

CONTENTS

Preface	iii
Organizing Committees	xiii
ICMENS 2010 Session 1	
Assisted Research of the Neural Network with LabVIEW Instrumentation <i>Adrian Olaru and Serban Olaru</i>	1
Performance Analysis of OFDM Based DAB Systems Using Concatenated Coding Technique <i>Arun Agarwal and S. K. Patra</i>	6
Ferroelectric and Pyroelectric Properties of Nano Graded Ferroelectric Films <i>Hui Chen and Taimin Cheng</i>	13
Optimized Design for Cockpit Protective Glass Construction against High Power Microwave Using Genetic Algorithm <i>Jun Huang, Yun-an Hu, Hao-ran Zhang and Yan Jin</i>	17
Cockpit Protection Analysis for Digital Pilot Against Soft Kill From High Power Microwave <i>Jun Huang, Yun-an Hu, Hao-ran Zhang and Yan Jin</i>	22
Analysis of Measuring Time for Au Nanoparticle Size Measurement by Photon Cross Correlation Spectroscopy <i>Li Chunyan, Kong Ming and Zhao Jun</i>	27
An Interesting Difference between Fourier Transform & Laplace Transform <i>Gavendra Singh, Varun Gupta, Shekhar Pundir and Shobhit Sharma</i>	31
Artifact Removal from ECG Signal using Notch Filter for Developing Countries <i>Varun Gupta, Gavendra Singh, Rohit Sharma and Sharvan Kumar Pahuja</i>	34
A Design of Thermo-Electrostatic Actuated Microelectromechanical Switch with Low Voltage and Fabrication Efforts <i>Parisa Mahmoudi, Ashkan Mahmoudi and Esmaeil Najafiaghdam</i>	38
Temperature Effects on Performance of Industrial Robots Made of Composite Materials <i>Alin Ristea and Aurel Oprean</i>	42
Design of Digital Micromachined Thermal Gas Gyroscope <i>Hongjie Chu, Xinhua Zhu and Yan Su</i>	45
ICMENS 2010 Session 2	
A Theoretical and Experimental Study on Temperature Dependent Characteristics	50

of Silicon MEMS Gyroscope Drive Mode <i>Feng Rui, Qiu An-ping, Shi Qin and Su Yan</i>	
Optical Properties of CuInSi Nanocomposite Thin Film Deposited by Magnetron Co-sputtering <i>Jiansheng Xie, Jinhua Li and Ping Luan</i>	55
Research on MEMS Gyro Random Drift Restraining based on Simplified Sage-Husa Adaptive Filter Algorithm <i>Xiong Cai, Anping Qiu, Weixing Qian and Qin Shi</i>	58
A Micro-machined Silicon Vibrating Ring Gyroscope <i>Zhang Ruixue, Chen Zhiyong and Zhang Rong</i>	62
Enhancing the Output Power of Vibration Based Electrostatic MEMS Energy Converters for Energy Scavenging Systems <i>Marwa S. Salem Basyoni, A.A. Zekry and H. F. Ragai</i>	67
Optical Properties of Nano-CuInSi thin Films Prepared by Multilayer Synthesized Method <i>Jiansheng Xie, Ping Luan and Jinhua Li</i>	71
Design of the Power Conditioning Circuit for Vibration Based Electrostatic MEMS Energy Converters Found in Energy Scavenging Systems <i>Marwa S. Salem Basyoni, A.A. Zekry and H. F. Ragai</i>	75
A Novel Alignment Technique in Wafer-Level Packaging of MEMS Components <i>M. Hamedi, M. Vismeh and P. Salimi</i>	79
Fabrication and Test of Electrostatic MEMS Converter Found in Energy Scavenging Systems <i>Marwa S. Salem Basyoni, Diana Borca Tasciuc, A. A. Zekry and H. F. Ragai</i>	84
A Novel Autocalibration of 3-Axis MEMS Accelerometers Based on Improved PSO Algorithm <i>Renhao Liu and Hua Wang</i>	89
A Novel Design of InN Based Quantum-Dot Laser Operating at 1.55 μm <i>Md. Mottaleb Hossain, Md. Abdullah-Al-Humayun, Md. Multan Biswas and Mohammad Ashraf Hossain Sadi</i>	94
ICMENS 2010 Session 3	
Repulsive Nonlinear Schrödinger Equation and Bose-Einstein Condensate in Phase Space <i>Jun Lu, Yun-Zhi Wang and Xiao-Yun Mu</i>	99

