2011 20th European Conference on Circuit Theory and Design

(ECCTD 2011)

Linkoping, Sweden
29 – 31 August 2011

IEEE

IEEE Catalog Number: CFP11ECC-PRT
ISBN: 978-1-4577-0617-2

Program

Monday, August 29

REG: Registration

OPEN: Opening ceremony

Welcome to the 20th European Conference on Circuit Theory and Design

PLEN1: Managing Variability for Ultimate Energy Efficiency

Plenary Talk, Prof. Borivoje Nikolic

Managing Variability for Ultimate Energy Efficiency
Borivoje Nikolić (UC Berkeley, USA)
pp. 1-4

Coffee: Coffee break

M10: Advances in Variable Digital Filters

Special Session

Variable Bandwidth M-Path Filter with Fixed Coefficients Formed by M-Path Polyphase Filter Engines
frederick j harris (San Diego State Univ, USA); Elettra Venosa (San Diego State University, USA); Xiaofei Chen (San Diego State University, USA); Bhaskar Rao (University of California, San Diego, USA)
pp. 5-8

Highly Adjustable Multirate Digital Filters Based on Fast Convolution
Markku K. Renfors (Tampere University of Technology, Finland); frederick j harris (San Diego State Univ, USA)
pp. 9-12

A Class of Digital Filters with Variable Cut-off Based on EMQF Filter Sections and Sharpening Method
Miroslav Lutovac (State University Novi Pazar, Serbia); Jelena Ćertić (University of Belgrade, School of Electrical Engineering, Serbia); Ljiljana Milić (University of Belgrade, Serbia)
pp. 13-16

Design of Variable Fractional Order Differentiator Using Infinite Product Expansion
Chien-Cheng Tseng (Kaoshiung first University of Science and Technology, Taiwan); Su-Ling Lee (Chung-Jung Christian University, Taiwan)
pp. 17-20

Complexity Reduction in Low-Delay Farrow-Structure-Based Variable Fractional Delay FIR Filters Utilizing Linear-Phase Subfilters

Amir Eghbali (Linköping University, Sweden); Hakan Johansson (University of Linkoping, Sweden)

pp. 21-24

M11: Image Processing 1

Oral Session

A Monitoring System for Laser Beam Welding Based on an Algorithm for Spatter Detection

Leonardo Nicolosi (Technische Universität Dresden, Germany); Ronald Tetzlaff (Technische Universität Dresden, Germany); Andreas Blug (IPM Fraunhofer, Freiburg, Germany); Heinrich Höfler (IPM Fraunhofer, Freiburg, Germany); Daniel Carl (IPM Fraunhofer, Freiburg, Germany); Felix Abt (IFSW Stuttgart, Germany); Andreas Heider (IFSW Stuttgart, Germany)

pp. 25-28

Foveated Compressed Sensing

Iulian Ciocoiu (Technical University of Iasi, Romania)

pp. 29-32

Lossless Image Coding by Cellular Neural Networks with Minimum Coding Rate Learning

Keisuke Takizawa (Tokyo University of Science, Japan); Seiya Takenouchi (Tokyo University of Science, Japan); Hisashi Aomori (Tokyo University of Science, Japan); Tsuyoshi Otake (Tamagawa University, Japan); Mamoru Tanaka (Sophia University, Japan); Ichiro Matsuda (Tokyo University of Science, Japan); Susumu Itoh (Science University of Tokyo, Japan)

pp. 33-36

High Performance DT-CNN Camera Device Design on ACTEL IGLOO Low Power FPGA

Sergi Consul-Pacareu (Ramon Llull University, Spain); Jordi Canals (Ramon Llull University, Spain); Xavier Vilasís-Cardona (Ramon Llull University, Spain); Jordi Riera-Baburés (University of Barcelona, Spain)

pp. 37-40

Investigation of Recall Image by Partitioned Hopfield Neural Network

Tomoya Shima (Tokushima University, Japan); Chihiro Ikuta (Tokushima University, Japan); Yoko Uwate (Tokushima University, Japan); Yoshifumi Nishio (Tokushima University, Japan)

pp. 41-44

M12: Test 1

Oral Session

A New Statistical Maximum Operation for Gaussian Mixture Models and Its Evaluations

Shuji Tsukiyama (Chuo University, Japan); Masahiro Fukui (Ritsumeikan University, Japan)

pp. 45-48

Simulated Annealing with Artificial Neural Network Fitness Function for ECG Amplifier Testing

Damian Grzechca (Silesian University of Technology & Institute of Electronics, Poland)

pp. 49-52

Efficient Time Domain Analogue Fault Simulation Targeting Nonlinear Circuits

Jose Soares Augusto (Universidade de Lisboa, Faculdade de Ciências, Portugal)

pp. 53-56

Modified LC-Tank ESD Protection Design for 60-GHz RF Applications

Chun-Yu Lin (National Chiao-Tung University, Taiwan); Li-Wei Chu (National Chiao-Tung University, Taiwan); Shiang-Yu Tsai (National Chiao-Tung University, Taiwan); Ming-Dou Ker (National Chiao-Tung University, Taiwan); Tse-Hua Lu (TSMC, Taiwan); Tsun-Lai Hsu (TSMC, Taiwan); Ping-Fang Hung (TSMC, Taiwan); Ming-Hsiang Song (TSMC, Taiwan); Jen-Chou Tseng (TSMC, Taiwan); Tzu-Heng Chang (TSMC, Taiwan); Ming-Hsien Tsai (Taiwan Semiconductor Manufacturing Company & Design Technology Division, Taiwan)

pp. 57-60

A Fully Automated Large-scale Addressable Test Chip Design with High Reliability

Bo Zhang (Zhejiang University, P.R. China)

pp. 61-64

M13: RF Circuits 1

Oral Session

A Linear Tuning Ring VCO for Spectrum Monitor Receiver in Cognitive Radio Applications

Siwen Liang (Cascoda Ltd & University of Southampton, United Kingdom); William Redman-White (University of Southampton, United Kingdom)

pp. 65-68

Fast Startup of LC VCOs Using Circuit Asymmetries

Joshua Kim (University of California, Irvine, USA); Michael M Green (University of California, Irvine, USA)

pp. 69-72

Analysis and Design of an Array of Two Differential Oscillators Coupled Through a Resistive Network

Mihaela Izabela Ionita (Electrical Engineering Faculty, University Politehnica of Bucharest & LAII, University of Poitiers, Angouleme, Romania); David Cordeau (LAII University of Poitiers, France); Jean-Marie Paillot (LAII

University of Poitiers, France); Mihai Iordache (University Politehnica of Bucharest, Romania)
pp. 73-76

A 2.25mW Inductor-Less 24 GHz CML Frequency Divider in 90 nm CMOS
Andreas Axholt (Lund University & EIT, Sweden); Henrik Sjöland (Lund University, Sweden)
pp. 77-80

Digitally Controlled Pulse-Width-Pulse-Position Modulator in an 1.2V 65Nm CMOS Technology
Björn Thiel (RWTH Aachen University, Germany); Renato Negra (RWTH Aachen University, Germany)
pp. 81-84

M14: Circuit Theory 1

Oral Session

The Generalized Exponential Function and Fractional Trigonometric Identities
Ahmed G. Radwan (Cairo University, Egypt); Ahmed Elwakil (University of Sharjah, UAE)
pp. 85-89

A Cascaded Two-Port Model for Quantum Particles Propagation in Crystals
Pier Paolo Civalleri (Politecnico di Torino, Italy); Marco Gilli (Politecnico di Torino, Italy); Michele Bonnin (Politecnico di Torino, Italy)
pp. 90-93

Analytical Approach to Single Memristor Circuits
Torsten Schmidt (TU-Dresden, Germany); Ronald Tetzlaff (Technische Universität Dresden, Germany)
pp. 94-97

On the Time-Domain Analysis of Analog Circuits Containing Nonlinear Inductors
Lucian Mandache (University of Craiova, Romania); Dumitru Topan (University of Craiova, Romania); Mihai Iordache (University Politehnica of Bucharest, Romania); Lucia Dumitriu (University Politehnica of Bucharest, Romania); Ioana Gabriela Sirbu (University of Craiova, Romania)
pp. 98-101

Cascade Synthesis of RC Polyphase One-ports
Tetsuo Nishi (Waseda University, Japan); Hiroshi Tanimoto (Kitami Inst.of Tech, Japan); Shin'ichi Oishi (Waseda University, Japan)
pp. 102-105

Lunch: Monday Lunch

Monday Lunch

PLEN2: Organic Bioelectronics

Plenary Talk, Prof. Magnus Berggren

Organic Bioelectronics
Magnus Berggren (Linköping University, Sweden)

