2026 IEEE 21st International Conference on Nano/Micro Engineered and Molecular Systems (NEMS 2026)

Chengdu, China
17-21 April 2026

Pages 1–531

IEEE Catalog Number: CFP26NME-POD
ISBN: 979-8-3195-1936-8

Copyright © 2026, IEEE

All Rights Reserved

Copyright and Reprint Permissions:

Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP26NME-POD
ISBN (Print-On-Demand):	979-8-3195-1936-8
ISBN (Online):	979-8-3195-1935-1
ISSN:	2474-3747

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA

Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

A Flexible Pressure Sensor Based on Two-Stage Electrical Contact for Enhanced Sensitivity and Linear Range 1
Yuanpeng Lin, Wenjun Xu, Tao Luo, Chao Gao, Rui Chen, Wei Zhou

A Vibration Energy Harvester Based on PZT Multilayer Composite Piezoelectric Thin Films 5
Danni Yang, Jizhen Li, Yihui Song, Pengfan Wu, Endian Cui, Fayang Wang, Xiaojing Mu

Three-Dimensional Interconnected Thin-Film Thermocouple Array for In-Situ Temperature Mapping Inside Fuel Cells 9
Yujie Zheng, Yingying Dai, Jinyang Le, Chongjie Jiang, Wei Zhou, Tao Luo

Ultrathin Few-Layer V_2N MXene via Cell-Ultrasonic-Assisted Exfoliation for High-Voltage Aqueous Energy Storage 14
Liping Zhang, Hongjie Jiang

Surface Plasmon Resonance Monitoring of Tunable Silica Shell Growth (8–47 nm) on Silver Decahedral Nanocomposites 18
Nimer Murshid, Vladimir Kitaev

Metal-Organic Framework Derived Porous Carbon for Simultaneous Electrochemical Sensing of Uric Acid and Dopamine 22
Pengkai Tang, Min Gao, Yuan Lin

Sustainable chitosan/rice husk silica/calcium alginate composite beads for pH-responsive oral delivery of folic acid 26
Nutatcha Yowcharoensuk, Chayanan Manawongcharoen, Phuwit Suwannatain, Kamolnid Rochanasiri Jidapa Pimthong, Sakdinun Nuntang

Amine functionalized rice husk silica as a sustainable adsorbent for urea removal in artificial kidney applications 30
Jedsadaporn Fakthong, Natwalai Orachaipunlap, Napaphat Pripwai, Kawissara Pholdee Natchamon Chaiyos, Sakdinun Nuntang

The Application of CuO Nanoparticle Decorated Ti_3C_2 MXene Composite for High Performance NO_2 Gas Sensor at Room Temperature 34
Jiulong Liu, Qi Bao, Yufei Yan, Wenlei Zhang, Zhongyun Yuan, Lei Sun

A Separated Wheatstone Bridge Sensor with a High Sensitivity of Torsion Angle Applied for MEMS Mirrors 39
Penghong Shi, Gaopeng Xue, Changzhao Yan, Zirui Yuan, Yangyu Luo, Zhenjun Yang, Bing Li

An I-Beam-Coupled Distributed Lamé-Mode Capacitive Resonator with High f × Q Product 43
Hao Yu, Yechen Miao, Yuqing Mao, Ke Sun, Heng Yang, Xinxin Li

Vacuum-packaged Magnetic Cantilever Sensor Based on an Au-Au Thermocompression Bonding Technique 47
Gaopeng Xue, Masaya Toda, Penghong Shi, Zhenjun Yang, Nguyen Van Toan, Takahito Ono

Modelling Nonlinear Coefficients in Frequency Combs Based on Coupled Resonators and Parametric Excitation 52
Teng Zhang, Shenglin Hou, Zhengliang Fang, Erion Uka, Chun Zhao, Ashwin Seshia

A MEMS Skewed Oscillating Mirror with a Dual-resonance System for Photoacoustic CO_2 Gas Detection 58
Yun Liu, Penghong Shi, Zhenjun Yang, Minjie Zhu, Bing Li, Gaopeng Xue

Non-Driven Interferometric Visualization of Vibrational Modes in Gold Nanomechanical Resonators 62
Jiaqi Wu, Luming Wang, Bo Xu, Kuai Yu, Zenghui Wang, Jiankai Zhu

Design of a CMUT Structure Enhanced by ALD High-κ HfO_2 and the LOCOS Process 66
Lei Ren, Jiandong Shen, Tianhao Yan, Wangyang Zhang, Xianglong Chen, Endian Cui, Ke Zhu, Jin Xie Xiaojing Mu

Metamaterial-Enhanced Asymmetrical Wireless Power Transmission System for Optogenetics 72
Jin Yang, Lingjie Jia, Xiuhan Li

Battery-free and Multiplexed Photonic Sensor Patch for Wound Monitoring 77
Jiayue Gu, Linghao Yuan, Xingming Wen, Ze Xiong

Needle-shaped Multichannel Recording Electrode for Spinal Dorsal Root Entry Zone (DREZ) Ablation 83
Yuxing Pang, Dongxu Ma, Xiaoyong Tang, Yucheng Pang, Mingyi Wei, Zhihong Li

A Study on Ultrasonic Attenuation and Skull–Brain Interface Reflection for Transcranial Neuromodulation with Low-Frequency PMUTs Devices 87
Jiangwei Yu, Yihe Zhao, Zhikang Li, Zixuan Li, Jiawei Yuan, Hongqiang Tan, Shiwang Zhang, Shaohui Qin Zimeng Zhang, Daren An, Jie Li, Min Li, Libo Zhao

Personalized Reverse Iontophoresis-based Non-Invasive Continuous Glucose Monitoring via Multi-Parameters Coupled Machine Learning 93
Xi Li, Wangwang Zhu, Wenjun Li, Chenxi Jin, Xingguo Zhang, Hao Zheng, Dachao Li, Zhihua Pu

A Wearable Stretchable Bimodal Contact Lens System for Real-Time Closed-Eye IOP and Eye Movement Monitoring 98
Xingyi Gan, Guang Yao, Min Gao, Taisong Pan, Yuan Lin

Recent Advances in AI-Integrated Wearable Sensors for Disease Monitoring 102
Dong Tao, Zhu Wangang, Yu Chenghui, LuYao, Zou Bingde, Zou Jihua, Jia Jianghua, Fang Liang Jiao Yang, Yang Zhaochu, Wen Tao, Jiang Zhuangde

A Miniaturized Self-Focusing Flexible Ultrasonic Patch for Synchronous Real-Time Gesture Recognition and Force Monitoring 107
Ziwen Tang, Enbo Jiang, Zhouyu Jiang, Encheng Zheng, Jin Xie

Liquid Metal-Polymer based Flexible Electrodes for Recording Electrophysiological Signal from Myocardial Tissue 111
Dingyuan Yu, Chenyang Zhou, Xiaolin Wang

