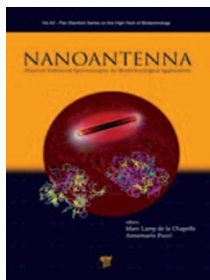


# New titles at a glance

## Nanoantenna: Plasmon-Enhanced Spectroscopies for Biotechnological Applications

Edited by Marc Lamy de la Chapelle and Annemarie Pucci

PAN STANFORD. 452PP. £95



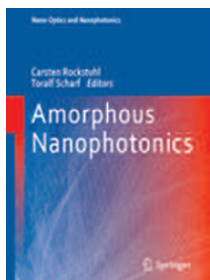
This book discusses ways of performing highly sensitive imaging and spectroscopy of biological samples using custom-designed nanostructures. Metallic nanostructures

with various geometries can act as miniature antennas that greatly enhance the interaction of light with matter through plasmonic effects. This enhancement can enable optical spectroscopy to detect small quantities of biomolecules such as proteins. Chapters cover topics such as functionalization of nanoparticle surfaces for biomedical applications, surface-enhanced infrared and Raman spectroscopy, surface-plasmon thin-film sensors and design, and the fabrication and characterization of nanostructures. The book aims to provide a balanced mixture of theoretical concepts and experimental procedures, and is designed to be suitable for researchers working in a wide variety of disciplines.

## Amorphous Nanophotonics

Edited by Carsten Rockstuhl and Toralf Scharf

SPRINGER. 372PP. £117



Claiming to be the first comprehensive overview of amorphous nano-optics and nanophotonic systems, this book seeks to educate and stimulate further research in this field. Nanophotonics is

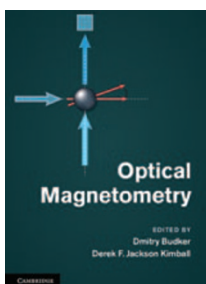
a growing sub-discipline of optics that uses structures smaller than the wavelength of light to realize useful optical behaviours and functionalities, especially those that cannot be achieved in conventional bulk materials.

Amorphous or random structures are, by definition, non-periodic and are often formed by self-organization mechanisms. This book discusses observable effects in amorphous nanophotonic materials along with their design, fabrication, characterization and application. Contributions from a mixture of physicists, chemists and materials scientists allow this book to shed light on the topic from many perspectives.

## Optical Magnetometry

Edited by Dmitry Budker and Derek Jackson Kimball

CAMBRIDGE UNIVERSITY PRESS. 429PP. £75



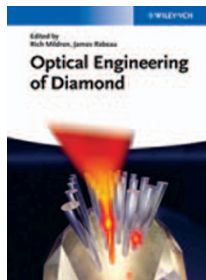
Organized into three parts — principles and techniques, applications and broader impact — this book consists of 20 chapters written by leading experts on various aspects of magnetometry. Readers will find a

wealth of useful information on topics such as magnetic shielding, geomagnetic-field measurements, space magnetometry and the detection of biomagnetic fields, as well as detection of signals from experiments involving nuclear magnetic resonance systems and magnetic resonance imaging systems. The book discusses the history and development of optical magnetometry as well as its commercial applications, and is supplemented by extensive online material that provides historical overviews, derivations, side discussions and additional plots and tables.

## Optical Engineering of Diamond

Edited by Rich Mildren and James Rabeau

WILEY. 446PP. £125



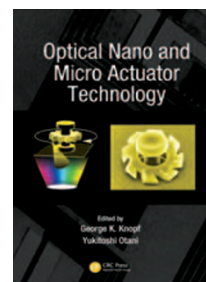
Diamond is finding increasingly useful applications in photonics, owing to its many beneficial properties. It has the largest optical bandgap of any known material and is transparent from

the deep ultraviolet to the infrared. It is also biocompatible, chemically robust and exhibits excellent thermal properties. Perhaps most importantly, it also features a defect — the nitrogen-vacancy colour centre — which is proving useful for applications in quantum information processing, where it can function as an efficient emitter of single photons and provide room-temperature possibilities for single-spin polarization and read-out. This text reviews the optical properties of diamonds grown by various means, as well as the physics and applications of colour centres. It also discusses the uses of nanodiamond in biomedicine and spectroscopy, and the various diamond-based nanophotonic and integrated optical structures that have been demonstrated so far.

## Optical Nano and Micro Actuator Technology

Edited by George K. Knopf and Yukitoshi Otani

CRC PRESS. 656PP. £99



This text brings together leading engineers, materials scientists, chemists, physicists and laser scientists to provide an in-depth and wide-ranging overview of the fundamental principles and

characteristics of light-driven actuators. The contributors discuss how light can be used to initiate physical movement and control various mechanisms that perform mechanical work on micro- and nanoscales. The book begins by discussing the interaction between light and nano- and microelectromechanical systems. It then considers functions and applications relevant to photonics, followed by photoresponsive materials and device applications in optofluidics, biophotonics, medicine and micromachines. The book explains how very small optical forces can be used to manipulate particles and drive mechanical mechanisms. Detailed descriptions of various actuator technologies, including optically driven micropumps and microvalves, carbon-nanotube-based photomechanical actuators and photothermal shape-memory alloy actuators are also provided.