

IEEE

SENSORS JOURNAL

A PUBLICATION OF THE IEEE SENSORS COUNCIL

WWW.IEEE.ORG/SENSORS

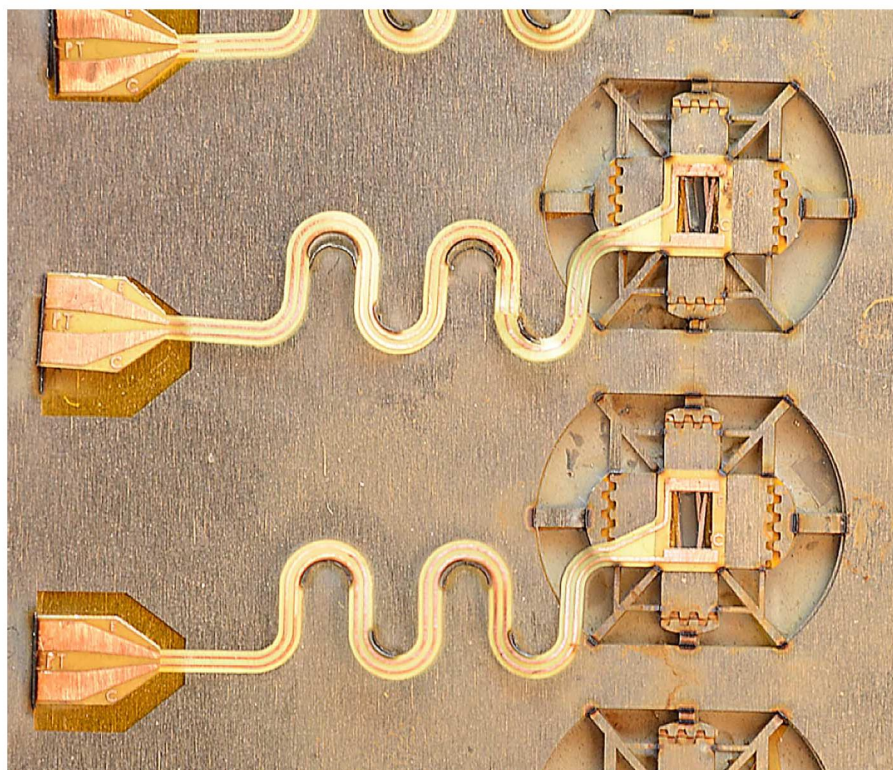
SEPTEMBER 1, 2016

VOLUME 16

NUMBER 17

ISJEAZ

(ISSN 1558-1748)



Batch fabricated mm-scale force sensors, suitable for surgical robots, prior to release and self-assembly into the final 3D shape.

IEEE

SENSORS JOURNAL

A PUBLICATION OF THE IEEE SENSORS COUNCIL

WWW.IEEE.ORG/SENSORS

SEPTEMBER 1, 2016

VOLUME 16

NUMBER 17

ISJEAZ

(ISSN 1558-1748)

REVIEW ARTICLES

Mechanical Sensors

Electromechanical Sigma-Delta Modulators ($\Sigma\Delta M$) Force Feedback Interfaces for Capacitive MEMS Inertial Sensors:
A Review *F. Chen, X. Li, and M. Kraft* 6476

Sensor Systems

ISFETs in CMOS and Emergent Trends in Instrumentation: A Review
..... *N. Moser, T. S. Lande, C. Toumazou, and P. Georgiou* 6496

SENSORS LETTERS

Sensor Phenomena and Characterization

An X-Band Dual Channel Microwave Phase Detector Based on GaAs MMIC Technology
..... *H. Yan, X. Liao, and D. Hua* 6515

Sensor Systems

A 1.2 V Low-Power CMOS Chopper-Stabilized Analog Front-End IC for Glucose Monitoring *J. Kim and H. Ko* 6517

SENSORS PAPERS

Chemical and Biological Sensors

Finite-Element Simulations of the pH-ElecFET Microsensors
..... *N. Aoun, F. Echouchene, A. K. Diallo, J. Launay, P. Temple-Boyer, and H. Belmabrouk* 6519

Numerical Research on Shape Optimization of Microchannels of Passive Micromixers *X. Chen, T. Li, and X. Li* 6527

Gas-Selective Signal Amplification in Fluctuation-Based Graphene FET Sensors *S. Dana and M. M. Varma* 6533

Thermal Sensors

85–440 K Temperature Sensor Based on a 4H-SiC Schottky Diode
..... *S. Rao, L. Di Benedetto, G. Pangallo, A. Rubino, S. Bellone, and F. G. Della Corte* 6537

Mass-Sensitive Devices

Major Urinary Proteins on Nanodiamond-Based Resonators Toward Artificial Olfaction
..... *E. Scorsone, R. Manai, M. J. Ricatti, M. Redaelli, P. Bergonzo, K. C. Persaud, and C. Mucignat* 6543

Magnetic Sensors

27 pT Silicon Nitride MEMS Magnetometer for Brain Imaging *K. Sinha and M. Tabib-Azar* 6551

(Contents Continued on Page 6474)



