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Titolo	Lasers and nuclei : applications of ultrahigh intensity lasers in nuclear science / / edited by Heinrich Schwoerer, Joseph Magill, Burgard Beleites
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Edizione	[1st ed. 2006.]
Descrizione fisica	1 online resource (256 p.)
Collana	Lecture notes in physics ; ; 694
Disciplina	539.7232
Soggetti	Laser manipulation (Nuclear physics) Laser pulses, Ultrashort Lasers in physics High power lasers
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Proceedings of a conference held in Karlsruhe, Germany in Sept. 2004.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Fundamentals and Equipment -- The Nuclear Era of Laser Interactions: New Milestones in the History of Power Compression -- High-Intensity Laser-Matter Interaction -- Laser-Triggered Nuclear Reactions -- POLARIS: An All Diode-Pumped Ultrahigh Peak Power Laser for High Repetition Rates -- The Megajoule Laser – A High-Energy-Density Physics Facility -- Sources -- Electron and Proton Beams Produced by Ultrashort Laser Pulses -- Laser-Driven Ion Acceleration and Nuclear Activation -- Pulsed Neutron Sources with Tabletop Laser-Accelerated Protons -- Transmutation -- Laser Transmutation of Nuclear Materials -- High-brightness $\gamma$ -Ray Generation for Nuclear Transmutation -- Potential Role of Lasers for Sustainable Fission Energy Production and Transmutation of Nuclear Waste -- High-Power Laser Production of PET Isotopes -- Nuclear Science -- Nuclear Physics with High-Intensity Lasers -- Nuclear Physics with Laser Compton $\gamma$ -Rays -- Status of Neutron Imaging.
Sommario/riassunto	Lasers and Nuclei describes the generation of high-energy-particle

radiation with high-intensity lasers and its application to nuclear science. A basic introduction to laser-matter interaction at high fields is complemented by detailed presentations of state of the art laser particle acceleration and elementary laser nuclear experiments. The text also discusses future applications of lasers in nuclear science, for example in nuclear astrophysics, isotope generation, nuclear fuel physics and proton and neutron imaging.

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