

Accepted Manuscript

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PII: S0143-7208(18)30602-8

DOI: [10.1016/j.dyepig.2018.05.036](https://doi.org/10.1016/j.dyepig.2018.05.036)

Reference: DYPI 6765

To appear in: *Dyes and Pigments*

Received Date: 17 March 2018

Revised Date: 11 May 2018

Accepted Date: 16 May 2018

Please cite this article as: Wang K, Chen H, Wei X, Bohra H, He F, Wang M, Over 7% photovoltaic efficiency of a semicrystalline donor-acceptor polymer synthesized via direct arylation polymerization, *Dyes and Pigments* (2018), doi: 10.1016/j.dyepig.2018.05.036.

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Over 7% photovoltaic efficiency of a semicrystalline donor-acceptor polymer synthesized via direct arylation polymerization

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KEYWORDS: Direct arylation, polymerization, polymers, organic electronics

ABSTRACT: Direct arylation polymerization enables “greener” synthesis of a high-performance semicrystalline π -conjugated polymer, poly[(2,5-bis(2-hexyldecyloxy)phenylene)-*alt*-(5,6-difluoro-4,7-di(thiophene-2-yl)benzo[c][1,2,5]thiadiazole) (**PPDT2FBT**). The resulting polymers show a hole mobility of $4.7 \times 10^{-3} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$ in bottom-gate/top-contact field effect transistors, and a power conversion efficiency over 7% in organic bulk-heterojunction solar cells.

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