



Quantum Efficiency Seminar und Colloquium

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Institut für physikalische und theoretische Chemie
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Simulation and Control of Photochemistry and Photophysics in Complex Systems

The interaction of molecular systems and materials with light induces ultrafast dynamical processes which are fundamental for the whole photophysics and photochemistry. Their theoretical understanding is mandatory also for a number of applications such as the development of new light harvesting or optical sensing materials. We will present the mixed quantum-classical field-induced surface hopping (FISH) method which we have developed and applied to the simulation and coherent control of light induced nonadiabatic dynamics in complex systems. Our theoretical methods, combined with experimental time-resolved spectroscopy, have allowed us to determine mechanisms and time scales of photochemical processes in a number of organic and biomolecules (free and solvated), nanoclusters as well as in some novel classes of light harvesting materials and photoswitches. Furthermore, we will demonstrate how the excited state dynamics and the functionality of materials can be optimally controlled using shaped laser fields, opening the perspectives for the application of coherent control in the fields of plasmonics and biosensing.

Date: Tuesday, July 9th, 2013, 16:15
Location: Lecture Hall 1, Hermann-Herder-Str. 3, Freiburg

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