Wirelessly Controlled and Implantable Nitric Oxide Release System for the On-Demand Treatment of Glioblastoma 116
Mingshuang Zhang, Lin Lin, Ya Wang

A Hybrid Surface-Deep Flexible Array for Simultaneous Cross-Scale Neural Recordings in Freely Moving Mice 120
Yunfu Luo, Zhitao Zhou, Xiaoling Wei, Yifei Ye, Liuyang Sun

Deep Learning Classification Method of EEG Signals Based on Grouped Convolution and Attention Mechanism 124
Yuxin Ruan, Yangyang Chai, Jiaming Wang, Yinfeng Liu, Jiahui Xu, Quan Yuan

An Integrated Flexible Dual-Channel Strain–Pressure Sensor for Fetal Movement Monitoring 129
Jinjin Cao, Shuhua Zhao, Lu Bai

Epidural electrical stimulation with a 16-channel flexible electrode enabled movement in spinal cord injury rats 133
Xinkai Jing, Dongxu Ma, Meng Yin, Zhiwei Yang, Haitao Wang, Lifen Mo, Yihang Ren, Xiaodi Han Yuxing Pang, Xiaoyong Tang, Zhijie Zhao, Hao Ding, Minghan Liu, Fengyan Liang, Ming Yin, Zhihong Li

Real-Time Measurement of Single-Cell Rotation Speed With OET System 137
Dongze Gai, Dan Dang, Li'an Leng, Hengshen Qin, Chuang Zhang

Gas Chromatography System for Metal Oxide Gas Sensor to Enhance Gas Species Selectivity 143
Kuan-Wen Lou, Guangyao Cheng, Qinru Xiao, Yi-Ping Ho

Transition-Metal-Doped ZnO as a Tunable Nano-Composite Material: Structural, Electronic, and Optical Modifications via DFT 147
Rasool Akhtar Alias Osama, Hannah Levene, Graham Wood, Peter Lomax, Rebecca Cheung

Mechanistic Investigation into Pyrolysis-Induced Failure Phenomena in Silicon-based Lead Zirconate Titanate (PZT) Thin Films 151
Zhang Xinyu, Qi Zhang, Xing Pang, Xiaoya Liang, Bi Wenzhe, Yulong Zhao

Porous sandwich-like structured composite film for electromagnetic interference shielding 157
Peiwei Li, Xiangmeng Li, Ruidong Yang, Xuanqi Tao, Zuobin Cao, Enpan Yin

Inorganic Salt and Thermal Stretching Synergize to Achieve Strong, Tough, Conductive and Recyclable Hydrogels 163
Shiqian Yu, Xiaojing Jing, Ruonan Jia

Sol-Gel Fabrication of High-Performance Ternary $Pb(Mn,Nb)O_3$-$Pb(Zr,Ti)O_3$ Relaxor Ferroelectric Thin Films on Si Substrates 168
Jiaqian Yang, Jixuan Zhang, Hanjie Dou, Wangyang Zhang, Guangzhou Zhu, Xianglong Chen, Endian Cui Xiaojing Mu

Research on a Photoelectric State Feedback System for MEMS Safe-and-Arming Devices 172
Xinyu Fan, Tengjiang Hu, Yvlong Zhao, Guilin Li

A Non-Contact Fingertip Localization System Based on CMUT Arrays 176
Zhongyi Fan, Xiaohan Zhang, Zhou Zheng, Xiaomin Wang, Hui Chen, Zhendong Sun

A Universal On-Wafer Structure for In-Situ Extraction of Maximum Crack Size on Deep-Etched Sidewalls 180
Jiakang Li, Dacheng Zhang

High-Performance High-Pressure Silicon Resonant Pressure Sensor for Extreme Environment Applications 184
Pengxiang Ye, Xiaohan Liu, Zhaoyuan Tan, Hao Wang, Bo Xie, Yulan Lu, Peiyue Zhao, Deyong Chen Junbo Wang

Long-Term Reliability Analysis of MEMS Double-Level Vacuum Packaging Using a Coupled FEM-ODE Approach 188
Wanjing Lin, Jing Lin, Qiancheng Zhao, Guizhen Yan, Qinwen Huang, Chunhua He

Evaluation of Stiffness Asymmetry in MEMS Tuning-Fork Resonators Based on Fast Geometric Observations 193
Yi Tang, Chenggang Zhang, Chenzhe Du, Qiancheng Zhao, Jian Cui

A Robust Optimization Method for MEMS Bonding Wires Based on Multi-factor Analysis and Taguchi Design 197
Wanjing Lin, Jing Lin, Qiancheng Zhao, Guizhen Yan, Qinwen Huang, Chunhua He

Ultra-wideband AlScN BAW Filter Based on Integrated Cap Wafer Inductor 201
Danyu Mu, Weipeng Xuan, Gang Liu, Rui Ding, Feng Gao, Hao Jin, Jikui Luo, Shurong Dong

High-Precision Gas Content Detection in Microfluidic Chips Based on PMUTs and Machine Learning 205
Hongqiang Tan, Zixuan Li, Chang Shu, Chenhao Duan, Jiawei Yuan, Jiangwei Yu, Yihe Zhao, Min Li Xiaozhang Wang, Zhiming Lin, Zhikang Li, Libo Zhao

Bandwidth Expansion of Piezoelectric Micromachined Ultrasonic Transducers via Combined DC Bias and Time-aligned Superposition 210
Ke Zhu, Wenhe Yang, Wangyang Zhang, Yuchen Mao, Shuhan Liang, Xiaojing Mu, Jin Xie

A High-Accuracy All-Silicon Resonant Pressure Sensor with Rapid Thermal Response and Corrosion-Resistant Electrode Protection Structure 214
Xiaohan Liu, Bowen Tan, Xingyu Li, Bo Xie, Yulan Lu, Junbo Wang, Deyong Chen, Peiyue Zhao, Jian Chen Yuqing Zhang, Guoyi Gao

Multi-electrode Design Enhances the Multi-mode Performance of Piezoelectric Micromachined Ultrasonic Transducers 218
Ke Zhu, Ziwen Tang, Wangyang Zhang, Yuchen Mao, Xiaojing Mu, Jin Xie

Multi-Frequency Excitation for Performance Enhancement of Electric Field Mill Beyond the Critical Duffing Amplitude 222
Hongyun Ren, Lifang Ran, Najib Kacem, Jianhua Li, Xiaolong Wen, Ashwin A. Seshia

A Study on the Interference Suppression of CMOS MEMS Monolithic Integrated Infrared Detectors Under Environmental Temperature Variations and Electromagnetic Radiation 226
Jiagen Cheng, Wanli Jiang, WeiHuang Yang, Yu Gao, Chaoran Liu, Dehui Xu, Linxi Dong

Design and Fabrication of Low-Power MEMS Microheaters 232
Fan Zhao, Zhiyuan Jiang, Xiangrui Jiang, Ruihao Wang, Hairong Wang, Lingmin Yu

