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# Supporting Information

# Impact of molecular planarity on electronic devices in thienoisoindigo-based organic semiconductors

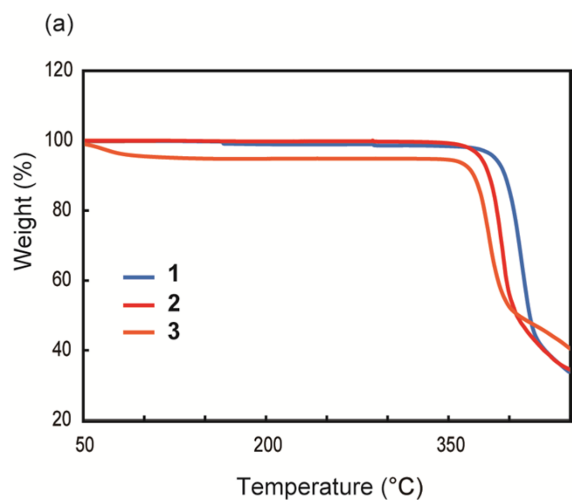
Takefumi Odajima[a], Minoru Ashizawa[a, *], Yuichi Kounsu[a] , Hidetoshi Matsumoto[a], Takehiko Mori[ab]

[a]Department of Organic and Polymeric Materials, Tokyo Institute of Technology, O-okayama 2-12-1, Meguro-ku, Tokyo 152-8552

[b]ACT-C, Honcho, Kawaguchi, 332-0012, Japan

E-mail: ashizawa.m.aa@m.titech.ac.jp

*Author to whom all correspondence should be addressed.



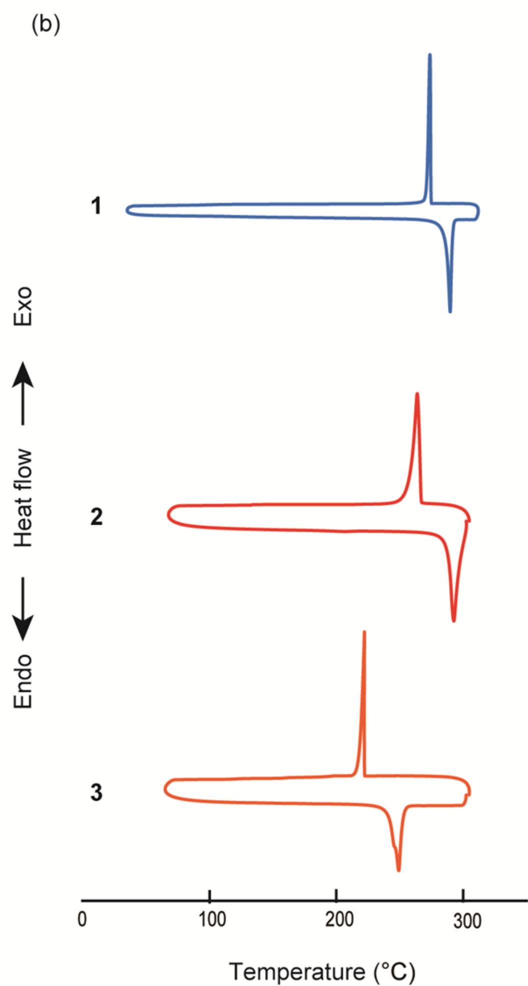




**Fig. S1** (a) TGA curves of **1-3** at the heating rate of 10 °C / min under a nitrogen atmosphere. (b) DSC curves of **1-3** at the scan rate of 5 °C / min under a nitrogen atmosphere.

