



MOCAS'T

INTERNATIONAL CONFERENCE ON
MODERN CIRCUITS AND SYSTEMS TECHNOLOGIES

5th INTERNATIONAL CONFERENCE ON MODERN CIRCUITS AND SYSTEMS TECHNOLOGIES

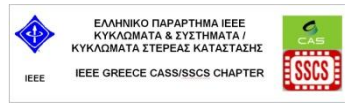
May 12-14, 2016

Aristotle University Dissemination Center (ΚΕΔΕΑ)
Thessaloniki,
Greece

PROGRAM



Department of Physics
Aristotle University of Thessaloniki



Thursday, May 12

8:45 - 9:20

Registration

Hall: AMΦ II

9:20 – 10:00

Opening session

General Chair: Prof. S. Nikolaidis, – Aristotle University of Thessaloniki

Vice Rector, Aristotle University of Thessaloniki

Program Chair: Prof. S. Goudos, – Aristotle University of Thessaloniki

Student Contest Chair: Dr. C.L. Sotiropoulou, University of Pisa - INFN, Italy

10:00-11:00

Keynote Speech

“Heterogeneous 3D integrated circuits: state-of-the-art and future outlook”

Prof. Maciej Ogorzalek – Jagiellonian University in Krakow, Poland

Chair: Prof. Georgios Sirakoulis

11:00-11:30

Coffee Break

Hall: AMΦ II

Session A1: Analog/RF and Mixed Signal Circuits

Chair: Prof. Minas Dasygenis

11:30-11:48

A 14-bit 2.5-GS/s DAC Using CAL-TRZ

Guoting Wu, Qi Wei, Xiayang Chen, Fei Qiao

11:48-12:06

Optimized Built-In Self-Calibration of RF SoCs

J. Liaperdos, A. Arapoyanni, Y. Tsiatouhas

12:06-12:24

PWL Function-based Model of a Beta Cell

D.K. Guevara-Flores, J.M. Munoz-Pacheco, E. Zambrano-Serrano,
O. Felix-Beltran, C. K. Volos

12:24-12:42

Implementation of a 256x8 Sector Size SRAM Grid with Memory Write Speedup on CeidMem Library

Theodoros Simopoulos, Themistoklis Haniotakis, George Alexiou

12:42-13:00

A memristive circular buffer for real-time signal processing

Christos Sichonidis, Ioannis Vourkas, Nikolaos Mitianoudis,
Georgios Sirakoulis

Hall: AMΦ III

Session B1: Microwave Systems and Wireless Technologies

Chair: Prof. Katherine Siakavara

11:30-11:48

Employment of DNG Dielectric Structures in Ambient Microwave Energy

Harvesting Systems

Karampatea Apostolia, Siakavara Katherine

11:48-12:06

A Software Tool for Satellite Advanced Multibeam Aperiodic Array Synthesis

Theodoros N. Kaifas, Dimitrios G. Babas, John N. Sahalos

12:06-12:24

A Square Ring Resonator Bandpass Filter With Asymmetrically Loaded Open Circuited Stubs

Salman Arain, Muhammad Ali Babar Abassi, Symeon Nikolaou,
Photos Vryonides

12:24-12:42

Statistical Analysis of Microwave Components through a 3-D Stochastic-FDTD Technique

A. Papadimopoulos, V. Alreem, T. Zygiridis, P. Sarigiannidis, N. Kantartzis,
C. Antonopoulos

12:42-13:00

The Receiver Circuit for Ultra-Wideband Integral Pulse Frequency Modulated Wireless Sensor

Tomislav Matić, Marijan Herceg, Josip Job, Leon Šneler

13:00:14:00

Light Lunch

Hall: AMΦ II

Session A2: Digital Circuits and Systems

Chair: Prof. Dimitrios Soudris

14:00-14:18

Low-Power, High-Performance 64-bit CMOS Priority Encoder Using Static-Dynamic Parallel Architecture

Dimitrios Balobas, Nikos Konofaos

14:18-14:36

Level-1 Data Driver Card of the ATLAS New Small Wheel Upgrade Compatible with the Phase II 1 MHz Readout Scheme

Panagiotis Gkountoumis, Authors Muon Collaboration On Behalf of the ATLAS

14:36-14:54

NLTF Based BIST Circuit for DRAM Testing

Yiorgos Sfikas, Yiorgos Tsiatouhas

14:54-15:12

Novel multi-Gbps bit-flipping decoders for punctured LDPC codes

Christina Archonta, Nikos Kanistras, Vassilis Paliouras

15:12-15:30

Compiler Transformations in Hardware Synthesis of Mpeg2 Codes

Georgios Chatzianastasiou, Apostolos Tsakyridis, Georgios Dimitriou,
Michael Dossis

