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Chapter 4. Cluster-Containing Plasma Plumes: Attractive Media for High-Order Harmonic Generation of Laser Radiation; 4.1 Overview; 4.2 Ablation of Metal Nanoparticles; 4.3 Ablation of Bulk Metals; 4.4 Overview of Early Studies of Harmonic Generation in Cluster-Containing Media; 4.5 Application of Cluster-Containing Plasma for Efficient HHG; 4.6 Peculiarities of HHG in Nanoparticle-Containing Plasmas
4.7 Advantages and Disadvantages of the Application of Cluster-Containing Plasmas for the Enhancement of HHG EfficiencyReferences; Chapter 5. Application of Fullerenes for Harmonic Generation; 5.1 First Observation of HHG in Fullerene Plasma; 5.2 Influence of Various Experimental Parameters on HHG Efficiency in Fullerene Plasma; 5.3 Studies of Harmonic Modulation from Fullerene-Rich Plasmas; 5.4 Two-Color Pump for Harmonic Generation in C60; 5.5 Analysis of the Morphology of Fullerene Targets and Ablated Materials; 5.6 Theoretical Calculations of HHG in Fullerenes
5.7 Calculations of HHG in Endohedral Fullerenes5.8 Discussion; References; Chapter 6. Enhancement of Harmonic Yield from Ablation Plumes; 6.1 Two-Color Pump for Enhancement of Harmonic Output from Plasma over the Whole Plateau Region; 6.2 Application of Time-Resolved Spectroscopy of Laser Plasma for Enhancement of Harmonic Efficiency and Generation of Second Plateau in Harmonic Distribution; 6.3 Application of Carbon Aerogel Plumes as Efficient Media for HHG in the 40-90 nm Range; 6.4 Comparative Studies of HHG in Laser Plasmas and Gases; References
Chapter 7. Recent Developments and Future Perspectives of Plasma HHG

Sommario/riassunto

This book represents the first comprehensive treatment of high-order harmonic generation in laser-produced plumes, covering the principles, past and present experimental status and important applications. It shows how this method of frequency conversion of laser radiation towards the extreme ultraviolet range matured over the course of multiple studies and demonstrated new approaches in the generation of strong coherent short-wavelength radiation for various applications. Significant discoveries and pioneering contributions of researchers in this field carried out in various laser scientific c

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