

<b>Module:</b> Quantum Reaction Dynamics			
<b>University/department/institute:</b> Freie Universität Berlin/Department of Biology, Chemistry and Pharmacy/Institute of Chemistry and Biochemistry			
<b>Responsible for the module:</b> module lecturers			
<b>Admission requirements:</b> none			
<b>Qualification aims:</b> The students know the theoretical concepts and methods of describing time-dependent quantum mechanics of chemical reactions and can carry out the relevant computer simulations and visualizations.			
<b>Content:</b> Time-dependent quantum mechanics; wave-packet dynamics; adiabatic and non-adiabatic dynamics; molecular transitions and reactions after excitation by laser pulses; numerical methods and computer simulations for solving time-dependent quantum mechanical problems			
<b>Teaching and learning units</b>	<b>Attendance</b> (Semester hours per week = SH)	<b>Forms of active participation</b>	<b>Study time</b> (hours)
Lecture	2	-	Attendance L 30 Preparation and follow-up L 30
Seminar on the computer using special software	2	Working on problem sets and computer simulations	Attendance SPC 30 Preparation and follow-up SPC 30 Examination preparation, examination 30
<b>Language of instruction</b>		German or English	
<b>Compulsory regular attendance</b>		Lecture: attendance recommended; seminar: yes	
<b>Study time, total hours</b>		150 hours	5 CP
<b>Duration of module</b>		One semester	
<b>Module offered</b>		Every third semester	
<b>Application</b>		Master's program in Chemistry	