TEMI 2001

11th IMEKO TC-4 Symposium on

Trends in Electrical Measurement and Instrumentation

Volume II

September 13-14, 2001
Technical University of Lisbon
Portugal
WS-9  Teaching instrumentation and measurement at Universities

Inductive Voltage Dividers and their Application to Precision Electrical Measurements
J. Boháček (CZECH REPUBLIC) 291

Remote Connection for Extended Availability of the Educational Lab
B. Andò, S. Baglio and N. Pitrone (ITALY) 294

Approaches to Programming for Tele-Measurement
E. Kayafas, F. Sandu, I. Patiniotakis and P. N. Borza (GREECE and ROMANIA) 298

Microcontroller and Programmable Circuit-Based Development Boards Used in Digital Instrumentation Laboratory
C. G. Haba and L. Breniuc (ROMANIA) 303

WS-10  Sensors and environmental measurements

Digital Wireless Data Communication Network for Distributed Measurement Applications: System Architecture and First Experimental Results
G. Bucci, C. Landi and G. Ocera (ITALY) 308

Active Dosimeter for Measurement of the Radiation Environment in a Human Phantom on Board the International Space Station

A Sensorless Method for the Identification of Asymmetric Hysteresis Loops of Ferromagnetic Materials
L. Cristaldi, A. Ferrero, M. Lazzaroni and A. P. Morando (ITALY) 318

Space Charge Phenomena Interpretation Towards Accounting for Material Structure or Quality of the Applied Technology
R. Ciobanu, W. Pfeiffer, C. Schreiner and O. Postolache (ROMANIA and GERMANY) 323

WP-2  Poster Session 2

Pressure Sensor With Si$_3$N$_4$ Diaphragm and Optoelectronic Sensing
P. Beneš, F. Matějka, R. Vrba and V. Kolařík (CZECH REPUBLIC) 327

Some Aspects of Measurement Errors Analysis in Electromagnetic Flow Meters for Open Channels
A. Michalski and W. Piotrowski (POLAND) 330

The Use of Smart Sensors for Tests of Loaded Concrete Piles
C. A. Santos, C. O. Costa and H. G. Ramos (PORTUGAL) 335

Super-High Capacitor Analyzer with Compensation of Common-Mode Error
V. Martynyuk, O. Vdovin, J. Boyko and N. Vlasenko (UKRAINE) 340

Power Quality Monitoring Instrument for Energy Distribution Feeder
The Measurement in Software Engineering
O. Kalipsiz (TURKEY)

High Spatial Resolution in Distributed Temperature Measurement Sensors
G. Betta, A. Gaston, A. Pietrosanto and J. Sevilla (ITALY and SPAIN)

RHEED Signal Sampling Device
R. Giannetti (SPAIN)

Synthesis of the Error Correction Techniques for the Linearized Four-Arm Bridge Circuit Measuring Devices
K. B. Dzambolatovich (RUSSIA)

Compensation of Integration Interval inaccuracy in Sampling Methods for AC Measurements
N. Hlupic (CROATIA)

Intelligent Sensors Based on Estimators and Interpolating Implementation for Flux and Torque Measurements
T. L. Dragomir and G. D. Andreescu (ROMANIA)

A Combined Method for Measuring Super-High Capacitors Absorption Characteristics
O. Vdovin, V. Martynyuk and M. Surdu (UKRAINE)

Iron Losses Prediction Using Neural Network Based Magnetic Model
M. Temneanu, T. Balan, D. Balan and O. Postolache (ROMANIA)

Gas Analysis System Based on Artificial Neural Networks
B. Baraboi, M. Crețu, C. Foșalău and C. Donciu (ROMANIA)

The Measurement and Evaluation System of the Environment Sounds
S. Sakano and H. Takagi (JAPAN)

Fuzzy-Symbolic Ion Activity Measurement in Test Solutions
C. Sărmașanu, L. Breniuc, A. Sâlceanu and V. Sărmașanu (ROMANIA)

