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Descrizione fisica	1 online resource (471 p.)
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Altri autori (Persone)	McKennaPaul
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Soggetti	Laser-plasma interactions Inertial confinement fusion
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Nota di contenuto	Theory of Underdense Laser-Plasma Interactions with Photon Kinetic Theory -- Theory of Laser-Overdense Plasma Interactions -- High Energy Density Physics -- Shock Waves and Equations of State Related to Laser Plasma Interaction -- The Effect of Radiation Field on Excitation and Ionisation in Non-LTE High Energy Density Plasmas -- Energetic Electron Generation and Transport in Intense Laser-Solid Interactions -- The Physics of Implosion, Ignition and Propagating Burn -- Cryogenic Deuterium and Deuterium-Tritium Direct-Drive Implosions on Omega -- Indirect Drive at the NIF Scale -- Laser-Plasma Coupling with Ignition-Scale Targets: New Regimes and Frontiers on the National Ignition Facility -- Inertial Confinement Fusion with Advanced Ignition Schemes: Fast Ignition and Shock Ignition -- Laser Plasma Accelerators -- Ion Acceleration - TNSA -- Coherent Light Sources in the Extreme Ultraviolet, Frequency Combs and Attosecond Pulses -- Hydrodynamic Simulation -- Particle-in-Cell and Hybrid Simulation -- Diagnostics of Laser-Plasma Interactions -- Microtargetry for High Power Lasers.
Sommario/riassunto	Laser-Plasma Interactions and Applications covers the fundamental and applied aspects of high power laser-plasma physics. With an internationally renowned team of authors, the book broadens the knowledge of young researchers working in high power laser-plasma science by providing them with a thorough pedagogical grounding in the interaction of laser radiation with matter, laser-plasma

accelerators, and inertial confinement fusion. The text is organised such that the theoretical foundations of the subject are discussed first, in Part I. In Part II, topics in the area of high energy density physics are covered. Parts III and IV deal with the applications to inertial confinement fusion and as a driver of particle and radiation sources, respectively. Finally, Part V describes the principle diagnostic, targetry, and computational approaches used in the field. This book is designed to give students a thorough foundation in the fundamental physics of laser-plasma interactions. It will also provide readers with knowledge of the latest research trends and elucidate future exciting challenges in laser-plasma science.