MP1: Analog Circuit Design

Poster Session

A 1GS/s Low-Power Low-Kickback Noise Comparator in CMOS Process
Ali Baradaranrezaeii (Urmia University & Microelectronics Research Laboratory, Iran); Roozbeh Abdollahi (Microelectronic Research Laboratory, Iran); Khayrollah Hadidi (Urmia University, Iran); Abdollah Khoei (Urmia University, Iran)
pp. 106-109

Influence of Active Device Nonlinearities on the Determination of Adler's Injection-Locking Q-Factor
Enrico Calandra (University of Palermo, Italy); Marco Caruso (University of Palermo, Italy); Daniele Lupo (University of Palermo, Italy)
pp. 110-113

Accurate Micropower Class AB CMOS Voltage-to-Current Converter
Antonio J López-Martín (Public University of Navarra, Spain); Fermin Esparza (Universidad Pública de Navarra, Spain); Jaime Ramirez-Angulo (New Mexico State University, USA); Ramón Carvajal (University of Seville, Spain)
pp. 114-117

Maximizing Randomness in Ring Oscillators for Security Applications
Ülkühan Güler (National Research Institute of Electronics and Cryptology & Boğaziçi University, Turkey); Gunhan Dündar (Bogazici University, Turkey)
pp. 118-121

Low-Voltage Wide-Swing Fully Differential CMOS Voltage Buffer
Juan M. Carrillo (University of Extremadura, Spain); Guido Torelli (University of Pavia, Italy); Miguel A. Domínguez (University of Extremadura, Spain); J. Francisco Duque-Carrillo (University of Extremadura, Spain)
pp. 122-125

A CMOS Nonlinear-Map Circuit Array for Threshold-Coupled Chaotic Maps Using Pulse-Modulation Approach
Takashi Morie (Kyushu Institute of Technology, Japan); Daisuke Atuti (Kyushu Institute of Technology, Japan); Kazuki Ifuku (Kyushu Institute of Technology, Japan); Yoshihiko Horio (Tokyo Denki University, Japan); Kazuyuki Aihara (University of Tokyo, Japan)
pp. 126-129

A Phase Detection Scheme for Clock and Data Recovery Applications
Carlos Sanchez-Azqueta (University of Zaragoza, Spain); Santiago Celma (University of Zaragoza, Spain)
pp. 130-133

A Novel Current-Mode Winner-Take-All Topology
David Moro-Frias (INAOE, Mexico); Maria Teresa Sanz-Pascual (National Institute for Astrophysics, Optics and Electronics, Mexico); Carlos de la Cruz Blas (Public University of Navarra, Spain)
pp. 134-137

Design, Optimization and Realization of an HFB-based ADC
Amandine Lesellier (NXP Semiconductors, France); Olivier Jamin (NXP Semiconductors, France); Jean-François Bercher (ESIEE-Paris, France); Olivier Venard (ESIEE-Paris, France)
pp. 138-141

A Robust, Low Power, High Speed Voltage Level Shifter with Built-In Short Circuit Current Reduction
Shafqat Ali (EPFL, Switzerland); Steve Tanner (EPFL, Switzerland); Pierre-Andre Farine (Ecole Polytechnique Federal de Lausanne, Switzerland)
pp. 142-145

0.13-Um CMOS Tunable Transconductor Based on the Body-Driven Gain Boosting Technique with Application in Gm-C Filters
Trini Sánchez-Rodríguez (University of Sevilla, Spain); Salvatore Pennisi (University of Catania, Italy); Juan Antonio Galán (University of Huelva, Spain); Ramón Carvajal (University of Seville, Spain)
pp. 146-149

On the Design of a Class of CNN's for ECG Classification
Ion Vornicu (Technical University of Iasi, Romania); Liviu Goras (Technical University of Iassy, Romania)
pp. 150-153

A CMOS Continuous-Time Equalizer for Short-Reach Optical Communications
Cecilia Gimeno (University of Zaragoza & Faculty of Science, Spain); Concepción Aldea (University of Zaragoza, Spain); Santiago Celma (University of Zaragoza, Spain); Francisco Aznar (University of Zaragoza, Spain); Carlos Sanchez-Azqueta (University of Zaragoza, Spain)
pp. 154-157

Non-Idealities in Linear CDR Phase Detectors
Jun Cao (Broadcom Corp., USA); Sui Huang (University of California, Irvine, USA); Michael M Green (University of California, Irvine, USA)
pp. 158-161

Two-dimensional Sinusoidal Signal Quality Improvement by Combined Software and Hardware Means
Grzegorz Budzyn (Wroclaw University of Technology & Lasertex Co Ltd., Poland); Tomasz Podzorny (Wroclaw University of Technology, Poland); Janusz Rzepka (Wroclaw University of Technology, Poland)
pp. 162-165

Chaotic Oscillations in Fractional-Order Nonlinear Circuit Models of Bipolar Pulsed Electroplatings
Maria Trzaska (Warsaw University of Technology, Poland); Zdzislaw Trzaska (Warsaw University of Ecology and Management, Poland)
pp. 166-169

CMOS Latch Based on a Class-AB Transconductor
Carlos de la Cruz Blas (Public University of Navarra, Spain); Michael M Green (University of California, Irvine, USA)
pp. 170-173

DU-TCC 1209: a CMOS IC Classifier and Its Application to IRIS Data
Merih Yıldız (Dogus University, Turkey); Izzet Cem Göknar (Dogus University, Turkey); Shahram Minaei (Dogus University, Turkey); Engin Deniz (Dogus University, Turkey)
pp. 174-177

1.2-V Fully Differential OTA-C Lowpass Filter Based on Bulk-Driven MOS Transistors
Juan M. Carrillo (University of Extremadura, Spain); Guido Torelli (University of Pavia, Italy); Miguel A. Domínguez (University of Extremadura, Spain); J. Francisco Duque-Carrillo (University of Extremadura, Spain)
pp. 178-181

Low-Voltage Low-Power CMOS Rail-to-Rail V-I Converters
Cristina Azcona (University of Zaragoza, Spain); Belen Calvo (University of Zaragoza, Spain); Santiago Celma (University of Zaragoza, Spain); Nicolas Medrano (University of Zaragoza, Spain)
pp. 182-185

A 12.5Gb/s Active-Inductor Based Transmitter for I/O Applications
Pedram Payandehnia (University of Tehran, Iran); Behjat Forouzandeh (University of Tehran, Iran); Aliazam Abbasfar (University of Tehran, Iran); Samad Sheikhaei (University of Tehran, Iran); Kambiz Nanbakhsh (University of Tehran, Iran)
pp. 186-189

Switched-Capacitor Networks for Scale-Space Generation
Manuel Suárez (University of Santiago de Compostela, Spain); Victor Brea (Universidad Santiago de Compostela, Spain); Diego Cabello (University of Santiago de Compostela, Spain)
pp. 190-193

Novel Low-Frequency Signal Conditioning Circuit
Arturo Hernandez-Morales (National Institute for Astrophysics, Optics and Electronics, Mexico); Maria Teresa Sanz-Pascual (National Institute for Astrophysics, Optics and Electronics, Mexico); Luis Hernandez-Martinez (National Institute for Astrophysics, Optics and Electronics, Mexico); Santiago Celma (University of Zaragoza, Spain)
pp. 194-197

Synapse Dynamics in CMOS Derived From a Model of Neurotransmitter Release
Marko Noack (Dresden University of Technology, Germany); Christian Mayr (Dresden University of Technology, Germany); Johannes Partzsch (Dresden University of Technology, Germany); Rene Schüffny (Dresden University of Technology, Germany)
pp. 198-201

Architectural Mitigation for High Performance Energy Measurement
Sumit Adhikari (ICT, Vienna University of Technology & Open SystemC Initiative, Austria); Yaseen Zaidi (ICT, Vienna University of Technology, Austria); Christoph Grimm (Vienna University of Technology, Austria)
pp. 202-205

On-Chip High-Q Bandpass Filtering Using N-phase Current Driven Passive Mixers
Hatem Osman (Cairo University, Egypt); Ahmed Emira (Cairo University, Egypt); Ahmed Mohieldin (Cairo University, Egypt); Mohamed Abouzied (Cairo University, Egypt); Ahmed M Soliman (Cairo University, Egypt)
pp. 206-209

A Front Line Algorithm for Error Estimation in Data Sets with Nonuniform Sampling Distribution
Daniel Andrzej Piętak (Warsaw University of Technology & Heavy Ion Laboratory, University of Warsaw, Poland); Jacek Wojciechowski (Warsaw University of Technology, Poland); Pawel Napiorkowski (University of Warsaw, Poland)
pp. 210-213

