

## Electronic Supplementary Information (ESI)

### **Tunable Dielectric Constant of Polyimide-Barium Titanate Nanocomposite Materials as the Gate Dielectrics for Organic Thin Film Transistors Applications**

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Chen<sup>e</sup>

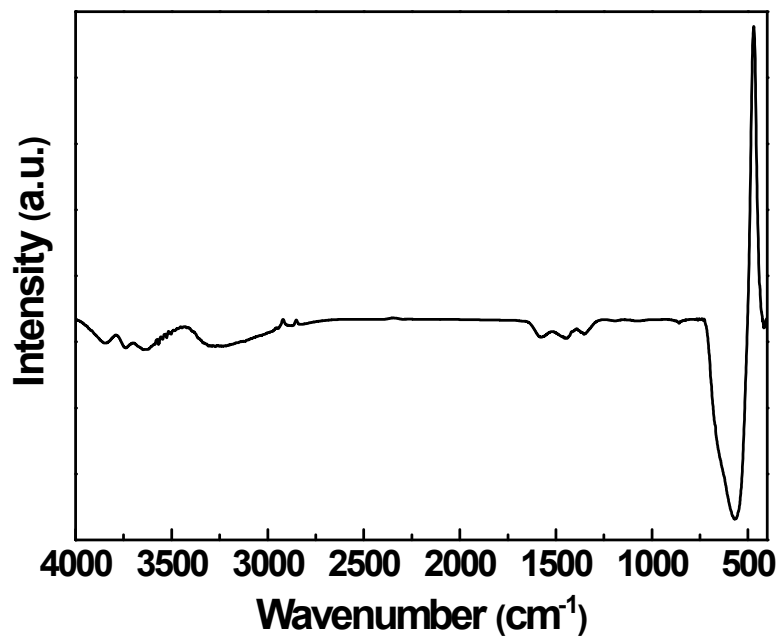
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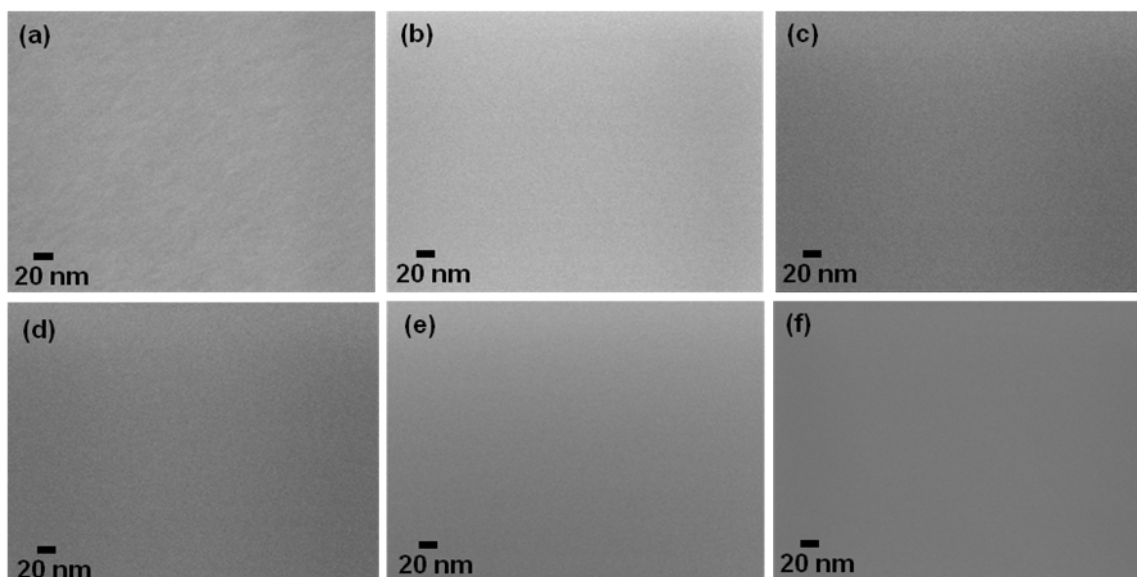
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**Fig. S1.** FTIR spectra of BT ceramic.



**Fig. S2.** SEM micrograph of dielectric surface: (a) **PI-BT0**, (b) **PI-BT2**, (c) **PI-BT5**, (d) **PI-BT8**, (e) **PI-BT10**, and (f) **PI-BT12**.

