

CONTENTS

Preface		vii
Chapter 1	Few-Electron Semiconductor Quantum Dots in Magnetic Field: Theory and Methods <i>Orion Ciftja</i>	1
Chapter 2	Investigations of Electronic States in Self-assembled InAs/GaAs Quantum-Dot Structures <i>Shiwei Lin and Aimin Song</i>	47
Chapter 3	Chemically Deposited Thin Films of Close Packed Cadmium Selenide Quantum Dots: Photophysics, Optical and Electrical Properties <i>Biljana Pejova</i>	109
Chapter 4	Numerical Modelling of Semiconductor Quantum Dot Light Emitters for Fiber Optic Communication and Sensing <i>Mariangela Gioannini</i>	169
Chapter 5	Quantum Dot Technology for Semiconductor Broadband Light Sources <i>C.Y. Ngo, S.F. Yoon and S.J. Chua</i>	203
Chapter 6	Quantum Dots in Medicinal Chemistry and Drug Development <i>Ian D. Tomlinson, Michael R. Warnement and Sandra J. Rosenthal</i>	243
Chapter 7	Strain Relief and Nucleation Mechanisms of InN Quantum Dots <i>J.G. Lozano, A.M. Sánchez, R. García, S. Ruffenach, O. Briot and D. González</i>	267
Chapter 8	Electronic Structure and Physical Properties of Semiconductor Quantum Dots <i>Xiu-Wen Zhang, Yuan-Hui Zhu and Jian-Bai Xia</i>	299

Chapter 9	Ge Nanoclusters in GeO ₂ Films: Synthesis, Structural Research and Optical Properties <i>V.A. Volodin and E.B. Gorokhov</i>	331
Chapter 10	Model for the Coherent Optical Manipulation of a Single Spin State in a Charged Quantum Dot <i>Gabriela M. Slavcheva</i>	371
Chapter 11	Sub-diffraction Quantum Dot Waveguides <i>Chia-Jean Wang and Lih Y. Lin</i>	393
Chapter 12	Three-Dimensional Imagings of the Intracellular Localization of mRNA and Its Transcript Using Nanocrystal (Quantum Dot) and Confocal Laser Scanning Microscopy Techniques <i>Akira Matsuno, Akiko Mizutani, Susumu Takekoshi, R. Yoshiyuki Osamura, Johbu Itoh, Fuyuaki Ide, Satoru Miyawaki, Takeshi Uno, Shuichiro Asano, Junichi Tanaka, Hiroshi Nakaguchi, Mitsuyoshi Sasaki, Mineko Murakami and Hiroko Okinaga</i>	413
Chapter 13	Unified Description of Resonance and Decay Phenomena in Quantum Dots <i>Ingrid Rotter and Almas F. Sadreev</i>	427
Chapter 14	Theoretical Study on Quantum Dots Using Effective-Mass Envelope Function Theory <i>Shu-Shen Li and Jian-Bai Xia</i>	493
Chapter 15	Transmission through Quantum Dots with Variable Shape: Bound States in the Continuum <i>Almas F. Sadreev, Evgeny N. Bulgakov, Konstantin N. Pichugin, Ingrid Rotter, and Tatyana V. Babushkina</i>	545
Chapter 16	Optical Properties of Quantum Dots: Possible Control of the Impurity Absorption Spectra and Factor of Geometric Form <i>V.D. Krevchik, M.B. Semenov and R.V. Zaitsev</i>	577
Chapter 17	Post-growth Energy Bandgap Tuning of InAs/InGaAs/InP Quantum Dot Structures: Intermixing of Quantum Dot Structures <i>Tang Xiaohong and Yin Zongyou</i>	623
Chapter 18	Application of Quantum Dots in Organic Memory Devices: A Brief Overview <i>Kaushik Mallick and Michael .J Witcomb</i>	651
Index		669