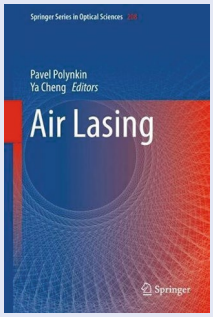
ON OUR BOOKSHELF

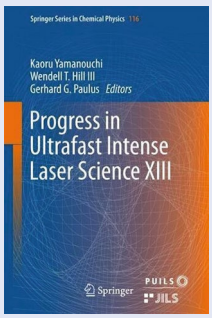


Air Lasing

Edited by Pavel Polynkin and Ya Cheng

SPRINGER: 2018. 156PP. £72.00.

When it comes to remote atmospheric sensing, it is challenging to place a laser at a convenient location. Air lasing is a contender for this application as it relies on the concept that the constituents of the air itself are the active laser medium. This facilitates laser-like radiation originating from a remote location in the atmosphere that is backward propagating and impulsive. Representing the first comprehensive book on the field of remote atmospheric sensing, it provides the latest developments on air lasing and its applications. Topics covered are two-photon pumped stimulated emission in atmospheric species, high-gain air lasing by multiphoton pumping of atomic species, the role of electron collision in lasing in neutral and singly ionized molecular nitrogen, molecular rotational effects in free-space N_2^+, laser induced by strong-field ionization, filament-initiated lasing in neutral molecular nitrogens, and filament-assisted impulsive Raman spectroscopy.

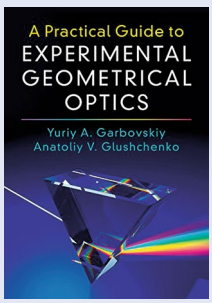


Progress in Ultrafast Intense Laser Science XIII

Edited by Kaoru Yamanouchi, Wendell T. Hill III and Gerhard G. Paulus

SPRINGER: 2017. 240PP. £88.00.

The development of ultrafast laser technologies has stimulated interdisciplinary research fields from atomic and molecular physics to molecular and optical science. This title is the thirteenth volume in the Progress in Ultrafast Intense Laser Science (PUILS) series and focuses on atoms, molecules and clusters interacting with an intense laser field and on high-order harmonic generation, as well as their applications. There are ten chapters covering topics such as multiconfiguration methods for time-dependent many-electron dynamics, controlling coherent quantum nuclear dynamics in lithium hydride using ultrashort infrared attosecond pulses, probing multiple molecular orbitals in orthogonally polarized two-colour laser fields, high-harmonic phase spectroscopy using long wavelengths, and the Extreme-Light Infrastructure–Attosecond Light Pulse Source Project.

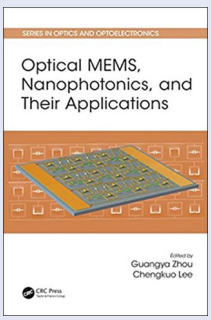


A Practical Guide to Experimental Geometrical Optics

By Yuriy A. Garbovskiy and Anatoliy V. Glushchenko

CAMBRIDGE UNIV. PRESS: 2017. 238PP. £34.99.

This text begins by introducing fundamental concepts followed by a description of the practical skills and research techniques routinely used in modern laboratories. It provides details on how to build your own optical lab and to design and perform optical experiments. The book is organized into seventeen chapters covering a range of topics: the markets of optical materials, components, accessories, light sources and detectors; the production, management, detection and measuring of light; detailed information on devices such as for light detectors based on semiconductors and photodiodes, and on converging and diverging thin lenses, thick lenses and spherical mirrors; introduction to optical aberrations, elements of optical radiometry, methods of geometrical optics to measure refractive index, dispersion of light and prism spectroscope; and elements of computer-aided optical design.



Optical MEMS, Nanophotonics, and their Applications

Edited by Guangya Zhou and Chengkuo Lee

CRC PRESS: 2017. 432PP. £190.00.

Covering the fundamentals of device design and system applications in optical microelectromechanical systems (MEMS) and nanophotonics, this text consists of sixteen chapters divided into three sections: (1) optical MEMS for communication, imaging and sensing applications; (2) nanophotonics for communication, imaging and sensing applications; and (3) biomicrophotonics, nanophotonics and optofluidics for healthcare applications. Some of the topics discussed include MEMS optical scanners for laser projection displays, optical microelectricalmechanical phased arrays, optical MEMS for space, MEMS tunable optics, physical sensors based on photonic crystals, silicon photonic variable waveguide coupler devices, metasurface and ultrathin optical devices, optical micro- and nanoresonators for biochemical sensing, terahertz MEMS metamaterials, implantable complementary metal-oxide–semiconductor microphotonic devices and microfluidic photocatalysis.

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