



Bilayer Hybrid Solar Cells Based on Triphenylamine–Thienylenevinylene Dye and TiO₂

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Résumé en anglais	<p>Photoinduced energy conversion from multilayers of organic dye on dense TiO₂ films was investigated in bilayer hybrid solar cells. Dye layers of varying thicknesses were prepared by spin-casting the star-shaped dye [tris(dicyano-vinyl-2-thienyl)phenyl]amine (1) from solutions onto dense TiO₂ on conducting glass substrates. A spin-cast layer of poly(3,4-ethylenedioxythiophene):poly(styrenesulfonate) (PEDOT:PSS) and graphite powder was used for contacting the devices. Excitons generated in the dye multilayer contribute to the power conversion efficiency, reaching a maximum of ca. 0.3% at a dye layer thickness of ca. 8 nm for the devices described herein. For dye layers exceeding 5 nm, the cell performance becomes limited by the exciton diffusion length LED and the hole mobility in the organic layer. Using dye multilayers is a viable way to increase light harvesting in solid-state dye-sensitized solar cells.</p>
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Liens

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