Research and Test of the Digital Phase Locked Loop Drive Technology for Silicon Micro-machined Gyroscope <i>Yuliang Wang, Shuangwei Han, Hongsheng Li and Hao Liu</i>	103
Silicon-Based Micro Pulsating Heat Pipe for Cooling Electronics <i>Qu Jian and Wu Huiying</i>	109
Adaptive Vibration Control for System with Friction Damping <i>Yong Liu and Lihua Wen</i>	113
Clustering and Real-Time Analysis of Robot Controller Based on System on Chip <i>Jilin H , Zheng Yuan and Qinghua He</i>	117
A Method for Atomic Vapor Cell Fabrication with Cavity by Laser Drilling <i>Jian Xu, Zhiyin Gan, Qiang Lv and Sheng Liu</i>	123
Fast Re-association Scheme in Beacon-enabled Wireless Sensor Networks <i>Xie Shengdong and Huan Cheng</i>	126
An Effective Method for Bonding Carbon Nanotubes Onto Metal Electrodes <i>Qiang Lv, Hui Cao, Mingxiang Chen and Zhiyin Gan</i>	130
Research on Pretreatment of the Tire Mark Image <i>Xia Yu and Yibo Fu</i>	133
Fast Marching Simulation of Two-Dimensional Lithography Process of Thick Photoresists <i>Li-Li Shi, Bei Chen, Zai-Fa Zhou and Qing-An Huang</i>	137
A Comparative Study of Thin-film and Reynolds Equation Simulation Models for Squeeze Film Damping in MEMS Plate Structures <i>Liu Weiguo, Wang Wei and Peng Shoujun</i>	141
ICMENS 2010 Session 4	
Air Damping Effects of MEMS Parallel-plate Structure Using ANSYS Thin Film Analysis <i>Zhang Xiongxing, Peng shoujun and Zou Jinlong</i>	146
The Design and Implementation of Fast Forwarding in Gateway Mode <i>Jun Liang, Xingshu Chen and Jun Tan</i>	150
An Optimization Algorithm of Foreground Objects Extraction <i>Xiayi Zhang, Zhipeng Li, Fuqiang Liu, Zhen Jia and Jianwei Zhao</i>	155
Comparisons of Support Vector Regression and Neural Network in Modelling the Hydraulic Damper <i>Konghui Guo and Xianyun Wang</i>	160
False Peaks Suppression based on Cross-High-Order Spectral QR Decomposition Approach	165

<i>Yuling Gao, Qing Huang, Baoming Yu, Xiaotao Kang and Yaowu Shi</i>	
MIMO Radar Target Detection Performance Analysis with Unknown Parameters <i>Weiwei Liu, Ning Cao, Hao Lu and Jurong Hu</i>	169
CMA Blind Multiuser Detector Based on FLOS in Impulse Noise <i>Zhang Xuxiu and Huang Changan</i>	173
A MEMS Safe and Arm Device for Spin Stabilized Ammunition Fuze <i>Wang Wei, Liu Weiguo, Zou Jinlong and Huo Pengfei</i>	176
The Research and Application of the Fuzzy Neural Network Control Based on Genetic Algorithm <i>Yong-chao ZHANG, Wen-zhuang ZHAO and Jin-lian CHEN</i>	180
Robust PD State Feedback Controller Design for Uncertain Singular Systems <i>Jianwu Zhu and Yuanchun Ding</i>	183
ICMENS 2010 Session 5	
An Investigation of the Nano-structure Titanium dioxide Thin films as a Function of Film Thickness <i>Haleh Kangarloo, Fahime Farid Shaygan and Saeid Rafizadeh</i>	187
The Study of Optical Properties of Laser Identification Friend or Foe System <i>Jing Sun, Dong-Guang Li and Xue-Jun Cui</i>	191
Monitoring Pipeline Vibration Due to Cavitation through an Orifice By Piezoelectric Sensor <i>Farid Parvari Rad and Abolghassem Zabihollah</i>	195
The Study of High Heat Resistance of Nano-modified Silicone Pressure Sensitive Adhesives <i>Ming-Yan Zhang, Guan-Hui Wang, Peng Yu and Yi Wang</i>	199
Laser Reflow Technology On High-Q Toroidal Microcavity <i>Pengfei Jia, Yingzhan Yan, Shubin Yan and Min Zhao</i>	203
Size Effect Analysis of Thermal Conductivity in Lithium Nanometer Film <i>Z. H. Wang and M. J. Ni</i>	207
MULTIFUNCTIONAL NANOTUBES <i>Sona.R and Priyanka Bagmar</i>	211
Physical Level Simulation of PolyMUMPs Based Monolithic Tri-Axis MEMS Capacitive Accelerometer Using FEM Technique <i>M. S. Khan, A. Iqbal, S. A. Bazaz and M. Abid</i>	213
Material Intrinsic Length in Plastic Strain Gradient Theory and Microbending Process of Metal Foils	218

