

Table of Contents

Preface and Committee

Chapter 1: Material Science Engineering and Technology

Copolymerization of Carbon Dioxide and Propylene Oxide with Multi-Metal Cyanide Complexes as Catalyst L.B. Lu, W.Y. Zhang, Q. Lin, L.S. Pan, S.J. Pang and N. Xu	3
Effects of Alloy Elements (Mo, Al, and B) Addition on the Damping Property of Ti-25Nb-1.5O Alloys F.M. Qin and L.M. Yu	8
Microwave Absorbing Properties of Polymer Composites Containing High-Permeability Magnetic Flake Particles in Quasi-Microwave Frequency Band S.S. Kim	14
Thermal Stability of Thiolate Self-Assembled Monolayers on Copper Surface P. Kongsumrit and S. Kheawhom	18
The Synthesis and Bioactivities of 2-Hydroxyethyl Benzo[d] Isothiazole-3(2H)-One Marine Antifouling Paints J.X. Yang, C.H. You, X.H. Wang and Q. Lin	24
Preparation and Curing Behaviour of N-Phenylmaleimide-Styrene-Maleic Anhydride Copolymer/o-Cresol Formaldehyde Epoxy Resin Composite System M.Y. Xu, L. Zhou, M.J. Yin and A.Q. Kong	30
Deterministic Single InGaN Quantum Dots grown on GaN Micro-Pyramid Arrays P.O. Holtz, C.W. Hsu, A. Lundskog, K.F. Karlsson, U. Forsberg and E. Janzén	34
Study on the Effect of Matrix Properties on the Mechanical Performance of Carbon Fabric Composites Y.Z. Shao, N.T. Phong, K. Okubo, T. Fujii, O. Shibata and Y. Fujita	38
Research Progress of Surface Treatment Techniques in the Application of Fouling Prevention and Heat Transfer Enhancement R.S. Peng, H.M. Zhu and R.Q. Li	44

Chapter 2: Nano Materials and Technologies

Photoelectric Characteristics of ZnO Nanowires Grown on AZO Thin Film S.H. Yang, Y.M. Hsh, L.H. Wang, M.Y. Chang and T.J. Hsueh	51
Comparative Evaluation of Different Methods for Preparation of SiO₂/Epoxy Nanocomposite D. Liu, G.H. He and X.A. Zeng	55
Influence of Magnetoelastic Anisotropy on Properties of Nanostructured Microwires A. Zhukov, M. Churyukanova, L. Gonzalez-Legarreta, A. Talaat, V. Zhukova, B. Hernando, M. Ilyn, J. González and S. Kaloshkin	59
Distribution Time of Gold Nanoparticles Pass through the Solid State Nanopore in Deionized Water L.P. Liu, H.W. Wu, H. Liu, J.L. Kong and Q.J. Liu	67
Synthesis of Silver Nanowire Using a Template Wetting Process J.H. Lee, C.S. Chi and H.J. Oh	72
Synthesis and Characterization of Nanocrystalline MgO for Optical Applications Using Sol-Gel Method K. Ravichandran, S. Vaishnavi and D. Nedumaran	76
Optimal Processing for Hydrophobic Nanopillar Polymer Surfaces Using Nanoporous Alumina Template C.Y. Chiu, Y. Lin, Y.C. Tseng and Y.K. Shen	84
Using Modified Creep and Recovery Tests to Evaluate the Foam-Based Warm Mix Asphalt Contained Nano Hydrated Lime A. Diab, Z.P. You and H.N. Wang	90

Hybrids of Graphenes and Silver Nanoparticles Prepared by <i>In Situ</i> Process Employing Microwaveirradiation	
D.H. Nguyen and D.S. Lee	97
The Morphologies of Pt Decorated on PANI Membrane and Effects on Glucose Biosensor	
C. Wang, D.J. Chen, M. Pan, Y.Q. Chen, W.J. Guan and W. Chen	101
Silver Metal Pattern Fabrication on a Glass Substrate Using a Conformal Contact Printing	
D.H. Lee, S.G. Park, M.S. Kim, Y.H. Cha, B.H. O and D.W. Park	106

