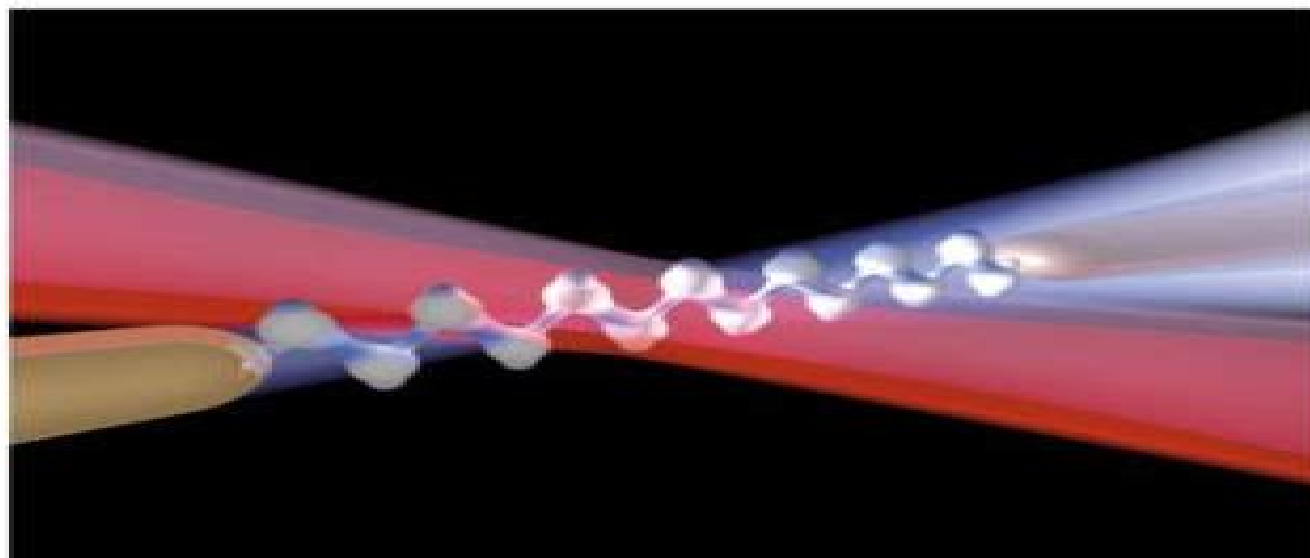


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Principles Of The Quantum Control Of Molecular Processes

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Extreme Photonics & Applications Trevor Hall, Sergey V. Gaponenko, 2009-11-24 Extreme Photonics Applications arises from the 2008 NATO Advanced Study Institute in Laser Control Monitoring in New Materials Biomedicine Environment Security and Defense Leading experts in the manipulation of light offered by recent advances in laser physics and nanoscience were invited to give lectures in their fields of expertise and participate in discussions on current research applications and new directions The sum of their contributions to this book is a primer for the state of scientific knowledge and the issues within the subject of photonics taken to the extreme frontiers molding light at the ultra finest scales which represents the beginning of the end to limitations in optical science for the benefit of 21st Century technological societies Laser light is an exquisite tool for physical and chemical research Physicists have recently developed pulsed lasers with such short durations that one laser shot takes the time of one molecular vibration

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Geometric Structures of Phase Space in Multi-Dimensional Chaos Mikito Toda, Tamiki Komatsuzaki, Tetsuro Konishi, R. Stephen Berry, Stuart A. Rice, 2005-01-28 This series provides the chemical physics field with a forum for critical authoritative evaluations of advances in every area of the discipline Volume 130 in the series continues to report recent advances with significant up to date chapters by internationally recognized researchers

Molecular Reaction Dynamics Raphael D. Levine, 2009-06-04 Molecular reaction dynamics is the study of