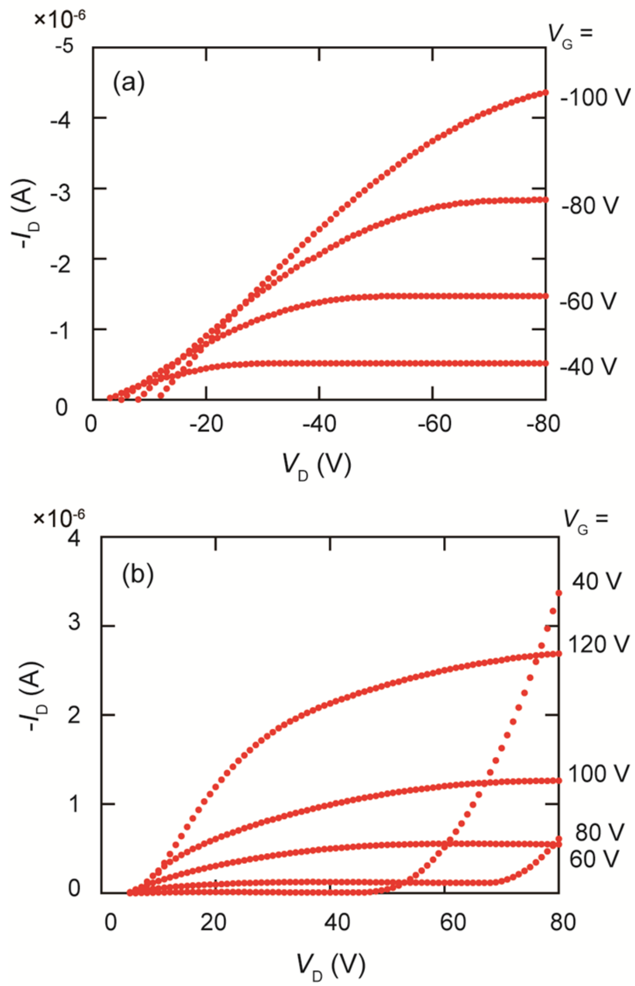



**Fig. S2** (a) p-channel and (b) n-channel output characteristics of a top contact device of **1** prepared on a TTC modified substrate.

