

Table of Contents

Preface

Chapter 1: Structural and Functional Materials

Fluidity Test of Aluminum Alloy H. Fuse, M. Terao and T. Haga	3
Phenomenological Methodology for Designing Optimal Styling in the Design of Panels of Aircraft Structures Made of Laminated Composite Material S.V. Grishsenko	8
An Explicit, Accurate Approach Toward Modeling Irrecoverable Deformation Effects of Shape Memory Alloys L. Zhan, S.Y. Wang, H.F. Xi and H. Xiao	15
Finite Strain Elastoplastic J₂-Flow Model for Automatically, Accurately Simulating Pseudo-Elastic Effects of SMAs S.Y. Wang, L. Zhan, H.F. Xi and H. Xiao	20
Study on High Temperature Flow Stress Model of As-cast SA508-3 Low Alloy Steel P.F. Fan, J.S. Liu, H.P. An and L.L. Liu	25

Chapter 2: Metallurgical Technologies and Mechanical Processing of Materials

Optimization of Cutting Parameters for Improving Surface Roughness during Hard Milling of AISI H13 Steel T.V. Do, Q.M. Nguyen and M.T. Pham	35
Investigation of Burr on Strips Cast by Vertical-Type High-Speed Twin Roll Caster T. Haga, T. Yamashiki, H. Watari and S. Niahida	40
Casting of Bar Using a Twin Wheel Caster T. Haga, K. Tuchitani, H. Warari and S. Nishida	46
Finishing Performance of the Abrasive Flow Machining in Complex Holes by Using Helical Cores A.C. Wang, K.C. Cheng, K.Y. Chen and Y.C. Lin	52
Study the Effect of Laser Nozzle and Lens Design on the Oxygen Supply System for CNC Gas Cutting Machines M.S. Hassan, H.T. Shomran and J.A. Jaber	57
Forming Technology and Simulation of Large Head Forgings X. Jia, J.S. Liu, H.P. An and M. Qin	64
Effect of Process Conditions on Residual Stress in Laser-MAG Welding of High Strength Steel Z.F. Tian, J.F. Li, Z.X. Chen and Z.N. Wang	71

Chapter 3: Building Materials and Technology in Construction

Study of the Behaviour of Senegalese Ballast Materials during Compaction with the C-Mould: Case of Bandia Limestone and Diack Basalt L. Sow	81
Effect of Water Conditions on Macro-Cell Corrosion Potential Difference and Current Density of Reinforcing Steel in Concrete Z.L. Cao	87
Strength Design of the Eccentric Load in Unequal Single Angle W.T. Hsu, R.Y. Liu and S.T. Chung	95
Rheological Study on Cemented Coal Gangue Fly-Ash Backfill Slurry Associated with Fly Ash Impacts J. Yang	100

Study on Application of Vibration Response Control System on a Teaching Hospital Foundation Structure that Subjected to Earthquake Excitation N. Wahyu, A. Nabila and H.R. Firhan	105
The Effect of Nano Cement on the Compressive Strength of Coconut Fibers Reinforced Concrete Composite R.H. Lumingkewas, S.P. Hadiwardoyo, A. Husen and Saepudin	110

Chapter 4: Chemical Synthesis and Chemical Processing

Improvement of Electrical Conductivity of Polyamide 6/Polyaniline Blends by Graphene S. Suksanit, P. Pattananuwat and P. Potiyaraj	117
Improvement of Electrical Conductivity of Polyurethane/Polypyrrole Blends by Graphene P. Janpoung, P. Pattananuwat and P. Potiyaraj	122
Phase Transformation of Nanocrystalline Diamond Films: Effect of Methane Concentration S.T. Khlayboonme and W. Thowladda	127
Photoelectrocatalytic Degradation of C.I. Basic Blue 9 under UV Light Using Silver-Doped Titanium Dioxide Nanotubes E.C.R. Lopez, V.A.F. Cleofe, R.Y.A. Cañal, K.F.P. Boado and J.V.D. Perez	132
Humic Acid Functionalized - Silver Nanoparticles as Nanosensor for Colorimetric Detection of Copper (II) Ions in Aqueous Solutions E.C.R. Lopez, M.A. Zafra, J.N.L. Gavan, E.D.A. Villena, F.E.P. Almaquer and J.V.D. Perez	142
The Effect of Carbon Black on Electrical, Thermal-Oxidative Stability, and Structural Properties of Polypropylene/Clay Nanocomposite Y.A. Swasono	151

Chapter 5: Textile Materials and Technologies

Examining the Water Vapour Transmission of Socks W.Y. Wang, K.T. Hui, C.W. Kan, M. Viengsima, N. Wansopa, K. Promlawan, W. Wongphakdee and R. Mongkholrattanasit	159
The Effect of Plasma Pretreatment of Dyeability of Silk with Acid Dye W.Y. Wang, W.C. Ma, C.W. Kan, C. Sarikanon, C. Sarikanon, S. Kunadiloke and R. Mongkholrattanasit	165
A Study of Relative Hand Value of Quick Dry Inner Wear W.Y. Wang, H.H.L. Yim, C.W. Kan, S. Chanuntawaree, S. Chonsakorn, S. Udon, M. Peangsai and R. Mongkholrattanasit	171