

Excitonic Organic Photovoltaic Devices

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(joint work with Dan Brinkman, Arizona State University)

We present recent results and ongoing work on drift-diffusion-reaction systems modelling organic photovoltaic devices.

While classical semiconductor solar cells show recombination typically throughout the whole device, organic photovoltaic devices feature significant charge generation only in the very proximity of an interface between two different organic materials.

We discuss basic questions of modelling, existence and stationary states.

Moreover, we present some interesting asymptotic approximations, in particular of the current-voltage characteristic of the device.