Chapter 3: Advanced Mechanical Engineering and Mechatronics Application

Configuration Evaluation of Printing Machine Based on Intuitionistic Fuzzy Entropy and TOPSIS	
H.B. Pu, X.N. Zeng and W.G. Li	113
Iterative Detection Scheme for Turbo-BLAST System with Adaptive Power Allocation in the Presence of Channel State Information Imperfection	
X.M. Chen, X.D. Yu, W. Tan and X.B. Yu	120
Comparison of Human Jogging and Walking Patterns Using Statistical Tabular, Scatter Distribution and Artificial Classifier	
C.Y. Yong, R. Sudirman, N.H. Mahmood and K.M. Chew	126
Direct Torque Control Using Fuzzy and Neural as Switching Vector Selector for Doubly Fed IM	
F. Hamidia, A. Larabi and M.S. Boucherit	134
Kinematics Analysis and Design of a Novel Robot Shoulder Joint	
B.Y. Cui and Z.L. Jin	139
Analysis of Static and Optimization of Structural Parameters for a Novel Leg Mechanism	
B.Y. Cui and Z.L. Jin	144
Primary Methods of Decreasing the Pollutant Emissions in an Industrial Furnace of Liquid Fuel of 100 MW	
F. Călugăru	150
The Application of Machine Vision in Automatic Assembly of Locks	
Q.M. Liu, C.Z. Gu, Z.K. Liu and L. Zhao	158
Fundamentals of Autonomous Robot Classes with a System of Stabilization of the Gripping Mechanism	
L.. Grigore, A. Soloi, O. Tiron and C. Răcuciu	164

Chapter 4: Electric and Magnetic Engineering, Electronics and Information Technology Application

Effect of Pulsed Electric Fields on Interface Properties of Phospholipids Dispersion	
D. Guo, J. Xiao, C. Jing, X.A. Zeng and H. Zhong	173
A 8-Bit DAC Design in AMS 0.35 μm CMOS Process for High-Speed Communication Systems	
V.E. Kristianti, H. Afandi, E.P. Wibowo and D. Purnomo	178
A Comparison Study of Three of Input Buffer Designed Using 0.35μm CMOS Technology	
S. Kisriani, E.P. Wibowo, B. Soerowirdjo, H. Afandi and V.E. Kristianti	184
Human Brain Phantom Modeling: Concentration and Temperature Effects on Relative Permittivity	
K.M. Chew, R. Sudirman, N. Seman and C.Y. Yong	191
A Novel Dual-Band Planar Wilkinson Power Divider	
L.M. Liang and Y.A. Liu	197
Biased AC Electroosmosis Device for the Detection of DNA Molecules with Piezoresistive Microcantilever	
M.S. Arefin	202
PD Control Law for Trajectory Tracking of Chaotic Pendulum	
J.P. Perez, J.P. Perez, F. Rdz and A.H. Flores	208

Performance Evaluation of 32-nm CNT-OPAMPs in Analog Circuits: Design and Comparison of Leapfrog Filters	
I. Ilyas, N. Fatema, R.T. Shama and F. Rahman	216
Recent Research on the Magnetoimpedance Effect in Co-Based Amorphous Ribbons	
L. Gonzalez-Legarreta, V.M. Prida, B. Hernando, M. Ipatov, V. Zhukova, A.P. Zhukov, L. Domínguez and J. González	222
Design and Performance Evaluation of a 10GHz 32nm-CNTFET IR-UWB Transmitter for Inter-Chip Wireless Communication	
F. Rahman, P. Das, M.F. Hossain, S. Khan and R. Chowdhury	228
The Analysis of Database Security Requirements for Cryptographic Algorithm	
H. Do, H. Jeong and E.I. Choi	235
Arc-Fault Detection Method Research Based on Wavelet Transformation	
X.J. Xiang and Z. Lin	240
Modeling of Interaction Layers from Conductive Microparticles with TE Electromagnetic Wave	
A.P. Anzulevich, L. Butko, S.G. Moiseev and I. Zotov	245
A Novel Three Phase Cascaded Multilevel Inverter	
S. Wang, J.H. Zhong, S.D. Wang and J.P. He	249