Underwater Acoustic Source Localization via Deformable Frequency Feature Fusion and Uncertainty-Guided Multi-Task Learning 238
Daoguang Zhang, Wanjing Lin, Nengkun Fang, Kangzhao Tan, Junjie Yu, Chunhua He

Temperature Effect on Self-Oscillation Thresholds in Thermal-Piezoresistive MEMS Resonators 244
Haojie Li, Chenhao Yang, Geer Teng, Wei Zhang, Xiaoying Li, Hemin Zhang

A Machine Learning-Enhanced Cylindrical Multilayer Dual-mode Triboelectric Nanogenerator for Intelligent Multi-modal Sensing 248
Dezheng Hu, Jun Li, Liqiang Liu, Han Wu, Lezhi Tang, Wei Ou-Yang

A High-Accuracy Resonant Pressure Microsensor Packaged with a Thick Glass Base 253
Yaxuan Fang, Yulan Lu, Bo Xie, Deyong Chen, Junbo Wang, Jian Chen, Wei Guan, Xinju Fu, Yuqing Zhang Guoyi Gao

Synergistic Optical-Electrical Manipulation on Biochip for Active Medium Classification and Enrichment 257
Fan Yang, Gong Li, Yunlei Xu, Yutong Sui, Henan Du, Hang Li, Kangfu Chen, Huikai Xie, Rongxin Fu Shuailong Zhang

A Concentric-Ring MEMS Micromirror Array for 3D Optical Scanning 261
Chen Liu, Yu Jian, Manpeng Chang, Xin Wang, Weimin Wang

Programmable Optoelectronic Assembly of Semiconductor Nanoparticles via Light-Triggered Surface Charge Modulation 265
Yanan Mao, Gong Li, Henan Du, Meng Wu, Rongxin Fu, Huikai Xie, Shuailong Zhang

Machine Learning-Based Mass and Location Prediction for MEMS Cantilever Sensors Using Modal Frequencies 271
Zakaria Saibaa, Mehdi Ghommem, Michael Lherbette, Marvin Christen

Q-Factor Enhancement through Energy Control by Blue-Sideband Pumping in a Mode-Localized Electric-Field Sensor 277
Pinyi Li, Lifang Ran, Najib Kacem, Jianhua Li, Xiaolong Wen, Ashwin A. Seshia

Fast Design and Verification of BAW Filters Based on Graph Neural Networks 281
Zhengcai Zhao, Danyu Mu, Rui Ding, Weipeng Xuan, Feng Gao, Jikui Luo, Shurong Dong

High Performance Flexible Calorimetric Flow Sensor Based on Kirigami-Structured Substrate for Complex Surface Bonding Scenarios 287
Kai Qiao, Daishan Yue, Hanlun Guan, Jianyu Wang, Zong Liu, Huikai Xie, Xiaoyi Wang

A High-Sensitivity Piezoelectric MEMS Accelerometer Based on Differential Signal Detection 291
Yuancheng Ouyang, Wenjun Xu, Guojian Ding, Qianyi Liu, Fan Wu, Qi Feng, Yang Wang, Miao He Haiqiang Jia

A High-Load Large-Stroke MEMS Micro-motion Platform Based on Polyimide/Al Bimorph for Optical Image Stabilization 296
Jingyi Chen, Zonghao Li, Hengzhang Yang, Xiaodan Mao, Leqi Yu, Senlin Jiang, Huikai Xie

Investigations of Temperature Characteristics of AlN/Sapphire SAW Resonators 301
Mingxin Li, Hao Ren

Structural Design and Optimization of MEMS Piezoresistive Accelerometer with Wide Bandwidth and High Shock Resistance 306
Boyang Li, Chen Jia, Xiangguang Han, Yong Xia, Min Li, Jun Du

A High-Sensitivity Electric Field Sensor Based on Nonlinear Frequency Difference in a Clamped-Clamped Beam Resonator 311
Weiyang Li, Pinyi Li, Najib Kacem, Jianhua Li, Xiaolong Wen, Ashwin A. Seshia

A Piezoelectric MEMS Tuning Fork-Shaped Resonator with Fan-Shaped Reflectors 315
Jiaming Wang, Yuxin Ruan, Jiahui Xu, Yinfeng Liu, Yifan Wang, Quan Yuan

Influence of High-Temperature Annealing on the Quality Factor of Fused-Silica Micro-Hemispherical Resonators 319
Chen Liao, Anye Su, Yulie Wu, Kun Lu, Xiang Xi, Yan Shi

Center-of-Mass Adjustment of Precision Force-Balanced Sensors with Adhesive Dispensing 323
Zhinan Si, Sien Xiao, Xiaodong Wang, Zhengsu Zou, Zihan Zhang, Zheng Xu

An Electrostatic Parallel-Plate Actuated MEMS Micromirror Array 329
Shiyuan Lin, Wenjiang Shen, Jinrong Cheng

A Time-Division Multiplexing Interface with DC Drift Blocking and Input Isolation for Dual-Mode MEMS Resonant Sensors 334
Yuchen Wang, Jun Feng, Yongmeng Zhang, Jiangkun Sun, Ying OuYang, Youlin Zhang, Xingjing Ren Sheng Yu, Xuezhong Wu, Dingbang Xiao

Design of a Piezoelectric FSM with Asymmetric Structure and Segmented Electrodes 339
Haoxiang Li, Lin Zhang, Huijun Yu, Wenjiang Shen

Hybrid Passive-Active Nonlinearity Compensation for Mode-Localized Coupled Resonators 344
Zisheng Lei, Haojie Li, Jingxue Song, Xiaoying Li, Alexander Kukaev, Hemin Zhang

Design and Analysis of a High-Linearity Piezoresistive Pressure Sensor Based on Silicon–Silicon Bonding 348
Xun Liu, Xiaohan Liu, Kehui Qi, Junbo Wang, Deyong Chen, Yulan Lu, Guangyang Gou, Jian Chen Yuqing Zhang, Guoyi Gao, Bo Xie

On-Chip Fluid Control and Force Quantification for Single-Cell Mechanical Characterization 352
Xu Du, Yuyang Li, Zhongqiang Zhang

Study on the output performance of triboelectric nanogenerators driven by rotating magnetic fields 356
Xinyue Wang, Hui Li, Huizhen Liu, Wenchao Li, Song Li, Yuan Tang, Kexin Tang, Yongyue Zhao

Design and Fabrication of Flexible Lead-Free PMUTs via KNN-on-SU-8 Heterogeneous Integration 360
Zimeng Zhang, Shaohui Qin, Jiawei Yuan, Zixuan Li, Yongce Wang, Daren An, Min Li, Zhiming Lin Yihe Zhao, Zhikang Li, Libo Zhao