Electrical Measurement of Pressures in Romania
D.-M. Stefanescu and T. Manescu (ROMANIA)

Use Of GTEM-Cell in Biomedical Experiments
K. Malaric, M. Tkalec and J. Bartolic (CROATIA)

Uncertainty Analysis on an Optical Machine With Vision System for Three-Dimensional Measuring Without Contact
A. Lazzari, G. Iuculano and A. Ponterio (ITALY)

Signal Processing and Noise Reduction of a Fiber Bragg Grating Seismic Sensor System
J.-G. Liu, C. Schmidt-Hattenberger and G. Borm (GERMANY)
WS-11  Measurement of electrical and non-electrical quantities

Optimization of an Optical Wireless Communication System  
(USA)

Frequency Response of a Magnetooptic Sensor Using Magnetic Pulses  
G. Robles and R. Giannetti  
(SPAIN)

Digital Signal Processing Algorithms for Gas Concentration Measurement  
B. Baraboi, M. Crețu, C. Donciu and C. Fosălău  
(ROMANIA)

Analogical Pre-Estimator for Enhanced Maximum Likelihood Estimator (MLE) Applied to Ultrasound Signal Accurate Detection  
M. Caciotta  
(ITALY)

WS-12  Metrology and testing

H. Pfützner  
(AUSTRIA)

Microcontroller - Based Data Processing for Non-Linear Measuring Sensors  
O. Postolache, P. S. Girão, J.D. Pereira and C. Fosălău  
(ROMANIA and PORTUGAL)

A High-Precision Smart Handheld Device to Calibrate Pressure Transmitters  
B. Janyszek and Z. Jaworski  
(Poland)

Measurement Uncertainty and Metrological Confirmation in Documented Quality Systems  
P. Carbone, D. Macii and D. Petri  
(ITALY)

WS-13  Sensors

A Smart Sensing Method for Discrete Displacement Measurement  
B. Ando, S. Graziani and N. Pitrone  
(ITALY)

Automatic Generation of Intelligent Instruments for IEEE 1451  
L. Câmara, O. Ruiz, A. Herms, J. Samitier and J. Bosch  
(SPAIN)

Monitoring System for Testing Technical Drive Diagnostic  
A. M. Kobosko  
(Poland)

Pressure Analyser Networking using Low-Level Fieldbus Interconnected to Intranet/Internet by Ethernet  
V. Radimir, S. Miroslav and B. Petr  
(CZECH REPUBLIC)

Driver for Low Power Thermoelectric Sensor Temperature Stabilising Cooler  
B. Zdenek and V. Radimir  
(CZECH REPUBLIC)
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using the Nose-to-Nose Sampler Calibration Method in Pulse Metrology</td>
<td>461</td>
</tr>
<tr>
<td>D. R. Larson and N. G. Paulter (USA)</td>
<td></td>
</tr>
<tr>
<td>Interlaboratory Comparison of Instrument Current Transformer Standards in the Range Up to 800 A at 50 Hz</td>
<td>466</td>
</tr>
<tr>
<td>K. Draxler and R. Stybliková (CZECH REPUBLIC)</td>
<td></td>
</tr>
<tr>
<td>The Electrometric AC-DC Transfer Standard as Primary Standard at IEN for AC Voltages from 300 V to 1000 V</td>
<td>471</td>
</tr>
<tr>
<td>U. Pogliano and G. C. Bosco (ITALY)</td>
<td></td>
</tr>
<tr>
<td>An Uncertainty Analysis of the High-Speed Pulse Parameter Measurements at NIST</td>
<td>476</td>
</tr>
<tr>
<td>N. G. Paulter and D. R. Larson (USA)</td>
<td></td>
</tr>
<tr>
<td>Calibration of Impedances by the Substitution Method: Numerical Uncertainty Evaluation</td>
<td>481</td>
</tr>
<tr>
<td>L. Callegaro and W. Bich (ITALY)</td>
<td></td>
</tr>
</tbody>
</table>