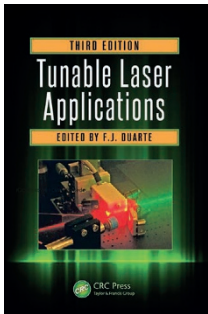


New titles at a glance

Tunable Laser Applications

Edited by Francisco J. Duarte
CRC PRESS 452PP. £140.00

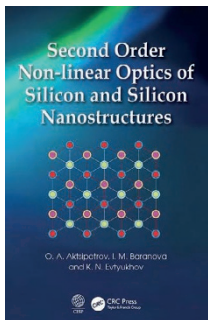


Now in its third edition, this book on broadly tunable laser sources was updated to include the latest technological developments in the field. As pointed out in the introduction, chapters from the previous edition that were

left unchanged are not included to avoid redundancy of content. This does not mean the text is now only accessible to readers already familiar with this topic; in fact, the set of tables included in the first pages of the volume highlight the relevant figures of merit for a tunable laser, and provide a useful comparison between different sources. Indeed, the family of tunable lasers is large: it encompasses the first organic dye laser sources, optical parametric oscillators, semiconductor lasers, fibre-based systems and free-electron lasers. The text particularly emphasizes the applications of tunable laser systems, mostly in medicine but also for atmospheric sensing and astronomy.

Second Order Non-linear Optics of Silicon and Silicon Nanostructures

By Oleg A. Aktsipetrov, Irina M. Baranova and Konstantin N. Evtukhov
CRC PRESS 592PP. £99.00



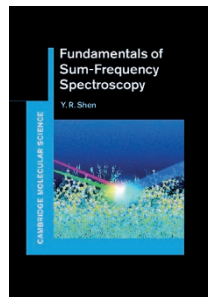
At a time when silicon has been recognized as a promising material for applications ranging from photonic circuits to solar research, this book goes back to the basics to offer a detailed description of the properties of silicon, together with

its applications to the study of nonlinear effects and semiconductor physics. A useful resource for undergraduate students and more experienced researchers alike, this

volume includes an in-depth discussion of reflected second-harmonic generation that sets it apart from other texts in the field of nonlinear optics. Additionally, the book provides experimental results and reference data, and several appendices cover technical aspects such as the fundamentals of group theory and the Casimir effect.

Fundamentals of Sum-Frequency Spectroscopy

By Yeun-Ron Shen
CAMBRIDGE UNIV. PRESS 329PP. £89.99

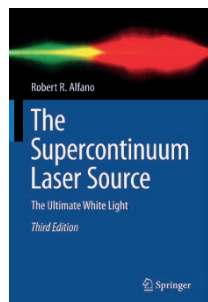


Asserting to be the first book dedicated to this topic and written by a pioneer of the technique, this text aims to be a useful self-contained resource that covers all aspects of sum-frequency spectroscopy, from its basic

principles to its practical applications. The book starts with a historical perspective and the basics of nonlinear optics; it then discusses the theory of sum-frequency generation, together with the experimental approaches and conditions employed. Various applications of the technique are described — these include the characterization of bulk materials, molecular adsorbates, biomolecules and polymers, and organic media. The text concludes with a discussion of opportunities for further developing the technique and of new areas to be investigated.

The Supercontinuum Laser Source

Edited by Robert R. Alfano
SPRINGER 434PP. £101.00

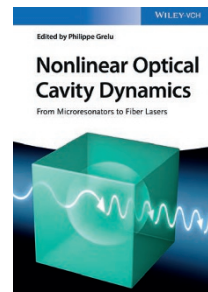


The phenomenon known as white-light continuum, often referred to as supercontinuum, describes the generation of radiation with broad spectra and, notably, collimation and coherence

properties comparable to those achieved by conventional laser sources. Supercontinuum emission can be observed when ultrafast laser pulses propagate in various media and designs of optical fibres; in 1969, Robert Alfano and Stanley Shapiro were among the first to produce a white-light continuum in solids and liquids. As the third edition of a book that has become a reference title on ultrafast processes responsible for supercontinuum generation, this volume includes new material that covers the progress made over the past ten years (when the second edition appeared) in this active research area. The additional chapters focus on topics such as the use of normal-dispersion photonic bandgap fibres and the application of the white-light continuum to attosecond pulse generation.

Nonlinear Optical Cavity Dynamics: From Microresonators to Fiber Lasers

Edited by Philippe Grelu
WILEY 456PP. £105.00



The seemingly simple picture of recirculating light in a nonlinear medium has led to the investigation of complex phenomena as well as to significant technological advances. Through dedicated chapters,

this volume surveys the physics of nonlinear dynamics in optical cavities by focusing on two main aspects — the optical states theoretically predicted and experimentally observed, and the cavity designs that give access to different spatial and temporal scales. In this way, readers learn about laser cavity solitons, dissipative soliton states and rogue waves; examples of the optical cavities discussed in the text are semiconductor microcavities, microcoil resonators and passively mode-locked fibre lasers. The book concludes with a presentation of data methods and computational tools used to characterize the complex cavity dynamics that constitute the common thread in this comprehensive volume.