Design of a High-performance and Compact Switched BAW Filter Bank 365
Tangwei Hu, Yang Gao, Tingting Liu

PMUTs-based Ultrasound Proximity detection for Robot robotic Tactile Sensing 369
Daren An, Zixuan Li, Hefeng Qin, Hongqiang Tan, Zimeng Zhang, Jiangwei Yu, Yihe Zhao, Min Li Xiaozhang Wang, Zhiming Lin, Zhikang Li, Libo Zhao

Spatially Resolved Visualization of Multimode Motion in Microelectromechanical Resonators 373
Jiankai Zhu, Jiahao Song, Jiaqi Wu, Ziluo Su, Bo Xu, Xueyong Wei, Zenghui Wang

Piezoelectric energy harvesting powered wireless sensor for lathe tool vibration 377
Yanpu Yao, Lu Wang, Di Xiao, Yufan Yan, Xinyu Zhang, Libo Zhao

Motion-Artifact-Suppressed Pulse Wave Monitoring Based on an Iontronic Pressure Sensor 381
Shaoqi Tang, Zixiang Zhang, Lili Li, Liyu Lin, Zhizhong Wang, Zhongliang Yu

High-Performance Cross-Field-Excited Piezoelectric Micromachined Ultrasonic Transducer Based on X-cut Lithium Niobate Thin Film 386
Jialin Long, Juan Wang, Zimo Hu, Zhongbin Dai, Chengjie Zuo, Han Qiu

Development of an Iontronic Pressure Sensor for Blood Flow Measurements 390
Zixiang Zhang, Shaoqi Tang, Lili Li, Liyu Lin, Zhizhong Wang, Zhongliang Yu

Nonlinear Dynamics and Mechanical Properties of Few-Layer $MoSe_2$ Nanomechanical Resonators 395
Shuang Cai, Yalan Wang, Jiankai Zhu, Zenghui Wang, Bo Xu

Characterization and Suppression Methods for the Charge Accumulation Effect in MEMS Resonators 399
Zhenyu Zhong, Mingze Gao, Jiangkun Sun, Sheng Yu, Yongmeng Zhang, Xuezhong Wu, Dingbang Xiao

Few-Layer $MoSe_2$ Nanomechanical Resonator with High Laser-Power-to-Frequency Responsivity at Room Temperature 405
Yalan Wang, Shuang Cai, Jiankai Zhu, Zenghui Wang, Bo Xu

A High-Flowrate Valveless Piezoelectric Micropump with a Central Anchor Structure 409
Jiahui Ni, Jiafeng Ni, Ziyang Wu, Tianqi Fan, Weipeng Xuan, Jikui Luo

A Wearable sEMG–PMUT Sensor Fusion Approach for Hand Gesture Recognition Based on Machine Learning 414
Wenhe Yang, Ke Zhu, Guichuan Zhou, Ziwen Tang, Jin Xie

Automatic Layout and Routing of High-Power BAW Filters Using Swarm Intelligence Algorithm and Shape Optimization 420
Jie Tang, Weipeng Xuan, Rui Ding, Shurong Dong, Jikui Luo

A Composite Cantilever Accelerometer for Hydraulic Pipeline Vibration Monitoring and Intelligent identification 426
Wenzhe Bi, Qi Zhang, Xing Pang, Jun Ma, Ying Liu, Xudong Luo, Xiaoya Liang, Xinyu Zhang, Yulong Zhao

Development of Right-angled Trapezoidal Multimodal Piezoelectric Micro-Mechanical Ultrasonic Transducer 430
Yali Zhang, Changhe Sun, Shengjia Shi, Xi Zhou

A Legendre-Corrected Analytical Model for Modal Coupling in $LiNbO_3$ XBAR Resonators 436
Xinxuan Xu, Longfei Yang, Linyan Liu

Counter-flow fin-shape rods bluff body parameterized optimization for enhanced wind-induced vibration energy harvester 442
Jian Qiu, Tianqi Jie, Kai Chen, DongLing Li, Quan Wen

A Rope-Driven Rotational Hybrid Energy Harvester For Low-Frequency Kinetic Energy Harvesting 447
Shumiao Xuan, Weihan Xu, Fei Wang

High-Performance Streaming Current Generator Based on the Ion Rectification Effect 451
Endian Cui, Yifan Bu, Danni Yang, Pengfan Wu, Fayang Wang, Wangyang Zhang, Jiaqian Yang Xianglong Chen, Xiaojing Mu

Ultrahigh-Output Liquid–Solid Triboelectric Nanogenerators Enabled by Coupled Localized Surface Plasmon Resonance and Interfacial Polarization 456
Fayang Wang, Wenyi Tu, Pengfan Wu, Endian Cui, Xiaojing Mu

A Self-Powered Wireless Sensing System Based on Array Piezoelectric Energy Harvester 460
Yi Yang, Pengfan Wu, Chenxi Zhao, Danni Yang, Xueyi Xia, Xiaojing Mu

Experimental Realization of Ta_2O_5-Based All-Solid-State Lithium-Ion Battery with High-Temperature Stability 464
Rui Meng, Jian Wang, Mingyang Wang, Ruizhe Zhang, Lindong Wu, Xiaodong Huang

High-Performance Evaporation-Induced Generator Based on MOF-Based Composite Materials 468
Yifan Bu, Liangzhi Zhang, Endian Cui, Danni Yang, Xueyi Xia, Xiaojing Mu

A Low-Power Waveform-Following Linear Boost Drive Circuit for Piezoelectric Actuators in Piezoelectric Microrobots 473
Hong Feng, Yiming Xiao, Ziyang Wang, Jiahui Yuan, Xiaosheng Wu, Wu Liu, Feng Cui

A Parallel-Resonance-Enhanced Synchronous Magnetic Flux Extraction Circuit for Electromagnetic Energy Harvesters on AC Transmission Lines 479
Shanghao Gu, Weihan Xu, Fei Wang

High Resolution Monitoring of Biochemical Reactions by a Chip-based Microfluidic Calorimeter 484
Ziyi Wang, Yi Chen, Wei Ji, Guoli Tian, Zhuoqing Yang, Congchun Zhang

Flexible Mechanically Adaptive Microneedle Electrodes for Neural Signal Recording 489
Chenzheng Zhou, Guang Yao, Yuan Lin

Development of a Dual-layer Symmetric ITO Heating Film on Flexible PET Substrate with Enhanced Magnetic Field Suppression for Atomic Vapor Cell 493
Jianwei Hou, Mengqiu Li, Faheng Zang, Nan Zhao, Zhigang Zhang, Kaiming Su, Jiaxiang Wang, Kai Shi Zhuoqing Yang, Hua Liu

A Novel Capacitive Tactile Sensor with Encapsulated Liquid Metal as Floating Electrode for High Linearity and Reliability 498
Muhammad Anees Ijaz, Hao Chen, Bin Wang, Baoyu Liu, Yuqi Yin, Haiyang Wang, Xiaofei Wang, Yang Li Yonggang Jiang, Xing Chen

