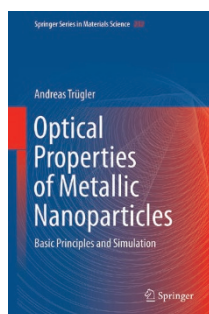


New titles at a glance

Optical Properties of Metallic Nanoparticles

By Andreas Trügler

SPRINGER 217PP. £59.99



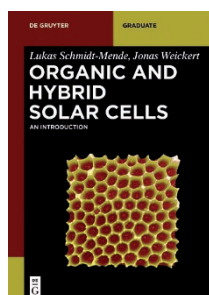
Plasmonics is a fast growing research field that stemmed from an improved understanding of the electromagnetic response of metals. Drawing on the theoretical background of the author, this book introduces surface plasmons —

electron density oscillations of metallic nanostructures at a metal/dielectric interface — through a formal derivation complemented by several schematics and plots of relevant quantities. The aim of the volume is to equip the reader with a theoretical framework for the study of the optical response of metallic nanoparticles. Numerical simulations substitute analytical descriptions when nonlinear and non-local effects or metamaterials are considered, and a MATLAB code for the Mie solution of Maxwell's equations is also included as an appendix. Extensive and up-to-date references at the end of each chapter are a useful starting point for further reading.

Organic and Hybrid Solar Cells

By Lukas Schmidt-Mende and Jonas Weickert

DE GRUYTER 294PP. £59.99



Among the variety of approaches and architectures that solar energy research has witnessed over the past years, organic and hybrid solar cells are recognized as promising, low-cost flexible candidates — and

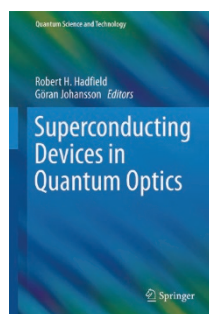
are indeed the subject of this book. Based on a graduate course, the volume starts with an overview of semiconductor physics as well as of p–n and metal–semiconductor junctions, which play a central role in photovoltaic devices. The authors then

delve into the working mechanisms of different examples of organic, hybrid and perovskite solar cells. Further, they discuss the techniques used to characterize these devices and their individual components. The text concludes with a chapter on the commercialization of organic and hybrid solar cells: in this context, efficiency, processing and device stability are aspects of paramount importance.

Superconducting Devices in Quantum Optics

Edited by Robert H. Hadfield and Göran Johansson

SPRINGER 249PP. £74.50



This book finds its roots in a special symposium on superconducting optics that took place in 2013 at the joint Conference on Lasers and Electro-Optics and International Quantum Electronics Conference in

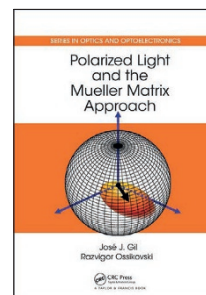
Germany, motivated by the prominent role that superconducting devices are expected to play in future developments in the areas of quantum optics and quantum information processing. The first part of the volume presents single-photon detectors at near-infrared wavelengths and their applications, while superconducting circuits at millikelvin temperatures for microwave quantum optics are covered in the second part of the text. Each chapter is authored by researchers with a specific expertise, from superconducting nanowire architectures and transition-edge sensors to the integration of single-photon detectors on silicon.

Polarized Light and the Mueller Matrix Approach

By José J. Gil and Razvigor Ossikovski

CRC PRESS 383PP. £95.00

Targeted towards students and more experienced researchers alike, this book discusses the polarization properties of electromagnetic waves as well as the manipulation of polarization states through



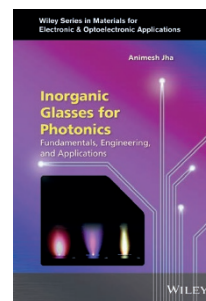
the interaction with material media. The authors, whose expertise covers both the theory of polarimetry and its practical applications, first introduce key tools such as the Poincaré sphere, the Jones vectors

and the Stokes parameters; the description of two- and three-dimensional polarization states is then followed by a discussion of non-depolarizing media in terms of Jones and Mueller matrices. The rest of the volume focuses on the formalism of Mueller matrices, including parallel and serial decompositions as well as a chapter on the geometric representation of Mueller matrices. Overall, the text combines a rigorous mathematical treatment with illustrative examples taken from experiments.

Inorganic Glasses for Photonics

By Animesh Jha

WILEY 400PP. £100.00



The wide selection of topics covered in this book mirrors the ubiquitous role of glasses in research areas ranging from optics and photonics to chemistry, materials science and engineering. The volume begins with a description

of the states of glass, their thermal characterization and their viscosity behaviour in different temperature ranges. A chapter on bulk glass fabrication precedes an in-depth presentation of optical fibres and their properties, the methods for controlling dispersion phenomena as well as unconventional fibre structures based on periodic defects or the negative core-cladding refractive index difference, for example. Additionally, the book includes a theoretical and experimental discussion of the spectroscopic properties of lanthanide- and transition metal ion-doped glasses.