Li Hezong, Dong Xianghuai, Huang Suxia, Alexander Diehl and Hinnerk Hagenah

Implementation of Intelligent Video Analysis System and It's Algorithm Optimization Based on DSP 222

WANG Hui, LIANG Cheng and LI Ying

ICMENS 2010 Session 6

Ferroelectric and Electrical Properties of Potassium Nitrate Thin Composite Layers 226
Neeraj Kumar and Rabinder Nath

Study of Magnetic Field Distribution of Carbon Nanotubes Resulting from Current Pass by Magnetic Force Microscopy 233
Haleh Kangarloo, Mehrdad Teymurzadeh and Saeid Rafizadeh

Modelling of Adhesive Forces in Nanotweezer 236
Amir Sanati Nezhad and Ion Stiharu

Electronic Transport Properties of Single-walled Zigzag Silicon Carbide Nanotubes with Antisite Defects 241
Song Jiuxu and Liu Hongxia

A Study on the Mathematic Model of Nox Emission in Coal-Fired Boiler with Opposed Combustion Pattern 244
LIU BaoLing

Data Mining In Conditions Analysis At A Coal-Fired Utility Boiler 248
LIU BaoLing

Self Powered Wearable Health Monitoring System 252
Harkanwal Singh and Choudhary Mayur Lalchand

Utilizing Urban Rain-Flood based on Nano Technology 257
Jun YAN, Ju ZHANG, Sainan CHEN and Changyou JIANG

Experimental Modal Characterization of MEMS Switches 261
Joel M. Book, Samuel F. Asokanthan and Tianfu Wang

Error Modeling and Analysis of Inertial Measurement Unit using Stochastic and Deterministic Techniques 266
Zeeshan Ashraf and Wajeeha Nafees

ICMENS 2010 Session7

Study on Three-Dimensional Packing Problem 271
ZHOU Dexiang, ZHANG Yifei and CHEN Shengda