Design and Performance Analysis of a Vibration-Resistant MEMS Vector Hydrophone with Circular Inner Frame 502
Haoxuan Li, Guojun Zhang, Jiangong Cui, Yuhua Yang, Changde He, Licheng Jia, Chenbin Ma Wenshu Dai, Renxin Wang, Wendong Zhang

AI Empowered MEMS Thermopile Array A Practical Approach for Target Detection with Commercial Off-the-Shelf Visual Models 507
Suoyang Zhang, Nan Zhang, Yonghan Dai, Huimin Zhang, Yue Fei, Xiaofeng Zhou

Calibrating Mechanical Properties of In_2Se_3 in Different Phases using Nanomechanical Resonators 511
Lingyu Zhu, Zuheng Liu, Shuai Yuan, Yucheng Huang, Xiaoyu Guo, Rui Yang

A Deep Learning-Based Approach for Compensating Humidity Effects in Metal-Oxide Semiconductor Gas Sensors 515
Pengfei Lai, Jin Li, Yukun Wu, Fei Wang

Systematic Optimization of Two-Terminal α-In_2Se_3 Ferroelectric Memory Properties 520
Xiaoyu Guo, Lingyu Zhu, Xueqin Yang, Shuai Yuan, Maosong Xie, Rui Yang

Determination of Complex Refractive Indices in Ultrathin 2D Materials via Thickness-Dependent Optical Contrast 524
Ziluo Su, Luming Wang, Jiaqi Wu, Wang Sun, Bo Xu, Zenghui Wang, Jiankai Zhu

Elliptical Piezoelectric MEMS Vibration Sensor with Low Transverse Sensitivity and Wide Dynamic Range 528
Zhiwei You, Liwei Deng, Juncheng Tu, Bowen Sheng, Yipeng Lu

Development of a Magnetic Microrobot Actuation System with Spherical Rotating Permanent Magnet 532
Hanwen Zhang, Zhongyi Li, Zhejian Feng, Yiqi Yin, Wenhao Wu, Jing Zhao

Fabrication of Free-Standing Piezoelectric Nanofilms for Microrobotic Applications 538
Jingxian Lin, Qingkun Liu

Polarity Modulation in $MoTe_2$ Vertical Transistors via Contact Metallization Engineering 544
Ziying Hu, Mingdi Zhang, Hongtao Li, Zeming Jin, Xia Liu, Yeliang Wang

3D-Printed Microdevice for Ultrasound-Triggered, On-Demand Drug Release 548
Xin Ding, Xuzhao Li, Zhouyang Xu, Ziang Cui, Jiayue Gu, Xingming Wen, Ruyu Pu, Bingbing Cheng Ze Xiong

Fabrication of High-Quality Nanogap Electrodes via Structurally Optimized Atomic Layer Lithography 554
Shijie Zhao, Mingdi Zhang, Ziying Hu, Haonan Ma, Xia Liu, Yeliang Wang

Micro-Fabrication Workflow of Customized Ordered Porous Structure Using Two-Photon Polymerization 558
Hao Bian, Huimin Wen, Minmin You, Jingquan Liu, Zude Lin

High-Resolution Fabrication of One-Dimensional SWCNTs Transistors Using Thermal Scanning Probe Lithography 563
Hongtao Li, Ziying Hu, Zeming Jin, Xia Liu, Yeliang Wang

Design and Implementation of a Digital Pressure Sensor Evaluation System 567
Jie Yu, Xinhao Li, Cheng Gu, Hui Feng, Liantian Jing, Shuqiang Han, Shihao Qi, Bo Chen, Hong Zhang

A Wideband Lumped-Element Hybrid Coupler Using T-type Network 571
Ziyue Song, Zihang Chang, Zhiwei Wen, Guoqiang Wu, Chengliang Sun, Wenjuan Liu

High-Performance Magnetoelastic Generators for Wearable Power Supply and Ultrasonic Energy Harvesting 575
Jiaqi Lu, Kaihang Zhang, Jikui Luo

System-Level Simulation of a Resonant Electrostatic Field Microsensor Based on a Reduced-Order Macro-Model 580
Hao-Dong Zhang, Jun-Jie Wang, Jun-Jie Wen, Zai-Fa Zhou, Zheng-Wei Wu

A High-Density Floating Microelectrode Array for On-Chip Neural Signal Monitoring 585
Xingming Wen, Qinyi Chu, Haoyu Xiong, Wenjia Zhou, Ziang Cui, Ze Xiong

A Decoupling Design Based on Differential-Mode Cancellation and Common-Mode Superposition for High-Shock Triaxial MEMS Accelerometer 590
Weihang Zhang, Zhenhai Zhang

A Biomimetic Integrated Chip for Active, Rapid, and Controllable Transdermal Epinephrine Delivery 596
Chenxi Jin, Peng Guo, Wenjun Li, Yiduo Huang, Dachao Li, Zhihua Pu

A Sensitivity-Enhanced MEMS-ASIC Integrated Thermal Flow Sensor Based on an Improved Constant Temperature Difference Control Scheme 600
Ziqi Liu, Kai Qiao, Xinyuan Zhang, Xinbo Jiang, Daishan Yue, Zong Liu, Huikai Xie, Bo Wang Xiaoyi Wang

Physical Reservoir Computing on the basis of a POM/SWCNT Heterojunction 604
Yanhao Wang, Yuyao Wang, Fan Zhang, Mengbo Qi, Yuyang Duan, Wenli Zhou

Coupled-beam Coupled Type Constant-temperature MEMS Resonator 608
Yuxuan Wu, Hangbing Xiao, Haopeng Xu, Jiaming Wang, Yuxin Ruan, Quan Yuan

Silicon-based Piezoelectric MEMS Liquid Pump with Fully Integrated Check Valve Structure 613
Jiafeng Ni, Ziyang Wu, Jiajun Leng, Weipeng Xuan, Shurong Dong, Jikui Luo

A Unified Design Methodology for Inertial Electromechanical Sigma Delta Modulator 617
Hua Li, Pengfei Li, Yuzhao Wang, Shuaimin Wang, Yi Zhou, Weimin Yang

An Efficient Algorithm for Adaptive Threshold Bit-Flipping Decoding in 3D NAND Flash 622
Zihao Cui, Qihao Liu, Peng Shi, Lin Ma, Zhengjie Zhao, Fanxing Meng, Chao Song, Ji Zhong Zhaogui Zeng

An on-Chip Mode-Multiplexing Circuit Realizing Time-Efficient Operations for Large-Scale RRAM Arrays Based on 55 nm CMOS Process 627
Keqin Li, Nan Li, Pan Liu, Ben Li, Xiangshui Miao, Xingsheng Wang

Contact Material Recognition Device Based on Electronegativity Difference 631
Hui Liu, Jun Li, Han Wu, Liqiang Liu, Wei Ou-Yang

