

Origin of space-separated charges in photoexcited organic heterojunctions on ultrafast time scales

V Janković, N Vukmirović - *Physical Review B*, 2017 - APS

We present a detailed investigation of ultrafast (subpicosecond) exciton dynamics in the lattice model of a donor/acceptor heterojunction. Exciton generation by means of a photoexcitation, exciton dissociation, and further charge separation are treated on equal ...

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Dynamics of exciton formation and relaxation in photoexcited semiconductors

V Janković, N Vukmirović - *Physical Review B*, 2015 - APS

We investigate the dynamics of the exciton formation and relaxation on a picosecond time scale following a pulsed photoexcitation of a semiconductor. The study is conducted in the framework of the density matrix theory complemented with the dynamics controlled ...

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Identification of Ultrafast Photophysical Pathways in Photoexcited Organic Heterojunctions

V Janković, N Vukmirović - *The Journal of Physical Chemistry C*, 2017 - ACS Publications

The exciton dissociation and charge separation occurring on subpicosecond time scales following the photoexcitation are studied in a model donor/acceptor heterojunction using a fully quantum approach. Higher-than-LUMO acceptor orbitals which are energetically ...

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Combination of Charge Delocalization and Disorder Enables Efficient Charge Separation at Photoexcited Organic Bilayers

V Janković, N Vukmirović - *The Journal of Physical Chemistry C*, 2018 - ACS Publications

We study incoherent charge separation in a lattice model of an all-organic bilayer. Charge delocalization is taken into account by working in the basis of electron–hole pair eigenstates, and the separation is described as a series of incoherent hops between these ...

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Nonequilibrium terahertz conductivity in materials with localized electronic states

V Janković, N Vukmirović - *Nanoscale Quantum Optics*, 2015 - cost-nqo.eu

A broad range of disordered materials contain electronic states that are spatially well localized. In this work [1] we studied the electrical response of such materials to external terahertz electromagnetic field. We obtained expressions for nonequilibrium terahertz ...

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Nonequilibrium optical conductivity in materials with localized electronic states

V Janković, N Vukmirović - *Physical Review B*, 2014 - APS

A wide range of disordered materials contain electronic states that are spatially well localized. In this work, we investigated the electrical response of such systems in nonequilibrium conditions to external electromagnetic field. We obtained the expression for ...

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