<i>Microwave/Millimeter Wave Sensors</i>	
Rician k-Factors-Based Sensor for Fruit Classification by Maturity Stage	6559
..... P. Leekul, S. Chivapreecha, C. Phongcharoenpanich, and M. Krairiksh	
Industrial mmWave Radar Sensor in Embedded Wafer-Level BGA Packaging Technology	6566
..... C. Beck, H. J. Ng, R. Agethen, M. Pourmousavi, H. P. Forstner, M. Wojnowski, K. Pressel, R. Weigel, A. Hagelauer, and D. Kissinger	
<i>Optoelectronic/Photonic Sensors</i>	
Single-Layer Nanowire Polarizer Integrated With Photodetector and Its Application for Polarization Navigation	6579
..... Z. Wang, J. Chu, Q. Wang, and R. Zhang	
Novel Analog Ratio-Metric Optical Rotary Encoder for Avionic Applications	6586
..... T. Ahmadi Tameh, M. Sawan, and R. Kashyap	
<i>Integrated Optics/Fiber Optical Devices</i>	
Total Temperature Measurement of Fast Air Streams With Fiber-Optic Bragg Grating Sensors	6596
..... L. Polz, A. Zeisberger, H. Bartelt, and J. Roths	
Application of Embedded Fiber Bragg Grating (FBG) Sensors in Monitoring Health to 3D Printing Structures	6604
..... L. Fang, T. Chen, R. Li, and S. Liu	
Double Cantilever Beams Accelerometer Using Short Fiber Bragg Grating for Eliminating Chirp	6611
..... Q. Liu, Z. Jia, H. Fu, D. Yu, H. Gao, and X. Qiao	
<i>Sensor Phenomena and Characterization</i>	
Analysis of Novel Class of Surface Plasmon Phenomena Having a Metamaterial Layer Between Two Different Metals for Sensor Application	6617
..... S. K. Raghuwanshi, M. Kumar, and B. S. Athokpam	
<i>CAD Modeling and Testing Sensors</i>	
Geometrical Shapes Impact on the Performance of ABS-Based Coreless Inductive Sensors for PD Measurement in HV Power Cables	6625
..... M. N. K. H. Rohani, C. C. Yii, M. Isa, S. I. S. Hassan, B. Ismail, M. R. Adzman, and M. Shafiq	
<i>Sensor Signal Processing and Array Sensor Fusion</i>	
Improved Analytical Modeling of Membrane Large Deflection With Lateral Force for the Underwater CMUT Based on Von Kármán Equations	6633
..... J. Wang, S. H. Pun, P. U. Mak, C.-H. Cheng, Y. Yu, P.-I. Mak, and M. I. Vai	
Multiphysics Modeling of a Lorentz Force-Based Meander Coil Electromagnetic Acoustic Transducer via Steady-State and Transient Analyses	6641
..... S. Wang, S. Huang, Y. Zhang, and W. Zhao	
On Real Time Performance Evaluation of the Inertial Sensors for INS/GPS Integrated Systems	6652
..... M. Zhong, J. Guo, and Z. Yang	
A Structured Light System for Relative Navigation Applications	6662
..... X. I. Wong and M. Majji	
<i>Sensor Systems</i>	
Laser-Stabilized Real-Time Plant Discrimination Sensor for Precision Agriculture	6680
..... S. Askraba, A. Paap, K. Alameh, J. Rowe, and C. Miller	
CMOS Integrated Time-Mode Temperature Sensor for Self-Refresh Control in DRAM Memory Cell	6687
..... H.-W. Kim, S.-H. Ann, and N.-S. Kim	
An Optimization Model and Tabu Search Heuristic for Scheduling of Tasks on a Radar Sensor	6694
..... F. B. Abdelaziz and H. Mir	
<i>Applications</i>	
A Novel Device for Optical Imaging of Blast Furnace Burden Surface: Parallel Low-Light-Loss Backlight High-Temperature Industrial Endoscope	6703
..... Z. Chen, Z. Jiang, W. Gui, and C. Yang	
Visible Light Communications for Sensing and Lighting Control	6718
..... K. Warmerdam, A. Pandharipande, D. Caicedo, and M. Zuniga	
Cavity Resonance Sensor With Disposable Analyte Container for Point of Care Testing	6727
..... S. Villa-Arango, R. Torres Villa, P. A. Kyriacou, and R. Lucklum	
A Wearable Fall Detector for Elderly People Based on AHRS and Barometric Sensor	6733
..... P. Pierleoni, A. Belli, L. Maurizi, L. Palma, L. Pernini, M. Paniccia, and S. Valenti	
A Low-Power and Wide-Range MEMS Capacitive Sensors Interface IC Using Pulse-Width Modulation for Biomedical Applications	6745
..... M. S. Arefin, J.-M. Redouté, and M. R. Yuce	

(Contents Continued from Page 6474)

IR Sensor-Based Gesture Control Wheelchair for Stroke and SCI Patients	6755
..... R. K. Megalingam, V. Rangan, S. Krishnan, and A. B. Edichery Alinkeezhil	
<i>Sensors System Networks</i>	
Step Detection for ZUPT-Aided Inertial Pedestrian Navigation System Using Foot-Mounted Permanent Magnet	6766
..... A. Norrdine, Z. Kasmi, and J. Blankenbach	
3S-cart: A Lightweight, Interactive Sensor-Based Cart for Smart Shopping in Supermarkets	6774
..... Y.-C. Wang and C.-C. Yang	
A Survey on Heuristic-Based Routing Methods in Vehicular Ad-Hoc Network: Technical Challenges and Future Trends	6782
..... R. Hajlaoui, H. Guyennet, and T. Moulahi	
Online Energy Harvesting Prediction in Environmentally Powered Wireless Sensor Networks	6793
..... A. Cammarano, C. Petrioli, and D. Spenza	