M20: Advances in Cellular Nonlinear/Nanoscale Networks

Special Session

Cellular Neural Network Learning Using Multilayer Perceptron
Mireia Vinyoles-Serra (University Ramon Llull, Spain); Stanislaw Jankowski (Warsaw University of Technology, Poland); Zbigniew Szymanski (Warsaw University of Technology, Poland)
pp. 214-217

Cellular Techniques for Ring Imaging Cherenkov Detector Image Processing
Xavier Vilasís-Cardona (Ramon Llull University, Spain)
pp. 218-221

Response of the Two Neuron Cellular Neural Network to Time Dependent Inputs
Mireia Vinyoles-Serra (University Ramon Llull, Spain); Xavier Vilasís-Cardona (Ramon Llull University, Spain)
pp. 222-225

A Novel CNN Based Image Denoising Model
Angela Slavova (Institute of Mathematics and Informtics, Academy of Sciences, Bulgaria); Victoria Rashkova (Rousse University, Bulgaria)
pp. 226-229

Image Filtering by Reduced Kernels Exploiting Kernel Structure and Focal-Plane Averaging
Jorge Fernandez-Berni (Institute of Microelectronics of Seville, Spain); Ricardo Carmona-Galan (Institute of Microelectronics of Seville, Spain); Ángel Rodríguez-Vázquez (Institute of Microelectronics of Seville, Spain)
pp. 230-233

On the Possibilities of Using a Class of CNN's for Texture Classification
Ion Vornicu (Technical University of Iasi, Romania); Liviu Goras (Technical University of Iassy, Romania)
pp. 234-237

M21: Nonlinear Circuits 1

Oral Session

Heteroclinic Bifurcation in Memristor Oscillators
Fernando Corinto (Politecnico diTorino, Italy); Alon Ascoli (Politecnico di Torino, Italy); Marco Gilli (Politecnico di Torino, Italy)
pp. 238-241

A Nonlinear Analysis of Differential LC Injection-Locked Frequency Dividers
Antonio Buonomo (Seconda Università di Napoli, Italy); Alessandro Lo Schiavo (Seconda Università di Napoli, Italy)
pp. 242-245

Limit Cycles in a Digitally Controlled Buck Converter
Mark Bradley (University College Dublin, Ireland); Alexey Teplinsky (Institute of Mathematics, National Academy of Sciences of Ukraine, Ukraine); Orla Feely (University College Dublin, Ireland)
pp. 246-249

Extracting Oscillators Phase-Sensitivity to Noise Perturbations
Paolo Maffezzoni (Politecnico di MIlano, Italy); Dario D'Amore (Politecnico di MIlano, Italy); Mauro Santomauro (Politecnico di MIlano, Italy)
pp. 250-253

Control of Inter-Spike-Interval Density of Piecewise-Constant Chaotic Spiking Oscillator with Dead-Time
Takahiro Aoki (Nagaoka University of Technology, Japan); Tadashi Tsubone (Nagaoka University of Technology, Japan)
pp. 254-257

Numerical Method for Bifurcation Analysis in an Impact Oscillator with Fixed Border
Akiko Takahashi (Oita University, Japan); Kunichika Tsumoto (Osaka University, Japan); Kazuyuki Aihara (University of Tokyo, Japan); Takuji Kousaka (Oita University, Japan)
pp. 258-261

M22: Sigma-Delta Modulators

Oral Session

Compact Tone-Behavior Model for Delta-Sigma Modulators
Marko Neitola (University of Oulu, Finland); Timo Rahkonen (University of Oulu, Finland)
pp. 262-265

STF Optimization of 1-Bit CT ΣΔ Modulators Based on Scaled Loop Filter Coefficients

Christoph Zorn (Leibniz University of Hanover, Germany); Christian Widemann (Leibniz University of Hanover, Germany); Timon Brückner (University of Ulm, Germany); Maurits Ortmanns (University of Ulm, Germany); Wolfgang Mathis (Universität Hannover, Germany)

pp. 266-269

A High-ELD Tolerant Continuous-Time Sigma-Delta Modulator for Bluetooth with DWA Calibration

Ye Tian (Royal Institute of Technology, Sweden); Ying Song (the Royal Institute of Technology, Sweden); Mats Erixon (KISEL Microelectronics AB, Sweden); Ola Tylstedt (KISEL Microelectronics AB, Sweden)

pp. 270-273

A Study on Power Consumption of Modified Noise-Shaper Architectures for ΣΔ DACs

Nadeem Afzal (Linkoping University, Sweden); Reza Sadeghifar (Linkoping University, Sweden); Jacob Wikner (Linköping University & Cognicatus AB, Sweden)

pp. 274-277

Offset Elimination in Sigma Delta Analog to Digital Converters by fs/2 Modulation

Stephan Bannwarth (Leibniz Universität Hannover & Robert Bosch GmbH, Germany); Axel Wenzler (Robert Bosch GmbH, Germany); Wolfgang Mathis (Universität Hannover, Germany)

pp. 278-281

Digital Quadrature Mixing of Lowpass Sigma-Delta Modulators for Switch-mode Power Amplifiers

Keith Finnerty (National University of Irealnd Maynooth, Ireland); John Dooley (National University of Ireland Maynooth, Ireland); Ronan Farrell (NUI Maynooth, Ireland)

pp. 282-285

M23: Biomedical Circuits

Oral Session

Analog Cochlear Implant Using Sinh-Domain Filters

Evdokia Pilavaki (University of Patras, Greece); Costas Psychalinos (University of Patras & Physics Department, Greece)

pp. 286-289

An Improved CMOS Current Driver for Electrical Impedance Tomography

Loucas Constantinou (University College London, United Kingdom); Andreas Demosthenous (University College London, United Kingdom); Peter Langlois (University College London, United Kingdom); Bayford Richard (Middlesex University, United Kingdom); Iasonas Triantis (University College London, United Kingdom)

pp. 290-293

Design Considerations on CMOS Limiting Amplifiers for Wearable Biomedical Systems

Javier Ramos (University of Extremadura, Spain); José Luis Ausín (University of Extremadura, Spain); Guido Torelli (University of Pavia, Italy); J. Francisco Duque-Carrillo (University of Extremadura, Spain)

pp. 294-297

Time-Frequency Analysis of Biological Matter Using Short-Time Chirp Excitation

Mart Min (Tallinn University of Technology, Estonia); Toivo Paavle (Tallinn University of Technology, Estonia); Jaan Ojarand (ELIKO, Estonia)

pp. 298-301

Tuning the Low Cut-Off Frequency in Multichannel Neural Recording Amplifiers by the On-Chip Correction DACs

Piotr Kmon (AGH University of Science and Technology, Poland); Pawel Grybos (AGH University of Science and Technology, Poland); Robert Szczygiel (AGH University of Science and Technology, Poland); Miroslaw Zoladz (AGH University of Science and Technology, Poland)

pp. 302-305

Noise Folding Reduction in Discrete-Time Current Sensing

Marco Crescentini (University of Bologna, Italy); Marco Bennati (University of Bologna, Italy); Matteo Serafini (University of Bologna, Italy); Marco Tartagni (University of Bologna, Italy)

pp. 306-309

M24: Digital Filters

Oral Session

Linear-Phase FIR Digital Differentiator Order Estimation

Zaka ullah Sheikh (Linköping University, Sweden); Amir Eghbali (Linköping University, Sweden); Hakan Johansson (University of Linkoping, Sweden)

pp. 310-313

Optimization of AIQ Representations for Low Complexity Wavelet Transforms

Saima Athar (Linkoping University, Sweden); Oscar Gustafsson (Linköping University, Sweden)

pp. 314-317

Designing Two-Channel Nonuniform-Division FIR Filter Banks with Variable Notches

Keisuke Ishizawa (Tokyo University of Science, Japan); Toma Miyata (Tokyo University of Science, Japan); Naoyuki Aikawa (Tokyo University of Science, Japan)

pp. 318-321

Design of Multiplier-less FRM FIR Filter Using Artificial Bee Colony Algorithm

Manju Manuel (National Institute of Technology, Calicut, INDIA, India); Elizabeth Elias (NIT Calicut, India)

pp. 322-325

Two-Dimensional Filter Design Based on Frequency Mapping of Analog Prototype Filters

Radu Matei (Technical University "Gh.Asachi" of Iasi, Romania); Liviu Goras (Technical University of Iassy, Romania)

pp. 326-329

On Practical Aspects of Optimal FSD Filter Design Using Extracted Window Method

Marek Blok (Gdansk University of Technology, Poland)

pp. 330-333

Reception: Welcome Reception at the Konsert & Kongress

Tuesday, August 30

PLEN3: Exploiting opportunities for stretching novel 10Gb/s wireless designs to 1Tb/s

