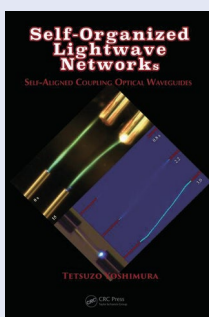


Encyclopedia of Modern Optics

Edited by Bob Guenther and Duncan Steel

ELSEVIER: 2018. 2250PP. US\$4,450.

This encyclopedia provides a broad overview of optics and photonics, covering topics such as classical and quantum optics, lasers, optical fibres and optical fibre systems, light-emitting diodes, and the electro-optical design of modulators and detectors. Detailed discussions on solar energy, holography, orbital angular momentum, high-power fibre lasers and ultraviolet fibre lasers, random lasers, and bio-imaging are also included. The additional chapters in this second edition contain updates on the topics of nanophotonics and plasmonics, metamaterials and transformation optics, optical interconnects, photonic crystals and 2D materials, such as graphene and holey fibres. This volume addresses recent developments in the field and integrates concepts from fundamental physics with applications in manufacturing, engineering and design, and is suitable for advanced undergraduate students, graduate students, engineering and technology professionals, and academic researchers.

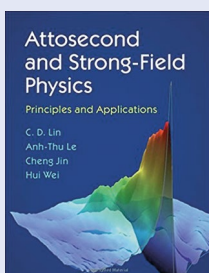


Self-Organized Lightwave Networks

By Tetsuzo Yoshimura

CRC PRESS: 2018. 209PP. £60.00.

This title covers self-organized lightwave networks (SOLNETs), which enable self-aligned optical coupling between misaligned optical devices with different core sizes, optical wiring in three-dimensional free spaces and targeting lightwaves onto specific objects. It discusses optical interconnects within computers and networking systems, and presents ideas to reduce costs and improve performance by creating new optoelectronics architectures. Different photosensitive materials, such as photopolymers, photosensitive glass and photorefractive crystals, and different SOLNET concepts, such as two-beam writing SOLNET, phosphor SOLNET and luminescence-writing SOLNET, are introduced. The expected applications of these SOLNETs, such as integrated optical interconnects, solar-energy conversion systems, cancer therapy and micro-optical switching, as well as the future challenges of SOLNETs are also described.



Attosecond and Strong-Field Physics

By C. D. Lin, Anh-Thu Le, Cheng Jin and Hui Wei

CAMBRIDGE UNIVERSITY PRESS: 2018. 445PP. £59.99.

By using simplified models to develop a clear understanding of how matter interacts with attosecond pulses of light, this volume discusses the principles of probing and controlling electrons and nuclei in matter at the attosecond timescale. It comprises eight chapters. The first chapter introduces the principles of atoms, molecules and wave propagation, followed by the basic formulation of interactions between an intense laser pulse and atoms. Strong-field ionization and low-energy electron spectra of atoms and molecules, rescattering and laser-induced electron diffraction, and fundamentals of high-order harmonic generation are also discussed. The last three chapters are devoted to applications of high-order harmonics, generation and characterization of attosecond pulses, and probing electron dynamics with isolated attosecond pulses.



Polymer and Photonic Materials Towards Biomedical Breakthroughs

Edited by Jasper Van Hoorick, Heidi Ottevaere, Hugo Thienpont, Peter Dubruel and Sandra Van Vlierberghe

SPRINGER: 2018. 181PP. £119.99.

This book reviews photonic-enhanced materials, from their initial development to their final application. It contains six chapters that cover fundamental, applied and industrial photonics. Details on the development and characterization of photoresponsive polymers, polymer processing through multiphoton absorption, and two-photon polymerization in tissue engineering are also provided. The applications of these materials include studying cell biomechanics and mechanobiology, and in drug delivery and gene therapy.

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