Título: Short Pulse Laser Interactions With Matter An Introduction

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This book represents the first comprehensive treatment of the subject, covering the theoretical principles, present experimental status and important applications of short-pulse laser-matter interactions.

Femtosecond lasers have undergone dramatic technological advances over the last fifteen years, generating a whole host of new research activities under the theme of "ultrafast science". The focused light from these devices is so intense that ordinary matter is torn apart within a few laser cycles. This book takes a close-up look at the exotic physical phenomena which arise as a result of this new form of "light-matter" interaction, covering a diverse set of topics including multiphoton ionization, rapid heatwaves, fast particle generation and relativistic self-channeling. These processes are central to a number of exciting new applications in other fields, such as microholography, optical particle accelerators and photonuclear physics.

Repository for numerical models described in Chapter 6 can be found at http://www.fz-juelich.de/zam/cams/plasma/SPLIM/.

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