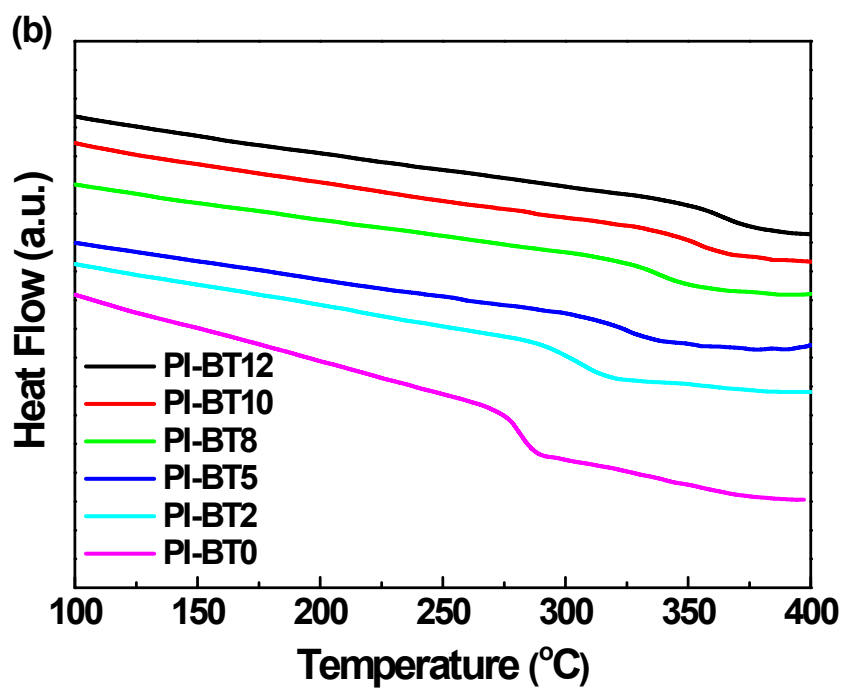
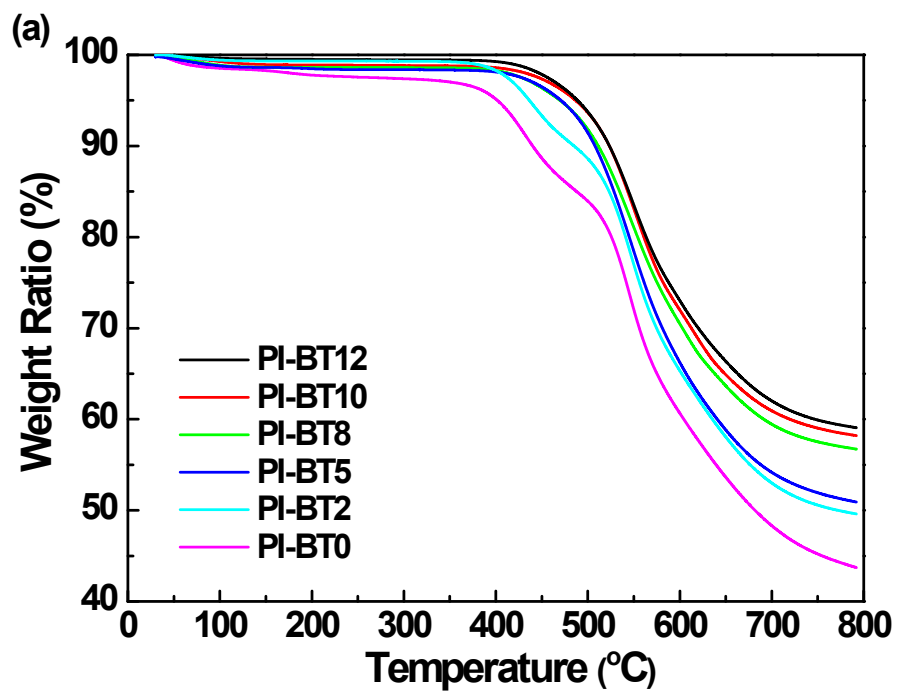
