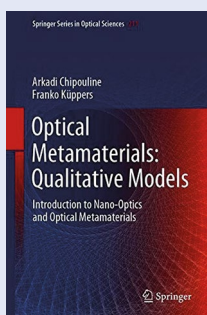


Principles of TeraHertz Time-Domain Spectroscopy

By Jean-Louis Coutaz, Frédéric Garet and Vincent Wallace

PAN STANFORD: 2018. 650PP. £139.00.

Being a unique technique for characterizing the spectral response of materials and devices in the far-infrared region of the electromagnetic spectrum, terahertz time-domain spectroscopy (THz-TDS) allows fast and precise determination of the permittivity or permeability of materials over a wide bandwidth from the recorded waveforms. The topics covered in the 12 chapters of this first edition include classical far-infrared spectroscopy techniques, THz-TDS instrumentation, methods to extract the refractive index from transmission and reflection time-domain spectroscopy data, pump-and-probe THz-TDS, terahertz waveguides, metamaterials and plasmonic devices, characterization of anisotropic materials, and THz-TDS of scattering samples. Noise in THz-TDS systems, the precision of the THz-TDS extraction and advanced techniques are also discussed.

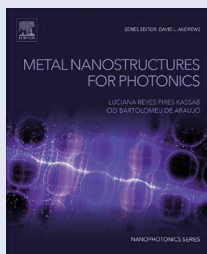


Optical Metamaterials: Qualitative Models

By Arkadi Chipouline and Franko Küppers

SPRINGER: 2018. 323PP. £79.99.

The emphasis of this text is on the qualitative fundamental treatment of optical metamaterials rather than the quantitative numerical treatment. This book aims to bridge the gap between university courses on electrodynamics and the knowledge needed to successfully address the problem of electrodynamics of metamaterials. The phenomenon of artificial magnetization at high frequencies, and the homogenization procedures and the basics of quantum dynamics are described in detail. This text-book will be useful for both experimentalists and theoreticians who are interested in the physical basics of metamaterials and plasmonics.

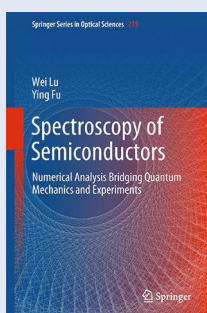


Metal Nanostructures for Photonics

Edited By Luciana Reyes Pires Kassab and Cid Bartolomeu De Araujo

ELSEVIER: 2018. 346PP. US\$170.00.

This first edition gives updates on the development of materials with enhanced optical properties and the demand for novel metal-dielectric nanocomposites and nanostructured materials. It is divided into three sections: effect of metallic nanoparticles on luminescence of ions in solids, near- and far-field optical phenomena associated with and/or influenced by metallic nanoparticles, and photonic materials and devices with improved performance affected by metallic nanoparticles. Various topics are discussed, for example, metal-dielectric composites based on germanate and tellurite glasses, enhanced luminescence due to plasmonic coupling by metal nanoparticles, nonlinear optics with metal-dielectric nanocomposites, plasmonic nanostructures for linear and nonlinear quantum elements, the fabrication of metal-dielectric nanocomposites by ion implantation, nanostructuring solar cells using metallic nanoparticles, plasmonics for the characterization of metal-organic films and nanoparticles, and biopolymer-metal composites. The pros and cons of using different metallic nanostructures for different photonic applications are also included.



Spectroscopy of Semiconductors

By Wei Lu and Ying Fu

SPRINGER: 2018. 240PP. £109.99.

This title describes the experimental set-ups and methods for optical spectral analysis of semiconductors, as well as the basic quantum-mechanical principles underlying the fast-developing nanotechnology for semiconductors. Consisting of seven chapters, it covers semiconductor structures ranging from bulk to the nanoscale and examines applications in the semiconductor industry and biomedicine. Topics discussed are optical spectral measurement, introduction to physics and optical properties of semiconductors, reflection and transmission, photoluminescence, modulation spectroscopy, photocurrent spectroscopy, and optical properties of fluorescent colloidal quantum dots.

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