Plenary Talk, Prof. Gerhard P. Fettweis

Exploiting Opportunities for Stretching Novel 10Gb/s Wireless Designs to 1Tb/s

Gerhard Fettweis (Technische Universität Dresden, Germany)

Coffee: Coffee break

T10: Layout Issues in CAD of Analog CMOS Circuits

Special Session

A Template Router

Ahmet Unutulmaz (Bogazici University, Turkey); Gunhan Dündar (Bogazici University, Turkey); Francisco Fernández (University of Sevilla, Spain)

pp. 334-337

An Ontology for Constraints in Custom IC Design

Andreas Krinke (Dresden University of Technology, Germany); Jens Lienig (Dresden University of Technology, Germany)

pp. 338-340

A Seamless Representation for Coupling Transistor Sizing with Nanometric CMOS Layout Generation

Stéphanie Youssef (Université Pierre et Marie Curie, France); Farakh Javid (Université Pierre et Marie Curie, France); Damien Dupuis (Postdoc, France); Ramy Iskander (Université Pierre et Marie Curie, France); Marie-Minerve Louerat (UPMC/LIP6, France)

pp. 341-344

Layout-Aware Pareto Fronts of Electronic Circuits
Antonio Toro-Frías (University of Sevilla, Spain); Rafael Castro-López (Instituto de Microelectrónica de Sevilla, Spain); Elisenda Roca (Instituto de Microelectronica de Sevilla, Spain); Francisco Fernández (University of Sevilla, Spain)
pp. 345-348

Recent Research in Analog Placement Considering Thermal Gradient
Mark Po-Hung Lin (National Chung Cheng University, Taiwan)
pp. 349-352

T11: PLLs and Oscillators 1

Oral Session

A Design Methodology to Enable Sampling PLLs to Synthesise Fractional-N Frequencies
Tao Xu (Shanghai University, P.R. China); Xingyu Zhou (Shanghai University, P.R. China); Linyong Shen (Shanghai University, P.R. China); Marissa Condon (Dublin City University, Ireland)
pp. 353-356

Behavioral Phase-Noise Analysis of Charge-Pump Phase-Locked Loops
Paolo Maffezzoni (Politecnico di MIlano, Italy); Salvatore Levantino (Politecnico di MIlano, Italy); Carlo Samori (Politecnico di MIlano, Italy); Andrea Lacaita (Politecnico di MIlano, Italy); Dario D'Amore (Politecnico di MIlano, Italy); Mauro Santomauro (Politecnico di MIlano, Italy)
pp. 357-360

Frequency Control Schemes for Single-Ended Ring Oscillators
Muhammad Pasha (Linköping University, Sweden); Mark Vesterbacka (Linkoping University, Sweden)
pp. 361-364

Time-to-Digital Converter (TDC) for WiMAX ADPLL in 40 nm CMOS
Popong Effendrik (Delft University of Technology, The Netherlands); Bogdan Staszewski (Technische Universiteit Delft, The Netherlands)
pp. 365-368

Collapse of Mixed-Mode Oscillations and Chaos in the Extended Bonhoeffer-van Der Pol Oscillator Under Weak Periodic Perturbation
Naohiko Inaba (Meiji University, Japan); Tetsuro Endo (Meiji University, Japan); Tetsuya Yoshinaga (The University of Tokushima, Japan); Ken'ichi Fujimoto (The University of Tokushima, Japan)
pp. 369-372

T12: Analog Filters

Oral Session

Ladder-Biquad Filter Partitioning for On-chip Tuning

Drazen Jurisic (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia); George Moschytz (School of Engineering, Bar-Ilan University, Israel)

pp. 373-376

Low-Power Leapfrog Bandpass Filter with Transmission Zeros Using Integrators and Resistor-Based Addition Circuits

Hiroki Sato (Tokyo Institute of Technology, Japan); Zhishan Xu (Tokyo Institute of Technology, Japan); Nicodimus Retdian (Tokyo Institute of Technology, Japan); Shigetaka Takagi (Tokyo Institute of Technology, Japan)

pp. 377-380

New Realization of FDNR and Sixth Order Band Pass Filter Application

Firat Kaçar (Istanbul University, Turkey); Hakan Kuntman (Istanbul Technical University, Turkey)

pp. 381-384

Design Strategy for Biquad-Based Continuous-Time Low-Pass Filters

Pietro Monsurrò (University of Rome "La Sapienza", Italy); Salvatore Pennisi (University of Catania, Italy); Giuseppe Scotti (University of Rome "La Sapienza", Italy); Alessandro Trifiletti (University of Rome "La Sapienza", Italy)

pp. 385-388

T13: Acoustics, Audio, and Speech

Oral Session

Hilbert Transform by Divide-and-Conquer Piecewise Linear Approximation

Lacrimioara Grama (Technical University of Cluj-Napoca, Romania); Corneliu Rusu (Technical University of Cluj-Napoca, Romania)

pp. 389-392

Online Pitch Estimation Using Instantaneous Complex Frequency

Magdalena Kaniewska (Gdansk University of Technology, Poland)

pp. 393-396

An FPGA Based Decimation Filter Processor Design for Real-Time Continuous-Time S-D Modulator Performance Measurement and Evaluation

Sevket Cetinsel (University of Westminster & Applied DSP and VLSI Research Group, United Kingdom); Richard Morling (University of Westminster, United Kingdom); Izzet Kale (University of Westminster, United Kingdom)

pp. 397-400

Overcurrent Detection Circuit for Integrated Class-D Amplifiers

Frederico Cadete (Instituto Superior Tecnico, Portugal); David Guilherme (Instituto Superior Tecnico & Instituto de Telecomunicações, Portugal); Jorge Guilherme (Instituto Politécnico de Tomar, Portugal); Nuno Horta (Instituto Superior Técnico, Portugal)

pp. 401-404

An AC Power-Standard Using ZePoC-Coding and Feed-Forward HF-Compensation

Jan Wellmann (Leibniz University Hanover, Germany); Wolfgang Mathis (Universität Hannover, Germany); Martin Kahmann (PTB, Braunschweig, Germany)

pp. 405-408

T14: Sensor Systems

Oral Session

Development of a Fast Readout Chip in Deep Submicron Technology for Pixel Hybrid Detectors

Piotr Maj (University of Science and Technology, Poland); Pawel Grybos (AGH University of Science and Technology, Poland); Robert Szczygiel (AGH University of Science and Technology, Poland)

pp. 409-412

Signal Characterization of a Pulsed-Wire and Heat Flow System At a Flow Sensor

Okan Ecin (University of Duisburg-Essen, Germany)

pp. 413-416

Modeling and Calibration of 3D-Time-of-Flight Pulse-Modulated Image Sensors

Frank Matheis (Fraunhofer Institute for Microelectronic Circuits and Systems IMS, Germany); Werner Brockherde (Fraunhofer IMS, Germany); Anton Grabmaier (Fraunhofer IMS, Germany); Bedrich Hosticka (Fraunhofer IMS, Germany)

pp. 417-420

The s-Mote: a Versatile Heterogeneous Multi-Radio Platform for Wireless Sensor Networks Applications

Emanuel M. Popovici (University College Cork, Ireland); David Boyle (Tyndall National Institute, University College Cork, Ireland); Sean O'Connell (Tyndall National Institute, Ireland); Stephen Faul (UCC, Ireland); Philip Angove (Tyndall National Institute, Ireland); John Laurence Buckley (Tyndall National Institute, University College Cork, Ireland); Brendan O'Flynn (Tyndall National Institude, Ireland); John Barton (Tyndall National Institute, Ireland); C O'Mathúna (Tyndall National Institute, Ireland)

pp. 421-424

An Analog Lock-in Amplifier for Embedded Sensor Electronic Interfaces

Javier Aguirre (University of Zaragoza, Spain); Nicolas Medrano (University of Zaragoza, Spain); Belen Calvo (University of Zaragoza, Spain); Santiago Celma (University of Zaragoza, Spain); Cristina Azcona (University of Zaragoza, Spain)

pp. 425-428

Lunch: Tuesday Lunch

PLEN4: Digital RF architectures for wireless transceivers

Plenary Talk, Prof. Bogdan Staszewski

Digital RF Architectures for Wireless Transceivers
Bogdan Staszewski (Technische Universiteit Delft, The Netherlands)
pp. 429-436

TP1: Circuit Theory 2

Poster Session

Signal Flow Graphs for Determination of Higher Order Sensitivities of Circuit Functions
Stanislaw Osowski (Warsaw University of Technology, Poland)
pp. 437-440

