# **Supplementary Information**

## Amorphous Dithienylcyclopentadienone-Carbazole copolymer for Organic Thin-Film Transistors

By Evan S. H. Kang,<sup>1,2</sup> Jonathan D. Yuen,<sup>2</sup> Wesley Walker,<sup>3</sup> Nelson E. Coates,<sup>2</sup> Shinuk Cho,<sup>2,\*</sup> Eunseong Kim,<sup>1,\*</sup> and Fred Wudl<sup>2</sup>

- <sup>1</sup>Center for Supersolid and Quantum matter, Korea Advanced Institute of Science and Technology, Deajeon 305-701 (Korea)
- <sup>2</sup>Center for Polymers and Organic Solids, University of California, Santa Barbara, CA 93106-5090 (USA)
- <sup>3</sup>Depertment of Chemistry and Biochemistry, University of California, Los Angeles, CA 90095-1569 (USA)

### **TEM microscopy**

TEM samples were prepared by first casting a DTCPD-*alt*-CB thin film on glass, and then removed from the nitrogen environment and scored with a diamond scribe to define the sample size. The substrate and film were immersed in deionized water for 20 minutes and sonicated to promote delamination. Resulting pieces of the film were transferred to a PELCO copper TEM grid with a carbon/Formvar support grid. TEM specimens were allowed to dry under low heat to remove excess water from the transfer process. Light field imaging was performed in an FEI T20 TEM using proper defocus for additional phase contrast from the relatively amorphous polymer material.



Figure S1. TEM images of DTCPD-alt-CB thin film

#### **Electrochemical Measurements**

Cyclic voltammetry was carried out with a Princeton Applied Research Model 263A Potentiostat/Galvanostat, employing a platinum disk working electrode (diameter: 1.6 mm; area  $0.02 \text{ cm}^2$ ), a platinum flag counter electrode, and a silver wire used as the pseudo-reference electrode (unless otherwise noted). All cyclic voltammetry measurements were carried out in o-DCB, with the supporting electrolyte tetrabutylammonium hexafluorophosphate (0.1 M).



Figure S2. Cyclic voltammetry of DTCPD-alt-CB

### **Elemental Analysis**

NMR spectra were obtained on a Bruker DMX 500MHz spectrometer utilizing Topspin software. Elemental analysis was performed by Desert Analytics. All GPC measurements were made on an Agilent Technologies 1200 Series GPC/HPLC running ChemStation software and utilizing polystyrene narrow calibration standards and chloroform as an eluting solvent.