

# **First Latin-American Conference on Bioimpedance**

**(CLABIO 2012)**

**Journal of Physics: Conference Series Volume 407**

**Joinville, Brazil  
6-9 November 2012**

**ISBN: 978-1-62276-873-8  
ISSN: 1742-6588**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2012) by the Institute of Physics  
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>012001 Electromagnetic Interference Reduction by Dynamic Impedance Balancing Applied in Biosensors</b> .....	1
<i>J F R Negrão, G A L Araujo, C T C Júnior, D C Souza, M O Silva</i>	
<b>012002 Effects of Intense Physical Activity with Free Water Replacement on Bioimpedance Parameters and Body Fluid Estimates</b> .....	13
<i>E B Neves, L Ulbricht, E Krueger, E F R Romaneli, M N Souza</i>	
<b>012003 Wavelet Analysis of the Impedance Cardiogram Waveforms</b> .....	21
<i>S Podtaev, R Stepanov, A Dumler, S Chugainov, K Tziberkin</i>	
<b>012004 Mesh Generation and Computational Modeling Techniques for Bioimpedance Measurements: An Example Using the VHP Data</b> .....	26
<i>A A Danilov, V Yu Salamatova, Yu V Vassilevski</i>	
<b>012005 Body Composition in Remission of Childhood Cancer</b> .....	31
<i>G Ja Tseytlin, A V Anisimova, E Z Godina, I A Khomyakova, M V Konovalova, D V Nikolaev, S G Rudnev, O A Starunova, A Yu Vashura</i>	
<b>012006 Influence of Regularization in Image Reconstruction in Electrical Impedance Tomography</b> .....	36
<i>J L L Queiroz</i>	
<b>012007 Comparison of Body Fat in Brazilian Adult Females by Bioelectrical Impedance Analysis</b> .....	46
<i>V Altamir, S A F Frère, L R Leonardo</i>	
<b>012008 Use of Electrocardiogram (ECG) Electrodes for Bioelectrical Impedance Analysis (BIA)</b> .....	51
<i>J C Caicedo-Eraso, C H González-Correa, C A González-Correa</i>	
<b>012009 Bioelectrical Impedance Analysis of Bovine Milk Fat</b> .....	59
<i>E A Veiga, P Bertemes-Filho</i>	
<b>012010 Early Detection of Cervical Intraepithelial Neoplasia in a Heterogeneous Group of Colombian Women Using Electrical Impedance Spectroscopy and the Miranda-López Algorithm</b> .....	64
<i>D A Miranda, S P Corzo, C-A González-Correa</i>	
<b>012011 Design and Characterization of a Multi-frequency Bioimpedance Measurement Prototype</b> .....	68
<i>O E M Neto, R W Porto, J C C Aya</i>	
<b>012012 Effect of Osmotic Pressure to Bioimpedance Indexes of Erythrocyte Suspensions</b> .....	79
<i>A A Melnikov, D V Nikolaev, M V Malahov, A V Smirnov</i>	
<b>012013 Humidity in Sandy Soil Measured by Passive, Wireless, and Resonant Sensor with Bifilar Coil</b> .....	84
<i>S F Pichorim, V A Marcis, G T Laskoski</i>	
<b>012014 the Detection of Chronic Cerebral Hemorrhage in Rabbits with Magnetic Induction</b> .....	93
<i>J Sun, G Jin, M Qin, Z Wan, J Wang, C W Guo, L Xu, X Ning, J Xu, X Pu, M Chen, H Zhao</i>	
<b>012015 Electrical Impedance Tomography Reconstruction Through Simulated Annealing using a New Outside-in Heuristic and GPU Parallelization</b> .....	103
<i>R S Tavares, T C Martins, M S G Tsuzuki</i>	
<b>012016 Variable Impedance Cardiography Waveforms: How to Evaluate the Preejection Period More Accurately</b> .....	118
<i>V V Ermishkin, V A Kolesnikov, E V Lukoshkova, V P Mokh, R S Sonina, N V Dupik, S A Boitsov</i>	
<b>012017 Behaviour of the Electrical Impedance Myography in Isometric Contraction of Biceps Brachii at Different Elbow Joint Angles</b> .....	124
<i>A B B Coutinho, B Jotta, A V Pino, M N Souza</i>	
<b>012018 Bioelectrical Impedance Analysis (BIO): A Proposal for Standardization of the Classical Method in Adults</b> .....	130
<i>C H González-Correa, J C Caicedo-Eraso</i>	
<b>012019 Interfacing the AD5933 for Bio-impedance Measurements with Front Ends Providing Galvanostatic Or Potentiostatic Excitation</b> .....	143
<i>U Pliquett, A Barthel</i>	
<b>012020 Bio-impedance Detector for Staphylococcus Aureus Exposed to Magnetic Fields</b> .....	147
<i>H Y Y Aldosky, W J O Barwari, J M S Al-Mlaly</i>	
<b>012021 Minimizing the Partial Volume Effect Using the Respiratory Signal Timing in the Art of Capturing Images of the Pet CT</b> .....	156
<i>W S Goulão, A Dos S W Rodrigues</i>	
<b>012022 Analysis and Imaging in Magnetic Induction Tomography using the Impedance Method</b> .....	161
<i>J G B Wolff, H D Farias, A Ramos, A F L Nogueira</i>	
<b>012023 Spatial Filtering in Electrical Impedance Tomography</b> .....	177
<i>M Fernández-Corazza, N Von Ellenrieder, C H Muravchik</i>	

<b>012024 Electrical Impedance Tomography for Pulmonary Oedema Extent Monitoring: Review and Updated Design</b> .....	183
<i>E Santos, F Simini</i>	
<b>012025 The Initial Systolic Time Interval in Patients with Spinal Cord Injury Measured with Impedance Cardiography</b> .....	195
<i>F Hoekstra, Ø G Martinsen, R M Verdaasdonk, T W J Janssen, J H Meijer</i>	
<b>012026 A Portable Device to Assess Underwater Changes of Cardio Dynamic Variables by Impedance Cardiography</b> .....	200
<i>F Tocco, A Crisafulli, E Marongiu, R Milia, A Kalb, A Concu</i>	
<b>012027 Electrodes – The Challenge in Electrical Characterization of Biological Material</b> .....	205
<i>A Barthel, T Nacke, D Frense, U Pliquett</i>	
<b>012028 Software Tool for Analysis of Breathing-Related Errors in Transthoracic Electrical Bioimpedance Spectroscopy Measurements</b> .....	209
<i>F Abtahi, I C Gyllensten, K Lindecrantz, F Seoane</i>	
<b>012029 Quantitative Label-Free Cell Proliferation Tracking with a Versatile Electrochemical Impedance Detection Platform</b> .....	215
<i>C Caviglia, M Carminati, A Heiskanen, M Vergani, G Ferrari, M Sampietro, T L Andresen, J Emnéus</i>	
<b>012030 Mirrored Modified Howland Circuit for Bioimpedance Applications: Analytical Analysis</b> .....	219
<i>P Bertemes-Filho, L H Negri, A Felipe, V C Vincence</i>	
<b>012031 Rheology and BIA</b> .....	226
<i>M Piquemal, J C Zanotti</i>	
<b>Author Index</b>	