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Nota di contenuto	Introduction -- Single-carrier advanced modulation formats -- Basic Digital signal processing for single carrier signals -- Quasi-linear coherent optical transmission system and digital signal processing -- Super Nyquist wavelength division multiplexing system -- All-optical Nyquist signal -- Nonlinear compensation in optical fiber -- Probabilistic Shaping -- High baud signal transmission -- Advanced modulation code optical signal transmission technology -- Carrierless amplitude and phase modulation -- PAM 4 signal modulation and digital signal processing-based detection technology -- Optical OFDM -- Direct Detection OFDM -- Intensity Modulation Direct Detection High Speed Fiber Access System -- High-speed fiber access system based on direct detection of I/Q modulation -- Forward Error Correction -- High Spectral Efficiency Optical Four-Dimensional Modulation -- Machine Learning Algorithm in the Optical Communication System -- Kramers-Kronig receiver in direct detection.
Sommario/riassunto	This book presents the principles and applications of optical fiber communication based on digital signal processing (DSP) for both single

and multi-carrier modulation signals. In the context of single carrier modulation, it describes DSP for linear and nonlinear optical fiber communication systems, discussing all-optical Nyquist modulation signal generation and processing, and how to use probabilistic and geometrical shaping to improve the transmission performance. For multi-carrier modulation, it examines DSP-based OFDM signal generation and detection and presents 4D and high-order modulation formats. Lastly, it demonstrates how to use artificial intelligence in optical fiber communication. As such it is a useful resource for students, researches and engineers in the field of optical fiber communication.