

IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT

A PUBLICATION OF THE IEEE INSTRUMENTATION AND MEASUREMENT SOCIETY



NOVEMBER 2016

VOLUME 65

NUMBER 11

IEIMAO

(ISSN 0018-9456)

REGULAR PAPERS

Acoustics and Ultrasonics Instrumentation and Measurements

- A Real Time Nondestructive Crack Detection System for the Automotive Stamping Process *J. Song, S. Kim, Z. Liu, N. N. Quang, and F. Bien* 2434
- Direction Finding for Transient Acoustic Source Based on Biased TDOA Measurement *X. Cui, K. Yu, and S. Lu* 2442

Analog and Digital Data, Image and Signal Processing

- Accurate Spectral Testing With Impure Source and Noncoherent Sampling *B. Magstadt, Y. Zhuang, and D. Chen* 2454

Instrumentation for Measurement of Electric Power Systems, Energy Metering, Electric Power Quality

- Practical Issues and Characterization of a Photovoltaic/Thermal Linear Focus 20× Solar Concentrator *A. Cappelletti, M. Catelani, L. Ciani, M. K. Kazimierczuk, and A. Reatti* 2464
- A Temperature-Independent Interrogation Technique for FBG Sensors Using Monolithic Multilayer Piezoelectric Actuators *A. Dante, R. M. Bacurau, A. W. Spengler, E. C. Ferreira, and J. A. S. Dias* 2476
- Power System Static-State Estimation With Uncertain Network Parameters as Input Data *G. D'Antona* 2485

Uncertainty Analysis, Accuracy, Precision and Parameter Estimation

- An Extended H_1/H_∞ Optimization Approach to Fault Detection of INS/GPS-Integrated System *M. Zhong, J. Guo, D. Guo, and Z. Yang* 2495
- Communication Aware Optimal Sensor Motion Coordination for Source Localization *W. Meng, L. Xie, and W. Xiao* 2505

Built-in Self-Test, Design-for-Testing, Fault Diagnosis and Fault-Tolerance

- Wavelet Packet Envelope Manifold for Fault Diagnosis of Rolling Element Bearings *J. Wang and Q. He* 2515
- A New Probabilistic Kernel Factor Analysis for Multisensory Data Fusion: Application to Tool Condition Monitoring *J. Wang, J. Xie, R. Zhao, K. Mao, and L. Zhang* 2527
- A Novel Contactless Angular Resampling Method for Motor Bearing Fault Diagnosis Under Variable Speed *S. Lu, J. Guo, Q. He, F. Liu, Y. Liu, and J. Zhao* 2538

(Contents Continued on Page 2433)



| | |
|--|---|
| Measurement of Materials and Applications | |
| Spectroscopic Measurement of Material Properties Using an Improved Millimeter-Wave Ellipsometer Based on Metallic Substrates | <i>M. Klenner, C. Zech, A. Hülsmann, J. Kühn, M. Schlechtweg, and O. Ambacher</i> 2551 |
| Measurement Techniques | |
| An Oscillator-Based Active Bridge Circuit for Interfacing Capacitive Sensors With Microcontroller Compatibility | <i>A. Ulla Khan, T. Islam, and J. Akhtar</i> 2560 |
| Displacement Determination of the Guard Electrode for the New Calculable Capacitor at NIM | <i>J. Wang, J. Qian, Z. Liu, Z. Lu, Y. Yang, L. Huang, C. Yin, X. Cheng, and T. Li</i> 2569 |
| A Precise Real-Time Delay Calibration Method for Navigation Satellite Transceiver | <i>Y. Xiao, Y. Xu, H. Sun, X. Xu, and A. Zhou</i> 2578 |
| Selection of the Most Suitable Decomposition Filter for the Measurement of Fluctuating Harmonics | <i>J. Bruna and J. J. Melero</i> 2587 |
| Effect of Keysight 3458A Jitter on Precision of Phase Difference Measurement | <i>A. Pokatilov, T. Kübarsepp, and V. Vabson</i> 2595 |
| Metrology, Standards and Calibration | |
| Data Age Error Compensation for Nonconstant Velocity Metrology | <i>C. Wang and J. D. Ellis</i> 2601 |
| Nondestructive Evaluation and Remote Sensing | |
| Active Microwave Thermography for Defect Detection of CFRP-Strengthened Cement-Based Materials | <i>A. Foudazi, C. A. Edwards, M. T. Ghasr, and K. M. Donnell</i> 2612 |
| Optical Instrumentation, Measurement and Systems | |
| Evaluation of Self-Mixing Interferometry Performance in the Measurement of Ablation Depth | <i>A. G. Demir, P. Colombo, M. Norgia, and B. Previtali</i> 2621 |
| Sensors, Sensor Fusion and Transducers | |
| Measurement of RI and Temperature Using Composite Interferometer With Hollow-Core Fiber and Photonic Crystal Fiber | <i>Y. Zhao, X.-G. Li, L. Cai, and Y.-N. Zhang</i> 2631 |
| Multisensor Time Synchronization Error Modeling and Compensation Method for Distributed POS | <i>J. Li, L. Jia, and G. Liu</i> 2637 |
| Signals, Systems and System Identification | |
| A Morphological Hilbert-Huang Transform Technique for Bearing Fault Detection | <i>S. Osman and W. Wang</i> 2646 |
