



Solution-processable thienoisindigo-based molecular donors for organic solar cells with high open-circuit voltage

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Auteur	Vyborny, Oleh [1], Jiang, Yue [2], Baert, François [3], Demeter, Dora [4], Roncali, Jean [5], Blanchard, Philippe [6], Cabanetos, Clément [7]
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Résumé en anglais	Two acetylene-bridged Donor-Acceptor-Donor (D-A-D) type small π -conjugated molecules involving triphenylamine or N-phenylcarbazole as donor blocks (D) and thienoisindigo as the acceptor unit (A) were synthesized and characterized by UV-Vis absorption and cyclic voltammetry. These donor materials were mixed with [6,6]-phenyl-C61-butyric acid methyl ester to prepare bulk heterojunction solar cells by simple solution processing. Due to their low-lying highest occupied molecular orbital energy levels, high open-circuit voltages up to 0.99 V were measured. The triphenylamine end-capped derivative led to the best power conversion efficiency of ca 2.20%, which ranks among the highest reported value for thienoisindigo-based materials.
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Liens

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