

An overview of recent research projects will be given in this talk. Starting with the dynamics and control in a simple molecule, the iodine molecule, and ending at the description of a light-harvesting system different theoretical techniques will be applied. In the beginning wave packet dynamics and the theory of optimal control are employed to shape wave packets and spectra. The same control technique combined with the reduced density matrix approach is then used to steer electron transfer in a liquid environment and in a molecular wire. Finally it is shown how to combine classical dynamics, quantum chemistry and a quantum mechanical model to calculate static and transient spectra in light-harvesting systems of purple bacteria.