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Nota di contenuto	1. Introduction to nonlinear optical materials -- 2. Spatial and temporal profile measurements of the lasers -- 3. Advances in Temporal profile measurement of ultrafast pulsed lasers -- 4. Advanced nonlinear optical techniques. 5. Optical nonlinearities in semiconductors.
Sommario/riassunto	This book highlights the background and fundamentals of nonlinear optical materials in relation to all-optical switching applications. It explains major aspects of nonlinear refractive index and the nonlinear absorption phenomena which are essential to decide the figure-of-merit of various materials for the all-optical switching. Autocorrelation technique, frequency-resolved optical gating, spectral phase interferometry for direct electric-field reconstruction, grating-

eliminated no-nonsense observation of ultrafast incident laser light e-fields are discussed to measure the temporal and spectral profiles of the ultrafast pulsed lasers. Advanced nonlinear optical characterization methods such as single- and dual-arm Z-scan, pump-probe and beam deflection techniques are also discussed at length. The transmission signal obtained in the majority of the nonlinear optical effects is found to be weak which creates hiccups to obtain faster switching speeds. Various solutions are discussed to overcome these existing limitations of the all-optical switching-based devices. Optical nonlinearities in semiconductors, organic molecules and challenges in all-optical switching devices are also addressed in the book.