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Soggetti	Computer programming Computer science Elementary particles (Physics) Quantum field theory Artificial intelligence Spintronics Quantum physics Programming Techniques Theory of Computation Elementary Particles, Quantum Field Theory Artificial Intelligence Quantum Physics
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Nota di contenuto	Invited Talk: What Can We Learn from an Image? -- Nanophotonics for Information Systems -- All-Optical Clocked Flip-Flops Exploiting SOA-Based SR Latches and Logic Gates -- All-Optical Logic Gates Based on Semiconductor Optical Amplifiers and Tunable Filters -- Zero-Energy Optical Logic: Can It Be Practical? -- On Attributes and Limitations of Linear Optics in Computing -- Optical Designs for Non-deterministic Turing Machines -- Evolutionary Design of Graph-Based Structures for Optical Computing -- Computing a Solution for the Subset Sum

Problem with a Light Based Device -- An Optical Wavelength-Based Solution to the 3-SAT Problem -- Incoherent Optical Spatial Image Processing -- A Scheme for SIMD Processing in Two Dimensional Binary Images and Its Applications -- Proposal for Secure Key Distribution Using Classical Optics -- Analyze the Discrete Photo-Induced Current Pulses of the Photorefractive Spatial Light Modulator -- Optical Multiplexing Techniques for Photonic Clos Networks in High Performance Computing Architectures -- Improvement of a System for Prime Factorization Based on Optical Interferometer -- Combinatorial Optimization Using Electro-Optical Vector by Matrix Multiplication Architecture -- Dynamic Optical Circuit Switching Applied to Storage Area Networks -- Optical Correlator for Star Identification and Tracking.

Sommario/riassunto

This book constitutes the refereed proceedings of the The Second International Workshop on Optical SuperComputing, OSC 2009, held in Bertinoro, Italy, in November 2009. The 18 revised full papers presented together with 1 invited lecture were carefully reviewed and selected from numerous submissions for inclusion in the book. Being an annual forum for research presentations on all facets of optical computing for solving hard computation tasks, OCS addresses the following topics of interest: designs of optical computing devices, algorithmics and complexity issues of optical computing, computation representation by photons and holograms, neural and brain inspired architectures, electro-optic devices, practical implementations, analysis of existing devices and case studies, optical photonics and laser switching technologies, optical and photonic memories, optical signal processing subsystems, optical networks for high-performance computing, optical interconnections, quantum optical systems, applications and algorithms for optical devices, Alpha particles, X-rays, and nano-technologies for optical computing.
