

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 centers worldwide are included in this first attempt to describe the important findings in this area of nonlinear spectroscopy. High-Order Harmonic Generation in Laser Plasma Plumes is a self-contained and unified review of the most recent achievements in the field, such as the application of clusters (fullerenes, nanoparticles, nanotubes) for efficient harmonic generation of ultrashort laser pulses in cluster-containing plumes and resonance-induced enhancement of harmonic yield. It can be used as an advanced monograph for researchers and graduate students working in the field of nonlinear spectroscopy. It is also suitable for researchers in laser physics and nonlinear optics who wish to have an overview of the advanced achievements in laser ablation-induced high-order harmonic generation spectroscopy. The carefully presented details of this book will be of value to research devoted to the understanding and control frequency conversion of laser pulses in plasma plumes. The studies described in this book pave the way for the development of a new method of materials studies using the laser ablation-induced high-order harmonic generation spectroscopy, which can exploit the spectral and structural properties of various solid-state materials through their ablation and further propagation of short laser pulse through laser-produced plasma and generation of high-order harmonics. Contents: Introduction Basic Principles of Harmonic Generation in Plasmas Resonance-Induced Enhancement of High-Order Harmonic Generation in Plasma Cluster-Containing Plasma Plumes: Attractive Media for High-Order Harmonic Generation of Laser Radiation Application of Fullerenes for Harmonic Generation Enhancement of Harmonic Yield from Ablation Plumes Recent Developments and Future Perspectives of Plasma HHG Readership: Graduate students and researchers in the fields of nonlinear optics, laser physics and nonlinear spectroscopy.

High-order harmonic generation in laser plasma: Recent achievements Harmonic Generation Laser Plasma Plasma Plume Second Harmonic Harmonic .

Editorial Reviews. From the Inside Flap. This book represents the first comprehensive treatment of high-order harmonic generation in laser-produced plumes.

High-order harmonic generation from carbon plasma. Rashid A. Maximizing the yield and cutoff of high-order harmonic generation from plasma plume. Abstract - Fig. 1. - Fig. 2.

Request PDF on ResearchGate On Oct 1, , Rashid Ganeev and others published High-Order Harmonic Generation in Laser Plasma Plumes. This book represents the first comprehensive treatment of high-order harmonic generation in laser-produced plumes, covering the principles, past and present. The authors present their study on high-order harmonic generation They also studied the use of varying the chirp of the pump laser to control. High-order harmonic generation in graphite plasma plumes using ultrashort laser pulses: a systematic analysis of harmonic radiation and.

This book represents the first comprehensive treatment of high-order harmonic generation in

laser-produced plumes, covering the principles.

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