

KINETICS OF CHARGE TRANSFER PROCESSES IN MOLECULAR JUNCTIONS

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S u m m a r y

A kinetic master equation for state populations of a quantum system comprised of separate quantum subsystems, is derived. The equation allows one to describe the charge transfer processes in molecular junctions, where the molecule operates as a transmitter of electrons between the electrodes. Special attention is given to the derivation of contact and distant rate constants responsible for the formation of sequential (hopping) and direct (distant) components of the current, as well as for the time evolution of molecular state probabilities.