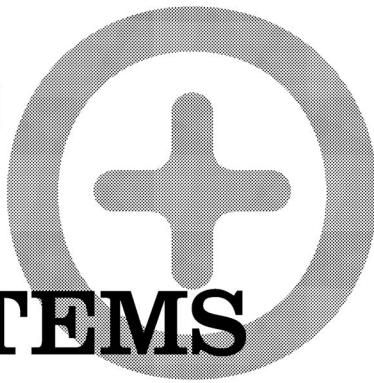


# IEEE TRANSACTIONS ON BIOMEDICAL CIRCUITS AND SYSTEMS



A PUBLICATION OF THE IEEE CIRCUITS AND SYSTEMS SOCIETY  
IEEE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY



Indexed in PubMed® and MEDLINE®, products of the United States National Library of Medicine



APRIL 2016

VOLUME 10

NUMBER 2

ITBCCW

(ISSN 1932-4545)

---

## PAPERS

A CMOS Neural Interface for a Multichannel Vestibular Prosthesis .....	<i>K. N. Hageman, Z. K. Kalayjian, F. Tejada, B. Chiang, M. A. Rahman, G. Y. Friedman, C. Dai, P. O. Pouliquen, J. Georgiou, C. C. Della Santina, and A. G. Andreou</i>	269
A Wearable Patch to Enable Long-Term Monitoring of Environmental, Activity and Hemodynamics Variables .....	<i>M. Etemadi, O. T. Inan, J. A. Heller, S. Hersek, L. Klein, and S. Roy</i>	280
A Wireless FSCV Monitoring IC With Analog Background Subtraction and UWB Telemetry .....	<i>C. I. Dorta-Quiñones, X. Y. Wang, R. K. Dokania, A. Gailey, M. Lindau, and A. B. Apsel</i>	289
Flexible Non-Constrained RF Wrist Pulse Detection Sensor Based on Array Resonators .....	<i>Y.-J. An, B.-H. Kim, G.-H. Yun, S.-W. Kim, S.-B. Hong, and J.-G. Yook</i>	300
A 0.7 V, 40 nW Compact, Current-Mode Neural Spike Detector in 65 nm CMOS .....	<i>E. Yao, Y. Chen, and A. Basu</i>	309
Sensitivity Enhanced Vital Sign Detection Based on Antenna Reflection Coefficient Variation .....	<i>Y.-J. An, G.-H. Yun, and J.-G. Yook</i>	319
Design and Experimental Investigation of a Compact Circularly Polarized Integrated Filtering Antenna for Wearable Biotelemetric Devices .....	<i>Z. H. Jiang, M. D. Gregory, and D. H. Werner</i>	328
Multi-Path Model and Sensitivity Analysis for Galvanic Coupled Intra-Body Communication Through Layered Tissue ..	<i>M. Swaminathan, F. S. Cabrera, J. S. Pujol, U. Muncuk, G. Schirner, and K. R. Chowdhury</i>	339
A Self-Calibrating Radar Sensor System for Measuring Vital Signs .....	<i>M.-C. Huang, J. J. Liu, W. Xu, C. Gu, C. Li, and M. Sarrafzadeh</i>	352
A 16 × 16 CMOS Capacitive Biosensor Array Towards Detection of Single Bacterial Cell .....	<i>N. Couniot, L. A. Francis, and D. Flandre</i>	364
Class-DE Ultrasound Transducer Driver for HIFU Therapy .....	<i>C. Christoffersen, W. Wong, S. Pichardo, G. Togtma, and L. Curiel</i>	375

(Contents Continued on Back Cover)

Transceiver Design for CMUT-Based Super-Resolution Ultrasound Imaging .....	P. Behnamfar, R. Molavi, and S. Mirabbasi	383
Development of a Wireless and Near Real-Time 3D Ultrasound Strain Imaging System .....	Z. Chen, Y. Chen, and Q. Huang	394
Compensating for Tissue Changes in an Ultrasonic Power Link for Implanted Medical Devices .....	H. Vihvelin, J. R. Leadbetter, M. Bance, J. A. Brown, and R. B. A. Adamson	404
A System-on-Chip Solution for Point-of-Care Ultrasound Imaging Systems: Architecture and ASIC Implementation ...	J. Kang, C. Yoon, J. Lee, S.-B. Kye, Y. Lee, J. H. Chang, G.-D. Kim, Y. Yoo, and T.-k. Song	412
A Smart Cage With Uniform Wireless Power Distribution in 3D for Enabling Long-Term Experiments With Freely Moving Animals .....	S. A. Mirbozorgi, H. Bahrami, M. Sawan, and B. Gosselin	424
An Inductive Power and Data Telemetry Subsystem With Fast Transient Low Dropout Regulator for Biomedical Implants .....	Y.-P. Lin and K.-T. Tang	435
A Low-Power Gateable Vernier Ring Oscillator Time-to-Digital Converter for Biomedical Imaging Applications .....	Z. Cheng, M. J. Deen, and H. Peng	445
A MEMS Interface IC With Low-Power and Wide-Range Frequency-to-Voltage Converter for Biomedical Applications ..	Md. S. Arefin, J.-M. Redouté, and M. R. Yuce	455
Infrared Fluorescence-Based Cancer Screening Capsule for the Small Intestine .....	P. Demosthenous, C. Pitriss, and J. Georgiou	467
A Microsystem for Magnetic Immunoassay Based on Planar Microcoil Array .....	Y. Zheng, N. Shang, P. S. Haddad, and M. Sawan	477
A Reconfigurable Sound Wave Decomposition Filterbank for Hearing Aids Based on Nonlinear Transformation .....	S. Huang, L. Tian, X. Ma, and Y. Wei	487
On Integration and Validation of a Very Low Complexity ATC UWB System for Muscle Force Transmission .....	S. Sapienza, M. Crepaldi, P. Motto Ros, A. Bonanno, and D. Demarchi	497
A Driving Right Leg Circuit (DgRL) for Improved Common Mode Rejection in Bio-Potential Acquisition Systems ....	M. Guermandi, E. F. Scarselli, and R. Guerrieri	507
A Digital Realization of Astrocyte and Neural Glial Interactions .....	M. Hayati, M. Nouri, S. Haghiri, and D. Abbott	518
Information for Authors .....		532

---