

Contents

Part I Ordered Atomic-Scale Structures

Fabrication and Characterization of Ordered Atomic-scale Structures – A Step towards Future Nanoscale Technology	3
Wolf-Dieter Schneider	

Computational Nanomechanics of Quasi-one-dimensional Structures in a Symmetry-Adapted Tight Binding Framework	29
Traian Dumitrica	

Part II Nanowires: Growth and Properties

Thin-Film Metamaterials Called Sculptured Thin Films	59
Akhlesh Lakhtakia and Joseph B. Geddes III	

GaN and InN Nanowires: Growth and Optoelectronic Properties	73
Toma Stoica, Eli Sutter, and Raffaella Calarco	

Part III Transport Phenomena in Nanostructures

Electronic and Thermal Sequential Transport in Metallic and Superconducting Two-Junction Arrays	99
T. Kühn and G.S. Paraoanu	

Ballistic Transistors: From Planar to Cylindrical Nanowire Transistors . . .	133
G.A. Nemnes, U. Wulf, L. Ion, and S. Antohe	

R-matrix Formalism for Electron Scattering in Two Dimensions with Applications to Nanostructures with Quantum Dots	149
P.N. Racec, E.R. Racec, and H. Neidhardt	

Fractional Charge (and Statistics) in Luttinger Liquids	175
Jon Magne Leinaas	

Part IV Optical Properties of Nanostructures

Near-Field Optical Forces from Surface Plasmon Polaritons: Experiment and Theory	205
Kenneth B. Crozier	

Plasmon Spectra of Nano-Structures: A Hydrodynamic Model	217
I. Villo-Perez, Z.L. Mišković, and N.R. Arista	

Part V Magnetic Nanophases; Magnetic and Non-magnetic Nanocomposites

Magnetic Nanocomposites at Microwave Frequencies	257
Jaakko V.I. Timonen, Robin H.A. Ras, Olli Ikkala, Markku Oksanen, Eira Seppälä, Khattiya Chalapat, Jian Li, and Gheorghe Sorin Poraoanu	

Magnetic Nanocomposites for Permanent Magnets	287
F. Tolea, M. Sofronie, A. Birsan, G. Schinteie, V. Kuncser, and M. Valeanu	

Magnetic Configuration and Relaxation in Iron Based Nano-Particles: A Mössbauer Approach	297
V. Kuncser, G. Schinteie, R. Alexandrescu, I. Morjan, L. Vekas, and G. Filoti	

Properties of Ag/PVP Hydrogel Nanocomposite Synthesized In Situ by Gamma Irradiation	315
Ž. Jovanović, A. Krklješ, S. Tomić, V. Mišković-Stanković, S. Popović, M. Dragašević, and Z. Kačarević-Popović	

Part VI Nanofluids and Flows at Nanoscale

Revealing Magnetite Nanoparticles Aggregation Dynamics – A SLS and DLS Study	331
Dan Chicea	

Features of Classical and Quantum Fluid Flows Extending to Micro- and Nano-Scales	351
J.J. Niemela	

Index	365
--------------------	-----

Trends in Nanophysics

Theory, Experiment and Technology

Aldea, A.; Bârsan, V. (Eds.)

2010, XVIII, 382 p. 164 illus., Hardcover

ISBN: 978-3-642-12069-5