

Processing and Fabrication of Advanced Materials XVI (PFAM XVI)

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About the Book

This inter-disciplinary publication provides together the state-of-the-art developments on all aspects related to the processing and fabrication of advanced materials spanning the entire spectrum of metallic, intermetallics, ceramics, ceramic-matrix composites, metal-matrix composites, intermetallic-matrix composites, advanced polymers, polymer-matrix composites, semiconductor materials and surface and high-temperature coatings.

SECTION 1: Advanced Processing Methods

An Overview of Wire Bonding Mechanism; Lost Foam Casting: A Mathematical Model of the Process
Advanced Processing Techniques for Developing Nano Composite Electroless Coatings [Invited]
Reaction Synthesis of Ti₄₈Al₂Cr₂Nb Gamma Titanium Aluminides; Criteria for Foam Stabilisation in Aluminium Foam Synthesis; Solid-Liquid Interdiffusion Bonding of Au with PbSn and SnAgCu; Optimization of Friction-Stir Welding Parameters for a Precipitation Hardenable Aluminum Alloy; Effect of Microwave and Conventional Sintering on the Tensile Properties of a Sn-3.5Ag Lead-Free Solder; Production of Bulk-Nano Materials by Friction-Stir Processing; Rapid Solidification Technology for Producing Thin and Porosity Free Metal Structure

SECTION 2: Advanced Composites

Microstructural Design of Abrasive Wear-Resistant Nanocomposites; Mechanical and Electrical Properties of Copper Matrix Nanocomposites Synthesized by High Energy Ball Milling; Enhancing Mechanical Properties of a Lead-Free Solder Using Nano Cu Particulates; Effect of Melt Temperature on Microstructure of In-Situ Al-Al₂O₃ Composites; Synthesis and Characterization of Lead Free Solder/Nano-Alumina Composites; Development of Innovative Mg/Al₂O₃ Nanocomposites Using Microwave Sintering; Deformation Mechanisms of Mg-1.3CNT Nanocomposite; Machinability Studies on Aluminium Matrix Hybrid Composites; Mechanical Properties of Epoxy Composite with Al₂O₃ Fillers; Comparison of Tensile and Compressive Creep Data of AE42 Magnesium Alloy and its Short Fiber Composite; Effect of Method of Reinforcement Integration on the Characteristics of Mg/Al Macrocomposites; Effect of Extrusion Ratio on Tensile Behavior of Mg and Mg/Y₂O₃ Nanocomposite Synthesized Using Microwave Assisted Powder Metallurgy Route; Effect of Using Aluminum Particulates in Nano-Length Scale on the Tensile Behavior of Pure Magnesium; Influence of Amount of Nano-Al₂O₃ Particulates on Compressive Behavior of AZ31B; Effect of Gas Flow on Mechanical Properties of Al Alloy Composite Fabricated by Disintegrated Melt Deposition Technique; Mechanical and Fracture Studies of Polypropylene/Clay Nanocomposite

SECTION 3: Advanced Metallic Materials

Some Studies on the Hot Corrosion Behavior of Superalloys in Aggressive Environment at 900°C; Simulation of the Ladle Filling Operation in Steelmaking Process; An Insight into Understanding the Intrinsic Mechanisms Governing the Formation of Friction Stir Welds in Joining of Metals; Fatigue Performance of Cold Expanded Holes in Al7050 Aluminium Alloy; A Study of Microstructure, Hardness and Tensile Response of a Titanium Alloy; The Quasi Static and Cyclic Fatigue Fracture Behavior of a Friction Stir Weld Processed Aluminum Alloy 2024; A Detailed Failure Analysis Study of HP Turbine Blades Using various NDE Techniques; Cycle Oxidation and Hot Corrosion Behaviour of Ni and Fe Based Superalloy in Molten Salt Environment at 900°C; Property Modification of Cu-Base Alloys by Recurrent Precipitation; Noise and Vibration Damping of High-Chromium Ferromagnetic Steel; Laser Cladding on Coated Ti Alloys to Improve Wear and Corrosion Resistance; A Study of Deformation Mechanisms During Periodic Cellular Metal Fabrication; Incorporating Microstructural Design into Periodic Cellular Metals; Strengthening Contributions of Quasicrystalline Icosahedral Phase to Tensile and Compressive Strength in Mg-Zn-RE Alloys; Tailoring the Properties of Pure Magnesium Using Different Microwave Heating Rates; Influence of Surface States on the Energy Gap of Silicon Nanostructures: The Role of Hydrogen and Oxygen; Effects of Ultrasonic Energy on Pure Copper Deformation with Different Purity; Lightweight Metallic Materials for Automobile Applications - Opportunities & Challenges; Interrupted Creep of Newly Developed High Pressure Die Cast Magnesium Alloys

SECTION 4: Energy Storage Materials

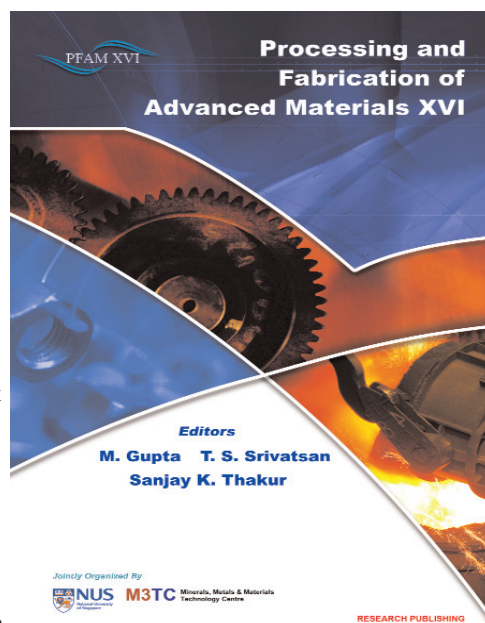
Enhanced Conversion Efficiency of Dye-Sensitized ZnO Solar Cells through Hierarchical Structure and Chemical Modification; Synthesis and Characterization of Lithium Cobalt Oxide Cathode Materials for Lithium Ion Batteries; Characterization of Discharged Hydrogen from Hydrogen Storage Alloys; Bending Motion of Actuators Using Hydrogen Storage Alloys

SECTION 5: Functional Materials

Development of Radar Absorbing Nano Crystals; Photocatalytic Fibers for Water Disinfection; Z-Scan Measurement of Nonlinear Optical Properties of Rhodamine6G Doped Polymeric Samples; Magnetism and Crystalline Electric Field Effect in PrT₂Si₂ (T = Pd, Pt)

SECTION 6 & 7 : Simulation Studies / Surface Coatings

Hot Working, Microstructure Control and FE Simulation of OFHC Copper; Optimization of C/D Ratio of Adjacent Pre-Stressed Holes Using Finite Element Analysis; Nano-Coating: A Case Study, CeO₂/Al₂O₃ Composite Electrolyte for SOFC Applications; High Temperature Oxidation Behaviour of Nanostructured Ni-Al Coating on Super Alloy



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