

Charge generation in polyfluorenes

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Most polyfluorenes behave poorly in organic photovoltaic devices due to their high ionisation potentials, which raises the energy of the charge-separated state. However, there exist a few polyfluorenes (the APFO class) that have produced reasonably efficient solar cells of above 2 %. This talk will compare the spectroscopic results of two related polyindenofluorenes in blend films with PCBM and explain possible reasons for their very different behaviour: electron transfer occurs in one and energy transfer occurs in the other. For instance, it appears that charge photogeneration is possible in polyfluorenes with high ionisation potentials if energy transfer is inhibited by red-shifting the absorption. In the case of APFO polymers and our polyindenofluorene, this is accomplished by inclusion of an intramolecular charge transfer moiety.