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Nota di contenuto	CONTENTS; Preface; 1 Probing Orbital Symmetries and Ionization Dynamics of Simple Molecules With Femtosecond Laser Pulses C. D. Lin and X. M. Tong; 1.1. Introduction; 1.2. Probing Molecular Orbital Symmetry with Sub-10 fs Laser Pulses; 1.2.1. Molecular tunneling ionization theory; 1.2.2. Alignment dependence of tunneling ionization rates and the symmetry of molecular orbitals; 1.3. Attosecond Molecular Clocks: Time-Resolved Double Ionization Dynamics of H2 and D2 Molecules; 1.3.1. Dynamics of double ionization of H2 by femtosecond lasers 1.3.2. Theory of double ionization of H2 by femtosecond lasers: rescattering region 1.3.3. Control the time sequence of double ionization by tuning laser parameters; 1.4. Probing Nonclassical Vibrational Wave Packets on Two Potential Surfaces; 1.5. Summary and Discussion; Acknowledgments; References; 2 Generalization and Application to Molecular Systems of Keldysh's Atomic Photoionization Theory K. Mishima, K. Nagaya, M. Hayashi, S. H. Lin and E. W. Schlag;

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2.6.8. Numerical results and discussion 2.7. Towards the Realization of the Quantum Chemistry Approach to Tunneling Photoionization Processes in Strong Laser Fields; 2.8. Ab Initio/RRKM Approach to the Elucidation of the Mechanism of Photoionization and Photodissociation of Molecules in Intense Laser Fields; 2.9. Conclusion; Acknowledgments; Appendix; Appendix A. Saddle-Point Method for Integrals with a Singularity; Appendix B. Compact Forms of L(p) Defined by Eq. (64); Appendix C. Definition of N(r, w, I0, I0, B,C) in Eqs. (66) and (79)
Appendix D. Definition of N(r,r,w, I0, A, B) and Integrated Form of Eq. (121)

Sommario/riassunto

Among others, chemistry, physics, biology, and material sciences have seen a rapid growth in both experimental and theoretical studies of multi-photon processes and spectroscopy of atoms, ions and molecules. This book is an important addition to an advanced series that contains review papers readable not only by active researchers in these areas, but also by those who are intending to enter the field. Written by experts in the area, the reviews are self-contained to allow readers to grasp the key concepts without much preparation. This volume will be useful to active researchers as well