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Nota di contenuto	CONTENTS; 1. Wave Packet Analysis of Femtosecond Stimulated Raman Spectroscopy K. Niu, B. Zhao, Z. Sun and Soo-Y. Lee; 1. Introduction; 2. Theory; 2.1 Coupled wave theory of FSRS and its limitations; 2.2 Quantum theory of FSRS; 3. Applications, Results and Discussion; 3.1 Analytic results for FSRS from a stationary state with polyatomic harmonic potentials; 3.2 Application to FSRS of Rhodamine 6G; 3.3 Application to the FSRS from a coherent vibrational state of CDCl 3; 3.3.1 Direct fifth-order process; 3.3.2 Cascade processes; 3.3.3 Direct fifth-order and cascade results of CDCl 3 4. Conclusion and outlookAcknowledgements; References; 2. Field-Free Molecular Alignment by Two Femosecond Laser Pulses Chengyin Wu, Hongbing Jiang and Qihuang Gong; 1. Introduction; 2. Theory; 2.1

Creation of rotational wavepacket; 2.2 Characterization of rotational wavepacket; 2.3 Control of rotational wavepacket; 3. Experimental Method; 4. Results and Discussion; 4.1 Manipulation of alignment structures; 4.2 Enhancement of molecular alignment; 4.3 Control of molecular population; 5. Applications of Field-Free Aligned Molecules - Frequency Tuning of Few Cycle Femtosecond Laser Pulses
5.1 Parameters5.2 Simulation; 6. Conclusions; Acknowledgements; References; 3. High-Order Harmonic Generation from C60 Fullerene Plasma T. Ozaki; 1. Introduction; 2. Experimental Set-up; 3. Results and Discussion; 3.1 Observation of high-order harmonics from C fullerenes; 3.2 Influence of various experimental parameters on the HHG efficiency in fullerene plasma; 3.3 Simulations of harmonic spectra from C fullerenes; 3.4 Discussions; 4. Conclusions; References
4. Attosecond Pulse Generation, Characterization and Application Shouyuan Chen, Steve Gilbertson, He Wang, Michael Chini, Kun Zhao, Sabih Khan, Yi Wu, and Zenghu Chang1. Introduction; 2. Ultrafast Laser Development and CE Phase Stabilization for Attosecond Pulse Generation; 2.1 CE phase drift caused by the grating drift in stretcher and compressor; 2.2 CE phase stabilization of multi-pass and regenerative amplifiers; 3. Attosecond Gating Technology; 3.1 Two-color gating; 3.2 Polarization gating; 3.3 Double optical gating; 3.4 Generalized double optical gating; 3.5 DOG and GDOG optics
4. Attosecond Pulse Measurement and Characterization4.1 Attosecond streak camera; 4.2 Frequency-resolved optical gating for complete reconstruction of attosecond bursts; 4.3 Phase retrieval by omega oscillation filtering; 5. Application of Attosecond Pulse; 5.1 Study of Helium autoionization by attosecond streaking; 5.2 Time resolved spectroscopy study of Argon; 6. Summary and Outlook; References; 5. Near-Field Imaging of Optical-Field Structures and Plasmon Wave Functions in Metal Nanostructures Hiromi Okamoto and Kohei Imura; 1. Introduction
2. What can be Observed by Near-Field Optical Imaging?

Sommario/riassunto

This book presents the latest developments and issues in both experimental and theoretical studies of multi-photon processes and the spectroscopy of atoms, molecules and nanomaterials in Physics, Chemistry, Biology and Material Science. It is an important addition to an advanced series that contains review papers suitable for both active researchers in these areas and non-experts who wish to enter the field. Special attention is paid to the recent progress of nonlinear photon-matter interactions applied to femtosecond laser induced nonadiabatic molecular alignment, high-order harmonic generati

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Nota di contenuto	Planet Water: Investing in the World's Most Valuable Resource; Contents; Introduction; Part I: WATER; Chapter 1: Water: Prerequisite for Life and Living; Chapter 2: The Global Water Condition; Chapter 3: Public Good, Commodity, or Resource?; Chapter 4: The Cost of Clean Water; Part II: INVESTING IN WATER; Chapter 5: The Business of Water; Chapter 6: Water Utilities; Chapter 7: Centralized Water and Wastewater Treatment; Chapter 8: Decentralized Water and Wastewater Treatment; Chapter 9: Water Infrastructure; Chapter 10: Water Analytics; Chapter 11: Water Resource Management Chapter 12: DesalinationPart III: WATER BEYOND THE TWENTY-FIRST CENTURY; Chapter 13: Emerging Issues; Chapter 14: Water as an Asset Class; Chapter 15: Climate Change and the Hydrologic (Re) Cycle; Chapter 16: Forward-Looking Thoughts for Water Investors; Appendix A: Water Contaminants; Appendix B: Acronyms and Abbreviations;

	Appendix C: Metric Conversions and Flow Equivalents; Glossary; Notes; About the Author; Index
Sommario/riassunto	Solving the world's water problems is proving to be one of the greatest investment opportunities of our time. Already, world water supplies are inadequate to meet demand, and the problem is going to get much worse in the years ahead. The World Bank estimates that 1.1 billion people lack access to safe drinking water and about 50 percent of the world's hospital beds are populated by people who have contracted water-borne diseases. If present consumption rates continue, in 25 years the world will be using 90 percent of all available freshwater. To address the problem, trillions of dollars will n