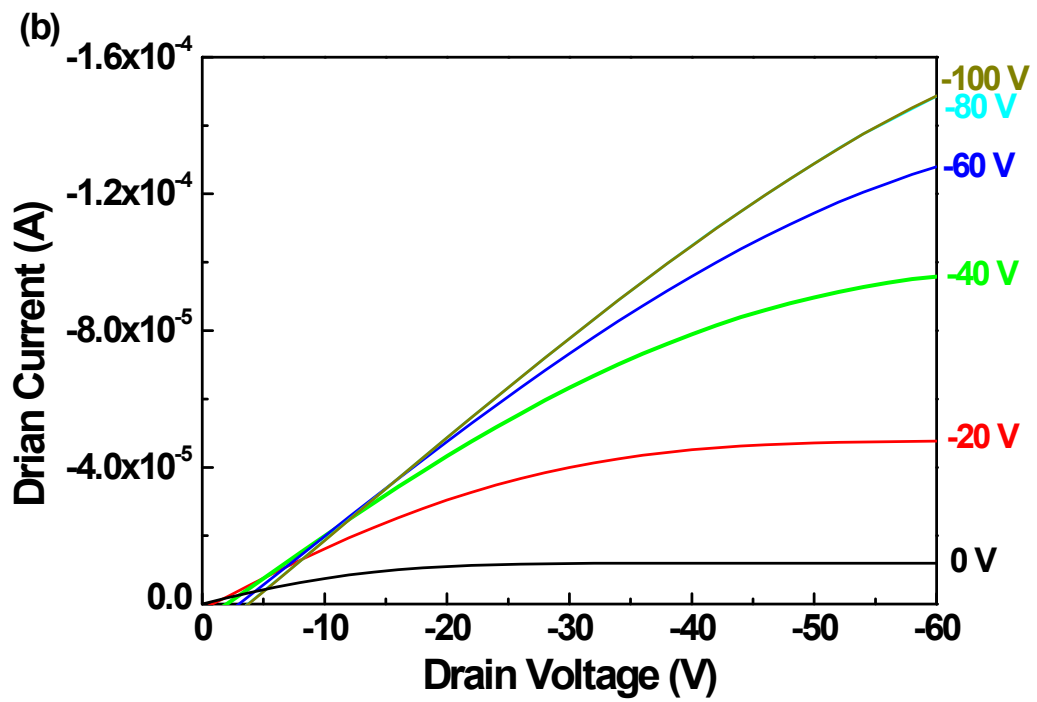
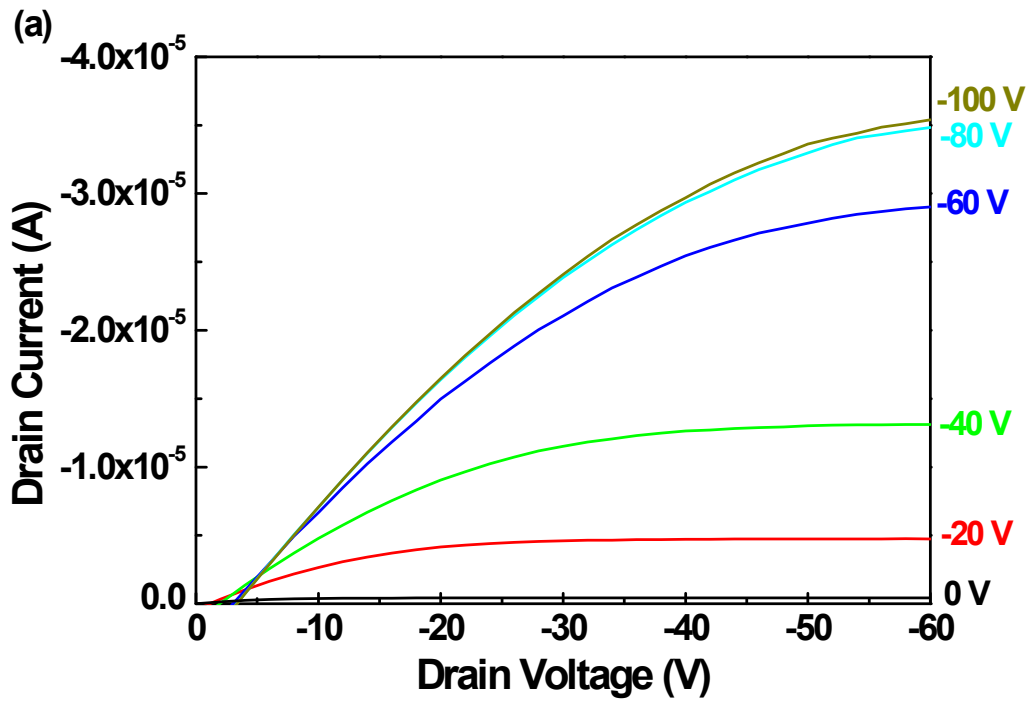
