

Table of Contents

Preface

Chapter 1: Materials Science and Chemical Engineering

Modeling of Phases Adhesion in Composite Materials Based on Spring Finite Element with Zero Length A.P. Sokolov and V.N. Schetinin	3
The Fabrication of Graphene-Reinforced Aluminum Composites by Powder Metallurgy and Uniaxial Pressing A. Buasri, C. Prasanwon, B. Boonsong, P. Kohprasert and V. Loryuenyong	10
Microstructure and Mechanical Properties Change with Cold Deformation of the Biomedical Ti-17Nb-6Ta-3Zr Alloy K. Nyamuchiwa, M.A.H. Gepreel, A.S. Hamada and K. Nakamura	15
Response of Osteoporotic Bone to the Implantation of Biphasic Calcium Phosphate (BCP) Bioceramics A. Grisulonoks, I. Salma, G. Salms, L. Neimane, A. Skagers and J. Locs	20
Numerical Modeling of Nanostructured Tube Produced by ECAP F. Djavanroodi and F. Almufadi	25
The Fabrication of Titanium Dioxide-Tin Oxide/Reduced Graphene Oxide Photoanodes for Dye-Sensitized Solar Cells V. Loryuenyong, B. Jindawattanawong, P. Jaroenkun, A. Supannakool and A. Buasri	32
XANES and Luminescence Studies of M_2O_3-CaO-SiO₂-B₂O₃ ($M_2O_3 = Y_2O_3$ and La_2O_3) Glasses Doped with Dy³⁺ Ions S. Kaewjaeng, J. Kaewkhao, N. Chanthima, Y. Ruangtawep, W. Klysubun, S. Kothan and H.J. Kim	37
A Comparative Study on the Mechanical Properties of Clay Modified Epoxy Adhesive by Using Different Clay Types S.N. Surip and A.H. Ismail	43
Development of New Device and Process to Recover Valuable Materials from Spent Solar Module J.S. Lee, Y.S. Ahn, G.H. Kang, S.H. Ahn and J.P. Wang	48
Highly Tm Doped Silica Optical Preform by MCVD - Chelate Vapor Delivery (Soot-Dopant Stepwise Technique) K.A. Mat-Sharif, N.Y.M. Omar, M.I. Zulkifli, S.Z. Muhd-Yassin, Y.K. Sin, H.A. Abdul-Rashid and N. Tamchek	57
Characterization of Crystalline Cu₂SnS₃ Synthesized via Low Temperature Solvothermal Method M.S.A. Latif, D.N. Shaalan and A.A. El-Moneim	62
Manufacturing Refractory Bricks Using Exhaust Dust from Foundry Industries A.V. dos Santos, R. Przychynski, T.P. Anibele and M.C. Marchetti	67
The Influence of Building Envelop Materials on its Life Cycle Performance: A Case Study of Educational Building in Thailand P. Thaipradit, N. Limphitakphong, P. Kanchanapiya, T. Tantisattayakul and O. Chavalparit	74
Materials Acceptable for Gas Sensor Design: Advantages and Limitations G. Korotcenkov, V. Brinzari and M.H. Ham	80

Chapter 2: Materials Processing in Mechanical Manufacturing

Effect of the Cyclic Extrusion and Compression Processing on Microstructure and Mechanical Properties of Al-1%Cu Alloy W. Abdelaziem, A.S. Hamada and M.A. Hassan	93
Optimization of Cutting Conditions for Turning of Ductile Materials to Achieve Favourable Chip Form A. Belyakov, S. Mikhailov, N. Kovelonov and S. Danilov	98

Evaluation of Face Milling Operation Parameters on Surface Roughness of Crankcase Housing by Two Level Factorial Design with Center Points U. Thanasuptawee, C. Thakhamwang and S. Siwadamrongpong	105
Manufacturing Technology of α-Fe Bonded Grinding Wheel Free Abrasive J.C. Kuai, D.V. Ardashev, J.Q. Zhang and H.L. Zhang	111