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Altri autori (Persone)	TanidaJun HashimotoMasanori
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Nota di contenuto	Revival of Optical Computing -- Nonlinear Dynamics of Recurrent Neural Networks for Computing -- Fluorescence Energy Transfer Computing -- Quantum-Dot Based Photonic Reservoir Computing -- Exploring Integrated Device Implementation for FRET-based Optical Reservoir Computing -- FRET Networks -- Quantum Walk on FRET Networks -- Spatial photonic Ising machine with time/space division multiplexing -- Computing using Oscillatory Phenomena -- Sampling-like Dynamics of the Nonlinear Dynamical System Combined with Optimization -- Reservoir Computing Based on Iterative Function Systems -- Bridging the Gap between Reservoirs and Neural Networks -- Brain-Inspired Reservoir Computing Models.
Sommario/riassunto	This open access book presents an overview of recent advances in photonic neural networks with spatiotemporal dynamics. The computing and implementation paradigms presented in this book are outcomes of interdisciplinary studies by collaborative researchers from the three fields of nonlinear mathematical science, information

photonics, and integrated systems engineering. This book offers novel multidisciplinary viewpoints on photonic neural networks, illustrating recent advances in three types of computing methodologies: fluorescence energy transfer computing, spatial-photonic spin system, and photonic reservoir computing. The book consists of four parts: Part I introduces the backgrounds of optical computing and neural network dynamics; Part II presents fluorescence energy transfer computing, a novel computing technology based on nanoscale networks of fluorescent particles; Parts III and IV review the models and implementation of spatial-photonic spin systems andphotonic reservoir computing, respectively. These contents are beneficial to researchers in a broad range of fields, including information science, mathematical science, applied physics, and engineering, to better understand the novel computing concepts of photonic neural networks with spatiotemporal dynamics.