

2010 XIth International Workshop on Symbolic and Numerical Methods, Modeling and Applications to Circuit Design

(SM2ACD 2010)

**Gammarth, Tunisia
4 – 6 October 2010**



**IEEE Catalog Number: CFP1068J-PRT
ISBN: 978-1-4244-6816-4**

TABLE OF CONTENTS

A Hybrid Multi-Valued Neuron Based Network for the Identification of Lumped Models	1
<i>F. Grasso, A. Luchetta, S. Manetti, M.C. Piccirilli</i>	
A Semi - Symbolic Method of Electronic Circuit Design by Pole and Zero Distribution Optimization Using Time - Constants Approximation Including Inductors	6
<i>Franciszek Balik</i>	
Modeling and Simulation of Power BAW Resonators and Filters	12
<i>F. Constantinescu, M. Nitescu, A.G. Gheorge</i>	
SoC Design Verification Infrastructure	16
<i>Wajeb Gharibi, Vladimir Hahanov</i>	
Nanometer Ballistic MOSFET'S: Modeling, Simulation and Applications of Digital Circuits	22
<i>Mustafa M. EL- Muradi, Khalf alla A. Khalf alla, Walid T. Shanab</i>	
Network Sensor Miniature Antenna	28
<i>Mehdi Ali, Abdennacer Kachouri, Mounir Samet</i>	
Statistical Extraction and Modeling of 3-D Inductance with Spatial Correlation	32
<i>Jacob Relles, Muhua Ngan, Chao Hu, Wenjian Yu, Yici Cai</i>	
High Level Modelling and Optimization of an MSK Modulator with Experimental Design Methodology	38
<i>S. Sahnoun, A. Fakhfakh, N. Masmoudi, H. Levi</i>	
Design of a Wideband Low Noise Amplifier for Radio-astronomy Applications	44
<i>Zahra Hamaizia, Nouredine Sengouga, Mustapha C.E. Yagoub</i>	
Enumerating all the Spanning Trees in an Un-oriented Graph – A Novel Approach	48
<i>Cristian E. Onete, Maria Cristina C. Onete</i>	
A Novel Design of Active Inductors based on Current Controlled Voltage Sources	53
<i>Marian Pierzchala, Mourad Fakhfakh, Benedykt Rodanski</i>	
An Evaluation of Symbolic Computation Algorithms for The Extraction of Small Signal Parameters of A Linear Circuit	57
<i>C.F. Zorio, I. Rusu, M. Bodea</i>	
Optimisation and Simulation Methodology for Passive ADSL Splitter Design	63
<i>D. Duret, L. Gerbaud, F. Wurtz, A. Rezgui, B. Delinchant, B. Cogitore</i>	
On Wavelet Based Modeling of Radio Frequency Circuits, Parts and Electromagnetic Fiels	69
<i>Szilvia Nagy, Andras Feher</i>	
Multiparameter Symbolic Sensitivity Analysis by Using Nullor Model and Coates Flow Graphs	73
<i>Irina Asenova, Dimitar Georgiev, Mariana Mihova</i>	
A Robustness-Oriented Design Tool for the Topology Selection in Analog Synthesis	77
<i>Francois Schwartz, Qing Sun, Jacques Michel, Yannick Herve</i>	
Symbolic Modelling and Design of Parallel Capacitors in DC-DC Converters	82
<i>A. Cantillo, A. De Nardo, N. Femia, W. Zamboni</i>	
An Analytical Model for the Transconductance and Drain Conductance of GaAs MESFETs	87
<i>S. Khemissi, C. Azizi</i>	
Automatic Generation of RF Integrated Inductors Analytical Characterization	92
<i>Pedro Pereira, M. Helena Fino, M. Ventim-Neves</i>	
Fast Mixed-Mode PLL Simulation Using Behavioral Baseband Models of Voltage-Controlled Oscillators and Frequency Dividers	96
<i>Ihor Harasymiv, Manfred Dietrich, Uwe Knochel</i>	
A Novel Approach to Design a Robust and Optimal Scalar Quantizer for any Non-Standard Input Density	102
<i>Chaouki Diab, Mohamad Oueidat</i>	
Sliding Mode Control of the Nonlinear Systems	107
<i>A. Ltifi, M. Ghariani, R. Neji</i>	
Automatic Topology Selection and Sizing of Class-D Loop-Filters for Minimizing Distortion	113
<i>David Guilherme, Jorge Guilherme, Nuno Horta</i>	
Reversible Full Adder/Subtractor	117
<i>Maii T. Emam, Layle A.A. Elsayed</i>	
Optimisation the Real Time Implementation of the Viola & Jones Face Detection Algorithm on RISC Processor	121
<i>Moad Benkiniouar, Mohamed Benmohammed</i>	

