

5. Fundamentals of Optoelectronics

5.1 Materials and Radiative Recombination

5.1.1 Basic Questions and Material Issues

5.1.2 Recombination and Luminescence

5.1.3 Doping of Compound Semiconductors

5.1.4 Wavelength Engineering

5.2 Light and Semiconductors

5.2.1 Total Efficiency of Light Generation

5.2.2 Absorption and Emission of Light

5.3 Heterojunctions

5.3.1 Ideal Heterojunctions

5.3.2 Isotype Junctions, Modulation Doping, and Quantum Effects

5.3.3 Real Heterojunctions

5.4 Quantum Devices

5.4.1 Single and Multiple Quantum Wells