

Table of Contents

Chapter 1	Devices Based on Quantum Electronics	1
1-1	Quantum Electronics	1
1-2	Electron Devices Based on Quantum Electronics	3
Chapter 2 Masers		
2-1	Various Types of Masers	11
2-2	General Principles of Masers	12
Chapter 3 Gas Maser		
3-1	Examples of Gas Maser	43
3-2	Principles of Gas Maser	51
Chapter 4 Solid Maser		
4-1	Examples of Solid Maser	75
4-2	Principles of Solid Maser	94
Chapter 5 Lasers		
5-1	Various Types of Lasers	137
5-2	General Principles of Lasers	140
Chapter 6 Gas Lasers		
6-1	Examples of Gas Lasers	165
6-2	Principles of Gas Lasers	172
Chapter 7 Solid Lasers		
7-1	Examples of Solid Lasers	191
7-2	Principles of Solid Lasers	207
Chapter 8 Semiconductor Lasers		
8-1	Examples of Semiconductor Lasers	223
8-2	Principles of Semiconductor Lasers	239
Chapter 9 Liquid Lasers		
9-1	Examples of Liquid Lasers	255
9-2	Principles of Liquid Lasers	262
Chapter 10 Modulation Techniques for Lasers		
10-1	Modulation Techniques	273
10-2	Examples of Modulation Techniques	275
10-3	Principles of Modulation Techniques	288
Chapter 11 Opto-Electrical Demodulators and Energy Convertors		
11-1	Various Opto-Electrical Demodulators and Energy Convertors	307
11-2	Examples of Opto-Electrical Demodulators and Energy Convertors	308
11-3	Principles of Opto-Electrical Demodulators and Energy Convertors	316
Chapter 12 Quantum Electronic Harmonic Generators		
12-1	Examples of Quantum Electronic Harmonic Generators	329
12-2	Principles of Quantum Electronic Harmonic Generators	335
Chapter 13 Raman Lasers		
13-1	Examples of Raman Lasers	345
13-2	Principles of Raman Lasers	350
Chapter 14 Optical Parametric Interactions		
14-1	Examples of Optical Parametric Interactions	361
14-2	Principles of Optical Parametric Interactions	366
Chapter 15 Holograms		
15-1	Examples of Holograms	377
15-2	Principles of Holograms	384

Appendix

A-1 Physical Constant	391
A-2 Photon Energy	391
A-3 Optical Terms.....	391
A-4 Crystallographic Terms	395
A-5 Band Theory	397
A-6 Schrodinger Formulation and Dirac Formulation	400
A-7 Quantum Number of Electrons in Hydrogen Atom.....	401
A-8 Miscellaneous in Modern Physics.....	402