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Simulation Model; 4.2.1 Scattering in the Semi-Classical Boltzmann Equation; 4.3 Analytical Models for the Transport Parameters
4.4 GaN Transport Parameters
4.4.1 Electron Transport Coefficients;
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5.3.4 In-rich InGaN and InAlN Alloys; 5.4 Modeling of the Dielectric Function; 5.4.1 Analytical Representation of the Dielectric Function; 5.4.2 Calculation of the Dielectric Function for Alloys; 5.4.3 Influence of Electric Fields on the Dielectric Function; References; 6 Intersubband Absorption in AlGaN/GaN Quantum Wells; 6.1 Introduction; 6.2 Theoretical Model; 6.2.1 Spontaneous and Piezoelectric Polarization; 6.3 Numerical Implementation; 6.3.1 Achieving Self-consistency: The Under-Relaxation Method; 6.3.2 Predictor-Corrector Approach
6.4 Absorption Energy in AlGaN-GaN MQWs
6.4.1 Numerical Analysis of Periodic AlGaN-GaN MQWs; 6.4.2 Numerical Analysis of Non-periodic AlGaN-GaN MQWs and Comparison with Experimental Results; 6.5 Conclusions; References; 7 Interband Transitions in InGaN Quantum Wells; 7.1 Introduction; 7.2 Theory; 7.2.1 Bandstructure and Wavefunctions; 7.2.2 Semiconductor Bloch Equations; 7.2.3 Semiconductor Luminescence Equations; 7.2.4 Auger Recombination Processes; 7.3 Theory-Experiment Gain Comparison; 7.4 Absorption/Gain; 7.4.1 General Trends; 7.4.2 Structural Dependence; 7.5 Spontaneous Emission
7.6 Auger Recombinations

Sommario/riassunto

This is the first book to be published on physical principles, mathematical models, and practical simulation of GaN-based devices. Gallium nitride and its related compounds enable the fabrication of highly efficient light-emitting diodes and lasers for a broad spectrum of wavelengths, ranging from red through yellow and green to blue and ultraviolet. Since the breakthrough demonstration of blue laser diodes by Shuji Nakamura in 1995, this field has experienced tremendous growth worldwide. Various applications can be seen in our everyday life, from green traffic lights to full-color outdoor dis
