

2007 2nd International Workshop on Advances in Sensors and Interface

**Bari, Italy
26-27 June 2007**



IEEE Catalog Number: CFP07IWI-PRT
ISBN 10: 1-4244-1244-7
ISBN 13: 978-1-4244-1244-0

TABLE OF CONTENTS

Ultra low power Biopotential Interfaces and their application in wearable and implantable systems	1
<i>C. Van Hoof, R. F. Yazicioglu, T. Torfs, P. Merken</i>	
CMOS Chips for Bio Molecule Sensing Purposes	2
<i>R. Thewes</i>	
Molecular Electronic Circuits.....	8
<i>P. D. Franzon</i>	
Detection of Specific Nucleotide Sequences using Electrostatic Interactions of DNA with Gold Nanoparticles.....	9
<i>L. Rothberg, H. Li</i>	
Smart Sensors for Fast Biological Analysis	14
<i>M. Lanzoni, B. Riccò, G. De Cesare</i>	
Chemical design, synthesis and thin film supramolecular architecture for advanced performance chemo and bio sensing organic field effect transistors	19
<i>G.M. Farinola, L. Torsi, F. Naso, P.G. Zambonin, L. Valli, M.C. Tanese, O. Hassan Omar, F. Babudri, F. Palmisano</i>	
A New Integrated Kinematic Sensor for the Classification of Sit to Stand Locomotion Task.....	21
<i>G. Costantini, M. Carota, G. Maccioni, D. Giansanti</i>	
Gold Nanoparticle Sensors For Environmental Pollutant Monitoring	26
<i>E. Ieva, K. Buchholt, L. Colaianni, N. Cioffi, I. D. van der Werf, A. Lloyd Spetz, P.O. Käll, L. Torsi</i>	
A Two Electrode C NiO Nafion® Amperometric Sensor for NO₂ Detection	30
<i>A. Fort, C. Lotti, M. Mugnaini, C.A.. Palmerini, R.Palombari, S. Rocchi, L.Tondi, V.Vignoli</i>	
Chromatographic System Based on Amorphous Silicon Photodiodes.....	35
<i>D. Caputo, G. de Cesare, C. Manetti, A. Nascetti, R. Scipinotti</i>	
A Readout Circuit in 0.35 μm CMOS Technology for Lab on a Chip Applications	39
<i>P. Delizia, S. D'Amico, A. Baschirrotto</i>	
Modeling and Design of a Microdisk Photonic Sensor for Biological Applications	45
<i>V.M.N. Passaro, B. Casamassima, F. De Leonardi, F. Dell'Olio, F. Magno</i>	
A Configurable Architecture for the Detection of DNA Sequences based on a E2PROM device ...	51
<i>L. Abbatì, P. Placidi, A. Scorzoni, M. Lanzoni</i>	
A CMOS Integrated DNA chip for hybridization detection with digital output	57
<i>M. Barbaro, A. Caboni, D. Loi</i>	
Design of an Integrated Low Noise Read Out System for DNA Capacitive Sensors.....	62
<i>D. De Venuto, G. Indiveri, A. Valentini</i>	

Energy Scavenging for Wireless Sensor Nodes	68
<i>E.M. Yeatman</i>	
Sensor networks for industrial applications.....	72
<i>A. Flammini, P. Ferrari, D. Marioli, E. Sisinni, A. Taroni</i>	
A New Adaptive Sensor Interface for Composing and Performing Music in Real Time	87
<i>G. Costantini, M. Todisco, M. Carota, G. Maccioni, D. Giansanti</i>	
Photovoltaic Cell Modeling for Solar Energy Powered Sensor Networks.....	92
<i>D. Dondi, D. Brunelli, L. Benini, P. Pavan, A. Bertacchini, L. Larcher</i>	
Postprocessing Technologies, Interface Circuits and Packaging Strategies for CMOS Compatible Gas Flow Sensors	98
<i>P. Bruschi, M. Piotto, N. Bacci</i>	
Multiplexing of Fiber Bragg Grating Sensors: Time Windowed Improved CPFM Reading Technique. An Experimental Validation	104
<i>L. Rossi, G. Breglio, A. Cusano, A. Irace, V. Pascazio, A. Tutolo</i>	
Crosstalk Reduction in Balise and Infill Loops in Automatic Train Control	108
<i>R. Sharma R. Mary Lourde</i>	
Assessment of the MAC Layer Behavior of Wireless Sensor Networks Simulators Using Experimental Testbeds	114
<i>A. Barberis, L. Barboni, M. Valle</i>	
Miniaturized Thin Film Temperature Sensor For Wide Range of Measurements	120
<i>G. Melone, P. Miodushevsky, L. Rizzi, L. Vasanelli</i>	
Electronic system trends and challenges in present day particle experiments	124
<i>W. Snoeys</i>	
Highly Integrated System On Chip Circuits for the Readout of High Energy Physics Detectors.....	125
<i>L. Musa</i>	
Current Mode Front End Electronics for Silicon Photo Multiplier Detectors	126
<i>F. Corsi, M. Foresta, C. Marzocca, G. Matarrese, A. Del Guerra</i>	
Polycrystalline Diamond X ray Sensors: Intensity and Field Dependent Response.....	132
<i>M.C. Rossi, G. Conte, V. Ralchenko</i>	
A CMOS high speed front end for cluster counting techniques in ionization detectors	136
<i>A. Baschirotto, S. D'Amico, M. De Matteis, F. Grancagnolo, M. Panareo, R. Perrino, G. Chiodini, G. Tassielli</i>	
A MOVPE Technology for Fabrication of CdTe based Homoeptaxial pin Diode Structures as Nuclear Radiation Detectors.....	141
<i>M. Traversa, P. Prete, I. Farella, P. Paiano, F. Marzo, A. Cola, N. Lovergine, A.M. Mancini</i>	

