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Comparison between the use of uniform and non-uniform light absorption profiles in modelling organic photovoltaics

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Abstract

To avoid complexity, a uniform light absorption profile is usually used when modelling organic photovoltaic cells (OPVs). However, the actual light absorption profile is not uniform. It is found that a uniform light absorption profile can be used as a replacement for the actual non-uniform light absorption profile in modelling an OPV provided that the actual light absorption profile inside the OPV has a peak absorption value that is roughly less than twice its average absorption value. Nevertheless, the use of a uniform light absorption profile in investigating the effect of a certain parameter (e.g. the active layer thickness) on the performance of OPVs should still be used with care if variations in the value of the said parameter lead to different light absorption profiles. © Published under licence by IOP Publishing Ltd.

Index Keywords

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