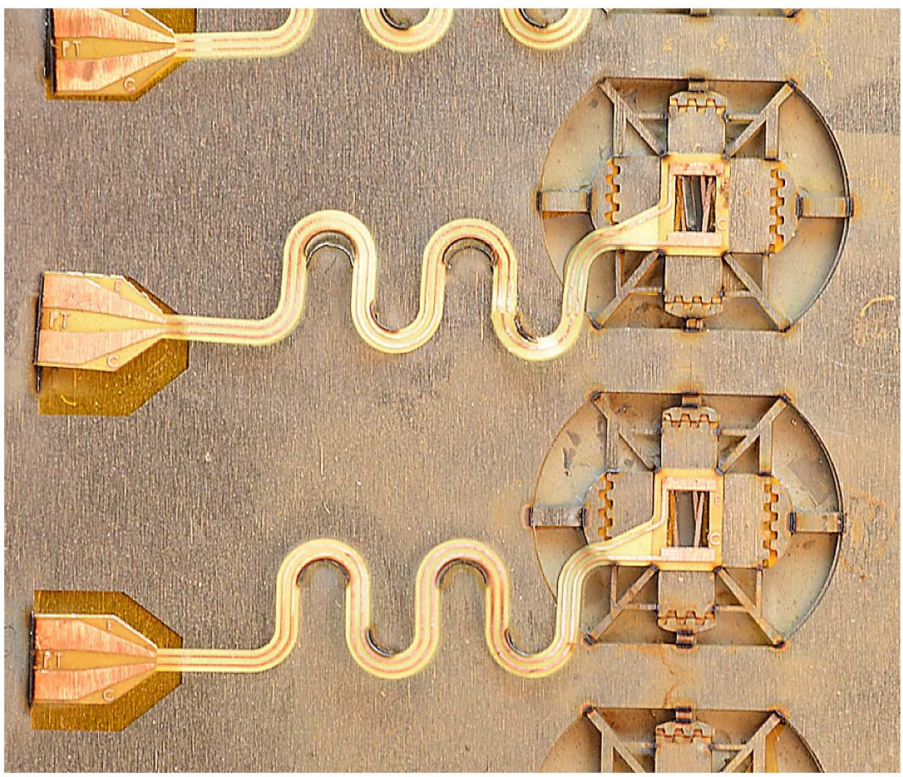
IEEE

SENSORS JOURNAL

A PUBLICATION OF THE IEEE SENSORS COUNCIL WWW.IEEE.ORG/SENSORS

OCTOBER 1, 2016 VOLUME 16 NUMBER 19 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

IEEE

SENSORS JOURNAL

A PUBLICATION OF THE IEEE SENSORS COUNCIL WWW.IEEE.ORG/SENSORS

OCTOBER 1, 2016 VOLUME 16 NUMBER 19 ISJEAZ (ISSN 1558-1748)

SENSORS PAPERS

Chemical and Biological Sensors

Study of the Effect of the Operating Frequency of a GaN Lamb Wave Device to Viscosity and Protein Sensing ..... *A. K. Pantazis, G. Konstantinidis, and E. Gizeli* 7028

Modified Au Nanoparticles/Imprinted Sol–Gel/Multiwall Carbon Nanotubes Pencil Graphite Electrode as a Selective Electrochemical Sensor for Papaverine Determination ..... *B. Rezaei, M. Hamedian Esfahani, and A. A. Ensafi* 7037

Detection of *L. Monocytogenes* in Enrichment Cultures by Immunoseparation and Immunosensors ..... *F. Cimaglia, E. De Lorenzis, V. Mezzolla, F. Rossi, and P. Poltronieri* 7045

Thermal Sensors

Far-Field Interrogation of Microstrip Patch Antenna for Temperature Sensing Without Electronics ..... *J. Yao, F. Mbanya Tchafa, A. Jain, S. Tjuatja, and H. Huang* 7053

Mechanical Sensors

Momentum Change Flow Meter With Pressure Compensation Using FBGs ..... *P. P. Kirwan, D. Creighton, C. Costello, T. P. O'Brien, and K. W. Moloney* 7061

A Geometric Design Study of High-Temperature Position Sensors ..... *Y. Kim and H. Y. Choi* 7065

Initial Slip Detection and Its Application in Biomimetic Robotic Hands ..... *Y. Zhang, X.-G. Duan, G. Zhong, and H. Deng* 7073

Microwave/Millimeter Wave Sensors

Electromagnetic Nondestructive Material Characterization of Dielectrics Using EBG Based Planar Transmission Line Sensor ..... *S. Subbaraj, V. S. Ramalingam, M. Kanagasabai, E. F. Sundarsingh, Y. P. Selvam, and S. Kingsley* 7081

ISAR Imaging by Two-Dimensional Convex Optimization-Based Compressive Sensing ..... *S. Li, G. Zhao, W. Zhang, Q. Qiu, and H. Sun* 7088

