

Table of Contents

Preface, Conference Committees

Chapter 1: Properties of the Structural Materials

Waste and Discharge Sand Use of Foundry for the Manufacture of Concrete Tiles A.V. dos Santos, M.C. Marchetti, A.R. de Souza, D.J.C. Silva, L.P. Godoy, V.A. Casarin and M.A.G. Marchetti	3
The Mechanical and Physical Properties of Construction and Demolition Waste - Epoxy Composites M. Hyvärinen and T. Kärki	9
Fabrication of Al-Si-Mg Functional Composites Engine Cylinder and its Bench Test X.D. Lin, C.M. Liu and J. Sun	15
Effect of Treatment of Fly Ash on Mechanical Properties of Polypropylene P. Doddipatla and S. Agrawal	20
Refinement Mechanism of Solidification Structure of Au-20Sn Eutectic Alloy by Different Solidification Techniques Y. Mao, J.X. Guo and S.Y. Xu	24
Investigation of Flux-Less Soldering of Metal Matrix Composite and Ceramics by Use of Zn Solder R. Koleňák and I. Kostolný	29
Characterization Investigations of a Al-5 wt.% Si/2 wt% (NbB₂, NbC) Hybrid Composite Fabricated via Mechanically Alloying and Sequentially Milling (Mechanical Alloying + Cryomilling) M.L. Öveçoğlu, E. Tekoğlu, S. Mertdinç and D. Ağaoğulları	35

Chapter 2: Surface Engineering, Thin Films and Special Coatings

Computational Prediction of Trimethylgallium Adsorption on Si(100)(2×1) in Atomic Layer Deposition S. Sukhasena and P.P. Pansila	43
Effect of Electron Bombardment on Polyimide Film D.P. Engelhart, E. Plis, R. Cooper, S. Humagain, A. Koch, M. Brunetti, S. Greenbaum and R. Hoffmann	48
A Novel Preparation Method of CH₃NH₃PbI₃ Thin Films for Perovskite Solar Cell W.L. Zhao	54
Study on the Structural Analysis of Al₂O₃ Ceramic-Lined Steel Pipe Prepared with the Gravitational Separation SHS Method X.H. Hou, J.K. Yu, X. Yang and Z.Y. Liu	59
Investigation of Changing of Chemical and Phase Composition of the Friction Surface Fe-Mn-C-B-Si-Ni-Cr M. Pashechko, K. Lenik, K. Dziedzic and M. Barszcz	65

Chapter 3: Nanomaterials and Nanotechnologies

Effect of Lattice Mismatch Strain Grading on the Electromechanical Behavior of Functionally Graded Quantum Dots P.L. Bishay, B. Sampat, J. Sladek, E. Pan and V. Sladek	71
A New Approach to Grow A-TiO₂ Nanocubes T.S. Shyju and M. Paulraj	76
Effect of ZnO Concentration on the Diameter of Electrospun Fibers from Poly(Vinyl Alcohol) Composited with ZnO Nanoparticles T. Jamnongkan, S. Kaewpirom, A. Wattanakornsiri and R. Mongkholtattanasit	81

Wet Powder Metallurgy Process for Dispersing Carbon Nanotubes and Fabricating Magnesium Composite

J.T. Hou, W.B. Du, Z.H. Wang, X. Du and C. Xu

86

Preparation of Chitosan Antioxidant Nanoparticles as Drug Delivery System for Enhancing of Anti-Cancer Drug

H.M. Ibrahim, O.A. Farid, A. Samir and R.M. Mosaad

92

pH Effect on Characteristics and Ammonia Sensing of Silver Nanoparticles Synthesized in the Presence of Tannic Acid

V. Pimpan and T. Ritthichai

98