Low-Distortion Current-Mode Quadrature Oscillator for Low-Voltage Low-Power Applications with Non-Linear Non-Inertial Automatic Gain Control
Josef Bajer (University of Defence Brno, Czech Republic); Jiri Vavra (University of Defence Brno, Czech Republic); Dalibor Biolek (Brno University of Technology, Czech Republic); Karel Hajek (University of Defence Brno, Czech Republic)
pp. 441-444

Error Evaluation of Circuit Analysis Method Using Haar Wavelet Transform
Seiichiro Moro (University of Fukui, Japan); Tatsuyuki Shoji (University of Fukui, Japan)
pp. 445-448

Effect of Bandgap Energy Temperature Dependence on Thermal Coefficient of Bandgap Reference Voltage
Sarang Kazeminia (Urmia University, Iran); Khayrollah Hadidi (Urmia University, Iran); Abdollah Khoei (Urmia University, Iran); Mohammad Naghi Azarmanesh (Urmia University, Iran)
pp. 449-452

Finding Spanning Trees and Hamiltonian Circuits in an Un-Oriented Graph an Algebraic Approach
Cristian Onete (NXP Semiconductors, The Netherlands); Maria Cristina Onete (CASED and TU Darmstadt, Germany)
pp. 453-456

Linearized Discrete-Time Model of Higher Order Charge-Pump PLLs
Chuang Bi (University College Dublin, Ireland); Paul Curran (University College Dublin, Ireland); Orla Feely (University College Dublin, Ireland)
pp. 457-460

A Numerical Approach for Nonlinear Dynamical Circuits with Jumps
Tina Thiessen (University of Hannover, Germany); Martin Gutschke (Universität Hannover, Germany); Philipp Blanke (Universität Hannover,

Germany); Wolfgang Mathis (Universität Hannover, Germany); Franz-Erich Wolter (Universität Hannover, Germany)
pp. 461-464

Noise in a Phase-Quadrature Pulsed Energy Restore Oscillator
Federico Bizzarri (Politecnico di Milano, Italy); A. Brambilla (Polytechnical Milano, Italy); Stefano Perticaroli (Sapienza University, Italy); Giancarlo Storti Gajani (Politecnico di Milano, Italy)
pp. 465-468

Experimental Technique for Estimating the Dispersion Coefficient of a Constant Phase Element
Ahmed Elwakil (University of Sharjah, UAE); Brent Maundy (University of Calgary, Canada)
pp. 469-471

Visual Detection and Implementation Aspects of a UAV See and Avoid System
Tamas Zsedrovits (Pázmány Péter Catholic University, Hungary); Akos Zarandy (Hungarian Academy of Sciences, Hungary); Balint Vanek (Hungarian Academy of Sciences, Hungary); Tamas Peni (Hungarian Academy of Sciences, Hungary); Jozsef Bokor (Hungarian Academy of Sciences, Hungary); Tamas Roska (Hungarian Academy of Sciences, Pázmány Péter Catholic University, Hungary)
pp. 472-475

Linear Circuits: A Measurement Based Approach
Ritwik Layek (Texas A&M University, USA); Aniruddha Datta (Texas A&M University, USA); Shankar Bhattacharyya (Texas A&M University, USA)
pp. 476-479

Phenomenological Study of an Injection-Locked CMOS LC Frequency Divider with Direct Injection
Michael P. Kennedy (University College Cork, Ireland); Xi Dong (University College Cork, Ireland); Hongjia Mo (University College Cork, Ireland)
pp. 480-483

Experimental Characterization of Arnold Tongues in Injection-Locked CMOS LC Frequency Dividers with Tail and Direct Injection
Michael P. Kennedy (University College Cork, Ireland); Hongjia Mo (University College Cork, Ireland); Xi Dong (University College Cork, Ireland)
pp. 484-487

Mutators for Transforming Nonlinear Resistor Into Memristor
Dalibor Biolek (Brno University of Technology, Czech Republic); Josef Bajer (University of Defence Brno, Czech Republic); Viera Biolkova (Brno University of Technology, Czech Republic); Zdenek Kolka (Brno University of Technology, Czech Republic)
pp. 488-491

Figure-of-Merit Optimization of a Low Noise Amplifier in 180Nm CMOS
Hans Hansen (Norwegian University of Science and Technology, Norway); Trond Ytterdal (Norwegian University of Science and Technology, Norway)
pp. 492-495

Computation of Positive Stable Realizations for Linear Continuous-Time Systems
Tadeusz Kaczorek (Bialystok University of Technology, Poland)
pp. 496-499

A Sequential Method for Noise Estimation in Switched-Capacitor Systems Using a Switching Time-Frequency Domain
Gabor Varga (Fraunhofer Institute for Microelectronic Circuits and Systems, Germany); Andreas Süss (Fraunhofer Institute for Microelectronic Circuits and Systems, Germany); Bedrich Hosticka (Fraunhofer IMS, Germany)
pp. 500-503

A Capacitor Mismatch Insensitive Technique for RSD Cyclic ADC
Hao Meng (University of Turku, Finland); Jia Sun (University of Oulu, Finland); Ari Paasio (University of Turku, Finland)
pp. 504-507

Current-Mode Precision Full-Wave Rectifier Using Single DXCCII and Two Diodes
Jaroslav Koton (Brno University of Technology & BUT, Czech Republic); Norbert Herencsar (Brno University of Technology, Czech Republic); Kamil Vrba (Brno University of Technology, Czech Republic)
pp. 508-511

Inverter Transfer Curves and SRAM Noise Margin Evaluation Based on an Ultra-Compact MOS Model
Elio Consoli (University of Catania, Italy); Gianluca Giustolisi (Università degli Studi di Catania, Italy); Gaetano Palumbo (University of Catania, Italy)
pp. 512-515

VLSI Low Loss Interconnects Scattering Parameters
Agnieszka Wardzińska (Poznan University of Technology, Poland); Wojciech Bandurski (Poznań University of Technology, Poland)
pp. 516-519

An Ultra-Compact MOS Model in Nanometer Technologies
Elio Consoli (University of Catania, Italy); Gianluca Giustolisi (Università degli Studi di Catania, Italy); Gaetano Palumbo (University of Catania, Italy)
pp. 520-523

Injection Locking/Pulling Analysis of Oscillators Under Fractional Excitation Frequency
Mark Gourary (IPPM RAS, Russia); Sergey Rusakov (IPPM RAS, Russia); Sergey Ulyanov (IPPM RAS, Russia); Mikhail Zharov (IPPM RAS, Russia)
pp. 524-527

An Event-Driven 8-Bit ADC with a Segmented Resistor-String DAC
Dhurv Chhetri (Linköping University, Sweden); Venkata Narasimha Manyam (Linköping University, Sweden); Jacob Wikner (Linköping University & Cognicatus AB, Sweden)
pp. 528-531

Nonlinearities in Frequency Dividers
Xiaoyan Gui (Broadcom Corp., USA); Michael M Green (University of California, Irvine, USA)

pp. 532-535

T20: Digital Circuits Towards the Sub-Threshold Domain

Special Session

Impact of NMOS/PMOS Imbalance in Ultra-Low Voltage CMOS Standard Cells
Massimo Alioto (University of Siena, Italy)
pp. 536-539

On the Reliability of Ultra Low Voltage Circuits Built From MINORITY-3 GATES
Snorre Aunet (University of Oslo Norway, Norway)
pp. 540-543

Design Trade-Offs in Ultra-Low-Power CMOS and STSCL Digital Systems
Armin Tajalli (EPFL, Switzerland); Yusuf Leblebici (EPFL, Switzerland)
pp. 544-547

Voltage Over-scaling: A Cross-Layer Design Perspective for Energy Efficient Systems
Georgios Karakonstantis (EPFL, Switzerland); Kaushik Roy (Purdue University, USA)
pp. 548-551

Synthesis Strategies for Sub-VT Systems
Pascal Meinerzhagen (EPFL, Switzerland); Oskar Andersson (Lund University, Sweden); Yasser Sherazi (Lund University, Sweden); Andreas Burg (EPFL, Switzerland); Joachim Rodrigues (Lund University, Sweden)
pp. 552-555

T21: Data Converters

Oral Session

Power Consumption Bounds for SAR ADCs
Dai Zhang (Linköping University, Sweden); Christer Svensson (Linköping University, Sweden); Atila Alvandpour (Linköping University, Sweden)
pp. 556-559

Area Efficiency of ADC Architectures
Bengt Jonsson (ADMS Design AB, Sweden)
pp. 560-563

