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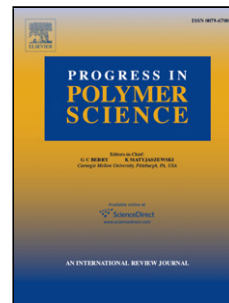
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Recent Advances in Transistor Performance of Polythiophenes

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Abstract

Polythiophenes have long played a major role in the field of conducting polymers due to their relative ease of synthesis, good thermal and oxidative stability, high charge carrier mobility and ease of processing and they have found widespread use in electronic applications such as field-effect transistors (FETs), organic photovoltaics (OPVs), light-emitting diodes (LEDs) and electrochromic displays (ECDs). In this review, we summarize the most important synthetic approaches to thiophene-, thienothiophene- and other fused thiophene-based polymers, highlight a number of significant findings relating to their properties with an emphasis on device performance in organic field-effect transistors and reflect on existing challenges and future opportunities in the field.

Keywords: field-effect transistors, polythiophenes, semiconducting polymers

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