Olfactory nanobiosensors based on sniffing yeasts.....	146
<i>E. Pajot</i>	
Requirements for Design, Qualification and Production of Integrated Sensor Interface Circuits for High Quality Automotive Applications.....	151
<i>M.J. Ohletz, F. Schulze</i>	
BIST for Testing of Delay	158
<i>L. Milor, C. Jia</i>	
Do Olfactory Receptors Respond to Explosives?	164
<i>P. Lopalco, S. Lobasso, A. Corcelli, M. Dibattista, R. Araneda, Z. Peterlin, S. Firestein</i>	
An Integrated Analog Lock In Amplifier for Low Voltage Low Frequency Sensor Interface	168
<i>A. De Marcellis, G. Ferri, M. Patrizi, V. Stornelli, A. D'Amico, C. Di Natale, E. Martinelli, A. Alimelli, R. Paolesse</i>	
Inertial sensors rapid prototyping for automotive application	173
<i>M. Melani, F. D'Ascoli, L. Fanucci, F. Iozzi, A. Gianbastiani, A. Rocchi</i>	
Sensitivity Analysis of Rib Waveguides for Integrated Optical Sensors	178
<i>F. Dell'Olio, V.M.N. Passaro, F. De Leonardis</i>	
Measurements Of Length And Velocity Of Vehicles With A Low Cost Sensor Radar Doppler Operating At 24GHz.....	183
<i>F. Placentino, F. Alimenti, A. Battistini, W. Bernardini, P Mezzanotte, V. Palazzari, S. Leone, A. Scarponi, N. Porzi, M. Comez, L. Roselli</i>	
Realization of a physical mask by laser micro cutting process.....	188
<i>C. Bonserio, M. Giannini , A.M. Losacco, G. Pappalettera</i>	
Application of three dimensional optical acquisition to the documentation and the analysis of crime scenes	192
<i>G. Sansoni, M. Trebeschi, F. Docchio</i>	
Oligothiophenes bearing polar groups for organic thin film transistors: synthesis, characterisation and preliminary gas sensing results.....	202
<i>G.P. Suranna</i>	
A Binocular Sensor Interface for Moving Objects Detection	206
<i>G. Costantini, D. Casali, R. Perfetti, M. Carota</i>	
Photosynthetic Reaction Centers Embedded in Polyelectrolyte Multilayer as a Tool in the Determination of PSII Herbicides	212
<i>F. Lopez, M. Mennuni, M. Giustini, M. Giomini, M. Dezi, G. Venturoli, A. Mallardi, G. Palazzo</i>	
Superconducting Tunnel Junction X Ray Detectors with Ultra Low Subgap Current	218
<i>S. Maggi, N. De Leo, M. Fretto, V. Lacquaniti</i>	

Hollow Core Waveguides for Optical Chemical Sensing	224
<i>R. Loiacono, F. Dell'Olio, V.M.N. Passaro</i>	
A Grid Portal to Improve SST Maps	229
<i>A. Guerriero, R. Matarrese, A. Morea, C. Pasquale, F. Ragni, K. Tijani</i>	
A carbon nanotube-based quartz crystal nanobalance for NH₃ detection: toward the assembling of a sensing platform	236
<i>M. Lucci, V. Sessa, S. Orlanducci, E. Tamburri, F. Toschi, M.L. Terranova, A. Reale, A. Fiorello, C. Falessi</i>	
Overdamped Josephson Junctions for Applications to precision measurement	240
<i>V. Lacquaniti, D. Andreone, M. Fretto, N. De Leo, S. Maggi, F. Francone, R. Rocci, D. Serazio, A. Sosso</i>	