A 10-Bit 5kHz Level-Crossing ADC
Rocco Luciano Grimaldi (KTH, Sweden); Saul Rodriguez (Royal Institute of Technology KTH, Sweden); Ana Rusu (Royal Institute of Technology (KTH) Stockholm, Sweden)
pp. 564-567

An MDAC Architecture with Low Sensitivity to Finite Opamp Gain
Francesco Centurelli (Università di Roma La Sapienza, Italy); Pietro Monsurrò (University of Rome "La Sapienza", Italy); Alessandro Trifiletti (University of Rome "La Sapienza", Italy)

pp. 568-571

Digital Assisted High-Order Multi-Bit Analog to Digital Ramp Converters
Yao Liu (University of Pavia, Italy); Edoardo Bonizzoni (University of Pavia, Italy); Franco Maloberti (University of Pavia, Italy)
pp. 572-575

A Low-Power Fully Differential 9-Bit C-2C Cyclic ADC
Niko Bako (University of Zagreb, Croatia); Adrijan Baric (University of Zagreb, Croatia)
pp. 576-579

T22: Digital Circuits

Oral Session

Ultra Low Power Hardware for Computing Squared Euclidean Distances
Peter Nilsson (Lund University, Sweden); Erik Hertz (Lund University, Sweden)
pp. 580-583

Design of 10 GHz Sampling Rate Digital FIR Filters with Powers-Of-Two Coefficients
Benjamin Parent (Institut Superieur d Electronique et du Numerique, France); Jonathan Müller (Institut Superieur d Electronique et du Numerique, France)
pp. 584-587

Optimization of Gate-Level Area in High Throughput Multiple Constant Multiplications
Levent Aksoy (INESC-ID, Portugal); Eduardo Costa (Universidade Católica de Pelotas, Brazil); Paulo Flores (INESC-ID / IST, TU Lisbon, Portugal); José Monteiro (Instituto Superior Técnico, Portugal)
pp. 588-591

Optimization and Evaluation of Tapered-VTH Approach for Energy-Efficient CMOS Buffers
Fabio Frustaci (University of Calabria, Italy); Pasquale Corsonello (University of Calabria, Italy); Massimo Alioto (University of Siena, Italy)
pp. 592-595

High Performance Haar Wavelet Transform Architecture
João Altermann (Universidade Católica de Pelotas, Brazil); Eduardo Costa (Universidade Católica de Pelotas, Brazil); Sergio Almeida (Universidade Católica de Pelotas, Brazil)
pp. 596-599

A Dynamically Error Correctable Bit Parallel Montgomery Multiplier Over Binary Extension Fields
Mahesh Poolakkaparambil (Oxford Brookes University, United Kingdom); Jimson Mathew (University of Bristol, United Kingdom); Abusaleh M. Jabir (Oxford Brookes University, United Kingdom); Dhiraj K. Pradhan (University of Bristol, United Kingdom)
pp. 600-603

T23: Neural Networks

Oral Session

Randomly Reconfigurable Cellular Neural Network
Tuba Ayhan (Istanbul Technical Universiy, Turkey); Mustak Erhan Yalçın (Istanbul Technical Universiy, Turkey)
pp. 604-607

Synchronization in Networks of FitzHugh-Nagumo Neurons with Memristor Synapses
Fernando Corinto (Politecnico diTorino, Italy); Valentina Lanza (Politecnico di Torino, Italy); Alon Ascoli (Politecnico di Torino, Italy); Marco Gilli (Politecnico di Torino, Italy)
pp. 608-611

Bifurcation in Mutually Coupled Three Neurons with Inhibitory Synapses
Eri Ioka (Aoyama Gakuin University, Japan); Hiroyuki Kitajima (Kagawa University, Japan); Yasuyuki Matsuya (Aoyama Gakuin University, Japan)
pp. 612-615

Developing 3-Step Modeling Strategy Exploiting Knowledge Based Techniques
Murat Simsek (Istanbul Technical University, Turkey)
pp. 616-619

External and Internal Control Applications for SC-CNN-Based Chaotic Circuit
Enis Günay (Erciyes University, Turkey); Recai Kiliç (Erciyes University, Turkey); Nimet Dahasert (Erciyes University, Turkey)
pp. 620-623

Experimental Verification of CNN (Cellular Neural Network)-Based Nonautonomous MLC Chaos Generator
Recai Kiliç (Erciyes University, Turkey); Enis Günay (Erciyes University, Turkey); Fatma Yildirim Dalkıran (Erciyes University, Turkey); Umut Mutlu (Erciyes University, Turkey)
pp. 624-627

T24: Nonlinear Circuits 2

Oral Session

Finding All Solutions of Piecewise-Linear Resistive Circuits Using Integer Programming
Kiyotaka Yamamura (Chuo University, Japan); Takahiro Ueda (Chuo University, Japan)
pp. 628-631

Symmetric Charge-Flux Nonlinearity with Combined Inherently-Asymmetric Memristors
Fernando Corinto (Politecnico diTorino, Italy); Alon Ascoli (Politecnico di Torino, Italy); Marco Gilli (Politecnico di Torino, Italy)
pp. 632-635

Periodic Behaviors in Discretized Second-Order Terminal Sliding Mode Control Systems
Zbigniew Galias (AGH University of Science and Technology, Poland); Xinghuo Yu (RMIT University, Australia)
pp. 636-639

Forced Chaos Generator with Switched CMOS Active Inductance
Yusuke Tsubaki (Tokyo Denki University, Japan); Yoshihiko Horio (Tokyo Denki University, Japan); Kazuyuki Aihara (University of Tokyo, Japan)
pp. 640-643

Circuit Implementation of Piecewise-Affine Functions Based on Lattice Representation
Macarena Martínez-Rodríguez (University of Seville, Spain); Iluminada Baturone (University of Seville, Spain); Piedad Brox (University of Seville, Spain)
pp. 644-647

Performance Evaluation of Asynchronous DS/CDMA Communications Using Unipolar Codes
Akio Tsuneda (Kumamoto University, Japan); Takashi Yoshida (Kumamoto University, Japan)
pp. 648-651

Bus: Bus Transport to the Conference Dinner

Gala: Conference Dinner at the Air Force Museum

Wednesday, August 31

PLEN5: Signal Processing for Spectrum Agile Radios

Plenary Talk, Prof. Markku Renfors

Signal Processing for Spectrum Agile Radios
Markku K. Renfors (Tampere University of Technology, Finland)

Coffee: Coffee break

W10: Testing World of Multi-GHz Circuits

Special Session

Implicit Test of High-Speed Analog Circuits Using Non-Intrusive Sensors
Louay Abdallah (TIMA Laboratory, France); Haralampos Stratigopoulos (TIMA Laboratory/CNRS, France); Salvador Mir (TIMA, France)
pg. 652

Production Test of an RF Receiver Chain Based on ATM Combining RF BIST and Machine Learning Algorithm

Sebastien Darfeuille (NXP SemiConductors, France); Christophe Kelma (NXP Semiconductors & NXP Semiconductors, France)

pp. 653-656

A Multi-GHz PLL Built-In Jitter Extraction Circuit for Deep Submicron Technologies

Osman Ekekon (University of Massachusetts Lowell, USA); Samed Maltabas (University of Massachusetts Lowell, USA); Martin Margala (University of Massachusetts Lowell, USA)

pp. 657-660

On-Chip Spectral Test for High-Speed ADCs by SD Technique

Jerzy Dąbrowski (Linköping University, Sweden)

pp. 661-664

W11: Digital Signal Processing

Oral Session

Low Complexity Least-Squares Filter Design for the Correction of Linear Time-varying Systems

Michael Soudan (Graz University of Technology & Signal Processing and Speech Communication Laboratory, Austria); Christian Vogel (Telecommunications Research Center Vienna (FTW) & Graz University of Technology, Austria)

pp. 665-668

Low-complexity Approximations of PWA Functions: a Case Study on Adaptive Cruise Control

Alberto Oliveri (University of Genoa, Italy); Gerrit Naus (Technische Universiteit Eindhoven, The Netherlands); Marco Storace (University of Genoa, Italy); Maurice Heemels (Technische Universiteit Eindhoven, The Netherlands)

pp. 669-672

Finite Wordlength Properties of Matrix Inversion Algorithms in Fixed-Point and Logarithmic Number Systems

