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Abstract:

Polythiophene, one of excellent conducting polymers, has attracted great concern as organic electrochromic materials. The electrochromic properties not only depend on the electron transfer of polymers, but also on the ability of ionic conduction in electrolyte. Hence, we designed a new structure of two thiophenyl monomers linked by polyethylene oxide (PEO) and prepared a new copolymer with 3,4-ethylenedioxythiophene (EDOT), which contributes to the easy deposition of the free-standing films by means of electrochemical copolymerization. PEO is of great importance for improving the electrochemical activity. On the one hand, PEO promotes the formation of crosslinking structure leading to a high-quality film. On the