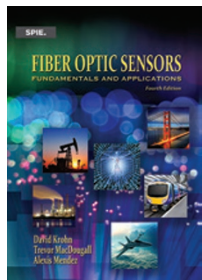


New titles at a glance

Fiber Optic Sensors: Fundamentals and Applications

By David A. Krohn, Trevor W. MacDougall and Alexis Mendez
SPIE. 332PP. \$73

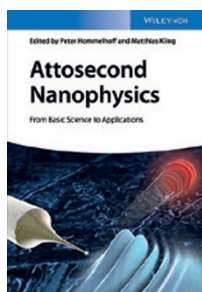


The fourth edition of this popular text has been revised and updated to include discussion of new sensing technologies and applications, in particular scattering-based schemes and biophotonics. Starting with an introduction covering the

fundamental and basic properties of light transmission in optical fibres, the book then describes a variety of optical fibre sensors that rely on intensity, phase or wavelength modulation or scattering effects. The second half of the book is more application orientated with detailed explanations of sensors that have been developed for specific tasks such as sensing temperature, pressure, strain, displacement, flow, magnetic/electric fields or rotation (fibre optic gyroscopes). It concludes with a discussion of the challenges and opportunities for fibre optic sensors in a commercial environment.

Attosecond Nanophysics: From Basic Science to Applications

Edited by Peter Hommelhoff and Matthias Kling
WILEY-VCH. 392PP. £115

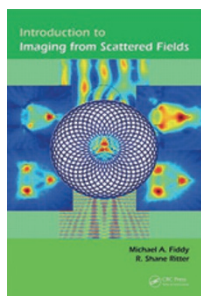


This book provides an in-depth overview of current research in attosecond nanophysics and the ultrafast dynamics of strong-field laser interactions with matter. Topics range from the fundamental, such as the theory of the behaviour

of solids in strong ultrafast laser fields and a discussion of ultrafast plasmonic phenomena, to the more applied, including light-based control of electrons and electric currents, laser-driven electron acceleration and imaging schemes like time-resolved photoelectron emission microscopy.

Introduction to Imaging from Scattered Fields

By Michael A. Fiddy and R. Shane Ritter
CRC PRESS. 246PP. £57.99

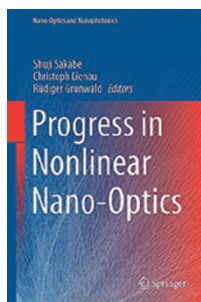


This book describes the challenges posed by, and the various approaches for, determining information about an object by measuring its scattered field. It explores the strengths and weaknesses of using simple inverse methods for analysing

weak scattering, including the use of Fourier-based signal and image processing techniques. The authors also discuss the opportunities afforded by nonlinear filtering, using numerous examples to demonstrate its benefit in solving two-dimensional electromagnetic scattering problems.

Progress in Nonlinear Nano-Optics

Edited by Shuji Sakabe, Christoph Lienau and Rüdiger Grunwald
SPRINGER. 273PP £90



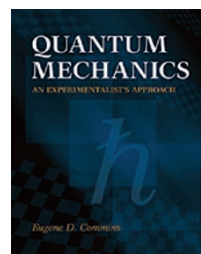
The design, fabrication and role of state-of-the-art nonlinear nanostructures in ultrafast laser applications are the core focuses of this book. The creation of laser-induced nanostructures in metals, metal oxides and

semiconductors, and ultrafast excitation and energy transfer in nanoscale physical, chemical and hybrid systems are explored in detail. Particular emphasis is placed on the possible mechanisms behind sub-wavelength ripple formation, including models of self-organized material transport and multiphoton excitation channels. Other topics of discussion include the nonlinear optics of plasmonic structures (nanotips, nanowires and three-dimensional metamaterials) and the localization and transport of energy on the ultrafast timescale and spatial nanoscale. Techniques such as high-resolution spectroscopy and

the various applications of ultrashort pulsed lasers for material processing and the use of nanostructured materials for characterizing laser fields and laser-matter interactions are also described.

Quantum Mechanics: An Experimentalist's Approach

By Eugene D. Commins
CAMBRIDGE UNIV. PRESS 720PP. £55

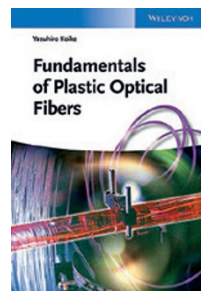


Eugene D. Commins takes a novel approach to explaining quantum mechanics, preferring to use physical examples over formal, abstract descriptions. Explaining difficult concepts in straightforward

language, he examines many modern developments in quantum physics, including Bell's inequalities, locality, photon polarization correlations, the stability of matter, Casimir forces, geometric phases, Aharonov-Bohm and Aharonov-Casher effects and many other quantum phenomena.

Fundamentals of Plastic Optical Fibers

By Yasuhiro Koike
WILEY-VCH. 192PP. £75



The first part of this book introduces the concept and key design parameters and properties of typical polymer optical fibres, including a discussion of waveguide geometry, the types of materials used, their data

transmission capacity, optical loss and mode characteristics. It then describes how such fibres can be fabricated in practice and characterized to determine their transmission properties. Finally the book offers a section on employing polymer fibres in real-life data communication links and concludes with a look at the future prospects of the technology.