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Collana	Springer Series in Materials Science, , 0933-033X ; ; 274
Disciplina	621.366
Soggetti	Lasers Photonics Optical materials Electronics - Materials Atoms Physics Surfaces (Physics) Interfaces (Physical sciences) Thin films Manufactures Optics, Lasers, Photonics, Optical Devices Optical and Electronic Materials Atoms and Molecules in Strong Fields, Laser Matter Interaction Surface and Interface Science, Thin Films Manufacturing, Machines, Tools, Processes
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	Laser synthesis, processing, and spectroscopy of atomically-thin two dimensional materials -- The role of defects in pulsed laser matter interaction -- Surface functionalization by laser-induced structuring -- Laser-inducing extreme thermodynamic conditions in condensed matter to produce nanomaterials for catalysis and the photocatalysis -- Insights into laser-materials interaction through modeling on atomic and macroscopic scales -- Ultrafast laser micro and nano processing of

transparent materials-from fundamentals to applications -- Molecular orbital tomography based on high-order harmonic generation: principles and perspectives -- Laser ablation propulsion and its applications in space -- Laser structuring of soft materials: laser-induced forward transfer and two-photon polymerization -- UV- and RIR-MAPLE: fundamentals and applications -- Combinatorial laser synthesis of biomaterial thin films: selection and processing for medical applications -- Laser synthesized nanoparticles for therapeutic drug monitoring -- Nonlinear optics in laser ablation plasmas.

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#### Sommario/riassunto

The book covers recent advances and progress in understanding both the fundamental science of laser interactions in materials science, as well as a special emphasis on emerging applications enabled by the irradiation of materials by pulsed laser systems. The different chapters illustrate how, by careful control of the processing conditions, laser irradiation can result in efficient material synthesis, characterization, and fabrication at various length scales from atomically-thin 2D materials to microstructured periodic surface structures. This book serves as an excellent resource for all who employ lasers in materials science, spanning such different disciplines as photonics, photovoltaics, and sensing, to biomedical applications. .

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