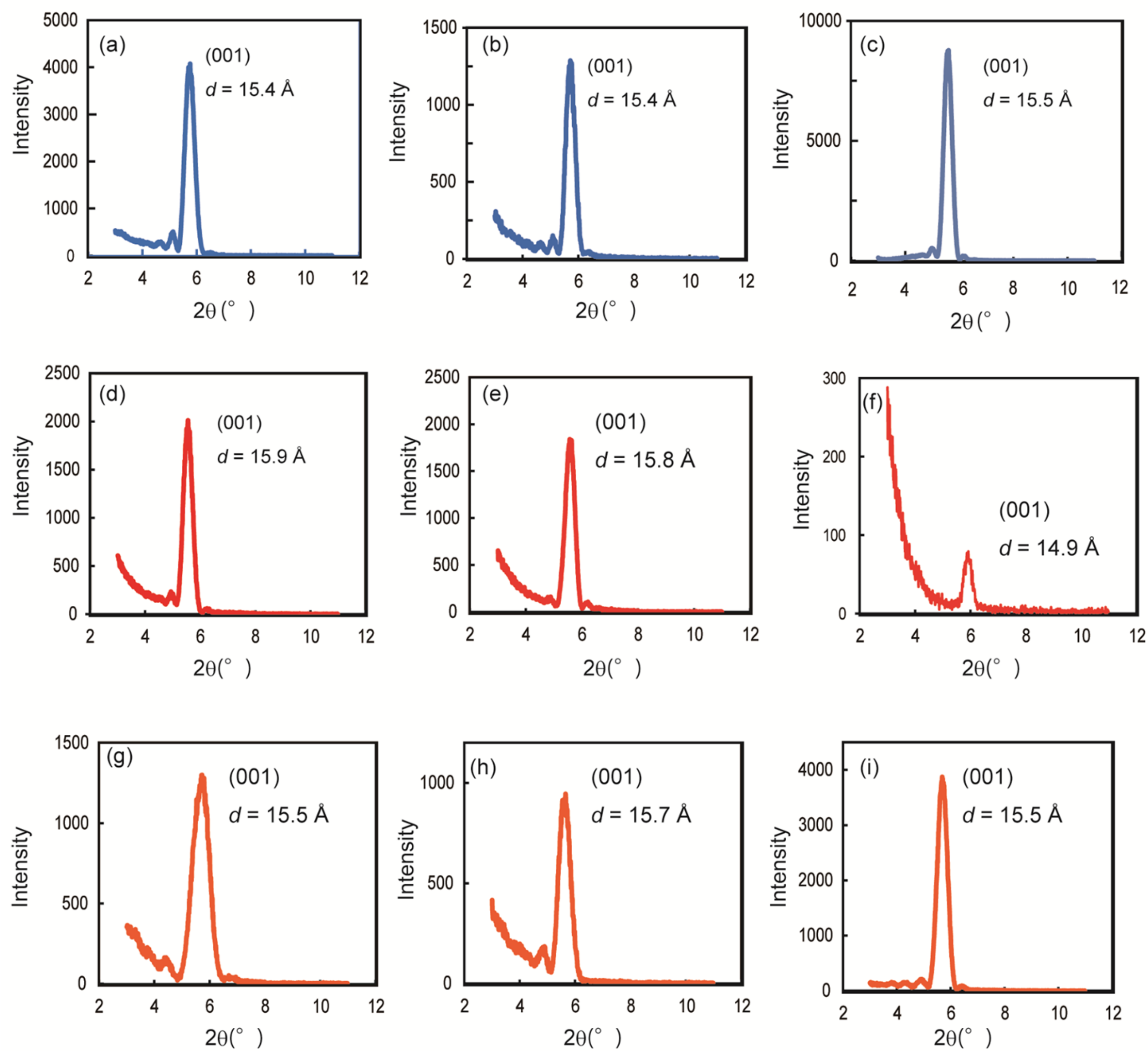



**Fig. S3** XRD patterns of **1** thermally evaporated films on (a) bare, (b) HMDS, and (c) OTMS substrates. XRD patterns of **2** on (d) bare, (e) HMDS, and (f) OTMS substrates. XRD patterns of **3** on (g) bare, (h) HMDS, and (i) OTMS substrates.

