Conjugation-Broken Thiophene-Based Electropolymerized Polymers

with Well-Defined Structure: Effect of Conjugation Lengths on

Electrochromic Properties

Ling Zhang,^a Feifei Luo,^a Weijun Li,^a* Shuanma Yan,^a Zhangxin Chen,^a Ruiyang Zhao,^b Ning Ren,^c Yizhao Wu,^c Yuliang Chen,^c and Cheng Zhang^a*

State Key Laboratory Breeding Base of Green Chemistry Synthesis Technology, International Technology Cooperation Base of Energy Material and Application, College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, P. R. China; E-mail: liwj@zjut.edu.cn; czhang@zjut.edu.cn.

College of Chemical Engineering, Qingdao University of Science and Technology, Qingdao, 266042, P. R. China.

^{c.} Zhejiang Chaowei chuangyuan Industrial Co. TD, South Road, No. 18, XingChang, 313000, P. R. China

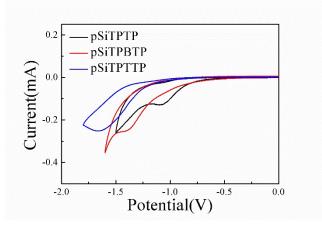


Fig.S1. The n-doping of three monomers on ITO electrodes recorded in 0.1M TBAP/(DCM: ACN=7:3) at 50 mV/s.

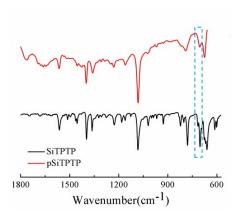


Fig.S2. FT-IR spectra of SiTPTP and pSiTPTP

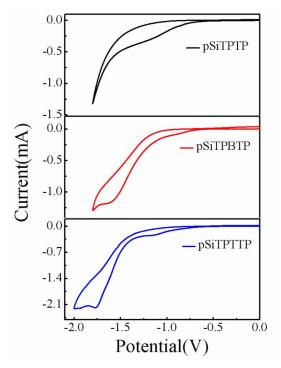


Fig.S3. The n-doping of three polymers on ITO electrodes recorded in 0.1M TBAP/ACN at 50 mV/s.

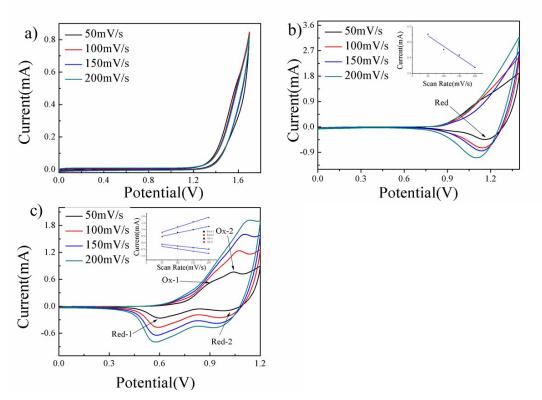


Fig.S4. Cyclic voltammograms of the polymer films; a) pSiTPTP b) PpSiTPBTP and c) pSiTPTTP with different scan rates from 50 mV/s to 200 mV/s in 0.1 M TBAB-ACN. Insets: Scan rate vs anodic and the cathodic current density graphs of the corresponding polymer films.

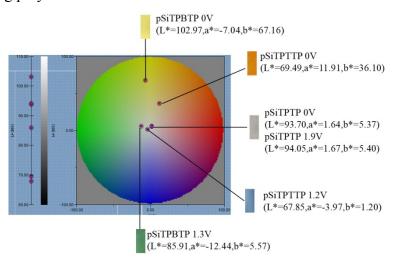


Fig.S5. The L^* and a^*b^* of the three polymers in the neutral and oxidized states

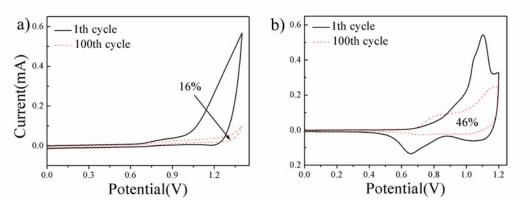


Fig.S6. Cyclic voltammetry stability test of a) pSiTPBTP and b) pSiTPTTP (WE: Pt wire, RE: Ag wire, 0.1M TBAP/ACN, 100 mV/s)