Hall: AMΦ III

Session B2: Communication Systems

Chair: Prof. Tralanos Yioultsis

14:00-14:18

Enhanced Performance of DFTs-OFDM-CDMA System using Interleave Spreading Code

Triratana Metkarunchit

14:18-14:36

STBC-OFDM Communication Systems with Sub-Sampling Support

Nikos Petrellis

14:36-14:54

Comparative Analysis of Medium Access Techniques in Wireless Body Area Networks

Dimitra S. Kaitalidou, Alexandros-Apostolos A. Boulogeorgos, Fotini-Niovi Pavlidou

14:54-15:12

DAMA: A Data Mining Forecasting DBA Scheme for XG-PONS

Panagiotis Sarigiannidis, Dimitris Pliatsios, Theodoros Zygidis,
Nikolaos Kantartzis

15:12-15:30

Outage Capacity Estimation of FSO Links with Pointing Errors Over Gamma Turbulence Channels

A.N. Stassinakis, H.E. Nistazakis, G.K. Varotsos, G.S. Tombras, A.D. Tsigopoulos, V. Christofilakis

Hall: Φ (-1)

14:00-15:30

Poster C1: Electronics: Circuits and Systems

Chair: Mr. Ioannis Messaris

Through Silicon Via Fault Detection and Characterization

Vasileios Gerakis, Leonidas Katselas, Alkis Hatzopoulos

Effect of the Memristor Threshold Current on Memristor-based Min-Max circuits

S.H. Amer, A.H. Madian, Hany ElSayed, A.S. Emara

Designing LUT-based Mealy FSM with Transformation of Collections of Output Functions

Kamil Mielcarek, Alexander Barkalov, Larisa Titarenko

Designing Moore FSM with Unstandard Representation of State Codes

Kamil Mielcarek, Alexander Barkalov, Larisa Titarenko

Development of the Coincidence Sorter for the INSIDE PET system

Eleftheria Kostara, Maria Giuseppina Bisogni, Giancarlo Sportelli, Fabrizio Palla

Phase Noise Performance Analysis of High Speed Cross Coupled CMOS LC VCOs

Christos Lytrosyngounis, Thomas Noulis

Parallelization Hierarchical Search in Python for High Performance Embedded Systems

Radoglou Grammatikis Panagiotis, Manganopoulou Eudoxia, Dasygenis Minas

Online automatic examination system for digital circuits

Catherine Vafeiadou, Pantelis Vasiloudis, Minas Dasygenis

Teddy bear upgraded with embedded system to react on feelings

Michaila Goula-Dimitriou, Minas Dasygenis

A Software Tool for Aging Analysis of the CMOS Inverter based on Hot Carrier Degradation modelling

I. Messaris, S. K. Goudos, S. Nikolaidis, C.A. Dimitriadis

LAWRIS: A Rule-Based Arduino Programming System for Young Students

S. Arakliotis, D. G. Nikolos, E. Kalligeros

A Performance Enhancement Approach based on Tweak Process Scheduling for a P1619 core

Thanasis Tsakoulis, George Theodoridis, Athanasios Kakarountas

A Counter Architecture for Reducing Hot-Carrier Induced Transistor Aging Effects

Emmanouil Bochoridis, Ioannis Messaris, Spyridon Nikolaidis

QuCirDET: A design and simulation tool for quantum circuits

Konstantinos Prousalis, Nikos Konofaos

The Experimental Model of a non-ideal Memristor

Rodrigo Picos, Stavros G. Stavrinides, Antonios Theodorakakos, Euripides Hatzikraniotis

Adaptive-fuzzy hysteresis controlled three phase shunt active filter for switching frequency constant

Salem Saidi, Rabeh Abbassi, Souad Chebbi

High Speed Binary Counter based on 1D Cellular Automata

Chris Christakis, George Theodoridis, Athanasios Kakarountas

15:30-16:00

Coffee break

16:00-18:00

Industry Forum

Chair: [Prof. Thomas Noulis](#)

Ioannis Kiourtides, Representative of Südwestmetall (The Baden-Wuerttemberg Employers' Association of the Metal and Electrical Industry), Germany

Prof. Kostas Doris, R&D Development Manager, NXP Semiconductors, The Netherlands

Dr. Nikolaos Vassiliadis, Product Design Engineer / Electronics Design & Development Dpt. Theon Sensors S.A.