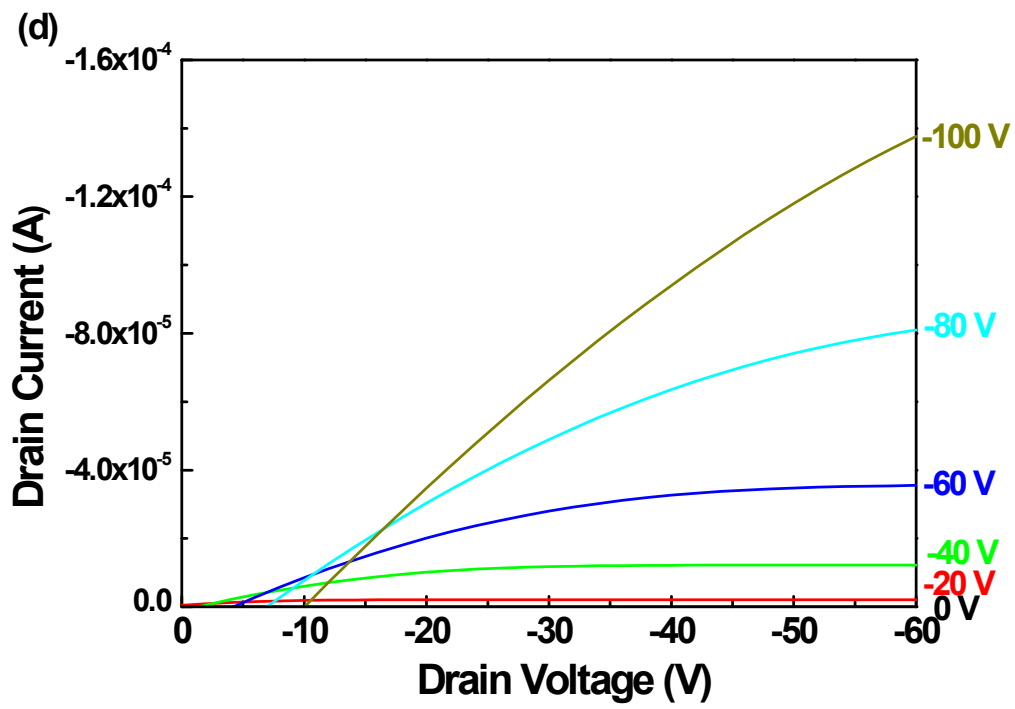
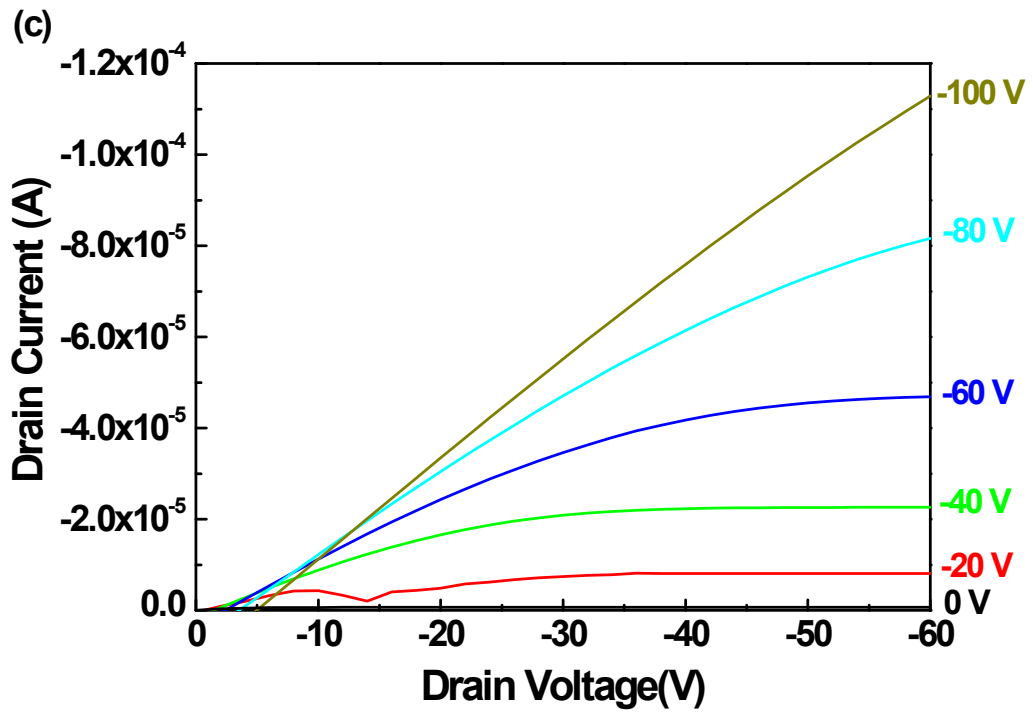


