Supporting Information

High-performance organic field-effect transistors based on organic single crystal microribbons fabricated by an in situ annealing method†

Ji Zhang, ‡ a Zhaoguang Li, ‡ b Weifeng Zhang, a Man Shing Wong* b and Gui Yu* ac

a CAS key Laboratory of Organic Solids, CAS Research/Education Center for Excellence in Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, P. R. China
E-mail: yugui@iccas.ac.cn

b Institute of Molecular Functional Materials, Department of Chemistry, and Institute of Advanced Materials, Hong Kong Baptist University, Kowloon Tong, Hong Kong SAR, P. R. China
E-mail: mswong@hkbu.edu.hk

c School of Chemical Sciences, University of Chinese Academy of Sciences, Beijing 100049, P. R. China

Fig. S1 AFM images of 35nm NBTBT-6 film after annealing at different temperatures (the value at top right corner in each image indicates the root mean square (RMS) roughness, respectively).
Fig. S2 Out-of-plane XRD (inset: in-plane XRD) diffractograms of 35nm NBTBT-6 film after annealing at different temperature.

Fig. S3 AFM images of (a) 35nm NBTBT-6 film after annealing at 240℃ and (b) 35nm NBTBT-6 film after annealing at 240℃, followed by vapor-deposition of 2nm NBTBT-6 thin film (1~2 layers).
Fig. S4 Microphotographs of 2nm NBTBT-6 film after annealing at different temperatures.

Fig. S5 Microphotographs of 2nm NBTBT-6 film after annealing at 230°C on different substrates: (a) SiO₂ (b) OTS-modified auto-oxidized SiO₂ (~1nm) (c) OTS-modified 300nm SiO₂.

Fig. S6 The transfer and output curves of OFETs based on the vapor-grown thin films.
Fig. S7 Microphotographs of two NBTBT-6 microribbons.