

# PHOTONICS AND QUANTUM STRUCTURES

Editors

D. Mohanta

Gazi A. Ahmed



**Narosa Publishing House**

New Delhi   Chennai   Mumbai   Kolkata

# Contents

---

<i>Foreword</i>	v
<i>Preface</i>	vii
<i>Acknowledgment</i>	ix
<b>Chapter 1. Plasmonics: The Art of Squeezing Light into Nanostructures</b>	<b>1</b>
<i>S.N. Behera</i>	
<b>Chapter 2. 3D Reconstruction of Images in Confocal and Multiphoton Multifocal Microscopy: A Brief Review</b>	<b>21</b>
<i>A. Choudhury</i>	
<b>Chapter 3. Growth and characterization of Technologically Important Materials for Optoelectronic Applications</b>	<b>25</b>
<i>R.Dhanasekaran</i>	
<b>Chapter 4. Surface Functionalized Quantum Dots: Synthesis, Growth Kinetics and Biological Interfacing</b>	<b>33</b>
<i>S. Ghosh, A. Datta, D. Ghosh, N. Y.Rao and A.Saha</i>	
<b>Chapter 5. Conducting Polymers: Intelligent Functional Materials</b>	<b>47</b>
<i>A.Kumar and S.Banerjee</i>	
<b>Chapter 6. Prospects of Ferroelectric Nanostructures</b>	<b>59</b>
<i>A. C. Roy and D. Mohanta</i>	
<b>Chapter 7. Optical Properties and Up-conversion of Pr<sup>3+</sup> doped CdS Nanoparticles in Sol-gel Glasses</b>	<b>71</b>
<i>L. Bokatial, P. Moran and S. Rai</i>	
<b>Chapter 8. Structural and Photoluminescence Properties of SnO<sub>2</sub> nanoparticles</b>	<b>79</b>
<i>Smritimala Sarmah and A. Kumar</i>	
<b>Chapter 9. FTIR and Luminescence Studies of Nanoporous Diatom Frustules</b>	<b>87</b>
<i>G.A. Ahmed, A.K Buragohain, P.P.Nath, A. Gogoi, N. Mazumder, R.D.Kalita and A.Choudhury</i>	

<b>Chapter 10. Swift Heavy Ion Irradiation Induced Strain Development and Fragmentation in Polyaniline Nanofibers</b>	<b>93</b>
<i>Somik Banerjee and A. Kumar</i>	
<b>Chapter 11. Synthesis and Characterization of Uniform Size Silver Nanoparticles</b>	<b>103</b>
<i>Ratan Das, Siddartha S. Nath and R. Bhattacharjee</i>	
<b>Chapter 12. Fluorescence Studies of Tb<sup>3+</sup> co-doped with CdS Nanoparticles in Sol-gel SiO<sub>2</sub> Glasses</b>	<b>109</b>
<i>S. Rai and L. Bokatial</i>	
<b>Chapter 13. PMMA- Based Layered Silicate Nanocomposite Gel Polymer Electrolytes</b>	<b>115</b>
<i>M. Deka and A. Kumar</i>	
<b>Chapter 14. Structural Analysis of Nanocrystalline PbS</b>	<b>123</b>
<i>N.Choudhury and B.K. Sarma</i>	
<b>Chapter 15. Development of Polymer Stabilized Ag-Nanoparticles and Optical Properties</b>	<b>129</b>
<i>M. Borah, U. Das, D. Mohanta and A. Choudhury</i>	
<b>Chapter 16. Synthesis and Characterization of Azomethine Linked Thiophene Based Polymer and Evaluation of its Photovoltaic Properties</b>	<b>135</b>
<i>Binod Pokhrel and S.K.Dolui</i>	
<b>Chapter 17. Second Harmonic Generation From Surface Passivated PbS Nanoscale Particles</b>	<b>145</b>
<i>N. Dutta, D. Mohanta, G.A. Ahmed, A.Choudhury, R. Hristu, S.G. Stanciu and G. A. Stanciu</i>	
<b>Chapter 18. Supersymmetry and PT-symmetric spectral Bifurcation</b>	<b>151</b>
<i>Kumar Abhinav and P.K. Panigrahi</i>	
<i>Subject Index</i>	<b>157</b>
<i>Author Index</i>	<b>160</b>