

Springer

3rd
edition

3rd ed. 2013, XX, 572 p.

Printed book

Softcover

Printed book

Softcover

ISBN 978-3-642-43341-2

\$ 199,99

Available

Discount group

Professional Books (2)

Product category

Monograph

Series

Springer Series in Optical Sciences

Physics : Classical Electrodynamics

Ohtsubo, Junji

Semiconductor Lasers

Stability, Instability and Chaos

- Provides a comprehensive review of the basic laser physics and recent advances in semiconductor laser applications
- Covers fundamental theory of laser chaos and applications to optical secure communications
- Represents the theory of semiconductor laser chaos and its applications completely

This third edition of "Semiconductor Lasers, Stability, Instability and Chaos" was significantly extended. In the previous edition, the dynamics and characteristics of chaos in semiconductor lasers after the introduction of the fundamental theory of laser chaos and chaotic dynamics induced by self-optical feedback and optical injection was discussed. Semiconductor lasers with new device structures, such as vertical-cavity surface-emitting lasers and broad-area semiconductor lasers, are interesting devices from the viewpoint of chaotic dynamics since they essentially involve chaotic dynamics even in their free-running oscillations. These topics are also treated with respect to the new developments in the current edition. Also the control of such instabilities and chaos control are critical issues for applications. Another interesting and important issue of semiconductor laser chaos in this third edition is chaos synchronization between two lasers and the application to optical secure communication. One of the new topics in this edition is fast physical number generation using chaotic semiconductor lasers for secure communication and development of chaos chips and their application. As other new important topics, the recent advance of new semiconductor laser structures is presented, such as quantum-dot semiconductor lasers, quantum-cascade semiconductor lasers, vertical-cavity surface-emitting lasers and physical random number generation with application to quantum key distribution. Stabilities, instabilities, and control of quantum-dot semiconductor lasers and quantum-cascade lasers are important topics in this field.

Order online at springer.com/booksellers**Springer Nature Customer Service Center LLC**

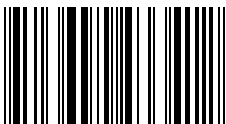
233 Spring Street

New York, NY 10013

USA

T: +1-800-SPRINGER NATURE

(777-4643) or 212-460-1500

customerservice@springernature.com

ISBN 978-3-642-43341-2 / BIC: PHJ / SPRINGER NATURE: SCP21070

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add \$5.00 for shipping one book and \$ 1.00 for each additional book. Outside the US and Canada add \$ 10.00 for first book, \$5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.