PHOTODETACHMENT IMAGING OF MOLECULAR AND CLUSTER ANIONS: ELECTRONIC STRUCTURE AND TIME-RESOLVED DYNAMICS

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Electronic structure of molecular and cluster anions and its transformation in the solvent and reaction-coordinate domains are studied by photoelectron imaging spectroscopy. Several models are outlined to facilitate the conceptual interpretation of the structural and dynamical information revealed in the photoelectron images. Solvent-domain studies focus on electronic isomers, charge transfer to solvent, signatures of covalent interactions and excited anionic states. Femtosecond time-resolved photoelectron imaging is used to track the evolution of the electronic structure from reactants to products in reactions of trihalide anions in the time domain, i.e. along the reaction coordinate.