Broadband Topological SAW Energy Localization via PnC Heterostructures 636
Tianqi Fan, Jiahui Ni, Bei Wu, Jikui Luo, Weipeng Xuan

Tri-Level Hemispherical Microstructures for Ultra-Sensitive Flexible Pressure Sensors 642
Linjing Wu, Yu Zhang, Yuanpeng Lin, Weilong Lin, Wei Zhou, Yan Qiao

Effects of Back-Side sub-50-μm Wafer Thinning on Ultra-Thin Bipolar Analog IC Performance 647
Neng Gao, Zhaoxian Wang, Xin Song, Dongliang Liu, Ying Chen

Preparation of Microstructure Glass Using Metal-Assisted Chemical Etching Formed Silicon Substrate as A Mold 652
Minjie Zhu, Fanhong Chen, Shuai Liu, Kehan Zhu, Ruichao Lian, Xiaojuan Li, Haifei Song, Yiming Zhong Yun Chen, Xiaohui Du

AI-Based Grid Binary Annotation for Automated Recognition of Exfoliated Monolayer MoS_2 656
Zihan Lin, Chenchen Zhang, Junyu Pan, Lizhou Yang, Shiyu Liu, Dong Lu, Yunda Wang

Glass Isolated TSVs with Overflow Isolation Rings for MEMS Devices 660
Yi Tang, Zhiyu Sun, Jiaxu Liu, Jian Cui, Qiancheng Zhao

Laser-Enabled Conductive Circuit Patterning for Wearable E-Textiles 664
Ruyu Pu, Yuheng Chang, Xingming Wen, Ziang Cui, Ze Xiong

Identification of Multiple Harmonic Mass Imbalance in Micro-Hemispherical Resonant Gyroscopes via Vibration Transmission 669
Shuping Yang, Yan Shi, Kun Lu, Sheng Yu, Jiangkun Sun, Xiang Xi

A Wafer-Level Thin-Film Vacuum Encapsulation Process for High-Sensitivity Silicon MEMS Resonant Differential Pressure Sensors 673
Bowen Tan, Xingyu Li, Bo Xie, Yulan Lu, Jian Chen, Deyong Chen, Junbo Wang

Microstructural Evolution of Cr/Au Films on Fused Silica after Vacuum Annealing 677
Mengxue Li, Jia Liu, Feng Zhu, Yan Shi, Xiang Xi

Directional Ice Templating as a Manufacturing Strategy for Bioinspired Tubular-Porous PLA Microneedles for Minimally Invasive ISF Sampling 681
Jiahao Li, Jongho Park, Beomjoon Kim

Effect of Metal Film Thermoelastic Damping on the Q-factor of a Fused Silica Resonator: Modeling and Simulation 686
Feng Zhu, Xuezhong Wu, Yan Shi, Yanchao Reng, Guodong Duan, Xiang Xi

Thermal Oxidation-Based Laser Additive Manufacturing and Grayscale Structuring 691
Haonan Ma, Shijie Zhao, Hongtao Li, Xia Liu, Yeliang Wang

High-quality-factor Micro Hemispherical Resonators Achieved by Rim Width Modulation 695
Dunxiang Jian, Anye Su, Yan Shi, Xiang Xi, Dingbang Xiao, Xuezhong Wu

Optimization of Cu2ZnSnS4 (CZTS) Thin Films Using PDMS Polymer Doping: Structural, Optical, and Photovoltaic Performance Analysis 700
Yahya Alajlani

A Novel Manufacturing Technology For Piezoelectric MEMS MPW Integrating Bimorph AlScN Process and Devices Thereof 705
Jiaqi Huang, Jiachang Zhang, Cheng Zhang, Wenli Xue, Anna Li, Yichen Liu, Lihao Wang, Yang Wang Yongquan Su, Zhenyu Wu

Prediction and fabrication of glass reflow process in TGV for 3D wafer-level vacuum packaging based on PSO-BP algorithm 710
Kai Zhou, Jie Liu, Xiaoyan Huo, Guang Yang, Xiaoguang Liu, Ping Zhou, Yijie Zheng, Yunbin Kuang Yongjiang Hu

Research on etching high aspect ratio microchannels by active oxide layer reset 714
Yingwen Li, Xiaoyu Su, Huaiyun Fan, Kai Tao, Liangxing Hu, Yaobin Li

High Precision MEMS Piezoresistive Pressure Sensor for SF6 Digital Density Meter in Power Grid System 718
Dongming Fang, Hengchao Sun, Shuai Jiang, Runke Ji, Yi Tao, Yan Li, Xianzi Zhou, Zhiqiang Wang Zhiguo Wen, Zhicheng Zang, Fan Jiang, Jun Du, Tenghao Li

Laser-Etched and Electroless Copper-Plated Skin-Like Shear-Force Sensors for Robotic Perception 722
Hongwei Xie, Zhenlong Huang, Longpeng Yang, Tao Chen, Taisong Pan, Yuan Lin

Flexible Piezoresistive Pressure Sensor based on Axially Stiffness-graded Microcone Arrays 727
Yu Han, Junwen Huang, Xiangyang Song, Yingying Dai, Rui Chen, Wei Zhou

A Force-Feedback Assisted Adaptive Current Threshold Adjustment Method for Scanning Ion Conductance Microscopy 732
Hongyu Wang, Huiyao Shi, Si Tang, Dingyi Wang, Peng Yu, Chanmin Su, Lianqing Liu

Flexible Piezoresistive Sensors based on Multi-layer Nanocomposite with Hierarchical Microhemispheres 737
Xiangmeng Li, Chaohui Wang, Huifen Wei, Shuai Li, Zuobin Cao, Hong Hu

A 3D-Printing-Enabled Monolithic Electronic Skin for Multimodal Sensing 742
Bingyu Zou, Ziang Cui, Zitao Li, Guohui Wang, You Yu, Ze Xiong

A tri-axial force sensor based on MEMS technology for surgical robots 747
Shuai Ma, Wenjun Huo, Yuyang Sun, Wenlong Yang, Huicong Liu, Dongsheng Li

Low-Power Cantilever-Type MEMS PdAu Hydrogen Sensor 752
Ruihao Wang, Xiaoqi Feng, Xing Zhang, Tengfei Li, Weiwen Zhang, Hairong Wang

A High Sensitivity High Stability Resonant Differential Pressure Sensor based on Si-Si Bonding 756
Xingyu Li, Wenliang Xia, Bowen Tan, Bo Xie, Junbo Wang, Deyong Chen

All-Printed Hierarchical Flexible Strain–Humidity Dual-modal Sensor for Wound Microenvironment Monitoring 760
Xianruo Du, Qianfan Bai, Zihan Gao, Qintong He, Jun Huang, Huatan Chen, Chentao Zhang Gaofeng Zheng

