

Supporting Information

# Design and Characterization of New D-A Type Electrochromic Conjugated Copolymers Based on Indolo[3,2-b]Carbazole, Isoindigo and Thiophene Units

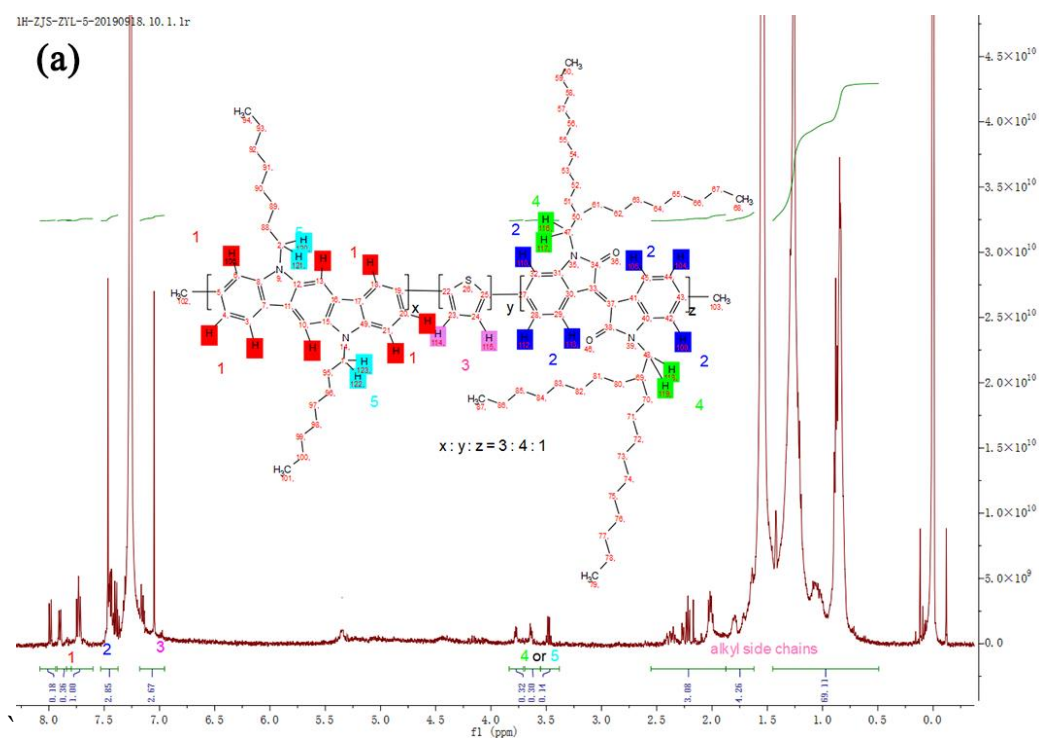
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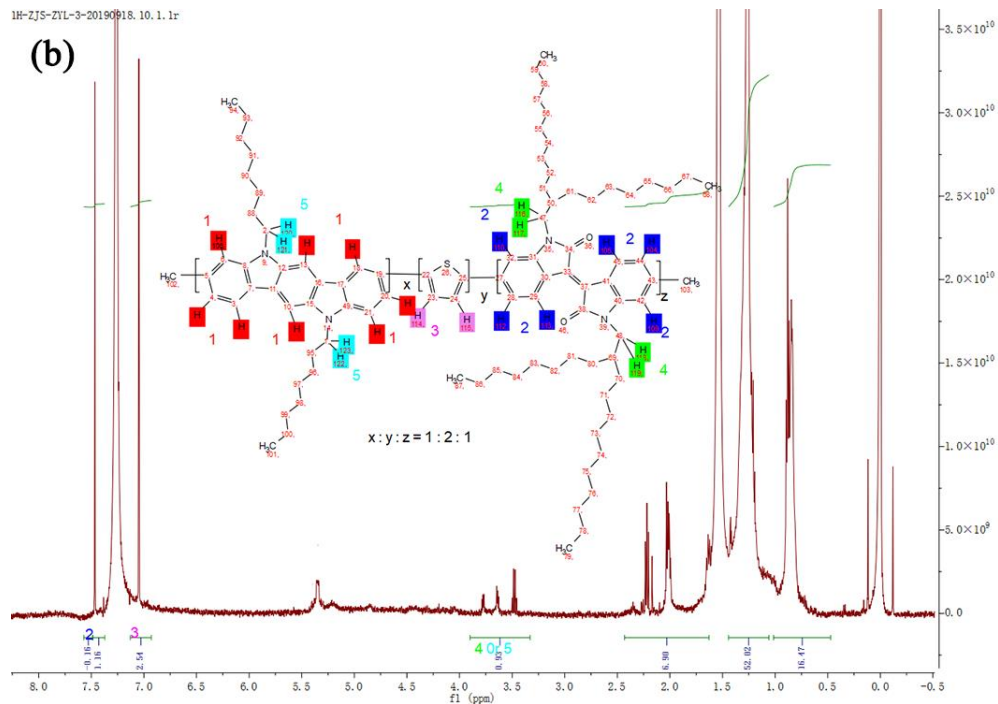
