

Table of Contents

Preface

Chapter 1: Nanomaterials and Chemical Engineering

Assembly and Optical Properties of Metal Nanoparticles E.A. Dawi and A. Abdelkader	3
A Study on Lead Adsorption by the Hen Egg Shells from Enshi, Hubei Province, China H.H. Gong, T. Li, W.Y. Zhang and Z.J. Liao	11
Facile Synthesis and Characterization of Magnetic Nanophotocatalyst for Photocatalytic Degradation of Cyanide J.P. Lagare, M.A.M. Lavapiez, J.H. Jorolan, A.C. Alguno and R.Y. Capangpangan	17
Physical, Mechanical and Chemical Properties of Dewatered Sewage Sludge and Red Gypsum Mix as a Potential Recycling Product N.A.B. Rosli, H.A. Aziz, M.R. Selamat and L.L.P. Lim	24
Controlling the Growth of Zinc Oxide/ Polyaniline Nanocomposites on Platinum-Coated Substrate for Possible Solar Cell Applications A.C. Alguno, K.M. Emphasis, M.J. Potestas, R.M. Vequizo, R.Y. Capangpangan, B.L. Linog and B.A. Basilia	30
Antibacterial Activities of Zinc Oxide Nanostructures with Different Structures R.B.P. Rivera, M.J. Potestas, M.R.S.B. Madamba, R.Y. Capangpangan, B.L. Linog, B.A. Basilia and A.C. Alguno	36

Chapter 2: Functional Materials and Composite Structures

Infrared Emittance and Electrical Properties of Ce⁴⁺ Doped Sm_{0.5}Sr_{0.5}CoO₃ Ceramics L. Chen, W. Zhan, H.M. Sun and Z.Z. Gu	45
Characterization and Design of Honeycomb Absorbing Materials H.M. Sun, L. Chen and Z.Z. Gu	51

Chapter 3: Biomedical Materials

Elution Study of Three Light-Cured Orthodontic Adhesives P. Roongrujimek, N. Anuwongnukroh and S. Dechkunakorn	59
Cytotoxicity of an Experimental Light-Cured Orthodontic Adhesive K. Nimcharoensuk, N. Anuwongnukroh, S. Dechkunakorn, V. Sattabanasuk, P. Sunintaboon and W. Wichai	65
Study on the Optimization of Process Parameters for Absorbable Bone Plate with In-Mold Heat Treatment W.T. Wang and Y.C. Lin	71

Chapter 4: Alloys and Hydrometallurgical Technologies

Correlations between Milling Conditions and B₂O₃ Activity of Mechanically Activated Boron Concentrate Y.Z. Xu, T. Jiang, H.Y. Gao and X.X. Xue	79
Microwave Roasting and Acid Leaching of Vanadium and Chromium from High Chromium Vanadium Slag with CaCO₃ H.Y. Gao, T. Jiang and Y.Z. Xu	86
Microstructural and Hardness Evolution of New Developed OPH Steels O. Khalaj, H. Jirková, K. Opatová and J. Svoboda	92

Temperature-Dependent Plastic Deformation Behavior of Cu-Ni Alloys: Coupled Influence of Stacking Fault Energy and Short Range Clustering

Y. Wang, D. Han and X.W. Li

98

Thickness-Dependent Tensile Behavior of Cu-Mn Alloys under Different Dislocation Slip Modes

L.L. Kang, D. Han and X.W. Li

104

Chapter 5: Metalworking Processes

Study on Control of Corner Cracks in Cast Slabs and its Application to Designing of Continuous Slab Casters of Baosteel Zhanjiang

X.L. Ding, C.B. Feng, Q. Liu, J.W. Yan, G.Q. Luo and X.Y. Zhu

113

A Study on Experimental Design Methods for the Automatic GMA Welding Process

Z.L. Liang, T.J. Yun, W.B. Oh, B.R. Lee and I.S. Kim

119

The Influence of Technological Parameters on Drawing Force at Cold Drawing of Steel Tubes Using FEM Simulation

M. Kapustova, R. Sobota and M. Necpal

124

Experimental Study of Cutting Performance for Inconel 718 Milling by Various Assisted Machining Techniques

S.Y. Lin and B.H. Yang

129

Chapter 6: Building Materials and Structures

Effect of External Expanded Polystyrene (EPS) Panels on Slabs Subjected to Impact Load

Y.H. El Maghraby and M.G. Metwally

137

Experimental Study on CFRP-PVC Confined RAC under Axial Compression

J.Q. Lu, Y. Tian, J.G. Chen, C.Y. Zhu, F. Zeng, J.C. Yang and W. Wang

143