Logic Vector Analysis of Associative Tables	126
<i>Hahanov Vladimir, Chumachenko Svetlana, Litvinova Eugenia</i>	
SystemC Mixed-Signal and Mixed-Level Simulation Using an Accelerated Analog Simulation Approach	132
<i>D. Zaum, S. Hoelldampf, M. Olbrich, E. Barke, I. Neumann</i>	
State Variable Filter Design Using Particle Swarm Optimization.....	136
<i>R.A. Vural, T. Yildirim</i>	
Optimizing CMOS LNA Circuits Through Multi-Objective Meta Heuristics	140
<i>Mouna Kotti, Amin Sallem, Mariam Bougharriou, Mourad Fakhfakh, Mourad Loulou</i>	
A Time-Varying Smoothing Factor for the Decision-Directed Approach in Speech Enhancement	146
<i>Farid Ykhlef</i>	
A New High-Speed SAR ADC Architecture	150
<i>Saleh Abdel-Hafeez</i>	
Modal Domain Analysis of Asymmetric Coupled Planar Structures: The Quasi symmetric Model.....	155
<i>A. Khodja, R. Touhami, M.C.E. Yagoub, H. Baudrand</i>	
Simulating Solutions of Linear Differential Equations Using Various Active Circuits	161
<i>Abdullah Ferikoglu, Yavuz Sari, Rasit Koker</i>	
Reduced-Order Modeling of MIMO Systems	165
<i>Lucia Dumitriu, Mihai Iordache, Lucian Mandache</i>	
Switching Angle Optimization Based Genetic Algorithms for Harmonic Reduction in Three-Phase PWM Inverters	169
<i>Osama Y. Mahmood AL-Rawi, Noaman M. Noaman, Mohammed Majid mohammed Alkhalidy</i>	
Context-independent Performance Modeling of Operational Amplifiers Using Pareto Fronts.....	173
<i>Elisenda Roca, Manuel Velasco-Jiménez, Rafael Castro-López and Francisco V. Fernández</i>	
Dragonfly M-C Graphs For Symbolic Analysis of Current-Conveyor Circuits.....	177
<i>Dalibor Biolek, Viera Biolkova, Zdenek Kolka</i>	
Companion Models in Two-Time Scale for Multitone Steady-State Simulation of the Nonlinear Circuits	181
<i>Mihai Iordache, Lucia Dumitriu, Lucian Mandache</i>	
Design of Robust Electronic Circuits for Yield Optimization.....	185
<i>Christian Salzig, Matthias Hauser</i>	
Symbolic Techniques in Neural Network Based Fault Diagnosis of Analog Circuits	190
<i>Francesco Grasso, Antonio Luchetta, Stefano Manetti, Maria Cristina Piccirilli</i>	
The Undirected Feedback Vertex Set Problem with Application to Wavelength Converter Placement on WDM Networks.....	194
<i>Toshinori Yamada, Yusuke Tada, Taka-aki Tanaka</i>	
Program for Multi-Domain Symbolic Analysis.....	200
<i>Zdenek Kolka, Dalibor Biolek, Jaroslav Kalous, Viera Biolkova</i>	
New Coupling Topologies of Microstrip Bandpass Filters with Strongly Asymmetric Characteristics.....	204
<i>George Lojewski, Nicolae Militaru, Teodor Petrescu, Marian Gabriel Banciu</i>	
Lower Bound for Degree of Sequential Diagnosability of Cayley Graphs.....	208
<i>Toshinori Yamada</i>	
An Analytical Threshold Voltage Model to Study the Scaling Capability of Deep Submicron Double-gate GaNMESFETs.....	212
<i>N. Lakhdar, F. Djeflal, M.A. Abdi, D. Arar</i>	
An Algorithm for Detecting a Maneuvering Target Based on TFR and Viterbi Algorithm	216
<i>Predrag Rakovic, Milos Dakovic, Ljubisa Stankovic</i>	
Sensitivity Analysis of the Multiple FeedBack Filter in Non-sinusoidal Regime.....	220
<i>Horia Andrei, Costin Cepisca, Sorin Dan Grigorescu, Paul Andrei</i>	
Symbolic Noise Analysis of Low Voltage Amplifiers by Using Nullors.....	226
<i>Elyoenai Martínez-Romero, Esteban Tlelo-Cuautle, Carlos Sánchez-López, Sheldon X.D. Tan</i>	
Enhanced Fullwave Approach for Accurate Parameter Computation of Multilayer Microwave Couplers Including Anisotropic Substrates.....	231
<i>M.L. Tounsi, C. Boularak, Mustapha C.E. Yagoub</i>	
Symbolic Analysis of Nonlinear Electronic Circuits by PraCAN Package in Maple Program.....	235
<i>Jiff Hospodka, Jan Bicak</i>	
Versatile Engine for Virtual Testing of ADC/DAC Non-Linearities	239
<i>Miloslav Kubar, Ondrej Subrt, Jiri Jakovenko, Pravoslav Martinek</i>	
Artificial Bee Colony Optimization Based CMOS Inverter Design Considering Propagation Delays	243
<i>Y. Delican, R.A. Vural, T. Yildirim</i>	
Modeling of the Grating Fiber for the Extraction of the Modal Characteristics	248
<i>L. Cherbi, Y. Bouslimani</i>	

