

TABLE OF CONTENTS

Advanced Composites for Aerospace, Marine, and Land Applications II

Preface	ix
Symposium Organizers	xi
Session Chairs	xiii

Advanced Processing Techniques

Effect of Processing Parameters on the Microstructure of Mechanically Alloyed Nanostructured Al-Mn Alloys	3
<i>K. Darling, A. Roberts, J. Catalano, M. Tschopp, and L. Kecskes</i>	
Al-NiTi Metal Matrix Composites for Zero CTE Materials: Fabrication, Design, and Modeling.....	13
<i>A. Hehr, X. Chen, J. Pritchard, M. Dapino, and P. Anderson</i>	
Characterization of the Interface of Co-Extruded Asymmetric Aluminum-Titanium Composite Profiles.....	29
<i>N. Grittner, M. Engelhardt, B. Striewe, A. Hehl, C. Klose, and F. Nürnberger</i>	
Fabrication and Characterization of Niobium-Aluminum Composites: Effect of Sintering Temperature	39
<i>L. Vazquez, J. Miranda, E. Garfias, and D. Dyolotzin</i>	
Spark Plasma Sintering (SPS) of Carbon Nanotube (CNT) / Graphene Nanoplatelet (GNP)-Nickel Nanocomposites: Structure Property Analysis.....	53
<i>T. Borkar, H. Mohseni, J. Hwang, T. Scharf, J. Tiley, S. Hong, and R. Banerjee</i>	
Effect of In-Situ Titanium Boride Particle Addition and Friction Stir Processing on Wear Behavior of Aluminum Alloy 2219.....	81
<i>V. Sampath and N. Rajasekaran</i>	
Challenges in Fabrication of Surface Composites by Friction Stir Processing Route	93
<i>V. Sharma, U. Prakash, and B. Kumar</i>	

Metal Matrix Composites

Influence of Reinforcement Content on Tensile Response and Fracture Behavior of an Aluminum Alloy Metal Matrix Composite	103
<i>K. Manigandan, T. Srivatsan, Z. Ren, and J. Zhao</i>	
Mechanical Properties of Steel Encapsulated Metal Matrix Composites	121
<i>S. Fudger, E. Klier, P. Karandikar, B. McWilliams, and C. Ni</i>	
The Evolution of Solid Powders in Liquid Aluminum at Low Temperature and the Effects of Ultrasound on Ti.....	137
<i>Z. Liu and Q. Han</i>	
Metal Matrix Composites Directionally Solidified.....	149
<i>A. Ares and C. Schvezov</i>	
Nanoparticulate Reinforced Aluminum Alloy Composites Produced by Powder Metallurgy Route	165
<i>K. Kallip, L. Kollo, M. Leparoux, and C. Bradbury</i>	
Growth Kinetics of Magnesio-Aluminate Spinel in Al/Mg Lamellar Composite Interface.....	175
<i>Y. Fouad and B. Rabeeh</i>	

Composite Microstructure and Mechanical Property Characterization

Prediction of Crack Initiation Site in Fastener Hole of Composite Laminate...	187
<i>H. Sallam and A. Abd-Elhady</i>	
Finite Element Analysis of Quantitative Percussion Diagnostics for Evaluating the Strength of Bonds Between Composite Laminates.....	199
<i>S. Poveromo, D. Malcolm, and J. Earthman</i>	
Oxidation Behavior Characterization of Zirconium Diboride Composites at Above 2000°C.....	213
<i>Z. Zhou, X. Peng, and Z. Wei</i>	

Advanced Composites and Syntactic Foams

Development of Lightweight Carbon Nanofiber Reinforced Syntactic Foam Composites.....	223
<i>S. Zeltmann, R. Poveda, and N. Gupta</i>	
Evaluation of Syntactic Foam for Energy Absorption at Low to Moderate Loading Rates.....	233
<i>T. Walter, J. Sietins, and P. Moy</i>	
Study of Microstructure and Mechanical Properties of Particulate Reinforced Aluminum Matrix Composite Foam.....	245
<i>S. Kumar and O. Pandey</i>	
Atmospheric Plasma Treatment of Nylon 6,6 for Improved Interfacial Adhesion in Thermoplastic Composites.....	259
<i>A. Bujanda, C. Wu, J. Demaree, E. Robinette, A. Weerasooriya, and D. Flanagan</i>	
Next Generation Car – Example of Function Integration at the Light Urban Vehicle (LUV) Vehicle Concept	273
<i>G. Kopp, S. Brückmann, M. Kriescher, and H. Friedrich</i>	
The Synthesis and Processing of Self-Healing Materials: A Lamellar Shape Memory Alloy in Composite Structure.....	285
<i>B. Rabeeh and Y. Fouad</i>	

Carbon Fiber Reinforced Composites and Modeling & Simulations

Surface Modification of Carbon Fiber Polymer Composites after Laser Structuring	297
<i>A. Sabau, J. Chen, J. Jones, A. Hackett, G. Jellison, C. Daniel, D. Warren, and J. Rehkopf</i>	
Comparing Strengthening Mechanisms of Vapor Grown Carbon Fiber vs. Titanium Carbide Reinforced Powder Metallurgy Titanium Metal Matrix Composites	311
<i>S. Franco, K. Kondoh, J. Umeda, and H. Imai</i>	

Microstructural Characterization of Fatigue Damage of CFRP in the Very High Cycle Fatigue Regime	325
<i>D. Backe, F. Balle, and D. Eifler</i>	
Effective Creep Response and Uniaxial Tension Behavior of Linear Visco-Elastic Polymer Composites	335
<i>T. Tang and S. Felicelli</i>	
Molecular Dynamics Assessment of Small Molecule Diffusion in Medical Plastics	347
<i>D. Saylor, S. Jawahery, and C. Forrey</i>	

Poster Session

Effect of T6 Treatment on the Hardness of Carbon Nanotube Reinforced AA6061 Aluminium Alloy Matrix Composites	357
<i>D. Travessa, M. Pianassola, M. Carneiro, and M. Lieblch</i>	
Author Index	367
Subject Index	371