

Table of Contents

Preface

Synthesis and Characterization of ZnO-SiO₂/Epoxy Nanocomposite Coating by Sol-Gel Process	
N. Farhadyar and M.S. Sadjadi	1
Synthesis and Characterization of Bimetallic Fe/Co Nanocatalyst on CNTs for Fischer-Tropsch Reaction	
S. Ali, N.A. Mohd Zabidi and D. Subbarao	9
Fabrication and Characterization of Si Nano-Columns by Femtosecond Laser	
O.T. Ghalehbeygi, V. Kara, L. Trabzon, S. Akturk and H. Kizil	15
In Situ Fabrication and Characterization of (NiCr)Al-Al₂O₃ Nanocomposite by Mechanical Alloying	
A.R. Shirani-Bidabadi, A. Shokuhfar, M.H. Enayati and M. Biglari	21
Characteristics of TiN and NCD Layers Deposited on Magnesium Alloys	
M. Golabczak	29
Advantages of Nanocrystalline Materials for Microwave-Absorbing	
S. Bergheul, F. Otmane, Z. Hamlati and M. Azzaz	37
Synthesize and Characterization of Multifunctional Silica Coated Magnetic Nanoparticles Using Polyvinylpyrrolidone (PVP) as a Mediator	
M.S. Sadjadi, F. Fathi, N. Farhadyar and K. Zare	43
Oscillating Velocity and Enhanced Diffusivity of Nanosystems from a New Quantum Transport Model	
P. Di Sia	49
Chitosan Capped Colloidal Gold Nanoparticles for Sensing Zinc Ions in Water	
S. Promnimit, T. Bera, S. Baruah and J. Dutta	55
Growth of Calcium Phosphate Using Chemically Treated Titanium Oxide Nanotubes	
A.L.A. Escada, J.P.B. Machado, S.G. Schneider, R.Z. Nakazato and A.P. Rosifini Alves Claro	63
Solid-State Diffusion Formation of Nanocrystalline Nb₃Sn Layers at Two-Staged Annealing of Multifilamentary Nb/Cu-Sn Wires	
E.N. Popova, I.L. Deryagina, E.P. Romanov, E.A. Dergunova, A.E. Vorobyova and S.M. Balaev	69
AgNPs Included GC/Poly [3, 4-Ethylenedioxythiophene] Modified Electrode Toward Electrochemical Detection of H₂O₂	
A.S. Rad, M. Ardjmand, M. Jahanshahi and A. Safekordi	77
Adsorption of Lead Ions in Aqueous Solution Using Yttrium Oxide Nanoparticles	
S. Sadjadi, S.J. Ahmadi and M. Hosseinpour	83
Synthesis of Biopolymeric α-Lactalbumin Protein Nanoparticles and Nanospheres as Green Nanofluids Using in Drug Delivery and Food Technology	
P. Esmaeilzadeh, Z. Fakhroueian and A.A. Miran Beigi	89
Photodegradation of Phenol over Flame-Made Sn-Doped ZnO Nanoparticles	
K. Wetchakun, N. Wetchakun, B. Inceesungvorn and S. Phanichphant	97
Preparation of Nanocrystalline Titanium Dioxide (TiO₂) Thin Films by the Sol-Gel Dip Coating Method	
R. Mechiakh, R. Gheriani and R. Chtourou	105
Formation of Transparent Nanoporous Titanium Oxide Films on Glass Substrates Using an Anodization Process	
E. Manea, C. Obreja, M. Purica, A. Dinescu, F. Comanescu, V. Schiopu and E. Budianu	113
New Approach to Ammonia Synthesis by Catalysis in Magnetic Field	
N. Yahya, P. Puspitasari, K. Koziol and G. Pavia	119
Ultra-Morphological and Nanomechanical Characterization of Reinforced Enamel and Dentin by Self-Etch Adhesives: The Super Tooth	
A. Sadr, T. Nikaido, T. Takagaki, I. Hariri, A. Nazari and J. Tagami	131
Synthesis and Characterization of Cu-10-20wt%Ni Nanopowders by a Chemical Precipitation Route	
R. Roohibakhsh, H.R. Rezaie and H. Razavizadeh	141

Buckling Behaviour and Natural Frequency of Zigzag and Armchair Single-Walled Carbon Nanotubes

M. Rahmandoust and A. Öchsner

153