



River Publishers

River Publishers Book Catalogue

Series in Optics and Photonics

River Publishers Series in Optics and Photonics

Emerging Trends in Advanced Spectroscopy

Editors:

Yang Weiman, Beijing University of Chemical Technology, China

Jibin K.P., Mahatma Gandhi University, India

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Sabu Thomas, Mahatma Gandhi University, India

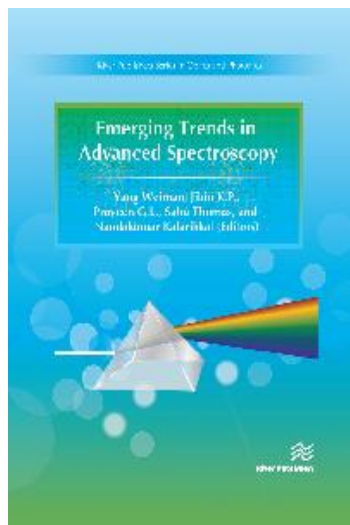
Nandakumar Kalarikkal, Mahatma Gandhi University, India

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Description:

Experimental studies carried out by a spectroscopic approach, and the techniques used for investigating the acquired information, can be given a robust modern analytical framework in the design of new materials, and for emphasis on the expansion of physical foundations of new materials.

Emerging Trends in Advanced Spectroscopy may help to understand the applications of spectroscopic tools in material characterization. The text also shows how different spectroscopic methods are used by researchers worldwide, and how we can correlate the experimental observations with structural information.

Technical topics discussed in the book include:

- Geometries, electronic structures and vibrational spectral studies
- Advanced spectroscopic techniques in polymer chemistry
- Spectroscopic portrayals of graphitic structures
- fluorescent metal nanoclusters as sensory probes for metal ions
- colorimetric chemo sensor
- Nano mixed ferrites and their applications to nanoelectronics
- Solid phase astrochemistry

Keywords: Green synthesis, silver nanoparticles, surface plasmon resonance (SPR), nickel-zinc ferrite, dielectric constant, astrochemistry, spectroscopy, FTIR spectroscopy, UV-visible spectroscopy, spin noise spectroscopy, magnetization fluctuation, alkali atom, Zeeman effect, optical pumping

River Publishers Series in Optics and Photonics

Datacenter Connectivity Technologies: Principles and Practice

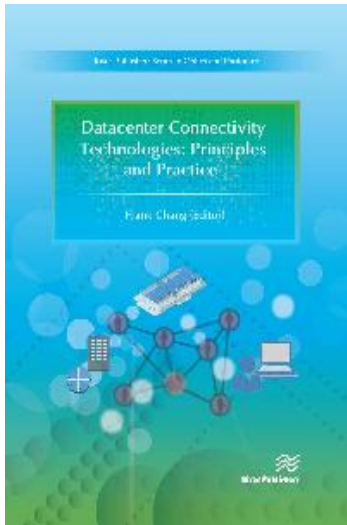
Editor: Frank Chang, Inphi Corporation, USA

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Price: € 85.00



Description:

In recent years, investments by cloud companies in mega data centers and associated network infrastructure has created a very active and dynamic segment in the optical components and modules market. Optical interconnect technologies at high speed play a critical role for the growth of mega data centers, which flood the networks with unprecedented amount of data traffic.

Datacenter Connectivity Technologies : Principles and Practice provides a comprehensive and in-depth look at the development of various optical connectivity technologies which are making an impact on the building of data centers. The technologies span from short range connectivity, as low as 100 meters with multi-mode fiber (MMF) links inside data centers, to long distances of hundreds of kilometers with single-mode fiber (SMF) links between data centers.

This book is the first of its kind to address various advanced technologies connecting data centers. It represents a collection of achievements and the latest developments from well-known industry experts and academic researchers active in this field.

Technical topics covered in this book include:

- Mega data center requirements
- High volume VCSELs
- Directly modulated lasers
- Electro-absorption modulated lasers
- Pulse amplitude modulation (PAM)
- Discrete Multi-Tone modulation (DMT)
- Optical Duobinary Transmission
- Optical fibers and connectors
- Mach-zenhder modulators
- Silicon photonics
- Optical waveguide devices and packaging
- Testing and measurements
- Advanced modulation formats
- Optical coherent networks
- High-speed IC design & packaging

Keywords: Data center networks, optical interconnect, transceiver modules, optoelectronics, integrated circuits

River Publishers Series in Optics and Photonics

Photonic Interconnects for Computing Systems Understanding and Pushing Design Challenges

Editors:

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Gabriela Nicolescu, Ecole Polytechnique de Montréal, Canada