Study on Two-Dimensional Packing Problem 274

<i>ZHOU Dexiang, WANG Xianrong and CHEN Shengda</i>	
Research of Modified MUSIC Algorithm based on Vector Matrix <i>Xiaoyao Wang, Guojun Zhang, Panpan Wang, Xibao Liu and Wendong Zhang</i>	277
Design of a Novel Encapsulation based on Hair Cell Vector Hydrophone <i>Jiao Xu, Guojun Zhang, Guixiong Shi, Xibao Liu and Wendong Zhang</i>	281
Simplified Three-dimensional Thermomechanical Applications of Ball Grid Array Package <i>MAO Jia and ZHANG WeiHua</i>	285
An Empirical Analysis on Industrial Upgrading of Xiqiao Textile Cluster <i>Li Min</i>	292
Research on the Time Factor of Li-ion Battery for Vehicle-to-grid (V2G) Implementation and Charging Station Application <i>Wei Shi, Jiuchun Jiang, Siqi Lin, Suoyu Li, Rongda Jia and Jiapeng Wen</i>	297
Operational Program for Electric Bus Charging Station in Expo 2010 <i>Zhang Weige, Jiang Jiuchun, Shi Wei, Li Xiaoqiang, Jia Rongda and Bao Yan</i>	302
SOC Estimation of Ni-MH Battery Pack based on Approved HPPC Test and EKF Algorithm for HEV <i>Bingxiang Sun, Jiuchun Jiang and Zhanguo Wang</i>	307
Design of Aircraft Circuit Modelling Based on Treble Transitions Petri Nets <i>Chen Jing-jie and Wang Zhen-ming</i>	311
ICMENS 2010 Session 8	
Some Traveling Wave Solutions For The Boussinesq Equation <i>Qinghua Feng and Chuanbao Wen</i>	316
Traveling Wave Solution Of (2+1) Dimensional Boussinesq Equation By Bernoulli Sub-ODE Method <i>Qinghua Feng and Tongbo Liu</i>	319
Traveling Wave Solution Of (2+1) Dimensional Breaking Soliton Equation By Bernoulli Sub-ODE Method <i>Qinghua Feng and Yulu Wang</i>	323
Traveling Wave Solution Of (3+1) Dimensional Potential-YTSF Equation By Bernoulli Sub-ODE Method <i>Qinghua Feng</i>	326
The Safety Monitoring Warning System of Mining Dump Truck <i>Feng Qing-Dong, Shuai Jian, Yin Yong-Jing and Jiao Zhong-Liang</i>	329

Simulation and Characterization of a Novel Large Stroke Micromirror <i>Quan Sun, Zongfu Jiang and Edmond Cretu</i>	331
A Robust Charged Radiation Elusion System <i>Sumedh Mannar, Amarjot Singh and M. Sai Shankar</i>	336
A Simplified Prediction Method for EMI Generated by Three-phase PWM Rectifier <i>Bin Liang and Kexin Wei</i>	340
A Monolithic Three-Axis Accelerometer with Low Cross-Axis Sensitivity <i>Changde He, Wendong Zhang, Jijun Xiong, Chenyang Xue and Guixiong Shi</i>	343
Vision Based Control of Micro-fluid Dispensing for Surface Mount Technology <i>Cong-ping Chen, Xiao-gang Dong, Wu Qin and Zi-fan Fang</i>	347
ICMENS 2010 Session 9	
The Impact of Nonlinear of Tire on Multi-Axle Vehicle Steering <i>Wang Huan, Gao Xiuhua, Chen Jiankai and Wang Chao</i>	352
Optimization of Fabrication Process for MEMS based Microneedles Using ICP Etching Technology <i>Muhammad Waseem Ashraf, Shahzadi Tayyaba, Nitin Afzulpurkar, Asim Nisar, Chumnarn Punyasai, Karoon Saejok, Jakrapomg Supadech, Nithi Atthi, Charndet Hruanun and Amporn Poyai</i>	356
A Research of Network Congestion Control Based on Fuzzy PID Arithmetic <i>Haimei Wei</i>	360
The High Efficient Sediment-Transport Water Volume in the Lower Yellow River <i>Jun YAN, Biao LIANG, Yuhua ZHANG and Hui CAO</i>	363
The Influence of Global Warming to Environmental Abnormal Variation in the Estuary of the Yellow River <i>Jun YAN, Wenhai YANG, Yuhua ZHANG and Xianbo YANG</i>	368
Postbuckling Investigation on the Micromachined Double-Clamped Beams <i>Xing Chen, Liansheng Ma, Yingmei Zheng, Bo Wang and Dong-Weon Lee</i>	372
Adsorption and Preconcentration Capabilities of Porous Nano-barium-strontium Titanate for Nickel in Water <i>Dong Zhang</i>	376
Design and Analysis of Novel Four-quadrant Double Liquid Lens Based on EWOD <i>Xiao Hu, Jiu Li, Jinfeng Liu and Ziqiang Huang</i>	380
Design and Modeling of a Wide Tuning Range, High Q, Low Supply Voltage MEMS Based Tunable Capacitor for Wireless Communication Applications	387

Sreeja B.S and Radha S

Author Index

393