Stable n-type organic small-molecule conductor enabled by chemically

doped ternary components

Bohan Zhou,^a Ziting Zhong,^a Runshi Wu,^b Wenzhao Xiong,^c Huawei Hu, ^c Anlian Pan,^a

Dafei Yuan,^{a*} and Xiaozhang Zhu^b

^aCollege of Materials Science and Engineering, Hunan University, Changsha, 410082, China

E-mail: yuandafei14@hnu.edu.cn

^bBeijing National Laboratory for Molecular Sciences, CAS Key Laboratory for Organic Solids, Institute of Chemistry, Chinese Academy of Sciences Beijing 100190, China ^cState Key Laboratory for Modification of Chemical Fibers and Polymer Materials, College of Materials Science and Engineering, Donghua University, Shanghai 201620, P. R. China



Figure S1 The solutions and the thin films of 2DQTT without / with PEO.



Figure S2 The contact angle changes of 2DQTT, PEO and their mixed solution droplets on the glass substrate surface.



Figure S3 The electrical conductivity of 2DQTT-o doped films with PEO changed with temperature.



Figure S4 The electrical conductivity of 2DQTT-o doped films without PEO changed with temperature.



Figure S5 Attenuation ratio of electrical conductivities of doped 2DQTT-0 at N_2 atmosphere.



Figure S6 Atomic force microscopy (AFM) images of the 2DQTT-o films doped by N-DMBI a) without PEO exposed to air and c) with PEO exposed to air; d) doped by N-DMBI with PEO after heating at 200 °C. b) Optical microscope image of 2DQTT-o doped film without PEO after heating at 200 °C (The AFM image is unable to obtained due to the large roughness).



Figure S7 Optical micrograph of 2DQTT-o doped film after heating at 200 $^{\circ}$ C : a) without PEO and b) with PEO.



Figure S8 Attenuation ratio of electrical conductivities of doped 2DQTT-i after heating at different temperatures.