Carl Ingemarsson (Linköping University, Sweden); Oscar Gustafsson (Linköping University, Sweden)

pp. 673-676

Generation of All Radix-2 Fast Fourier Transform Algorithms Using Binary Trees

Fahad Qureshi (Linköping University, Sweden); Oscar Gustafsson (Linköping University, Sweden)

pp. 677-680

Fast Power Back-Off Adjustment by Efficient Cubic Metric Determination

Sebastian Sichelschmidt (University of Wuppertal & Bergische Universität Wuppertal, Germany); Olaf Hahn (University of Wuppertal, Germany); Dieter Brückmann (University of Wuppertal, Germany)

pp. 681-684

W12: CAD for IC 1

Oral Session

Modeling and Experimental Results of Short Channel Annular MOS Transistors
Paula López (University of Santiago de Compostela, Spain); Beatriz Blanco-Filgueira (University of Santiago de Compostela, Spain); Johann Hauer (Fraunhofer Institute for Integrated Circuits, Germany)
pp. 685-688

Efficient Procedure for Solving Circuit Algebraic-Differential Equations with Modified Sparse LU Factorization Improving Fill-In Suppression
Josef Dobeš (Czech Technical University in Prague, Czech Republic); David Cerny (Czech Technical University in Prague, Czech Republic); Dalibor Biolek (Brno University of Technology, Czech Republic)
pp. 689-692

An Automated Area Optimization Routine for the Design of Very Low Frequency Gm-C Integrators
Federico Butti (University of Pisa, Italy); Paolo Bruschi (University of Pisa, Italy); Massimo Piotto (CNR, Italy)
pp. 693-696

An Automatic Layout Method for Timing Pulse Generator of Small LCD Driver
Shohei Asakawa (Chuo University, Japan); Shuji Tsukiyama (Chuo University, Japan); Isao Shirakawa (University of Hyogo, Japan); Shuji Nishi (Sharp Corporation, Japan); Tadashi Takeda (Sharp Corporation, Japan); Tomoyuki Nagai (Sharp Corporation, Japan); Yasushi Kubota (Sharp Corporation, Japan)
pp. 697-700

Utilization of Distortion Contribution Analysis
Janne P Aikio (University of Oulu, Finland); Timo Rahkonen (University of Oulu, Finland)
pp. 701-704

W13: Arithmetic Circuits

Oral Session

Power Reductions in Unrolled CORDIC Architectures
Peter Nilsson (Lund University, Sweden); Syed Nadeemuddin (Lund University, Sweden)
pp. 705-708

A VLSI Implementation of Logarithmic and Exponential Functions Using a Novel Parabolic Synthesis Methodology
Peyman Pouyan (Lund University, Sweden); Erik Hertz (Lund University, Sweden); Peter Nilsson (Lund University, Sweden)
pp. 709-712

Low Error Bit Width Reduction for Structural Adders of FIR Filters

Mathias Faust (Nanyang Technological University, Singapore); Chip-Hong Chang (Nanyang Technological University, Singapore)

pp. 713-716

Efficient Mapping of Mathematical Expressions to FPGAs: Exploring Different Design Methodologies

Csaba Nemes (The Faculty of Information Technology of the Pázmány Péter Catholic University, Hungary); Zoltan Nagy (Computer and Automation Research Institute Hungarian Academy of Sciences, Hungary); Péter Szolgay (Pázmány Péter Catholic University, Budapest, Hungary)

pp. 717-720

Automatic Implementation of Arithmetic Operation in Reconfigurable Logic Controllers

Adam Milik (Institute of Electronics, Silesian University of Technology, Poland); Andrzej Pułka (Institute of Electronics, Silesian University of Technology, Poland)

pp. 721-724

W14: PLLs and Oscillators 2

Oral Session

A Design Approach for Networks of Self-Sampled All-Digital Phase-Locked Loops

Jean-Michel N. Akre (SUPELEC, France); Jerome Juillard (SUPELEC - SSE, Gif-sur-Yvette, France); Mohammad Javidan (University of Pierre and Marie Curie Upmc, France); Eldar Zianbetov (University of Pierre and Marie Curie Upmc, France); Dimitri Galayko (University Paris-VI, France); Anton Korniienko (CEA, LETI, Minatec, France); Eric Colinet (CEA-LETI - MINATEC, Grenoble, France)

pp. 725-728

Phase Noise Analysis of a Mechanical Autonomous Impact Oscillator with a MEMS Resonator

Federico Bizzarri (Politecnico di Milano, Italy); Xueyong Wei (University of Cambridge, United Kingdom)

pp. 729-732

Spice-oriented Algorithm for Analysis of Coupled Oscillators

Hiroshige Kataoka (Tokushima University, Japan); Yoko Uwate (Tokushima University, Japan); Yoshihiro Yamagami (Tokushima University, Japan); Yoshifumi Nishio (Tokushima University, Japan)

pp. 733-736

Rotation of Phase Difference in Four Coupled Oscillators as a Regular Tetrahedron Form

Takahiro Nagai (Tokushima University, Japan); Yoko Uwate (Tokushima University, Japan); Yoshifumi Nishio (Tokushima University, Japan)

pp. 737-740

Synchronization and Frustration in Coupled Large-scale Polygonal Oscillatory Networks

Yoko Uwate (Tokushima University, Japan); Yoshifumi Nishio (Tokushima University, Japan)

pp. 741-744

Lunch: Wednesday Lunch

W20: Analog Signal Processing

Oral Session

Analog CMOS Processor for Early Vision Processing with Highly Reduced Power Consumption

Waldemar Jendernalik (Gdansk University of Technology, Poland); Jacek Jakusz (Gdansk University of Technology, Poland); Grzegorz Blakiewicz (Gdansk University of Technology, Poland); Robert Piotrowski (Gdansk University of Technology, Poland); Stanisław Szczepański (Gdansk University of Technology, Poland)

pp. 745-748

Figures of Merit for Class AB Input Stages

Gaetano Palumbo (University of Catania, Italy); Melita Pennisi (University of Catania, Italy); Ramon Carvajal (University of Sevilla, Spain)

pp. 749-752

Design and Realization of a Filter Bank by Switched Capacitor Technique

Jiri Hospodka (Czech Technical University in Prague, Czech Republic); Pavel Sovka (Czech Technical University in Prague, Czech Republic); Bohumil Psenicka (National Autonomous University of Mexico, Mexico)

pp. 753-756

W21: Amplifiers

Oral Session

A class-AB Flipped Voltage Follower Output Stage

Francesco Centurelli (Università di Roma La Sapienza, Italy); Pietro Monsurrò (University of Rome "La Sapienza", Italy); Alessandro Trifiletti (University of Rome "La Sapienza", Italy)

pp. 757-760

A Programmable-Bandwidth Amplifier for Ultra-Low-Power Switched-Capacitor Application

Ali Fazli Yeknami (Linkoping University, Sweden); Mostafa Savadi Osgooei (Linkoping University, Sweden); Atila Alvandpour (Linköping University, Sweden)

pp. 761-764

A Class-AB Very Low Voltage Amplifier and Sample & Hold Circuit
Francesco Centurelli (Università di Roma La Sapienza, Italy); Pietro Monsurrò (University of Rome "La Sapienza", Italy); Alessandro Trifiletti (University of Rome "La Sapienza", Italy)
pp. 765-768

A Very Low-Voltage Differential Amplifier for Opamp Design
Francesco Centurelli (Università di Roma La Sapienza, Italy); Pietro Monsurrò (University of Rome "La Sapienza", Italy); Giuseppe Scotti (University of Rome "La Sapienza", Italy); Alessandro Trifiletti (University of Rome "La Sapienza", Italy)
pp. 769-772

W22: Communication Circuits

Oral Session

Envelope Detector Sensitivity and Blocking Characteristics
Emil Nilsson (Halmstad University, Sweden); Christer Svensson (Linköping University, Sweden)
pp. 773-776

FPGA Implementation of Rate-Compatible QC-LDPC Code Decoder
Anton Blad (Linköping university, Sweden); Oscar Gustafsson (Linköping University, Sweden)
pp. 777-780

FFT and Filter Bank Based Spectrum Sensing for WLAN Signals
Sener Dikmese (Tampere University of Technology, Finland); Markku K. Renfors (Tampere University of Technology, Finland); Hasan Dincer (Kocaeli University, Turkey)
pp. 781-784

Optimization of Bandpass Charge Sampling Filters in Hybrid Filter Banks Converters for Cognitive Radio Applications
Alban Gruget (Telecom ParisTech, France); Morgan Roger (Supélec, France); Van Tam Nguyen (Télécom-ParisTech, France); Caroline Lelandais-Perrault (SUPÉLEC, France); Philippe Bénabès (Supelec, France); Patrick Loumeau (ParisTech, France)
pp. 785-788