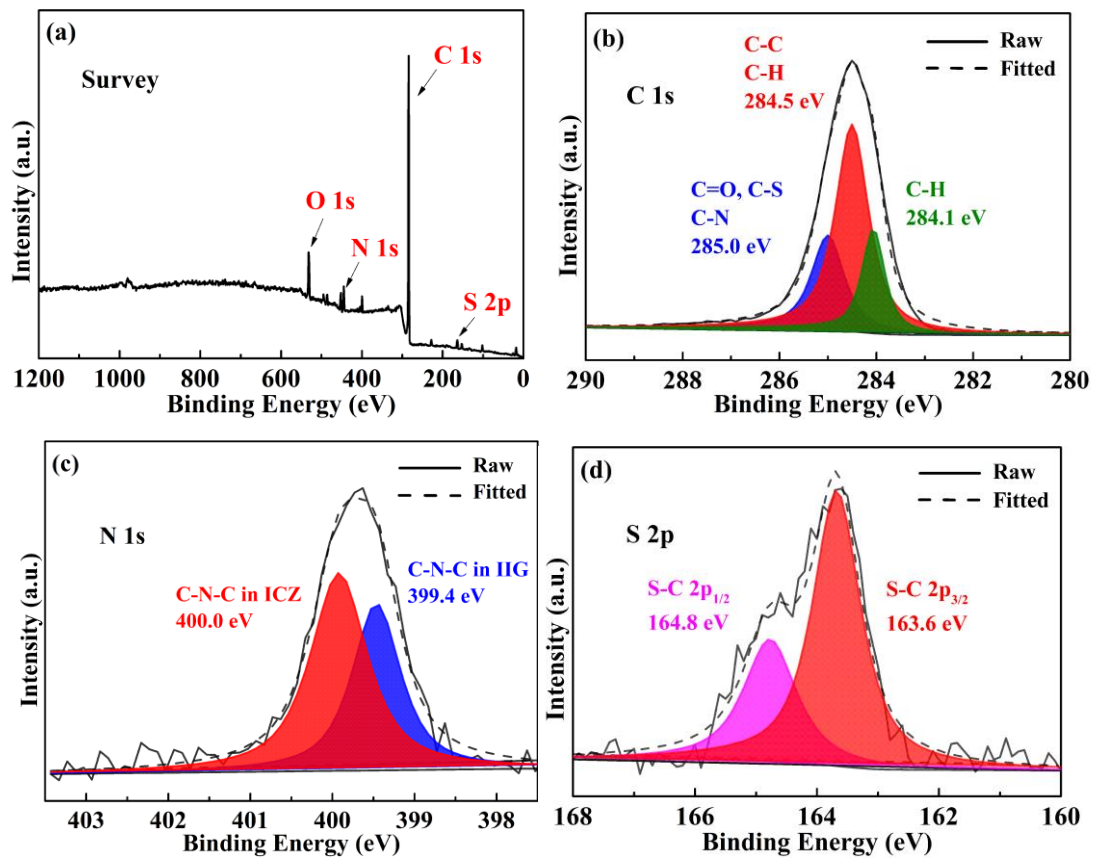
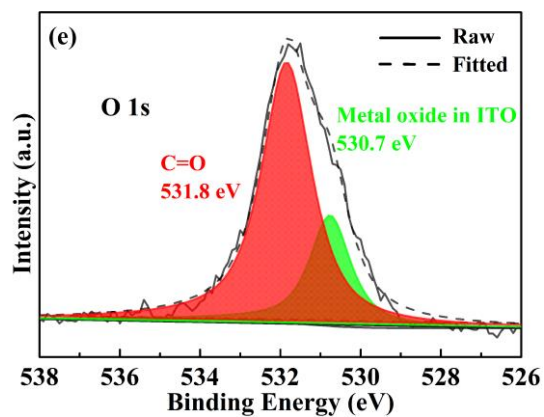
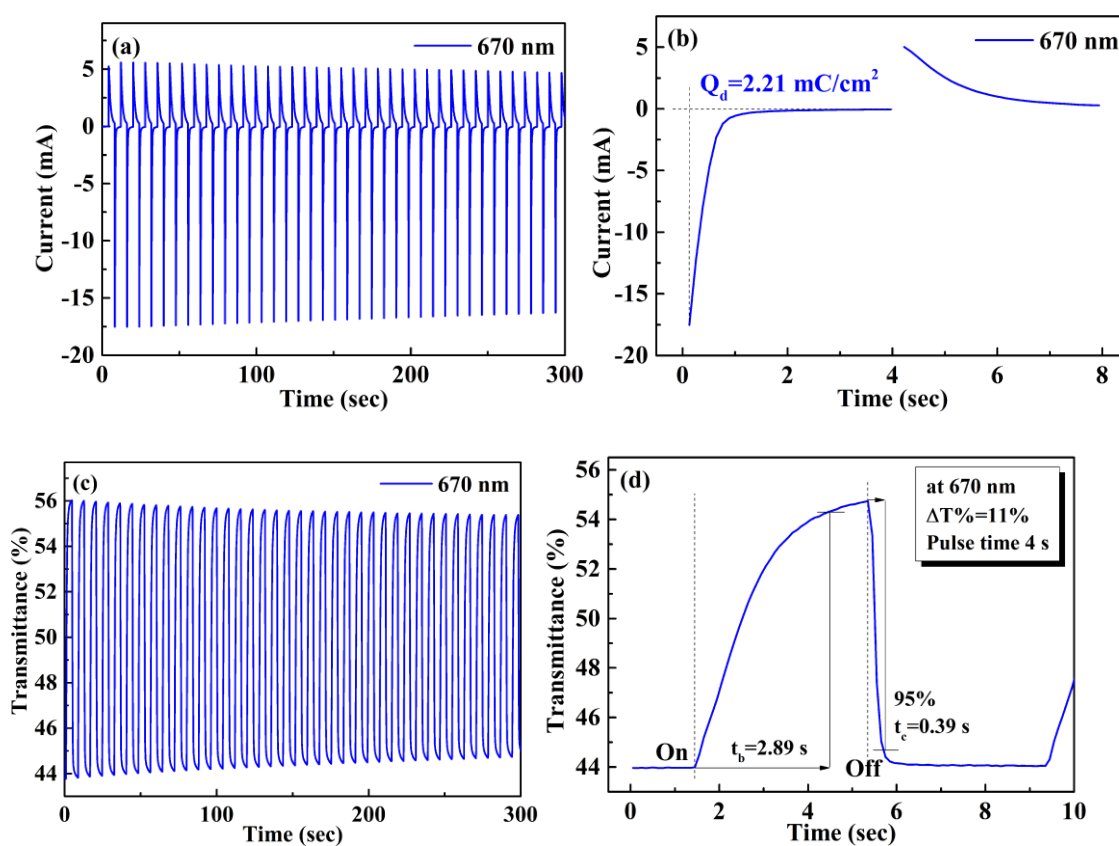