Nikolaos Valantasis - Kanelos, Product Development Manager of European Sensor Systems, ESS

Michalis Tsiampas, R&D Engineer, Helic S.A.

Also for the panel:

Prof. Charalabos Dimitriadis, Aristotle University of Thessaloniki

Friday, May 13

09:10 -09:40

Registration

Hall: AMΦ II

Session A3

Special Session: Advanced Electronic Systems for High Energy Physics Experiments

Chair: [Dr. Calliope-Louisa Sotiropoulou](#)

09:40-09:58

FTK: A Hardware Real-Time Track Finder for the ATLAS Trigger System

Stabile A. et all, FTK -ATLAS (on behalf of)

09:58-10:16

Performance of a Real-time Multipurpose 2-Dimensional Clustering Algorithm Developed for the ATLAS Experiment

S. Gkaitatzis, C.-L. Sotiropoulou, A. Annovi, K. Kordas, et all, on behalf of the ATLAS Collaboration

10:16-10:34

First Results of an "Artificial Retina" Processor Prototype

F. Bedeschi, R. Cenci, P. Marino, M. J. Morello, D. Ninci, A. Piucci, G. Punzi, L. Ristori, F. Spinella, S. Stracka, D. Tonelli, J. Walsh

10:34-10:52

Track finding based on Associative Memories for Level-1 Triggering in HL-LHC experiments

G. Magazzù, N. Biesuz, G. M. Bilei, F. Crescioli, G. Fedi, C. Gentsos, D. Magalotti, F. Palla, L. Servoli

10:52-11:10

Lossless data compression for the HL-LHC silicon pixel detector readout

Stamatios Poulivos, Konstantin Androsov, Massimo Minuti, Fabrizio Palla

11:10-11:28

A new generation of integrated trigger and read out system for the MEG II experiment

M. Francesconi, L. Galli, U. Hartmann, F. Morsani, D. Nicolo, S. Ritt, E. Schmid

Hall: Φ (-1)

09:40-11:30

Poster C2: Telecom: Circuits and Systems

Chair: [Prof. Nikolaos Kantartzis](#)

Wideband Common Gate LNA With Novel Input Matching Technique

Sana Arshad, Rashad.Ramzan, Qamar-ul-Wahab

Efficient Baseband Modem Physical Implementation for Fixed Broadband Wireless Access Networks

Labros Bisdounis

Fused Modulo 2^n+1 Add-Multiply Unit For Diminished-1 Operands

Kostas Tsoumanis, Kiamal Pekmestzi, Constantinos Efstathiou

Miniature High Resolution FMCW SAR System

Wenge Chang, Haishan Tian, Xiangyang Li

A High-Speed Storage System for an airborne SAR

Haishan Tian, Wenge Chang, Xiangyang Li

UHF RFID Antenna for ETSI and FCC Reading Applications

A. Boursianis, A. Theopoulos, T. Samaras, A. C. Polycarpou, J. N. Sahalos

Optimal Power Allocation in Wireless Sensor Networks using Emerging Nature-Inspired Algorithms

Antonios Tsiflikiotis, Sotirios K. Goudos

Design of High Efficiency Resonant coil and Receiver IC for Wireless Power transfer in Mobile Device

Se Yong Kim, Tae Yang Kim, Jun Rim Choi

An Efficient Geometric Distortion Correction Method for SAR Onboard Processing

Chengfei Gu, Wenge Chang

Finding the optimum training solution for Byzantine Music Recognition - a Max/Msp approach

K. Kokkinidis, A. Panagi, A. Manitsaris

Unconditionally-Stable Time-Domain Approach for Uncertainty Assessment in Transmission Lines

Christos Salis, Theodoros Zygidis, Panagiotis Sarigiannidis, Nikolaos Kantartzis

On the Influence of the Time Dispersion at the Availability of the Optical Wireless Links with Spatial Jitter over Malaga-modeled Turbulence

Hardware Efficient Fast FIR Filter Based on Karatsuba Algorithm

Evangelos Kyritsis, Kiamal Pekmestzi

Comparative Study of Generalized Electrical and Optical Notch Filters via Classical Control Theory

Zhengmao Ye, Habib Mohamadian

11:30-12:00

Coffee Break

Hall: AMΦ II

12:00-13:00

Keynote Speech

“Analog Mixed-signal front-ends for Securely Connected Cars”

Prof. Kostas Doris, NXP Semiconductors, The Netherlands

Chair: Prof. Stylianos Siskos

13:00-14:00

Light Lunch

14:00-14:40

Invited Speech

“Bio-electronics for Improved Quality of Life”