Fig. S3. (a) TGA and (b) DSC curves of PI-BTX hybrid materials.





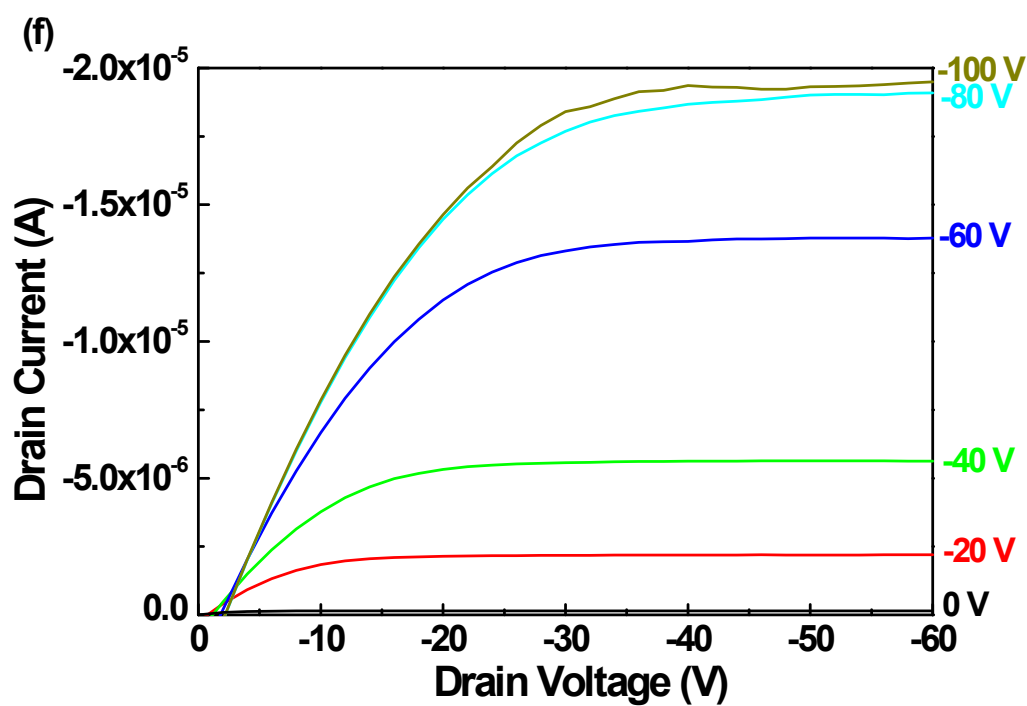
