

Conference Program

August 29th 8:30 - 8:55

Room: Goldoni Session: Data Converters I Chairman: Franco Maloberti
TCAS-I-00214-2019 - "A 27.7 fJ/conv-step 500 MS/s 12-Bit Pipelined ADC Employing a Sub-ADC Forecasting Technique and Low-Power Class AB Slew Boosted Amplifiers"

August 29th 8:55 - 9:20

Room: Goldoni Session: Data Converters I Chairman: Franco Maloberti
TCAS-I-00267-2019 - "A Spectrum-Sensing DPD Feedback Receiver with 30x Reduction in ADC Acquisition Bandwidth and Sample Rate"

August 29th 9:20 - 9:45

Room: Goldoni Session: Data Converters I Chairman: Franco Maloberti
TCAS-I-00284-2019 - "A 4b 7 μ W Phase Domain ADC with Time Domain Reference Generation for Low Power FSK/PSK Demodulation"

August 29th 9:45 - 10:10

Room: Goldoni Session: Data Converters I Chairman: Franco Maloberti
TCAS-I-00286-2019 - "A Systematic Design Methodology for Optimization of Sigma-Delta Modulators Based on an Evolutionary Algorithm"

August 29th 8:30 - 8:55

Room: Pisani Session: Digital Circuits and VLSI Systems I Chairman: Yongfu Li
TCAS-I-00254-2019 - "WRA: A 2.2-to-6.3 TOPS Highly Unified Dynamically Reconfigurable Accelerator using a Novel Winograd Decomposition Algorithm for Convolutional Neural Networks"

August 29th 8:55 - 9:20

Room: Pisani Session: Digital Circuits and VLSI Systems I Chairman: Yongfu Li
TCAS-I-00268-2019 - "A 0.124 pJ/bit Cascode Current Mirror Array Based PUF with 1.50% Native Unstable Bit Ratio"

August 29th 9:20 - 9:45

Room: Pisani Session: Digital Circuits and VLSI Systems I Chairman: Yongfu Li
TCAS-I-00282-2019 - "An Ultra-Low-Power Dual-Mode Automatic Sleep Staging Processor Using Neural-Network-Based Decision Tree "

August 29th 9:45 - 10:10

Room: Pisani Session: Digital Circuits and VLSI Systems I Chairman: Yongfu Li
TCAS-II-04665-2019 - "Silicon Proven 1.8 μ m \times 9.2 μ m 65nm Digital Bit Generator for Hardware Security Applications"

August 29th 8:30 - 8:55

Room: Casanova Session: RF and Communications Circuits and Systems I Chairman: Jose Maria de la Rosa
TCAS-I-00183-2019 - "Analysis and Design of Ultra-Large Dynamic Range CMOS Transimpedance Amplifier with Automatically-Controlled Multi-Current-Bleeding Paths"

August 29th 8:55 - 9:20

Room: Casanova Session: RF and Communications Circuits and Systems I Chairman: Jose Maria de la Rosa
TCAS-I-00195-2019 - "An Integrated Discrete-Time Delay-Compensating Technique for Wide-Band Massive MIMO Beamformers"

August 29th 9:20 - 9:45

Room: Casanova Session: RF and Communications Circuits and Systems I Chairman: Jose Maria de la Rosa
TCAS-I-00222-2019 - "A 3.55Gb/s LDPC-Coded SCMA Receiver with Multi-User Iterative Detection and Decoding "

August 29th 9:45 - 10:10

Room: Casanova Session: RF and Communications Circuits and Systems I Chairman: Jose Maria de la Rosa
TCAS-I-00246-2019 - "A Supply-Noise-Insensitive Digitally-Controlled Oscillator"

Coffee Break

August 29th 10:30 - 10:55

Room: Goldoni Session: Power Electronic Circuits and Systems I Chairman: Chi-Seng Lam
TCAS-I-00147-2019 - "An Efficient, Wide-Output, High-Voltage Charge Pump with a Stage Selection Circuit Realized in a Low-Voltage CMOS Process"

August 29th 10:55 - 11:20

Room: Goldoni Session: Power Electronic Circuits and Systems I Chairman: Chi-Seng Lam
TCAS-I-00211-2019 - "An Optically-Powered 432MHz Wireless Tag for Batteryless Internet-of-Things Applications "

