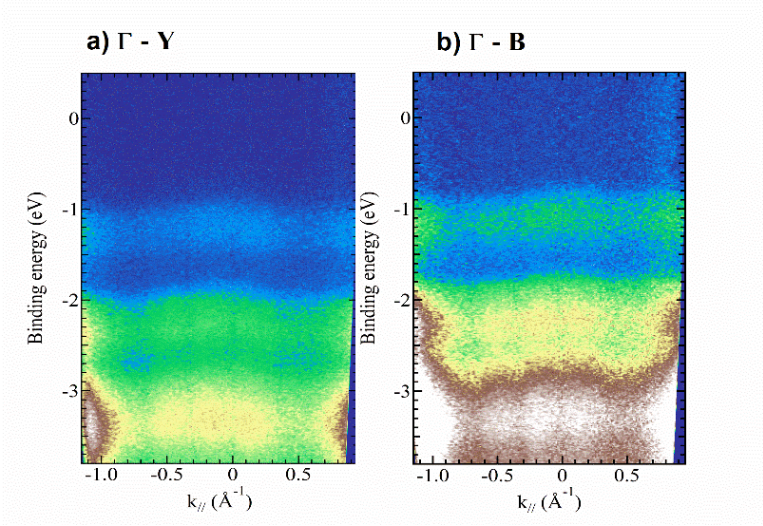

Fig. S4 ARUPS spectra along Γ – Y (a) direction and Γ – B direction (B).

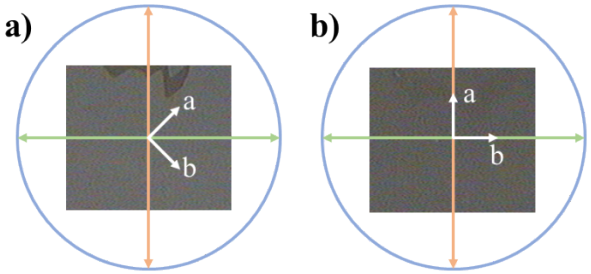

Fig. S5 The possible molecular axis under polarized optical microscope under bright field a) and dark field b).

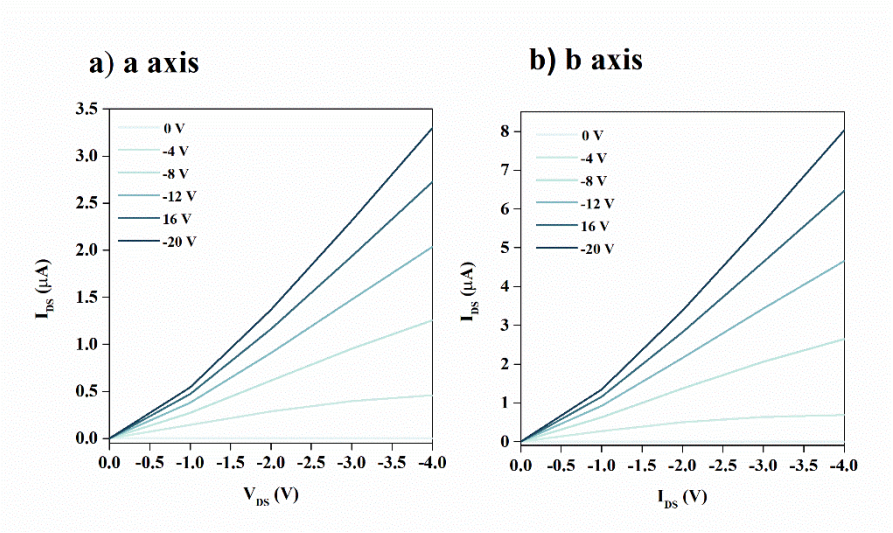

Fig. S6 Output curves in the linear region with different gate voltage.

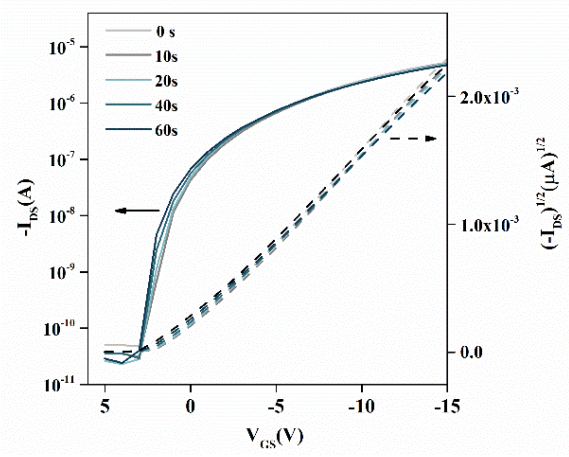

Fig. S7 Bias stability of OFET with a gate bias voltage of -15 V for the indicated time.