A Frequency-Tunable LC Resonant Wireless Passive Temperature Sensor 766
Xindi An, Jiongzheng Zhang, Tong Shen, Qi Wen, Yujian Jin, Junyang Li

A Precise Calibration Method via Confined-Microfluidics for Hydrogel-Based Electrochemical Sensors 771
Wenjun Li, Wangwang Zhu, Yanan Chen, Chenxi Jin, Xingguo Zhang, Hao Zheng, Dachao Li, Zhihua Pu

Functionalization of CMUTs-based SO_2 Sensor with Electrospun Metal-organic Framework for Controllable Nano-scale Structure and Uniformity 775
Tong Wang, Yihe Zhao, Jiawei Yuan, Shaohui Qin, Shiwang Zhang, Boqing Jia, Zimeng Zhang, Daren An Jie Li, Min Li, Zhikang Li, Libo Zhao

Fast-Response Pyroelectric Devices Based on Suspended Lithium Niobate Single-Crystal Thin Film Arrays 781
Yuqing Hu, Jiayi Liu, Qing Wan, Xianhao Le

Study of Out-of-Plane Vibration Performance in Comb-finger Accelerometers 785
Shuaimin Wang, Yuzhao Wang, Guoliang Sun, Haobin Niu, Lin Teng, Hua Li

A Silicon-based MEMS Inertial Switch Capable of Stable Locking 791
Baolin Cheng, Weirong Nie, Mo Yang, Yun Cao, Zhanwen Xi, Junlin Lu

A Pyramidal Microwell Array-Based Liquid Crystal Platform for Label-Free Chemical Sensing 796
Zitong Ye, Jiahua Zhong, Qinghao He, Jie Zhou, Xinyi Chen, Weijin Guo

A Lightweight Deep Learning Approach for Thermal Compensation in Resonant MEMS Electric Field Sensors 800
Jun-Jie Wang, Hao-Dong Zhang, Zai-Fa Zhou, Zheng-Wei Wu

Reconfigurable Flexible Strain Sensor Enabled by a Phase-Transition Mechanical Substrate 805
Taiqi Hu, Taisong Pan, Min Gao, Guang Yao, Yuan Lin

Monolithically Integrated High-Resolution Tactile Pixel Arrays Based on Vertical ZnO Nanowires Embedded in PVDF 809
Wenhui Li, Zhenni Huang, Shitao Lou, Wenyuan Yu, Shenyong Yang, Siyu Liu

Thiolated TiO_2 Thin Films Based Flexible Patch for Real-time Detection of L-cysteine in Sweat 815
Xiangjie Chen, Jia Zhu, Taisong Pan, Guang Yao, Min Gao, Yuan Lin

Performance Optimization of Piezoelectric MEMS Accelerometers through Proof Mass Shape Design 819
Wenjun Xu, Yuancheng Ouyang, Yuan Xie, Meiying Li, Guojian Ding, Yang Wang, Pingjuan Niu Haiqiang Jia

Tensile Interlocking Mechanical Metamaterials Enabled by Grayscale DLP Printing 825
Liying Zhang, Min Gao, Taisong Pan, Guang Yao, Yuan Lin

Hydrogen Sensor with Dual-bridge Topology Achieving Sub-ppm Detection Through Uniform Temperature Contorl 829
Shudong Wang, Wenxuan Zhi, Weitao Dou, Yanping Gao, Youpeng Huangfu, Yunjia Li

Study of A Thin Film NTC Thermistor 834
Changming Dai, Tianzheng Xie, Zeyu Cui, Chuandong Liu, Hang Guo, Ying Zhang

A Simple and Universal Laser Direct Writing Platform: From Metal Salt Precursors to Diverse Porous Metal Oxide Sensors for Room-Temperature parts-per-billion-Level Toxic Gas Detection 838
Yaming Hu, Tielin Shi, Hu Long

Research on an Electrostatic Tuning Method for Suppressing Stiffness Coupling Error of the MEMS Butterfly Gyroscope 842
Yunbin Kuang, Xiaoyan Huo, Xiongkai Zhao, Kai Zhou, Leiping Xi, Weiran Duan, Fengming Shi, Jie Liu Yongjiang Hu

Investigation of A New Thin Film Thermocouple Based on ZnO/Pt Junction 847
Hang Guo, Zeyu Cui, Changming Dai, Kaiyu Zhang, Ying Zhang, Dingyuan Guo

Investigation of Sample Volume Effect on Viscosity Sensor Using SAW Devices 851
Junaid Waheed, Yang Ye, Anjam Waheed, Tsunemasa Saiki, Kenji Sakamoto, Satoshi Amaya Riyanarto Sarno, Tadao Matsunaga, Sang-Seok Lee

A Scalar Hydrophone for Low-Frequency Detection Integrated with Compressed Air Spring Based on Electrochemical Transduction Principle 855
Chuangyi Zheng, Lintao Hu, Yulan Lu, Deyong Chen, Junbo Wang

Research on a Stiffness Pre-programmable Flexible Actuator Based on Electrostatic Hydraulics 859
Jiemin Yao, Yimu Zhang, Wenyang Yu, Ying He, Xinyao Peng, Kai Tao

The Chemically Sensitive Transistor based on Palladium Nanoparticle-modified h-BN/MoS_2 Heterostructures for H_2 Detection* 863
Zhizhi Wang, Tielin Shi, Hu Long

A High-Voltage Optocoupler-Based Controlled Discharge Method for Improving the Driving Performance of Electrohydraulic Actuators 867
Xinyao Peng, Lefei Zhang, Wenyang Yu, Tongtong Liu, Jiemin Yao, Kai Tao

Design and Fabrication of a Multi-Spring Large-Mass MEMS Accelerometer for Microseismic Detection in Geological Exploration 871
LianjunWu LianjunWu, Yanpeng Du, Chao Sun, Jianhui Yi, Wenjing Li, Lulu Liu

Anti-Parity–Time Symmetric PZT Resonators 877
Jiajun Wang, Jie Li, Bei Wu, Jikui Luo, Minye Yang, Shurong Dong, Weipeng Xuan

Flexible Capacitive Pressure Sensor Based on Microstructured MWCNTs/PDMS Composite Dielectric 883
Qiming Xie, He Zhang, Shufan Li, Huatan Chen, Wenwang Li, Xiang Wang

Butterfly-Inspired Soft Flapping-Wing Robot Driven by Electro-Hydraulic Coupling 888
Ying He, Yuxi Li, Ziyu Zhang, Chunjiao Wang, Yuwen Zhang, Kai Tao

Simulation Study and Analysis of Influencing Factors of Flyer Driven by Micro-Charge 892
Lu Wang, Wenzhong Lou, Hengzhen Feng, Wenxing Kan

Influence and Modulation of Adsorption State of Analyte Molecules on SERS Enhancement 898
Zhaocheng Shao, Haozhan Sun, Yupeng Zhao, Jianyuan Huang, Shuhua Wei, Jing Zhang, Anjie Ming

