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Sommario/riassunto

Fuelled by rapid growth in communications technology, silicon heterostructures and related high-speed semiconductors are spearheading the drive toward smaller, faster and lower power devices. High-Speed Heterostructure Devices is a textbook on modern high-speed semiconductor devices intended for both graduate students and practising engineers. This book is concerned with the underlying physics of heterostructures as well as some of the most recent techniques for modeling and simulating these devices. Emphasis is placed on heterostructure devices of the immediate future such as the MODFET, HBT and RTD. The principles of operation of other devices such as the Bloch Oscillator, RITD, Gunn diode, quantum cascade laser and SOI and LD MOSFETs are also introduced. Initially developed for a graduate course taught at Ohio State University, the book comes with a complete set of homework problems and a web link to MATLAB programs supporting the lecture material.