Prof. Julius Georgiou, University of Cyprus, Cyprus

Chair: Prof. Georgios Tsiatouhas

Hall: AMΦ II

Session A4: Systems and Applications

Chair: Prof. Georgios Tsiatouhas

14:40-14:58

The VINEYARD project: Versatile Integrated Accelerator-based Heterogeneous Data Centres

Christoforos Kachris, Dimitrios Soudris, Georgi Gaydadjiev, Huy-Nam Nguyen, Dimitrios S. Nikolopoulos, Angelos Bilas, Neil Morgan, Christos Strydis, Vasilis Spatadakis, Dimitris Gardelis, Ricardo Jimenez-Peris, Alexandre Almeida

14:58-15:16

A novel signal processing method based on the frequency modality for intra-body medical instrument tracking

Dimitris A. Fotiadis, Alexandros Astaras, Anestis Kalfas, Panagiotis D. Bamidis

15:16-15:34

ECG Signal Analysis and Arrhythmia Detection on IoT wearable medical devices

Dimitra Azariadi, Vasileios Tsoutsouras, Sotirios Xydis, Dimitrios Soudris

15:34-15:52

Voltage Control of Single-Phase Induction Motors Using Asymmetrical PWM and Fuzzy Logic

Gregory Zigirkas, John Kalomiros

15:52-16:10

Parallel Application Placement onto 3-D Reconfigurable Architectures

Panayiotis Danassis, Kostas Siozios, Dimitrios Soudris

16:10-16:30

Coffee Break

Hall: AMΦ II

Session A5: Student Contest Session

Chair: Dr. Calliope-Louisa Sotiropoulou

16:30-16:46

Carrier-Controlled Nanophotonic Components for Routing and Modulation Operations

Dimitrios Chatzidimitriou, Georgios Sinatkas, Thomas Christopoulos, Alexandros Pitilakis, Emmanouil E. Kriezis, Odysseas Tsilipakos

16:46-17:02

Reduction of delay variations in arithmetic circuits using a redundant representation

Kleanthis Papachatzopoulos, Vassilis Paliouras

17:02-17:18

Design of High Efficiency RF Power Amplifier based on the Doherty Technique

K.Zannas, E.Vafiadis

17:18-17:34

Substrate Noise Simulation for High Frequency CMOS System on Chip Design

V. Gavriilidou, T. Noulis, S.Siskos

17:34-17:50

A 60 GHz Down-Conversion Mixer with Variable Gain and Bandwidth in 130 nm CMOS Technology

Vasilis Kolios, Grigorios Kalivas

17:50-18:06

Architecture of a NVM-based Storage System Using Adaptive LDPC Codes

Stelios Korkotsides, Theodore A. Antonakopoulos

Saturday, May 14

9:40 – 10:00	Registration
	Hall: AMΦ II
10:00-11:00	Keynote Speech <i>“Internet of Things for Smart Cities: vision and reality”</i> Prof. Andrea Zanella, University of Padova, Italy Chair: Prof. Sotirios Goudos
11:00-11:30	Coffee Break
11:30-12:10	Invited Speech <i>“Memristor-based Platforms for Pattern Recognition: from nano-device to bioinspired algorithms”</i> Prof. Fernando Corinto, Politecnico di Torino, Italy Chair: Prof. John Kalomiros
Hall: AMΦ II Session A6: Device and Circuit Modeling Chair: John Kalomiros	
12:10-12:28	Improvement of Radiation Tolerance in CMOS ICs through Layout-Oriented Simulation Gabriele Bozzola, Luca Frontini, Valentino Liberali, Seyed Ruhollah Shojaii, Alberto Stabile
12:28-12:46	Application on Modern Control Theory on Performance Analysis of Generalized Notch Filters Zhengmao Ye, Habib Mohamadian
12:46-13:04	A two-transistor non-ideal memristor emulator John Kalomiros, Stavros G. Stavriniades, Fernando Corinto
13:04-13:22	A Novel 4-D Hyperchaotic Four-Wing Memristive System Dimitrios A. Prousalis, Christos K. Volos, Ioannis N. Stouboulos, Ioannis M. Kyprianidis
13:22-13:40	Opamp-based Synthesis of a Fractional Order Switched System E. Zambrano-Serrano, J.M. Munoz-Pacheco, E. Campos-Canton
13:40-14:00	MOCAS T Awards - Closing session Chair: Dr. Calliope-Louisa Sotiropoulou

