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Titolo	Few-Cycle Laser Pulse Generation and Its Applications [[electronic resource] /] / edited by Franz X. Kärtner
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Nota di contenuto	Part I: Few-Cycle Pulse Generation: Theory and Experiments -- Solid-State Materials for Few-Cycle Pulse Generation and Amplification -- Few-Cycle Pulses Directly from the Laser -- Few-Cycle Pulses by External Compression -- Parametric Amplification and Phase Control of Few-Cycle Light Pulses -- Part II: Characterization of Ultrashort Laser Pulses: Measuring Ultrashort Pulses in the Single-Cycle Regime -- Characterization of Ultrashort Pulses in the Few-Cycle Regime Using Spectral Phase Interferometry for Direct Electric Field Reconstruction -- Part III: Applications: Optical Frequency-Comb Generation and High-Resolution Laser Spectroscopy -- Carrier-Envelope Phase Stabilization of Single and Multiple Femtosecond Lasers -- Sub-Femtosecond XUV-Pulses: Attosecond Metrology and Spectroscopy -- Resonant Non-Perturbative Extreme Nonlinear Optics with Two-Cycle Pulses -- Dynamics of the Photoexcited Hydrated Electron -- Subject Index.
Sommario/riassunto	This book covers the physics and technology of short pulse laser sources that generate pulses with widths of only a few optical cycles. The basic design considerations for the different systems, such as lasers, parametric amplifiers and external compression techniques,

which have emerged over the last decade, are discussed to give researchers and graduate students a thorough introduction to this field. The existence of these sources has opened many new fields of research that were not possible before, such as UV- and X-ray generation from table-top systems using high-harmonic generation, frequency metrology with unprecedented precision, high-resolution optical coherence tomography and strong-field ultrafast solid-state processes, to mention only a few. Many new applications will follow. The book attempts to give a comprehensive, while not excessive, introduction to this exciting, new field that serves both experienced researchers and graduate students entering the field.

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