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(I) Charge Transfer Processes in Molecularly Doped Organic Semiconductors

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The doping of conjugated polymers and molecules forming the material class of organic semiconductors (OSCs) is routinely performed to tune their electric properties and electronic structure to meet application specific demands. P-doping is done by adding molecular electron acceptors to initiate charge transfer with the OSC host. The efficiency of this process is found to depend subtly on the degree of charge transfer, the dopant strength and molecular shape, the OSC conjugation length, and the OSC structure upon doping. I will provide an overview of the current understanding of the various phenomena associated with the p-doping of OSCs and discuss parameters that govern the degree of charge transfer (fractional versus integer), focusing on oligothiophenes of chain lengths towards the polymer limit.

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