


Electron Structure and Optical Properties of Conjugated Systems in Solutions

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Abstract

The review deals with the special type of the organic molecules which contain the collective system of π -electrons; the mobility of the electrons that determines both the electron structure and spectral properties of considered conjugated molecules. The classification of the linear conjugated systems is proposed: polymethine dyes, polyenes, donor-acceptor compounds and the differences between them. It is shown that the high mobility of the collective π -electron shell depends on the type of the conjugated system, chain length, symmetry, molecular constitution of the terminal groups, as well as the electron shell (neutral or charge system). Experimentally, the features of the electron structure of conjugated molecules are observed by spectral methods, especially, in various solvents. It is established that different molecular types show the different sensitivity to the solvent polarity. The work reviews principal results that were obtained by the quantum-chemical and spectral study of the linear conjugated systems.