Electronic Supplementary Material (ESI) for Materials Chemistry Frontiers.

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*

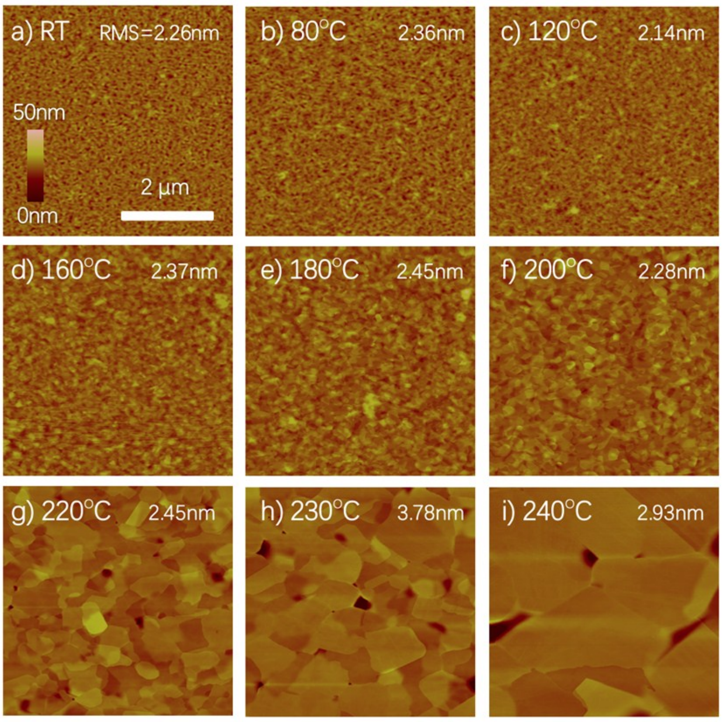

Fig. S1 AFM images of 35nm NBTBT-6 film after annealing at different temperatures (the value at top right corner in each image indicates the root mean square (RMS) roughness, respectively).

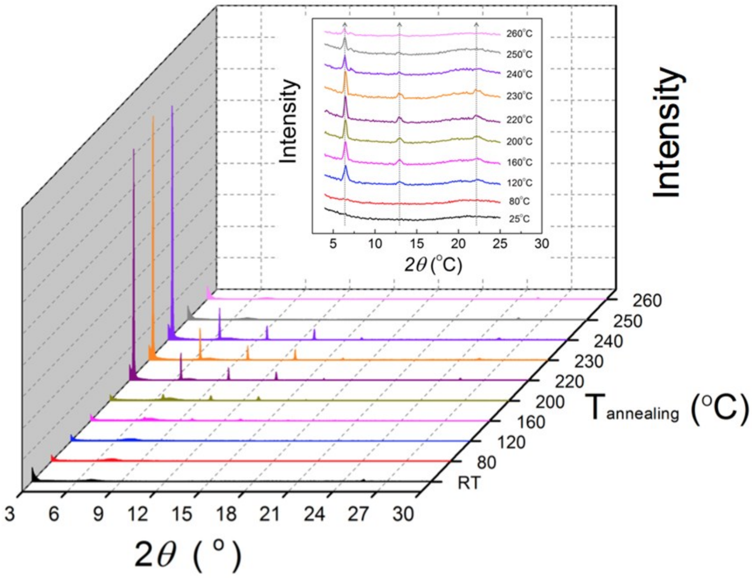

Fig. S2 Out-of-plane XRD (inset: in-plane XRD) diffractograms of 35nm NBTBT-6 film after annealing at different temperature.

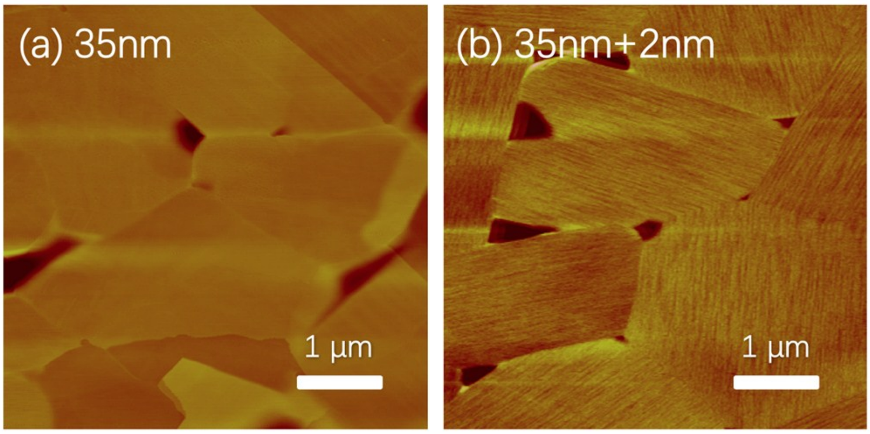

Fig. S3 AFM images of (a) 35nm NBTBT-6 film after annealing at 240℃ and (b) 35nm NBTBT-6 film after annealing at 240℃, followed by vapor-deposition of 2nm NBTBT-6 thin film (1~2 layers).