W23: Emerging Technologies

Oral Session

On Axon-inspired Communications
Valeriu C. Beiu (UAE University, UAE); Walid Ibrahim (UAEU, UAE); Azam Beg (UAE University, UAE); Liren Zhang (United Arab Emirates University, UAE); Mihai Tache (United Arab Emirates University, UAE)
pp. 789-792

A Bandpass Sigma-Delta Domain Single-Flux Quantum Wave Filter

Takashi Yasuno (Hiroshima City University, Japan); Hisato Fujisaka (Hiroshima City University, Japan); Takeshi Kamio (Hiroshima City University, Japan); Kazuhisa Haeiwa (Hiroshima City University, Japan)

pp. 793-796

Ultra-Wideband Impulse Radio Based on Pulse Compression Technique

Tamas Krébesz (Budapest University of Technology and Economics, Hungary); Geza Kolumbán (Pazmany Peter Catholic University, Hungary); Csaba Józsa (Pazmany Peter Catholic University, Hungary)

pp. 797-800

New Carrier Generation Techniques and Their Influence on Bit Energy in UWB Radio

Tamas Krébesz (Budapest University of Technology and Economics, Hungary); Csaba Józsa (Pazmany Peter Catholic University, Hungary); Geza Kolumbán (Pazmany Peter Catholic University, Hungary)

pp. 801-804

W24: Power Supply

Oral Session

High Frequency Full Bridge Converter Using Multilayer Coreless Printed Circuit Board Stepup Power Transformer

Jawad Saleem (University of Mid Sweden, Sweden); Abdul Majid (Department of Information Technology and Media, Sweden); Radhika Ambatipudi (Mid Sweden University, Sweden); Hari Babu Kotte (Mid Sweden University, Sweden); Kent Bertilsson (Department of Information Technology and Media, Sweden)

pp. 805-808

A Power Grid Optimization Algorithm Considering Via Reliability

Masahiro Fukui (Ritsumeikan University, Japan); Haruo Miki (Ritsumeikan University, Japan); Masaya Yoshikawa (Meijyo University, Japan); Shuji Tsukiyama (Chuo University, Japan)

pp. 809-812

A 250W/30A Fast Charger for Ultracapacitors with Direct Mains Connection

Rares Bodnar (University of Southampton & School of Electronics and Computer Science, United Kingdom); William Redman-White (University of Southampton, United Kingdom)

pp. 813-816

Practical Design Strategy for Two-Phase Step Up DC-DC Fibonacci Switched-Capacitor Converter

Yan Chiew Wong (University of Edinburgh, United Kingdom); Wei Zhou (University of Edinburgh, United Kingdom); Ahmed O. El-Rayis (The University of Edinburgh, United Kingdom); Nakul Haridas (The University of Edinburgh, United Kingdom); Ahmet T. Erdogan (The University of Edinburgh, United Kingdom); Tughrul Arslan (The University of Edinburgh, United Kingdom)

pp. 817-820

Coffee: Coffee break

W30: RF Circuits 2

Oral Session

Decade Bandwidth Single and Cascaded Travelling Wave Medium Power Amplifiers Using SiGe HBTs

Mustafa Sayginer (Istanbul Technical University, Turkey); Metin Yazgi (Istanbul Technical University, Turkey); Ali Toker (Istanbul Technical University, Turkey); Hakan Kuntman (Istanbul Technical University, Turkey); Bal Virdee (London Metropolitan University, United Kingdom)

pp. 821-824

Low Noise Transconductance Amplifier Design for Continuous-Time SD Wideband Frontend

Quoc-Tai Duong (Linkoping University, Sweden); Jerzy Dąbrowski (Linköping University, Sweden)

pp. 825-828

2.4-GHz Single-ended Input Low-Power Low-Voltage Active Front-end for ZigBee Applications in 90 nm CMOS

Rafaella Fiorelli (Instituto de Microelectrónica de Sevilla-IMSE-CNM & Universidad de Sevilla, Spain); Alberto Villegas (Instituto de Microelectrónica de Sevilla-IMSE-CNM, Spain); Eduardo Peralías (Instituto de Microelectrónica de Sevilla-IMSE-CNM, Spain); Diego Vázquez (Instituto de Microelectrónica de Sevilla-IMSE-CNM, Spain); Adoración Rueda (Instituto de Microelectrónica de Sevilla-IMSE-CNM, Spain)

pp. 829-832

AM-PM Distortion Caused by Transistor's Signal- Dependent Input Impedance

Timo Rahkonen (University of Oulu, Finland); Simo Hietakangas (University of Oulu, Finland); Janne P Aikio (University of Oulu, Finland)

pp. 833-836

W31: Image Processing 2

Oral Session

Feasibility Study of Codebook Generation Applying Complex Systems

Tang Tang (Technische Universität Dresden, Germany); Ronald Tetzlaff (Technische Universität Dresden, Germany)

pp. 837-840

Banknote Recognition for Visually Impaired

Zóra Solymár (Pázmány Péter Catholic University, Hungary); Attila Stubendek (Pázmány Péter Catholic University, Hungary); Mihály Radványi (Pázmány Péter Catholic University, Hungary); Kristóf Karacs (Pázmány Péter Catholic University, Hungary)

pp. 841-844

Four-Layer Cellular Neural Networks in Consideration of Color and Luminosity

Yoshihiro Kato (Tokushima University, Japan); Yasuhiro Ueda (Tokushima University, Japan); Yoko Uwate (Tokushima University, Japan); Yoshifumi Nishio (Tokushima University, Japan)

pp. 845-848

People Recognition and Tracking Methods for Control of Viewpoint in CCTV Systems

Adam Miroslaw Dabrowski (Poznan University of Technology, Poland); Damian Cetnarowicz (Poznan University of Technology, Poland); Paweł Pawłowski (Poznan University of Technology, Poland); Mateusz Stankiewicz (Poznan University of Technology, Poland)

pp. 849-852

W32: CAD for IC 2

Oral Session

Parameter Extraction for Electrolyte-Gated Organic Field Effect Transistor Modeling

Deyu Tu (Linköping University, Sweden); Lars Herlogsson (Linköping University, Sweden); Xavier Crispin (Linköping University, Sweden); Magnus Berggren (Linköping University, Sweden); Robert Forchheimer (Linköping University, Sweden)

pp. 853-856

LDS - a Description Script for Layout Templates

Ahmet Unutulmaz (Bogazici University, Turkey); Gunhan Dündar (Bogazici University, Turkey); Francisco Fernández (University of Sevilla, Spain)

pp. 857-860

C-Based System LSI Design of a Particle Tracking Technology

Takashi Kambe (Kinki University, Japan)

pp. 861-864

Low Complexity Low Power Non-Recursive Digital Filters with Unconstrained Topology

Marc Joliveau (CIRRELT - Université de Montréal, Canada); Michel Gendreau (University of Montreal, Canada); Francois Gagnon (Ecole de Technologie Superieure, Canada); Claude Thibeault (Ecole de Technologie Superieure, Canada)

pp. 865-868

W33: Pipelined ADCs

Oral Session

A 6-Bit Bias-less Pipelined ADC with Open-loop Amplifiers

Ding-Lan Shen (Fu Jen Catholic University, Taiwan); Yi-Ming Tsai (Fu Jen Catholic University, Taiwan)

pp. 869-872

Design of Digitally Assisted 1.5b/stage Pipeline ADCs Using Fully Differential Current Conveyors

Harish Balasubramaniam (TU Darmstadt, Germany); Klaus Hofmann (TU Darmstadt, Germany)

pp. 873-876

Single and Two-stage OTAs for High-Speed CMOS Pipelined ADCs

Tero Nieminen (Aalto University School of Electrical Engineering, Finland)

pp. 877-880

W34: Test 2

Oral Session

Tolerance Maximisation in Fault Diagnosis of Analogue Electronic Circuits

Lukas Chruszczyk (Silesian University of Technology, Poland); Damian Grzechca (Silesian University of Technology & Institute of Electronics, Poland)

pp. 881-884

A BIST Scheme for Operational Amplifier by Checking the Stable Output of Transient Response

Yuan Jun (Kochi University of Technology, Japan); Tachibana Masayoshi (Kochi University of Technology, Japan)

pp. 885-888

Testing of First and Second Order Delta-Sigma Converters for Catastrophic Faults

Mohamed Amin (Cairo University, Egypt); Mohamed B Abdelhalim (Arab Academy for Science, Technology & Maritime Transport, Egypt); Hassanein H. Amer (American University in Cairo (AUC), Egypt)

pp. 889-892

A New CMOS Exponential Circuit with Extended Linear Output Range

Ali Naderi Saatlo (Istanbul Technical University, Turkey); Serdar Ozoguz (Istanbul technical University, Turkey)

pp. 893-896

END: Closing remarks