August 29th 11:20 - 11:45

Room: Goldoni Session: Power Electronic Circuits and Systems I Chairman: Chi-Seng Lam
TCAS-I-00260-2019 - "An 86% Efficiency, Wide-Vin SIMO DC-DC Converter Embedded in a Car-Radio IC "

August 29th 11:45 - 12:10

Room: Goldoni Session: Power Electronic Circuits and Systems I Chairman: Chi-Seng Lam
TCAS-I-00270-2019 - "A Fast-Transient-Response Fully-Integrated Digital LDO with Adaptive Current Step Size Control"

August 29th 10:30 - 10:55

Room: Pisani Session: Digital Circuits and VLSI Systems II Chairman: Alessandro Cabrini
TCAS-II-04670-2019 - "A Bit-line Voltage Sensing Circuit with Fused Offset Compensation and Cancellation Scheme"

August 29th 10:55 - 11:20

Room: Pisani Session: Digital Circuits and VLSI Systems II Chairman: Alessandro Cabrini
TCAS-II-04707-2019 - "Random Number Generators Based on Irregular Sampling and Fibonacci-Galois Ring Oscillators"

August 29th 11:20 - 11:45

Room: Pisani Session: Digital Circuits and VLSI Systems II Chairman: Alessandro Cabrini
TCAS-II-04750-2019 - "Low-power Floating-point Adaptive-CORDIC-based FFT Twiddle Factor on 65-nm Silicon-On-Thin-BOX (SOTB) with Back-gate Bias"

August 29th 11:45 - 12:10

Room: Pisani Session: Digital Circuits and VLSI Systems II
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August 29th 10:30 - 10:55

Room: Casanova Session: RF and Communications Circuits and Systems II Chairs: Elena Blokhina, Dimitri Galayko
TCAS-I-00255-2019 - "A Wideband dB-Linear VGA With Temperature Compensation and Active Load"

August 29th 10:55 - 11:20

Room: Casanova Session: RF and Communications Circuits and Systems II Chairs: Elena Blokhina, Dimitri Galayko
TCAS-I-00272-2019 - "A 4x64 MIMO Detector for Generalized Spatial Modulation System"

August 29th 11:20 - 11:45

Room: Casanova Session: RF and Communications Circuits and Systems II Chairs: Elena Blokhina, Dimitri Galayko
TCAS-I-00275-2019 - "A 0.0018-mm² 153%-Locking-Range CML-Based Divider-by-2 with Tunable Self-Resonant Frequency Using an Auxiliary Negative-gm Cell"

August 29th 11:45 - 12:10

Room: Casanova Session: RF and Communications Circuits and Systems II Chairs: Elena Blokhina, Dimitri Galayko
TCAS-I-00277-2019 - "A 0.12-mm² 1.2-to-2.4 mW 1.3-to-2.65 GHz Fractional-N Bang-Bang Digital PLL with 8- μ s Settling Time for Multi- ISM-Band ULP Radios"

Lunch

August 29th 14:00 - 14:25

Room: Goldoni Session: Analog Circuits Techniques I Chairman: Gabor Temes
TCAS-I-00198-2019 - "Low-Voltage Current and Voltage Reference Design Based on the MOSFET ZTC Effect"

August 29th 14:25 - 14:50

Room: Goldoni Session: Analog Circuits Techniques I Chairman: Gabor Temes
TCAS-I-00278-2019 - "A 0.7-V 28-nW CMOS Sub-Threshold Voltage and Current Reference in One Simple Circuit"

August 29th 14:50 - 15:15

Room: Goldoni Session: Analog Circuits Techniques I Chairman: Gabor Temes
TCAS-I-00283-2019 - "Design Considerations for Low-Distortion Filter and Oscillator ICs for Testing High-Resolution ADCs"

August 29th 15:15 - 15:40

Room: Goldoni Session: Analog Circuits Techniques I Chairman: Gabor Temes
TCAS-I-00298-2019 - "Accurate and Fast On-Wafer Test Circuitry for Device Array Characterization in Wafer Acceptance Test"