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Conical Intersections Wolfgang Domcke, David Yarkony, 2011 The concept of adiabatic electronic potential energy surfaces defined by the Born Oppenheimer approximation is fundamental to our thinking about chemical processes Recent computational as well as experimental studies have produced ample evidence that the so called conical intersections of electronic energy surfaces predicted by von Neumann and Wigner in 1929 are the rule rather than the exception in polyatomic molecules It is nowadays increasingly recognized that conical intersections play a key mechanistic role in chemical reaction dynamics This volume provides an up to date overview of the multi faceted research on the role of conical intersections in photochemistry and photobiology including basic theoretical concepts novel computational strategies as well as innovative experiments The contents and discussions will be of value to advanced students and researchers in photochemistry molecular spectroscopy and related areas

[Physics and Engineering of New Materials](#) Do Tran Cat, Annemarie Pucci, Klaus Rainer Wandelt, 2009-01-01 This book presents the majority of the contributions to the Tenth German Vietnamese Seminar on Physics and Engineering GVS10 that took place in the Gustav Stresemann Institut GSI in Bonn from June 6 to June 9 2007 In the focus of these studies are the preparation and basic

properties of new material systems related investigation methods and practical applications Accordingly the sections in this book are entitled electrons transport and confinement low dimensional systems magnetism oxides materials organic films new materials and methods The series of German Vietnamese seminars was initiated and sponsored by the Gottlieb Daimler and Karl Benz Foundation since 1998 and took place alternately in both countries These bilateral meetings brought together top notch senior and junior Vietnamese scientists with German Scientists and stimulated many contacts and co operations Under the general title Physics and Engineering the programs covered in the form of keynote lectures oral presentations and posters experimental and theoretical cutting edge material physics oriented topics The majority of the contributions was dealing with modern topics of material science particularly nanoscience which is a research field of high importance also in Vietnam Modern material science allows a quick transfer of research results to technical applications which is very useful for fast developing countries like Vietnam On the other hand the seminars took profit from the strong cross fertilization of the different disciplines of physics This book is dedicated to the tenth anniversary of the seminars and nicely shows the scientific progress in Vietnam and the competitive level reached

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with cutting edge research reported in a cohesive manner not found elsewhere in the literature each volume of the Advances in Chemical Physics series offers contributions from internationally renowned chemists and serves as the perfect supplement to any advanced graduate class devoted to the study of chemical physics This volume explores Control of Quantum Phenomena Constantin Brif Raj Chakrabarti and Herschel Rabitz Crowded Charges in Ion Channels Bob Eisenberg Colloidal Crystallization Between Two and Three Dimensions H L wen E C Oguz L Assoud and R Messina Statistical Mechanics of Liquids and Fluids in Curved Space Gilles Tarjus Fran ois Sausset and Pascal Viot *Ultrafast Dynamics Driven by Intense Light Pulses* Markus Kitzler, Stefanie Gräfe, 2015-07-24 This book documents the recent vivid developments in the research field of ultrashort intense light pulses for probing and controlling ultrafast dynamics The recent fascinating results in studying and controlling ultrafast dynamics in ever more complicated systems such as bio molecules and structures of meso to macroscopic sizes on ever shorter time scales are presented The book is written by some of the most eminent experimental and theoretical experts in the field It covers the new groundbreaking research directions that were opened by the availability of new light sources such as fully controlled intense laser fields with durations down to a single oscillation cycle short wavelength laser driven attosecond pulses and intense X ray pulses from the upcoming free electron lasers These light sources allowed the investigation of dynamics in atoms molecules clusters on surfaces and very recently also in nanostructures and solids in new regimes of parameters which in turn led to the identification of completely new dynamics and methods for controlling it Example topics covered by this book include the study of ultrafast processes in large molecules using attosecond pulses control of ultrafast electron dynamics in solids with shaped femtosecond laser pulses light driven ultrafast plasmonic processes on surfaces and in nanostructures as well as research on atomic and molecular systems under intense X ray radiation This book is equally helpful for people who would like to step into this field e g young researchers for whom it provides a broad introduction as well as for already experienced researchers who may enjoy the exhaustive discussion that covers the research on essentially all currently studied objects and with all available ultrafast pulse sources

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