

IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT

A PUBLICATION OF THE IEEE INSTRUMENTATION AND MEASUREMENT SOCIETY



JANUARY 2016

VOLUME 65

NUMBER 1

IEIMAO

(ISSN 0018-9456)

REGULAR PAPERS

Algorithms, Artificial Intelligence, SOFT Computing and Informatics			
Automated Visual Inspection System for Bogie Block Key Under Complex Freight Train Environment	<i>L. Liu, F. Zhou, and Y. He</i>	2	
Acoustics and Ultrasonics Instrumentation and Measurements			
Self-Powered Wireless Sensor Applied to Gear Diagnosis Based on Acoustic Emission	<i>M. Delgado Prieto, D. Zurita Millan, W. Wang, A. Machado Ortiz, J. A. Ortega Redondo, and L. Romeral Martinez</i>	15	
Instrumentation for Measurement in Communications			
Implementation of an LTE-Based Channel Measurement Method for High-Speed Railway Scenarios	<i>T. Zhou, C. Tao, S. Salous, L. Liu, and Z. Tan</i>	25	
Controls and Control Systems Instrumentation and Measurement			
Metrological Characterization of Cold Plates for Power Converters	<i>M. Lazzaroni, M. Citterio, S. Latorre, A. Lanza, P. Cova, N. Delmonte, and F. Giuliani</i>	37	
Instrumentation for Measurement of Electric Power Systems, Energy Metering, Electric Power Quality			
Proficiency of Power Values for Load Disaggregation	<i>M. Pöchacker, D. Egarter, and W. Elmenreich</i>	46	
Power System Frequency Estimation Method in the Presence of Harmonics	<i>H. Xue, M. Wang, R. Yang, and Y. Zhang</i>	56	
Uncertainty Analysis, Accuracy, Precision and Parameter Estimation			
Impact of Pseudo-Measurements From New Power Profiles on State Estimation in Low-Voltage Grids	<i>A. Angioni, T. Schlösser, F. Ponci, and A. Monti</i>	70	
Research on Proximity Effect in Measuring Error of Active Electronic Voltage Transformers	<i>W. Wu, Y. Xu, X. Xiao, and H. Hu</i>	78	

(Contents Continued on Page 1)

Built-in Self-Test, Design-for-Testing, Fault Diagnosis and Fault-Tolerance		
Contactless Test Access Mechanism for TSV-Based 3-D ICs Utilizing Capacitive Coupling	<i>I. I. Basith and R. Rashidzadeh</i>	88
Imaging Techniques and Instrumentation		
Velocity Estimation for Autonomous Vehicles Based on Image Analysis	<i>R. G. Lins, S. N. Givigi, and P. R. G. Kurka</i>	96
Measurement of Materials and Applications		
Design, Realization, and Experimental Characterization of an Admittance Cell for Low-Frequency Dielectric Permittivity Measurements on Liquids	<i>E. Piuzzi, S. Chicarella, A. Cataldo, E. De Benedetto, and G. Cannazza</i>	104
Medical and Biomedical Instrumentation and Applications		
Fast Acquisition of Heart Rate in Noncontact Vital Sign Radar Measurement Using Time-Window-Variation Technique	<i>J. Tu and J. Lin</i>	112
Measurement Techniques		
A Novel PLL Resolver Angle Position Indicator	<i>M. Benamar and A. S. P. Gonzales, Jr.</i>	123
Optimal Observation Intervals for Clock Prediction Based on the Mathematical Model Method	<i>Y. Wu, X. Zhu, Y. Huang, G. Sun, and G. Ou</i>	132
Continuous Real-Time Measurement of Drilling Trajectory With New State-Space Models of Kalman Filter	<i>Q. Xue, H. Leung, R. Wang, B. Liu, and Y. Wu</i>	144
Metrology, Standards and Calibration		
High-Speed Peltier Calorimeter for the Calibration of High-Bandwidth Power Measurement Equipment	<i>D. F. Frost and D. A. Howey</i>	155
Nondestructive Evaluation and Remote Sensing		
A Novel Triple-Coil Electromagnetic Sensor for Thickness Measurement Immune to Lift-Off Variations	<i>W. Yin and K. Xu</i>	164
Optical Instrumentation, Measurement and Systems		
Magnetic Field Measurement Using Surface Plasmon Resonance Sensing Technology Combined With Magnetic Fluid Photonic Crystal	<i>Y. Ying, Y. Zhao, R.-Q. Lv, and H.-F. Hu</i>	170
RF, Microwave, Millimeter Wave and Tera-Hertz		
Measurement of Transmission Properties of HBC Channel and Its Impulse Response Model	<i>J.-H. Hwang, T.-W. Kang, Y.-T. Kim, and S.-O. Park</i>	177
High-Resolution Microwave Near-Field Surface Imaging Using Resonance Probes	<i>O. Malyuskin and V. F. Fusco</i>	189
Sensors, Sensor Fusion and Transducers		
Investigations into a Planar Inductive Readout Strategy for the Monitoring of Ferrofluid Carriers	<i>B. Andò, S. Baglio, and A. Beninato</i>	201
Motion Mode Recognition for Indoor Pedestrian Navigation Using Portable Devices	<i>M. Elhoussi, J. Georgy, A. Noureldin, and M. J. Korenberg</i>	208
Low-Power Direct Resistive Sensor-to-Microcontroller Interfaces	<i>O. López-Lapeña, E. Serrano-Finetti, and O. Casas</i>	222