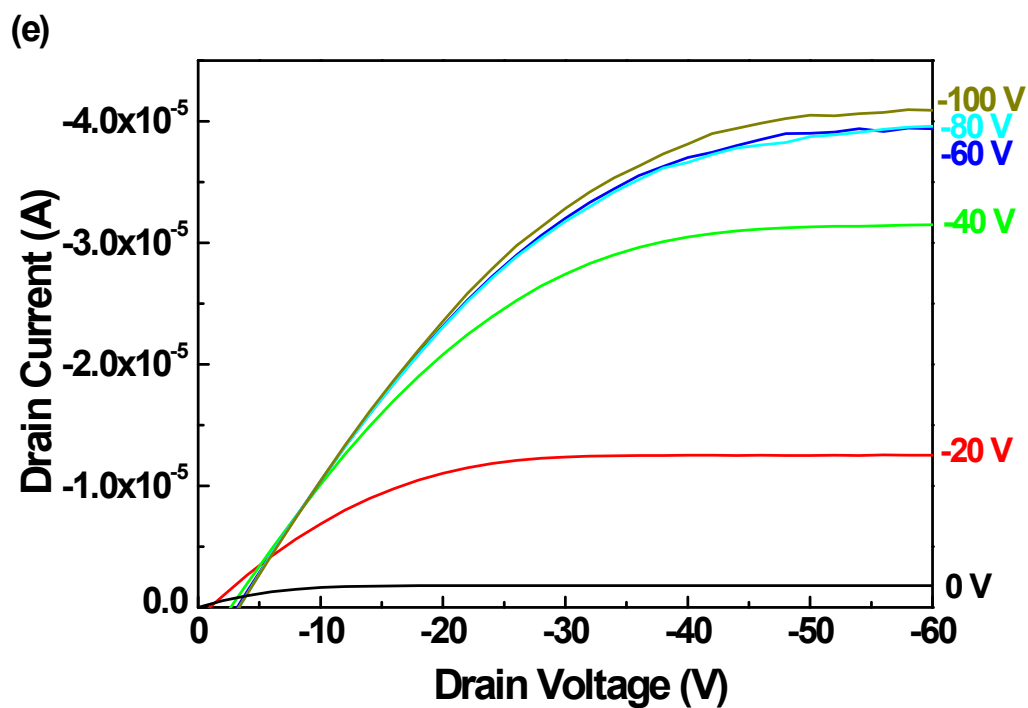
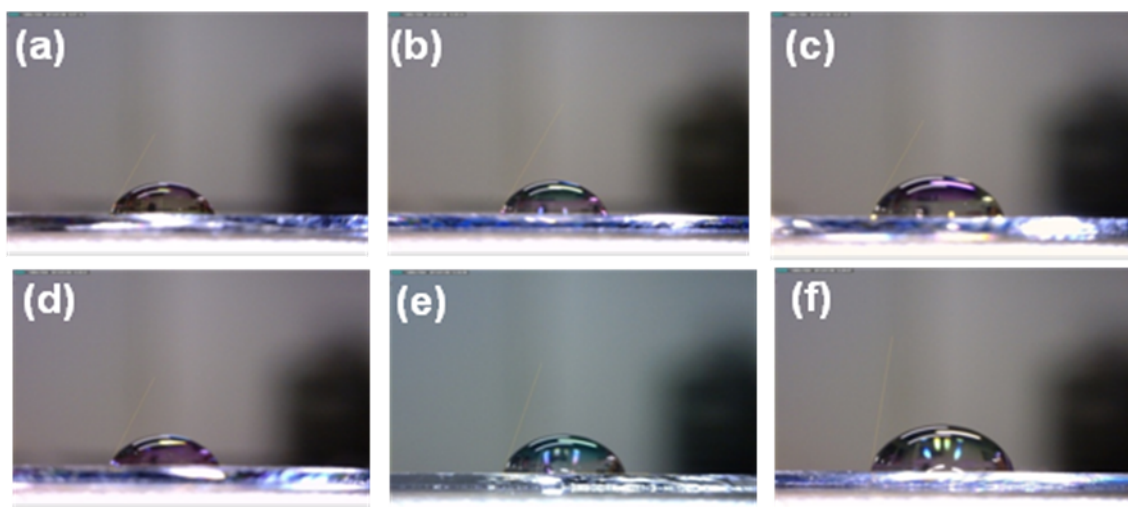
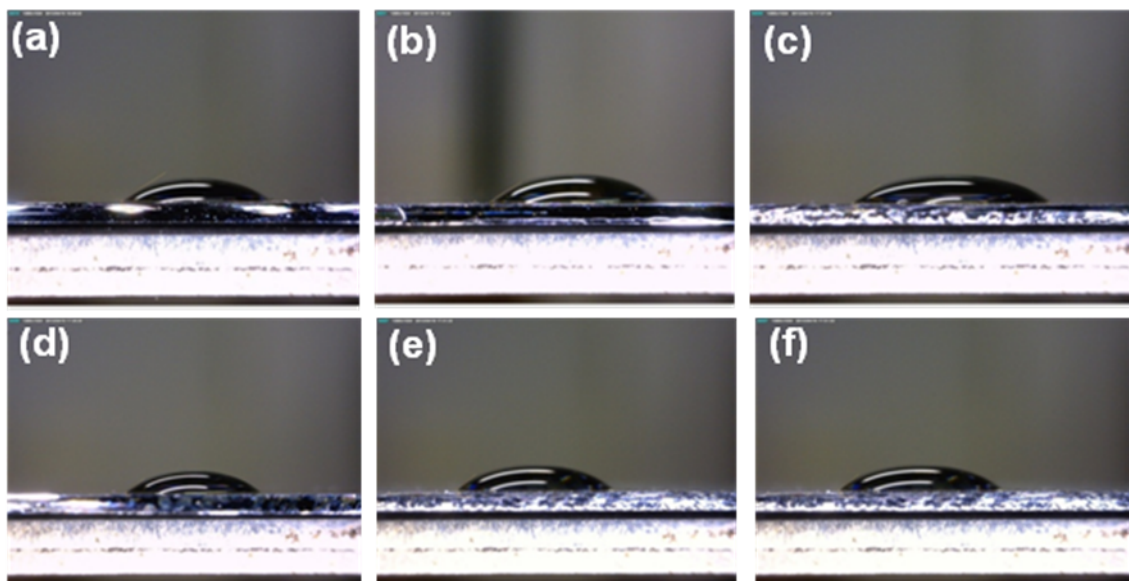


