

# Table of Contents

## Preface

<b>Rapid Prototyping Methodologies for Ceramic Micro Components</b> P.R. Chalker, K.M. Berggreen, A.T. Clare, J. Singh and C.J. Sutcliffe	1
<b>Finite Element Model of Polyelectrolyte Hydrogels Swelling - Comparison with Experiments</b> R.A. Paxton and A.M. Al-Jumaily	9
<b>Kinetics of Swelling and Drug Release from PNIPAAm/Alginate Stimuli Responsive Hydrogels</b> R.P. Dumitriu, A.M. Oprea and C. Vasile	17
<b>Differential Magnetoelastic Compressive Force Sensor Utilizing Two Amorphous Alloy Ring Cores</b> A. Bieńkowski, R. Szewczyk, J. Salach and R. Kolano	23
<b>Measurements of Strain in Ceramic Components Using Magnetostrictive Delay Line</b> R. Szewczyk, J. Salach, A. Bieńkowski, M. Kostecki, A.R. Olszyna and A. Kolano-Burian	29
<b>Magnetomechanical Properties of Terfenol-D Powder Composites</b> J. Kaleta, D. Lewandowski, R. Mech and P. Gąsior	35
<b>A Simulation Study of Magnetostrictive Material Terfenol-D in Automotive CNG Fuel Injection Actuation</b> H.A. Chowdhury, S.A. Mazlan and A.G. Olabi	41
<b>SMA Thin Strip for Rotary-Driving Element</b> H. Tobushi, E. Pieczyska, W.K. Nowacki and Y. Sugimoto	47
<b>Structure and Properties of the High Temperature Nitrided/Oxided Surface of Ni-Ti Alloy</b> J. Lelaćko, T. Goryczka, T. Wierzchoń and H. Morawiec	53
<b>Structure and Shape Memory Effect in Annealed Ni-Ti-Co Strip Produced by Twin Roll Casting Technique</b> T. Goryczka	59
<b>Performance of Shape Memory Composite with SMA and SMP</b> H. Tobushi, S. Hayashi, Y. Sugimoto and K. Date	65
<b>Shape Memory Assemblies Using Ultrasonic Welding</b> C.M. Crăciunescu, O.V. Oancă and D. Dehelean	71
<b>Simultaneous Growth of MWCNTs at Different Temperatures in a Variable Gradient Furnace</b> V. Grossi, A. Urbani, A. Giugni, C. Cantalini, S. Santucci and M. Passacantando	77
<b>Suppressed Field Emission Screening Effect and Electric Field Simulation of Carbon Nanotube-Based Triode Field Emitters</b> J. Koohsorkhi, N. Davoudzadeh, S. Mohajerzadeh, E. Asl Soleimani and H. Ghafouri Fard	83
<b>FePt Nanorods and Nanowires for Novel Ferrofluids</b> Z.Y. Wu, H.L. Dong, A.L. Chuvilin, U. Wiedwald, L.Y. Han and C.E. Krill III	89
<b>Formation of Metal Silicide Nanodots on Ultrathin SiO<sub>2</sub> for Floating Gate Application</b> S. Miyazaki, M. Ikeda, K. Makihara, K. Shimanoe and R. Matsumoto	95
<b>Nano-Silicon Sol-Gel Film Refraction Index Modulation with Femtosecond Laser</b> A. Dima, M. Gagliardi, D. Liu, W. Perrie, C.J. Williams, I. Rendina, G. Dearden and K.G. Watkins	101
<b>Urethane Magnetorheological Elastomers - Manufacturing, Microstructure and Properties</b> A. Boczkowska and S.F. Awietjan	107
<b>Experimental Validation of Numerical Methods of MRE Simulations</b> W. Szymczyk, A. Boczkowska, T. Niezgoda and K. Zubko	113
<b>Elastomers Containing Fillers with Magnetic Properties</b> M. Zaborski, J. Pietrasik and M. Masłowski	121
<b>Tensile Stress-Strain Relationships of Magnetorheological Fluids under Various Factors</b> S.A. Mazlan, A. Issa, H.A. Chowdhury and A.G. Olabi	127
<b>Texture Analysis of Hot Rolled Ni-Mn-Ga Alloys</b> H. Morawiec, T. Goryczka, A. Drdzeń, J. Lelaćko and K. Prusik	133

<b>Monte Carlo Study of Magnetostructural Phase Transitions in <math>\text{Ni}_{50}\text{Mn}_{25+x}\text{Sb}_{25-x}</math> Heusler Alloys</b>	
V.V. Sokolovskiy, V.D. Buchelnikov and S. Taskaev	139
<b>Microstructure and Magnetic Properties of Two Phase <math>\beta+\gamma</math> Ferromagnetic Co-Ni-Al Alloys</b>	
W. Maziarz, J. Dutkiewicz, R. Wróblewski and M. Leonowicz	145
<b>Effect of Annealing Conditions on the Structure of <math>\text{Ni}_{50}\text{Mn}_{29}\text{Ga}_{21}</math> Shape Memory Alloy</b>	
R. Wróblewski and M. Leonowicz	151
<b>Sensor of Current or Magnetic Field Based on Magnetoresistance Effect in <math>(\text{La}_{0.7}\text{Ca}_{0.3})_{0.8}\text{Mn}_{1.2}\text{O}_3</math> Manganite Film</b>	
V. Dyakonov, S. Piechota, K. Piotrowski, A. Szewczyk, H. Szymczak, V. Mikhaylov, A. Shemiakov, A. Pashchenko and V.P. Pashchenko	157
<b>Field Dependence of the Refrigerant Capacity for <math>\text{La}_{0.6}\text{Ca}_{0.4}\text{MnO}_3</math> Manganite</b>	
R.A. Szymczak, A. Kolano-Burian, R. Kolano, R. Puzniak, V. Dyakonov, E.E. Zubov, O. Iesenchuk and H. Szymczak	163
<b>Magnetic Anisotropy of Nanocrystalline HITPERM-Type Alloys and its Correlation with Application</b>	
J. Ferenc, M. Kowalczyk, T. Erenc-Sędziak, X.B. Liang, G. Vlasák and T. Kulik	169
<b>Magnetic Field Analysis for Magnetron Sputtering Apparatus for Accurate Composition Control</b>	
Y. Sakurai, R. Nakajima and H. Nakamura	175
<b>3D Magnetovision Scanner as a Tool for Investigation of Magnetomechanical Principles</b>	
J. Kaleta, D. Lewandowski and P. Wiewiórski	181
<b>Smart Technologies for Adaptive Impact Absorption</b>	
J. Holnicki-Szulc, C. Graczykowski, G. Mikułowski, A. Mróz and P. Pawłowski	187
<b>Active Control of Landing Gear Shock Absorber Characteristic Using Magnetoreological Fluids</b>	
Z. Skorupka, R. Kajka, R. Harla, W. Kowalski, M. Parafiniak, M. Kacprzak, G. Balcerkiewicz, J. Pacholski and W. Lechniak	195