Numerical Simulation on Flameproof Performance of the Explosion-proof Component in the Detonation Wave-based Micro-explosive Train 902
Yichen Chai, Hengzhen Feng, Changqi Qu, Wenzhong Lou, Lu Wang, Sining Lv

A 3D Interconnected Flexible Thermocouple Array with High Spatial Resolution 908
Yingying Dai, Chongjie Jiang, Jinyang Le, Yujie Zheng, Wei Zhou, Tao Luo

CNN-Assisted Analysis of Graphene FET Biosensor Electrical Signatures for Breast Cancer Identification 913
Zaiyu Zhang, Ziran Wang, Luyang Zhang, Chaqi Gai

Broadband 3D Force Tactile Sensor via Rigid-Flexible Kirigami and Gradient Micro-Frustum Arrays 918
Xiangyang Song, Junwen Huang, Zhenghong Luo, Lifeng Qin, Wei Zhou, Jinhui Zhang

Lateral Porous Silicon Membranes for On-Chip Sample Preconcentration via Ion Concentration Polarization 924
Yingning He, Yucheng Li, Thierry Leïchlé

Detection of R454B Refrigerant Gas Using Au-Modified SnO_2 nanomaterial 928
Zhi Chen, Ziqi Luo, Haoqing Li, Fei Wang

High-Performance Bi_2O_2Se Field Effect Transistor Fabrication Using Thermal Scanning Probe Lithography 932
Zeming Jin, Hongtao Li, Ziying Hu, Xia Liu, Yeliang Wang

Solution-Processed Ag_2Te Photoconductors for Broadband Photodetection 937
Liying Cao, Weiyue Kong, Heng Tang, Tianlei Ma, Shuhan Zhang, Min Tu, Fu Li

Asymmetric Van der Waals Contact Engineering for Tunable Carrier Transport in MoS_2 Transistors 942
Mingdi Zhang, Ziying Hu, Shijie Zhao, Zeming Jin, Xia Liu, Yeliang Wang

Microrobotic Locomotion on Water Surfaces via Onboard Dielectric Barrier Discharge 946
Yuhang Song, Hongji Hui, Qiannan Tao, Wei Li

A Lithography-Free Calorimetric Microflow Sensor with Back-Side Integrated Bi_2Te_3 Thermopile 952
Jialong Guo, Yuchen Wang, Guanqin Zhang, Xiaolong Xie, Yufei Tian, Zhengguang Chen, Yang Liu

Evaluation of Soy Wax as a Material for Wax Printing on µPADs 957
Xinyi Chen, Jiahua Zhong, Jie Zhou, Zitong Ye, Huiru Zhang, Weijin Guo

Thermal Localization in Microfluidic Devices Using Auxiliary Heating/Cooling Channels 961
Faris Abdelrazeq, Mohamed Abdelgawad

A Nanofluidic Memristor Based on a Liquid-Liquid Interface 966
Xiaoxuan Yuan, Jingjie Sha

A Miniaturized UOPs-Enabled Centrifugal Microfluidic System for Multiplex Immunoassays 971
Yuxing Shi, Jiuchuan Guo

Magnetic Field-Induced Acceleration of Whole Blood in Capillaries 976
Zitong Ye, Qinghao He, Jie Zhou, Jiahua Zhong, Hao Chen, Weijin Guo

Characterization of Liquid Flow in Paper-based Microfluidic Devices 980
Omar Hammad, Aasim A. Ali, Mohamed Abdelgawad

Simulation of Metasurface Structures for Mid-Infrared Narrowband Filter 984
Wenbo Wang, Yi Wang, Hong Zhou, Yanxiang Liu, Tie Li

Laser Phase-Shifting Interferometry for Micro-Scale Displacement Measurement of Piezoelectric Actuators 989
Yuxuan Xing

Stacked Nanograting Optical Resonators Fabricated through Cascading Ion Beam Etching Processes 993
Fangming Sheng, Mengcheng Wang, Li Jiang, Weihong Ma, Zhijuan Su, Zhigang Zhang, Kai Shi Zhuoqing Yang, Faheng Zang

Low-loss ferroelectric electro-optic waveguide modulator using remnant polarization doped graphene electrodes 997
Tianran Shi, Chaohui Wang, Bo Li, Teng Wu, Chenming Zhang, Ping Ma

Tunable Energy Transfer in MEMS Resonators with Electrostatic Coupling under Parametric Excitation 1001
Lei Wang, Ming Lyu, Zhikun Zha, Feixuan Wei, Yu Zeng, Wenxin Wu

Multi-degree-of-freedom potential barrier adaptive bistable vibration energy harvester 1006
Lulu Fu, Jie Song, Guanggui Cheng

A Low-power, Large-comb-spacing, High-integration RF Frequency Comb Generator Based on Parametric Excitation 1010
Jia You, Wei Huang, Zhujie Zhao, Zihan Xu, Kaidong Chen, Yikun Liu, Cao Xia

High Q-factor and Fast-Response Micro Resonators with Hole-Optimized Approach for Viscosity Sensing 1016
Song Qu, Cao Xia

A Tunable NEMS Filter Based On 1:1 Internal Resonance 1021
Yikun Liu, Jiaxin Miao, Haoran Wang, Jinghong Tang, Cao Xia, Xiaoyu Liu

Gas-Leakage Detection Using Thin-Film Lithium Niobate pMUTs with an Optimized Acoustic Channel 1026
Jiayi Liu, YeJia Wu, Bingjin Jue, Qing Wan, Xianhao Le

Piezoelectric Acoustic Surfaces for Sound Localization 1030
Kaiteng Tan, Simeng Wu, Zhengshuai Wang, Yufan Qian, Junzhe Yu, Yuwen Weng, Tianshu Qu, Jinchi Han

Analytical Electromechanical Model of Curved Piezoelectric Bimorph Beams 1034
Junning Zhang, Hongbin Yu, Wei-Mong Tsang

Design and Analysis of a Dual-Terminal Differential-Electrode Piezoelectric Micromachined Ultrasonic Transducer Based on Pzt Thin Film 1040
Ziyi Liu

Development of Single-sided Frequency Mixing Ultrasonic Transducers for Detecting Micro-defects in Pipeline Welds 1044
Jinsen Wang, Changhe Sun, Chi Zhang, Kang Cao

Multi-Ring Electrode PMUT with High Acoustic Pressure and High Directivity for Enhanced Low-Frequency Ultrasonic Neuromodulation 1050
Xinyue Zhang, Junhao Wang, Chong Yang, Kai Yang, Jiao Xia, Wei Wang, Bowen Sheng, Yipeng Lu

FEM Analysis of ZnO/IDT/Si Multilayer Embedded Structure SAW Resonator 1054
Cai Luo, Tong Tong, Qingqing Ke