

Backward Charge Transfer in Conjugated Polymers

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Abstract: It has been known that the static polarizability of a polymer chain with a biexciton is negative. In order to understand this peculiar fact, this paper studies the dynamical process of the charge transfer in the polymer chain induced by an external electric field E during forming the biexciton. The time dependence of the charge distribution in the chain reveals that the charge transfer is backward: the positive charge shifts in the opposite direction of the external electric field. Such a backward charge transfer (BCT) produces an opposite dipole, which makes the polarization negative. The effect of electron interaction on the BCT is illustrated.

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