Figure S1.  $^1\text{H}$  NMR spectra of the copolymers PITID-1 (a) and PITID-2 (b).

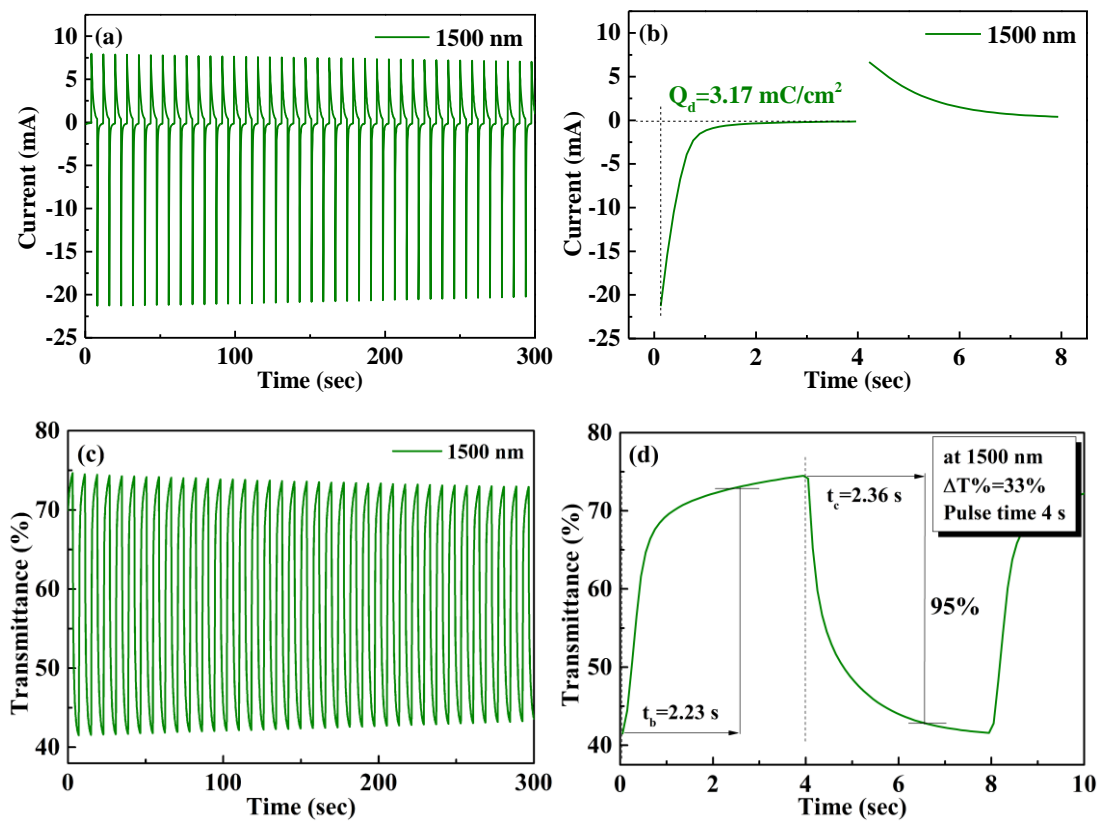




**Figure S2.** High-resolution XPS spectra of the copolymer PITID-1; (a) survey scan; (b) C 1s; (c) N 1s; (d) S 2p; (e) O 1s. The raw and fitted curves were recorded in solid and dotted lines, respectively.



**Figure S3.** (a) Current–time switching curve of PITID-1 film between 0 and 1.35 V in a time interval of 4 s. (b) The second cycle of current–time curve. (c) Transmittance–time curve of PITID-1 last for 300 s at 670 nm. (d) The bleaching time ( $t_b$ ) and the coloration time ( $t_c$ ) of PITID-1 at 670 nm.



**Figure S4.** (a) Current–time switching curve of PITID-1 film between 0 and 1.35 V in a time interval of 4 s. (b) The second cycle of current–time curve. (c) Transmittance–time curve of PITID-1 last for 300 s at 1500 nm. (d) The bleaching time ( $t_b$ ) and the coloration time ( $t_c$ ) of PITID-1 at 1500 nm.