

Molecular conformation and organic photochemistry : time-resolved photoionization studies

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Abstrak

Rasmus Brogaard's thesis digs into the fundamental issue of how the shape of a molecule relates to its photochemical reactivity. This relation is drastically different from that of ground-state chemistry, since lifetimes of excited states are often comparable to or even shorter than the time scales of conformational changes. Combining theoretical and experimental efforts in femto-second time-resolved photoionization Rasmus Brogaard finds that a requirement for an efficient photochemical reaction is the prearrangement of the constituents in a reactive conformation.

Furthermore, he is able to show that by exploiting a strong ionic interaction between two chromophores, a coherent molecular motion can be induced and probed in real-time. This way of using bichromophoric interactions provides a promising strategy for future research on conformational dynamics.