



# Optoelectronic Integrated Circuit Design and Device Modeling

*Jianjun Gao*

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## **Optoelectronic Integrated Circuit Design and Device Modeling** Jianjun Gao

In *Optoelectronic Integrated Circuit Design and Device Modeling*, Professor Jianjun Gao introduces the fundamentals and modeling techniques of optoelectronic devices used in high-speed optical transmission systems. Gao covers electronic circuit elements such as FET, HBT, MOSFET, as well as design techniques for advanced optical transmitter and receiver front-end circuits. The book includes an overview of optical communication systems and computer-aided optoelectronic IC design before going over the basic concept of laser diodes. This is followed by modeling and parameter extraction techniques of lasers and photodiodes. Gao covers high-speed electronic semiconductor devices, optical transmitter design, and optical receiver design in the final three chapters.

- Addresses a gap within the rapidly growing area of transmitter and receiver modeling in OEICs
- Explains diode physics before device modeling, helping readers understand their equivalent circuit models
- Provides comprehensive explanations for E/O and O/E conversions done with laser and photodiodes
- Covers an extensive range of devices for high-speed applications
- Accessible for students new to microwaves
- Presentation slides available for instructor use

This book is primarily aimed at practicing engineers, researchers, and post-graduates in the areas of RF, microwaves, IC design, photonics and lasers, and solid state devices. The book is also a strong supplement for senior undergraduates taking courses in RF and microwaves.

Lecture materials for instructors available at [www.wiley.com/go/gao](http://www.wiley.com/go/gao)

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