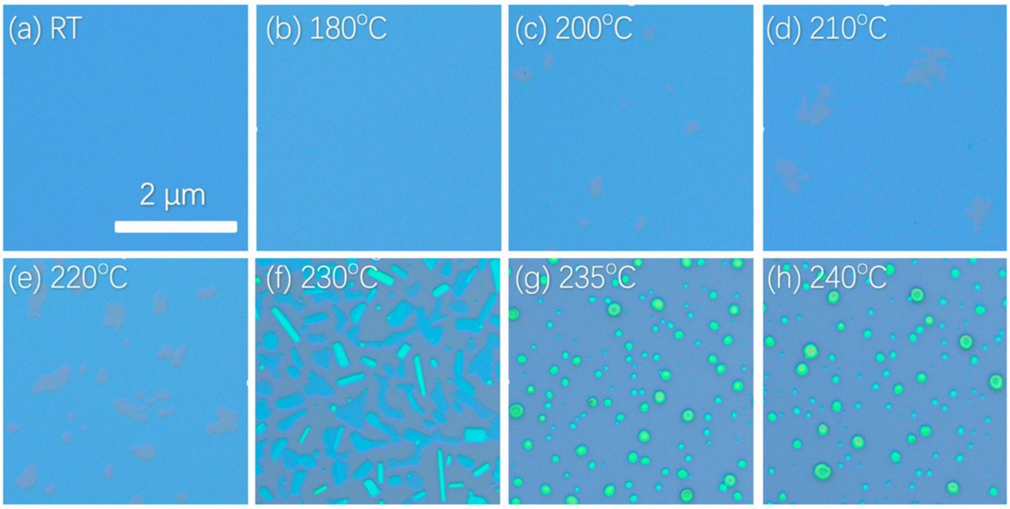

Fig. S4 Microphotographs of 2nm NBTBT-6 film after annealing at different temperatures.

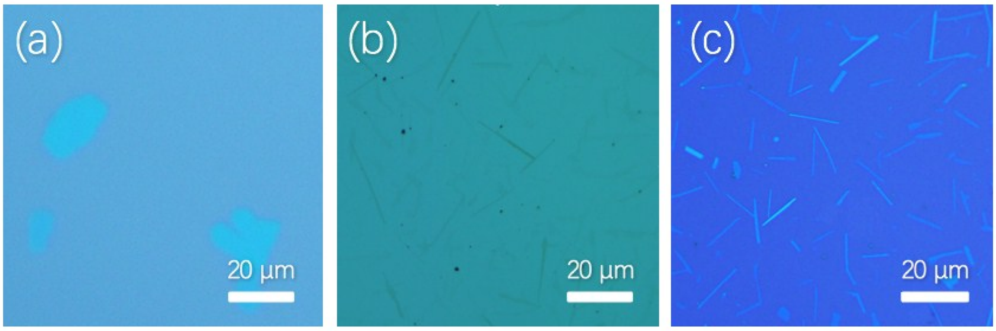

Fig. S5 Microphotographs of 2nm NBTBT-6 film after annealing at 230℃ on different substrates: (a) SiO_2 (b) OTS-modified auto-oxidized SiO_2 (~1nm) (c) OTS-modified 300nm SiO_2.

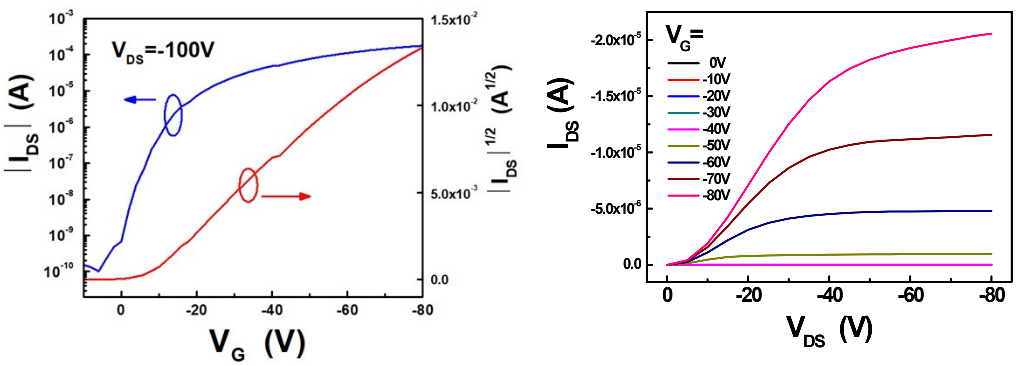

Fig. S6 The transfer and output curves of OFETs based on the vapor-grown thin films.

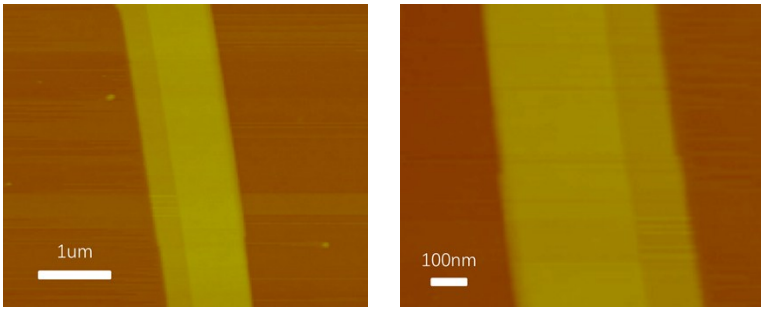

Fig. S7 Microphotographs of two NBTBT-6 microribbons.