Synthesis and structural, electronic, optical and FET properties of thiophene-pyrrole mixed hexamers end-capped with phenyl and pentafluorophenyl groups

Tohru Nishinaga,*a Toshihiko Miyata,a Masahide Koizumi,a Masaki Tateno, Masayoshi Takase,a Masahiko Iyoda,a Norihito Kobayashi b and Yoshihito Kunugi* b

a Department of Chemistry, Graduate School of Science and Engineering, Tokyo Metropolitan University, Hachioji, Tokyo 192-0397, Japan. nishinaga-tohru@tmu.ac.jp; Fax: (+81)42-677-2525.
b Department of Applied Chemistry, Faculty of Engineering, Tokai University, Hiratsuka, Kanagawa 259-1292, Japan. ykunugi@keyaki.cc.u-tokai.ac.jp; Fax: (+81)463-58-1211.
Figure S1. UV-vis spectra of 3a–5a.
Figure S2. Cyclic Voltammograms of (a) 3a, (b) 4a and (c) 5a. Solvents: CH₂Cl₂ in positive potential regions and THF in negative potential regions; supporting electrolyte: 0.1 M \( n \)-Bu₄NPf₆.
Figure S3. Yellow microlcrystals and red crystals of 3a obtained from recrystallization from toluene.
Figure S4. XRD of the thin film of 4a.

Figure S5. Output characteristics of the (a) 4a- and (b) 5a-based thin film FET devices.
Figure S6. Transfer (left) and output (right) characteristics of the 4a-based single crystal FET device.
Figure S7. Packing structure in (a) a-c plane and (b) b-c plane and (c) top and (b) side view of a single crystal of 5a.