A New DC-temperature Model for a Diode Bolometer Based on SOI-pin-diode Test Structures	252
<i>Piotr Kropelnicki, Holger Vogt</i>	
Concentric Circular Array for Directions of Arrival Estimation of Coherent Sources with MUSIC Algorithm	256
<i>Salem Akkar, Ferid Harabi, Ali Gharsallah</i>	
Novel Analog Synthesis Tool Implemented to the Cadence Design Environment	261
<i>Miloslav Kubar, Jiri Jakovenko</i>	
Accurate Time-Domain Semisymbolic Analysis	266
<i>Zdenek Kolka, Dalibor Biolk, Viera Biolkova</i>	
Variability Aware Yield Optimal Sizing of Analog Circuits Using SVM-Genetic Approach	270
<i>D. Boolchandani, Lokesh Garg, Sapna Khandelwal, Vineet Sahula</i>	
Design and Optimization of Inductive Power Transmission for Implantable Sensor System	276
<i>Enver G. Kilinc, Catherine Dehollain, Franco Maloberti</i>	
A 1.2V Single Supply and Low Power, CMOS Four-Quadrant Analog Multiplier	281
<i>Amir Ebrahimi, Hossein Miar Naimi</i>	
An Extended CAD Methodology for Sizing Low-Power Low-Voltage OTA Architectures in Decananometric Technologies	286
<i>Geoffroy Gosset, Guillaume Pollissard-Quatremere, Denis Flandre</i>	
An Improvement on the Analytical Methods for Amplitude Analysis of the MOS Colpitts Oscillator	290
<i>Amir Ebrahimi, Hossein Miar Naimi</i>	
An Analytical Drain Current Model for GS GAA MOSFET Including Interfacial Traps	295
<i>M.A. Abdi, F. Djeflal, T. Bentercia, A. Benhaya</i>	
A Compact Analytical Current Model Including Traps Effects for GS DG MOSFETs	299
<i>T. Bentercia, F. Djeflal, M.A. Abdi, D. Arar</i>	
Compact, Low-Voltage, Low-Power and High-Bandwidth CMOS Four-Quadrant Analog Multiplier	303
<i>Amir Ebrahimi, Hossein Miar Naimi, Mohammad Gholami</i>	
Systematic Modeling and Simulation of DLL-Based Frequency Multiplier	308
<i>M. Gholami, M. Sharifkhani, A. Ebrahimi, S. Saeedi, M. Atarodi</i>	
A DLL-Based Frequency Synthesizer for VHF DVB-H/T Receivers	313
<i>M. Gholami, M. Sharifkhani, S. Saeedi, M. Atarodi</i>	
A New Stabilisation Technique for the Voltage Driver Using the Rail to Rail Operation in CMOS 0, 25 μm Technology	318
<i>Faycal Meddour, Zohir Dibi, Souhil Kouda, Mohamed Amir Abdi, Meriem Ouarghi, Otto Manck</i>	
Multi-objective Performance Optimization of Planar Inductors	322
<i>J. Esteban-Muller, R. Gonzalez-Echevarria, C. Sanchez-Lopez, E. Roca, R. Castro-Lopez, F.V. Fernandez, J.M. Lopez-Villegas, J. Sieiro, N. Vidal</i>	
Approach to the Design of Transmission-Type Injection-Locked Microwave Oscillators through Behavioral Block Modeling	326
<i>Enrico F. Calandra, Daniele Lupo</i>	
Low Voltage Low Power Neuron Circuit Design Based On Subthreshold FGMOS Transistors And XOR Implementation	331
<i>Fatih Keles, Tulay Yildirim</i>	
A Bottom-Up Approach to the Systematic Design of LNAs Using Evolutionary Optimization	336
<i>C. Sanchez-Lopez, R. Castro-Lopez, E. Roca, F.V. Fernandez, R. Gonzalez-Echevarria, J. Esteban-Muller, J.M. Lopez-Villegas, J. Sieiro, N. Vidal</i>	
A Two-Dimensional Model For The Potential Distribution And Depletion Layer Width Of The Short Gate-Length GaAs MESFET's	341
<i>Saadeddine Khemissi, Cherifa Azizi</i>	
Automatic Tuning of GPC Synthesis Parameters Based on Multi-Objective Optimization	345
<i>Ben Aicha, Faouzi Bouani, Mekki Ksouri</i>	
Ressource Management For Amplify and Forward and Decode and Forward Relaying Systems	350
<i>Wafa Ben Hassen, Afef El Gares, Noureddine Hamdi</i>	
GGP Approach to Solve Non Convex Min-max Robust Model Predictive Controller for a Class of Constrained MIMO Systems	354
<i>Amira Kheriji, Faouzi Bouani, Mekki Ksouri</i>	
A Novel Multi-objective Algorithm: Application to the Optimal Sizing of Current Conveyors	359
<i>Mouna Kotti, Amin Sallem, Mourad Fakhfakh, Mourad Loulou</i>	
High Level Optimization of Electric Vehicle Power-Train with Doehlert Experimental Design	364
<i>K. Jaber, A. Fakhfakh, R. Neji</i>	
Graphical Method for the Optimization of CMOS Quadrature VCO	369
<i>Mellouli Dorra, Mnif Hassene, Mourad Loulou</i>	
Author Index	