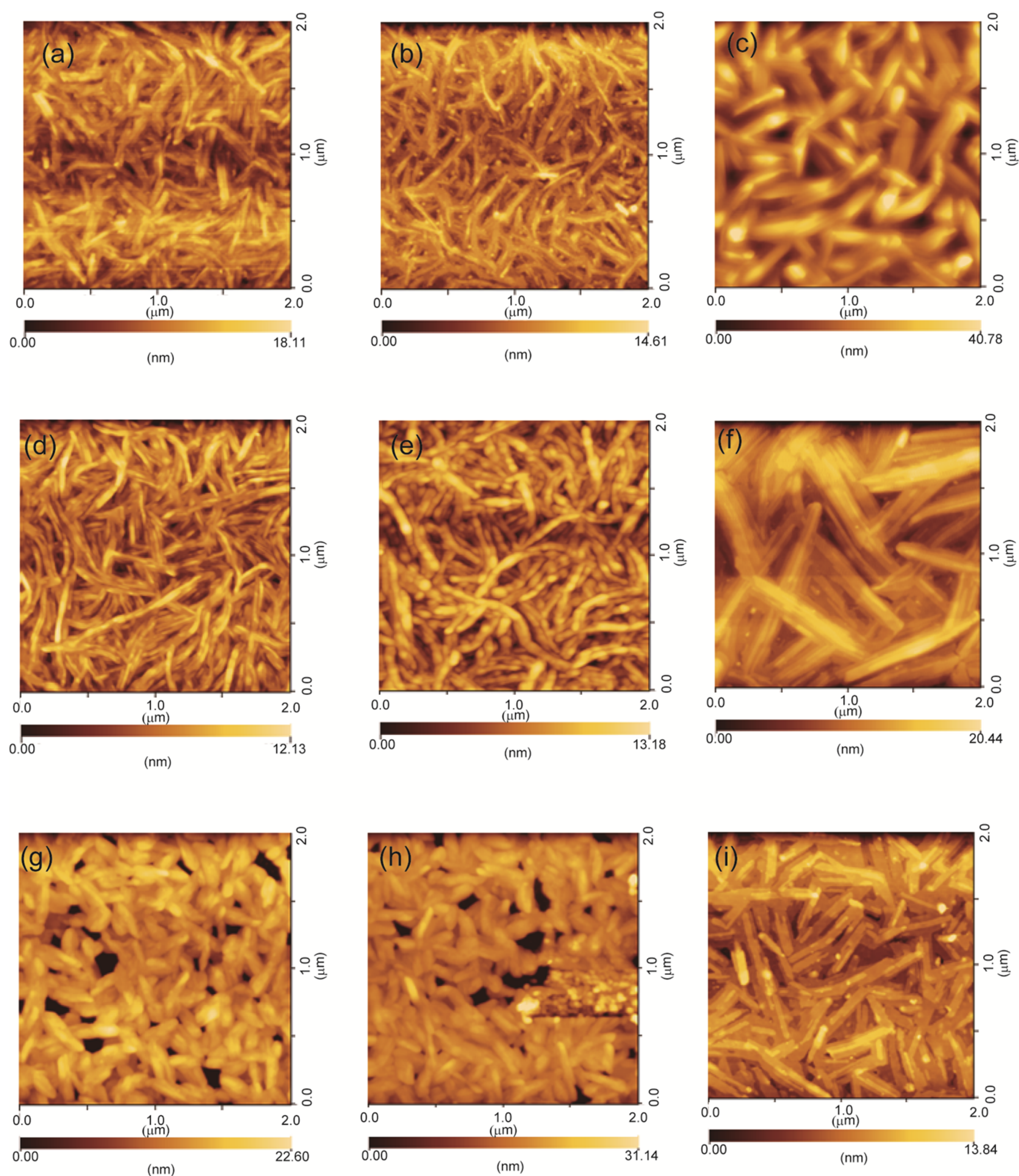



**Fig. S4** AFM images of **1** thermally evaporated on (a) bare, (b) HMDS, and (c) OTMS substrates. AFM images of **2** on (d) bare, (e), HDMS, and (f) OTMS substrates. AFM images of **3** on (g) bare, (h) HMDS, and (i) OTMS substrates.

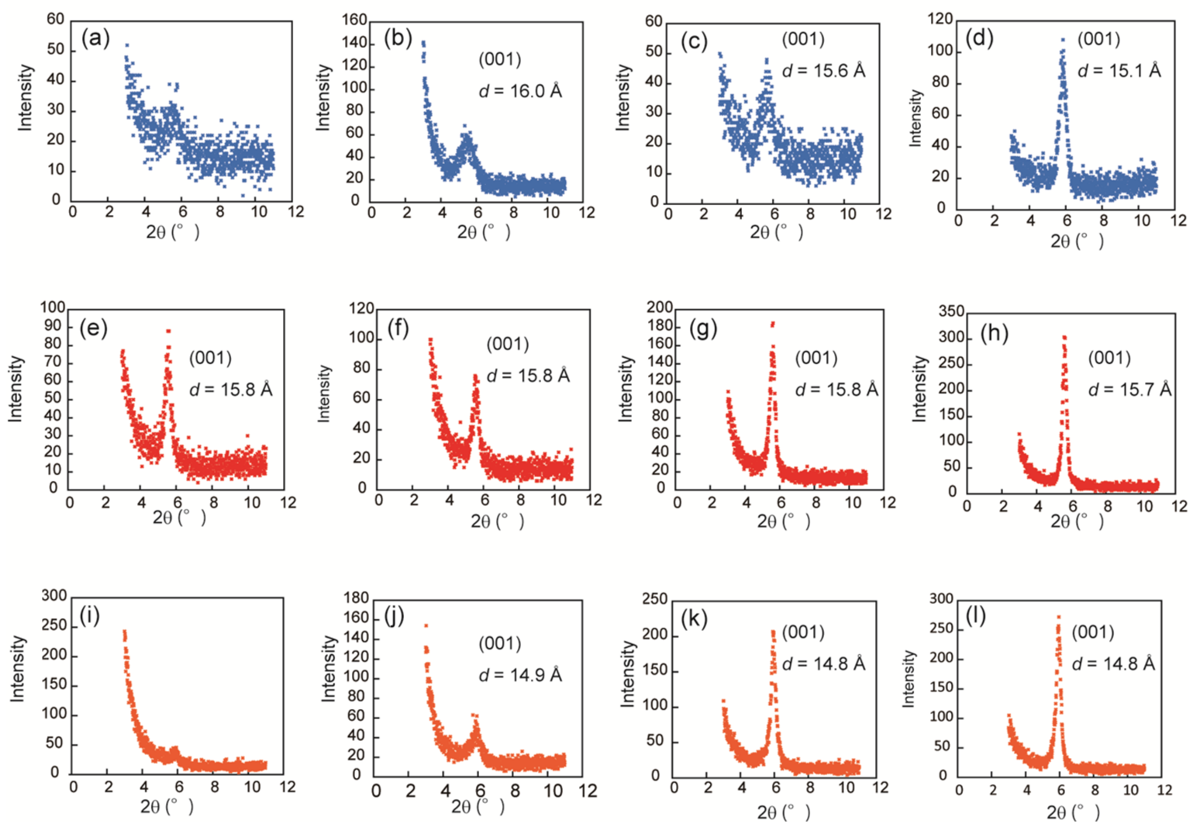



**Fig. S5** XRD patterns of blended films of **1** (a) as cast, and after annealing at (b) 80 °C, (c) 110 °C, and (d) 150 °C. XRD patterns of blended films of **2** (e) as cast, and after annealing at (f) 80 °C, (g) 110 °C, and (h) 150 °C. XRD patterns of blended films of **3** (i) as cast, and after annealing at (j) 80 °C, (k) 110 °C, and (l) 150 °C.