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Interlayers of polymer tandem solar cells

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We present the effect of interlayers of polymer tandem solar cells on their photovoltaic performance. P-type and n-type interlayers are essential for the series-connection of the subcells and enable to form the tandem cell architecture by the solution processing. In this study, we use PEDOT:PSS, nanocrystalline TiO_2, and blends of semiconducting polymers and fullerene derivatives as a hole transporting layer, electron transporting layer, and photoactive layers, respectively. We show that photovoltaic performances of polymer tandem solar cells depending on various PEDOT:PSS layers with the different electric conductivity and the various TiO_2 layer thickness.