Integrated Optics/Fiber Optical Devices

Fiber Endface Fabry–Perot Microsensor With Distinct Response to Vapors of Different Chlorinated Organic Solvents ..... *V. Melissinaki, I. Konidakis, M. Farsari, and S. Pissadakis* 7094

Sensor-Actuators

Printed Embedded Transducers: Capacitive Touch Sensors Integrated Into the Organic Coating of Metalic Substrates ..... *J. K. Sell, H. Enser, B. Jakoby, M. Schatzl-Linder B. Strauß, and W. Hilber* 7101

Arch-Shaped Ionic Polymer–Metal Composite Actuator Integratable With Micromachined Functional Tools for Micromanipulation ..... *G.-H. Feng and S.-C. Yen* 7109

(Contents Continued on Page 7027)

IEEE

(Contents Continued from Page 7026)

Sensor Phenomena and Characterization

Electromagnetic Transducer for In-Line Determination of Alcohol Content in Pisco ..... *E. J. P. Santos and C. H. J. Calderon* 7116

Sensor Signal Processing and Array Sensor Fusion

Knowledge-Based Track-Before-Detect Strategies for Fluctuating Targets in K-Distributed Clutter ..... *H. Jiang, W. Yi, G. Cui, L. Kong, and X. Yang* 7124

Combining Nonlinear Adaptive Filtering and Signal Decomposition for Motion Artifact Removal in Wearable Photoplethysmography ..... *Y. Ye, Y. Cheng, W. He, M. Hou, and Z. Zhang* 7133

Bank of Kalman Filters in Closed-Loop for Robust Localization Using Unsynchronized Beacons ..... *J. Bordoy, A. Traub-Ens, A. Sadr, J. Wendeberg, F. Höflinger C. Schindelhauer, and L. Reindl* 7142

Intelligent Real-Time MEMS Sensor Fusion and Calibration ..... *D. Nemec, A. Janota, M. Hruboš, and V. Šimák* 7150

Sensor Systems

An Implantable Stimulator With Safety Sensors in Standard CMOS Process for Active Books ..... *X. Liu, V. Valente, Z. Zong, D. Jiang, N. Donaldson, and A. Demosthenous* 7161

Self-Contained Indoor Pedestrian Navigation Using Smartphone Sensors and Magnetic Features ..... *Y. Li, Y. Zhuang, H. Lan, P. Zhang, X. Niu, and N. El-Sheimy* 7173

Singular Spectrum Analysis Window Length Selection in Processing Capacitive Captured Biopotential Signals ..... *B. Yang, Y. Dong, C. Yu, and Z. Hou* 7183

A Clock Synchronization Method for Molecular Nanomachines in Bionanosensor Networks ..... *L. Lin, C. Yang, M. Ma, S. Ma, and H. Yan* 7194

Flash Flood Detection in Urban Cities Using Ultrasonic and Infrared Sensors ..... *M. Mousa, X. Zhang, and C. Claudel* 7204

The Optimum Design of Location-Dependent Key Management Protocol for a WSN With a Random Selected Cell Reporter ..... *H. Fakhrey, R. Tiwari, M. Johnston, and Y. A. Al-Mathehaji* 7217

Very Wide Dynamic Range ROIC With Pixel-Level ADC for SWIR FPAs ..... *Y. M. Jo, D. H. Woo, S. G. Kang, and H. C. Lee* 7227

Applications

GLRT-Based Mitigation of Partial Discharge Effect on Detection of Radial Deformation of Transformer HV Winding Using SAR Imaging Method ..... *H. Karami, G. B. Gharehpetian, Y. Norouzi, and M. A. Hejazi* 7234

Dynamic Cluster Members Scheduling for Target Tracking in Sensor Networks ..... *B. Wu, Y.-P. Feng, H.-Y. Zheng, and X. Chen* 7242

Design, Calibration and Experimentation of an Epidermal RFID Sensor for Remote Temperature Monitoring ..... *S. Amendola, G. Bovesecchi, A. Palombi, P. Coppa, and G. Marrocco* 7250

Fast Occupancy Grid Filtering Using Grid Cell Clusters From LIDAR and Stereo Vision Sensor Data ..... *S.-I. Oh and H.-B. Kang* 7258

Sensors System Networks

Synchronization of Bio-Nanomachines Based on Molecular Diffusion ..... *L. Lin, F. Li, M. Ma, and H. Yan* 7267

Quality of Information Maximization in Lifetime-Constrained Wireless Sensor Networks ..... *P. Du, Q. Yang, Z. Shen, and K. S. Kwak* 7278

Enhanced Rate Division Multiple Access for Electromagnetic Nanonetworks ..... *A. P. Shrestha, S.-J. Yoo, H. J. Choi, and K. S. Kwak* 7287