

Modeling Dynamic Electronic Processes in Organic Electronic Devices

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Some of the important electronic processes which occur in organic materials under device condition are electron-hole recombination, triplet-triplet annihilation, excited state quenching and fluorescent resonant energy transfer, to name a few. The electrons in molecules for organic devices experience strong correlations and need to be modeled by long range interacting electron models such as the Pariser - Parr - Pople model. Besides, to understand the cross sections for various processes, one needs to follow the real time dynamics of many of these processes. We discuss the results of our time dependent quantum many body studies of the various processes that occur in these materials under device conditions.

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