Fig. S4. Output characteristics of the OTFTs based on (a) PI-BT0, (b) PI-BT2, (c) PI-BT5, (d) PI-BT8, (e) PI-BT10, and (f) PI-BT12 hybrid dielectric.

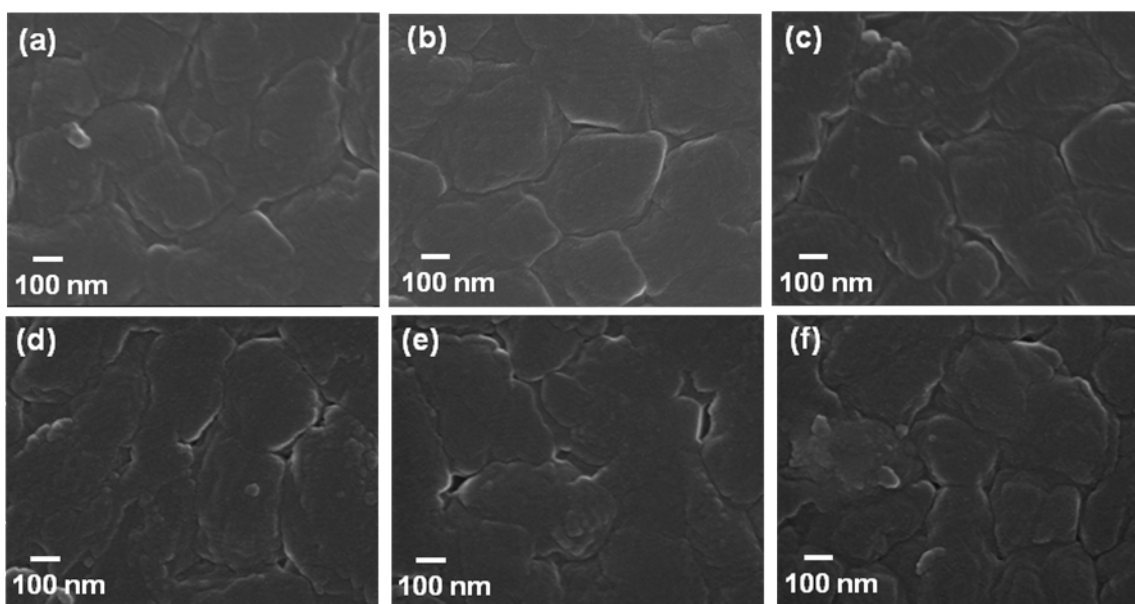


**Fig. S5.** Water contact angles on (a) **PI-BT0**, (b) **PI-BT2**, (c) **PI-BT5**, (d) **PI-BT8**, (e) **PI-BT10** and (f) **PB12** hybrid surface.





**Fig. S6.** Diiodomethane contact angles on (a) **PI-BT0**, (b) **PI-BT2**, (c) **PI-BT5**, (d) **PI-BT8**, (e) **PI-BT10** and (f) **PI-BT12** hybrid surface.



**Fig. S7.** SEM images of pentacene deposited on dielectric films: (a) **PI-BT0**, (b) **PI-BT2**, (c) **PI-BT5**, (d) **PI-BT8**, (e) **PI-BT10** and (f) **PI-BT12**