



Effect of Perylene as Electron Acceptor and poly(tetrabromo-p-phenylene Diselenide) as “Buffer Layer” on Heterojunction Solar Cells Performances

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Mots-clés	Buffer layer [6], electron acceptor [7], Organic solar cells [8], perylene [9], polymer [10]
Résumé en anglais	Perylene derivatives, that behave as liquid crystal and might be used as electron acceptors, and poly(tetrabromo-p-phenylenediselenide) (PTBrPDSe) were synthesized with the purpose of using the polymer as buffer layer in solar cells. It was demonstrated that perylene compounds of N,N0-diheptyl-3,4,9,10-perylentetracarboxyldiimide (PTCDI-C7) and N,N0-diundecyl-3,4,9,10-perylentetracarboxyldiimide (PTCDI-C11) enabled obtaining photovoltaic effect when coupled with copper phthalocyanine (CuPc). The power conversion efficiency of the cells prepared from these perylenes is similar, whatever the x value. However this efficiency is smaller than the one achieved when the couple CuPc/C60 (fullerene) is used. More precisely, the best efficiency was obtained when a PTBrPDSe/Au buffer layer is introduced between the ITO anode and the CuPc. It was established that the presence of the thin PTBrPDSe layer allows improving the shunt resistance and consequently the cells performance.
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