Sébastien Le Beux, Ecole Centrale de Lyon, France

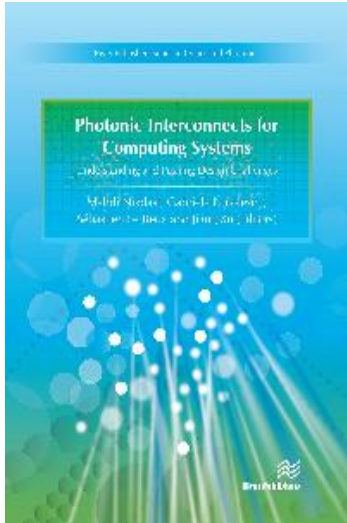
Jiang Xu, Hong Kong University of Science and Technology, China

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Available From: June 2017

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Description:

In recent years, there has been a considerable amount of effort, both in industry and academia, focusing on the design, implementation, performance analysis, evaluation and prediction of silicon photonic interconnects for inter- and intra-chip communication, paving the way for the design and dimensioning of the next and future generation of high-performance computing systems. *Photonic Interconnects for Computing Systems* provides a comprehensive overview of the current state-of-the-art technology and research achievements in employing silicon photonics for interconnection networks and high-performance computing, summarizing main opportunities and some challenges. The majority of the chapters were collected from presentations made at the International Workshop on Optical/Photonic Interconnects for Computing Systems (OPTICS) held over the past two years. The workshop invites internationally recognized speakers on the range of topics relevant to silicon photonics and computing systems.

Technical topics discussed in the book include:

- Design and Implementation of Chip-Scale Photonic Interconnects;
- Developing Design Automation Solutions for Chip-Scale Photonic Interconnects;
- Design Space Exploration in Chip-Scale Photonic Interconnects;
- Thermal Analysis and Modeling in Photonic Interconnects;
- Design for Reliability;
- Fabrication Non-Uniformity in Photonic Interconnects;

Photonic Interconnects for Computing Systems presents a compilation of outstanding contributions from leading research groups in the field. It presents a comprehensive overview of the design, advantages, challenges, and requirements of photonic interconnects for computing systems. The selected contributions present important discussions and approaches related to the design and development of novel photonic interconnect architectures, as well as various design solutions to improve the performance of such systems while considering different challenges. The book is ideal for personnel in computer/photonic industries as well as academic staff and master/graduate students in computer science and engineering, electronic engineering, electrical engineering and photonics.

Keywords: Interconnection networks, silicon photonics, computing systems, performance modelling and analysis, optical networks, design space exploration, reliability, variations, next and future generation computing systems

River Publishers Series in Optics and Photonics

Green Photonics and Smart Photonics

Editors:

Shien-Kuei Liaw, National Taiwan University of Science and Technology, Taiwan

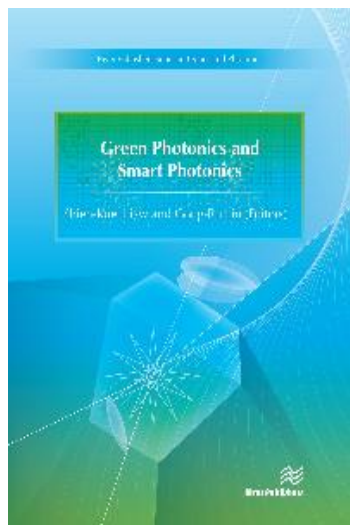
Gong-Ru Lin, National Taiwan University, Taiwan

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Price: € 85.00



Description:

In recent years, many efforts have been devoted in the study, development and application of *Green Photonics* and *Smart Photonics*. This book presents recent advances, both theoretical and applications, reflecting the cutting-edge technologies and research achievements within these research fields.

Green Photonics intend to develop photonics technologies that can conserve energy, reduce pollution and create renewable energy. Light emitting diodes (LEDs) and solar cells with the characteristics of sustainable and low energy consumption are addressed in this book. The term of *Smart Photonics* reflect intelligence of optical and optoelectronic components with high sensitivity, fast response time and/or compact size. The book explores various aspects of *smart photonics* including fiber sensors, optoelectronic devices and waveguide devices.

The chapters in this edited book are written by researchers who presented quality papers at the 2015 International Symposium of Next-Generation Electronics (ISNE 2015), which was held in Taipei, Taiwan. The ISNE 2015 provided a common forum in the areas of opto-electron devices, photonics, integrated circuits, and microelectronic systems and technologies. The technical program consisted of 5 plenary talks, 23 invited talks and more than 250 contributed oral and poster presentations. After a rigorous review process, the ISNE 2015 technical program committee has selected 10 outstanding presentations and invited the authors to prepare extended chapters for inclusion in this book. Of the 10 chapters, five focus on the subject of *green photonics*, and the others cover *smart photonics*.

Keywords: Green Photonics, Smart Photonics, Optics, Light Emitting Diodes (LEDs), Multichip LED, Solar Cells, Quantum Dots, Silicon Carbide, Photonic Waveguides, High-Speed Optoelectronic Devices, Fiber Sensors, Ion Beam Technology, Fiber Amplifiers, GaN based Working Electrodes, Waveguide Devices