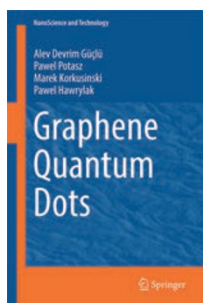


New titles at a glance

Graphene Quantum Dots

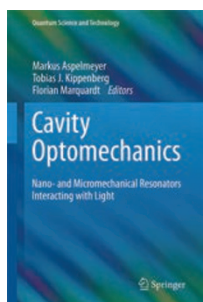
By Alev Devrim Güçlü, Pawel Potasz,
Marek Korkusinski and Pawel Hawrylak
SPRINGER. 172PP. £56.99



Since 2010 graphene has attracted enormous attention owing to its fascinating properties. It was therefore only a matter of time before graphene-based structures reached the nanometre scale, being the latest entry in the world of quantum dots. In this textbook, addressed to experimentalists and theorists of all levels, leading researchers in the field lay out the basic electronic and optical properties of graphite and graphene, covering the physics of Dirac fermions and valley degeneracy. The optical and magnetic properties of graphene quantum dots as a function of size, shape, edge type and carrier density are also investigated in the book, which provides a complete overview of this emerging field.

Cavity Optomechanics: Nano- and Micromechanical Resonators Interacting with Light

Edited by Markus Aspelmeyer,
Tobias J. Kippenberg and Florian Marquardt
SPRINGER. 357PP. £93.50



The study of the interaction between photons and low-dimensional mechanical systems is at the core of cavity optomechanics. This book explores the foundations of this relatively young field through the eyes of various leading

research groups. Starting from the very basic notions of quantum optics, mirrors and resonator types, the book builds to the more complex topics of Brillouin and integrated optomechanics. It also presents systems for microwave-frequency applications as well as cavity optomechanics with atoms, solid-state spin qubits or superconducting devices, underlying the exciting possibilities ahead.

Organic Solar Cells: Fundamentals, Devices, and Upscaling

Edited by Henning Richter and Barry P. Rand
PAN STANFORD. 810PP. \$250

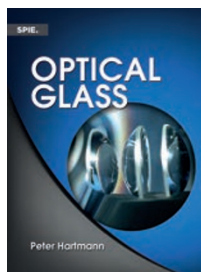


Although inorganic solar cells exhibit arguably better performance than their organic counterparts, the latter are slowly catching up. This handbook covers all aspects of organic solar cells in 15 chapters — from

design and fabrication to performance evaluation — written by leading experts in the field. The prototype organic photovoltaic device is broken down to its components (transparent electrodes, electron- and hole-conducting layers and so on) with each one treated in depth. Finally, the book offers insight on the mass production of such solar cells using inexpensive roll-to-roll deposition technologies and the expected financial ramifications of the widely anticipated revolution in photovoltaic technologies that organic materials will deliver.

Optical Glass

By Peter Hartmann
SPIE. 180PP. \$62



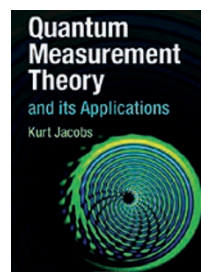
Although glass-making can be traced back to 3500 BC, its application in optical instruments has revolutionized not only science but also our way of life. Today, 400 years after Galileo Galilei built his telescope, the

development of new glass types as well as the improvement of the production process are very active fields as applications become increasingly demanding. This book covers several topics relevant to glass, from the basics (such as the index of refraction and its dependence on wavelength) to the more complex ideas of optical homogeneity and the dependence of transmittance on the limitations imposed by the manufacturing processes. An overview of the mechanical, thermal and environmental properties

of glass completes the broad spectrum of technical information included.

Quantum Measurement Theory and its Applications

By Kurt Jacobs
CAMBRIDGE UNIV. PRESS. 554PP. £50

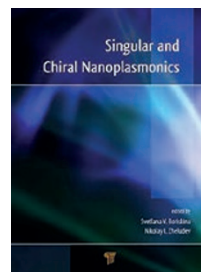


In quantum physics, the state of a system can be altered as a result of a measurement, and thus there is an important balance between the information gained and the dynamics induced.

This book aims to guide researchers into carefully choosing the correct measurements for a given purpose. It covers a plethora of systems including superconducting circuits, electromechanical and optomechanical systems. It also explicitly covers the topics of feedback control, metrology and the transition between the quantum and the classical regime.

Singular and Chiral Nanoplasmonics

By Svetlana V. Boriskina and
Nikolay I. Zheludev
PAN STANFORD. 536PP. \$150



This book focuses on the subfield of plasmonics, in which careful engineering of the landscape can generate chiro-optical and vortical effects in the flow of light. It is divided equally between these two topics and explores

the potential of plasmonic nanostructures, metasurfaces, and metamaterials in enhancing this kind of behaviour. The book includes 15 chapters, written by experts in plasmonics and photonics, that treat various topics: from basic electromagnetic analysis to the design of new plasmonic nanostructures and materials and the discovery of novel physical effects. Special attention is paid to covering the nanofabrication and characterization techniques in an effort to push the field of plasmonics towards new exciting directions.