



Semiconductor Lasers: Fundamentals and Applications (Woodhead Publishing Series in Electronic and Optical Materials)

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Semiconductor lasers have important applications in numerous fields, including engineering, biology, chemistry and medicine. They form the backbone of the optical telecommunications infrastructure supporting the internet, and are used in information storage devices, bar-code scanners, laser printers and many other everyday products. Semiconductor lasers: Fundamentals and applications is a comprehensive review of this vital technology.

Part one introduces the fundamentals of semiconductor lasers, beginning with key principles before going on to discuss photonic crystal lasers, high power semiconductor lasers and laser beams, and the use of semiconductor lasers in ultrafast pulse generation. Part two then reviews applications of visible and near-infrared emitting lasers. Nonpolar and semipolar GaN-based lasers, advanced self-assembled InAs quantum dot lasers and vertical cavity surface emitting lasers are all considered, in addition to semiconductor disk and hybrid silicon lasers. Finally, applications of mid- and far-infrared emitting lasers are the focus of part three. Topics covered include GaSb-based type I quantum well diode lasers, interband cascade and terahertz quantum cascade lasers, whispering gallery mode lasers and tunable mid-infrared laser absorption spectroscopy.

With its distinguished editors and international team of expert contributors, Semiconductor lasers is a valuable guide for all those involved in the design, operation and application of these important lasers, including laser and telecommunications engineers, scientists working in biology and chemistry, medical practitioners, and academics working in this field.

- Provides a comprehensive review of semiconductor lasers and their applications in engineering, biology, chemistry and medicine
- Discusses photonic crystal lasers, high power semiconductor lasers and laser beams, and the use of semiconductor lasers in ultrafast pulse generation
- Reviews applications of visible and near-infrared emitting lasers and mid- and far-infrared emitting lasers

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Editorial Review

About the Author

Alexei Baranov is Research Director of Research at CNRS, France.

Eric Tournié is Professor of Electrical Engineering and Photonics in University of Montpellier, France.

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