August 29th 15:40 - 16:05

Room: Goldoni Session: Analog Circuits Techniques I Chairman: Gabor Temes
TCAS-II-04857-2019 - "Time-Controlled and FinFET Compatible Sub-Bandgap References using Bulk-Diodes"

August 29th 14:00 - 14:25

Room: Pisani Session: Power Electronic Circuits and Systems II Chairman: Arunkumar Salimath
TCAS-I-00287-2019 - "A Single-stage Dual-output Tri-mode AC-DC Regulator for Inductively Powered Application"

August 29th 14:25 - 14:50

Room: Pisani Session: Power Electronic Circuits and Systems II Chairman: Arunkumar Salimath
TCAS-I-00290-2019 - "A Ripple Reduction Method for Switched-Capacitor DC-DC Voltage Converter Using Fully Digital Resistance Modulation"

August 29th 14:50 - 15:15

Room: Pisani Session: Power Electronic Circuits and Systems II Chairman: Arunkumar Salimath
TCAS-I-00306-2019 - "A Low-Noise, Positive-Input, Negative-Output Voltage Generator for Low-to-Moderate Driving Capacity Applications"

August 29th 15:15 - 15:40

Room: Pisani Session: Power Electronic Circuits and Systems II Chairman: Arunkumar Salimath
TCAS-II-04572-2019 - "An Integrated Transient Enhancement Circuit Suitable for Buck Converter with Large Output Capacitor"

August 29th 15:40 - 16:05

Room: Pisani Session: Power Electronic Circuits and Systems II Chairman: Arunkumar Salimath
TCAS-II-04671-2019 - "An External Capacitor-less Low-Dropout Voltage Regulator using a Transconductance Amplifier"

August 29th 14:00 - 14:25

Room: Casanova Session: Circuits and Systems for Sensors Chairman: Edoardo Bonizzoni
TCAS-I-00216-2019 - "An Integrated Micromachined Thermopile Sensor with a Chopper Interface Circuit for Contact-less Temperature Measurements"

August 29th 14:25 - 14:50

Room: Casanova Session: Circuits and Systems for Sensors Chairman: Edoardo Bonizzoni
TCAS-II-04557-2019 - "An Untrimmed BJT-Based Temperature Sensor with Dynamic Current-Gain Compensation in 55-nm CMOS Process"

August 29th 14:50 - 15:15

Room: Casanova Session: Circuits and Systems for Sensors Chairman: Edoardo Bonizzoni
TCAS-II-04674-2019 - "An On-Chip Thermal Monitoring System with a Temperature Sensing Area of 52 μm^2 in 180nm CMOS"

August 29th 15:15 - 15:40

Room: Casanova Session: Circuits and Systems for Sensors Chairman: Edoardo Bonizzoni
TCAS-II-04681-2019 - "A Voltage-Scalable Low-Power All-Digital Temperature Sensor for On-Chip Thermal Monitoring"

August 29th 15:40 - 16:05

Room: Casanova Session: Circuits and Systems for Sensors Chairman: Edoardo Bonizzoni
TCAS-II-04710-2019 - "A 0.9-V Analog-to-Digital Acquisition Channel for an IoT Water Management Sensor Node"

Coffee Break**August 29th 16:25 - 16:50**

Room: Goldoni Session: Analog Circuits Techniques II Chairman: Jose Maria de la Rosa
TCAS-II-04647-2019 - "A 0.25-dB-Step, 68 dB-Dynamic Range Analog Baseband with Digitally Assisted DCOC and AGC for Multi-Standard TV Applications"

August 29th 16:50 - 17:15

Room: Goldoni Session: Analog Circuits Techniques II Chairman: Jose Maria de la Rosa
TCAS-II-04678-2019 - "Background Offset Calibration for Comparator based on Temperature Drift Profile"

August 29th 17:15 - 17:40

Room: Goldoni Session: Analog Circuits Techniques II Chairman: Jose Maria de la Rosa
TCAS-II-04679-2019 - "A 1-nW Ultra-Low Voltage High PSRR Subthreshold CMOS Voltage Reference with 0.0154%/V Line Sensitivity"

August 29th 17:40 - 18:05

Room: Goldoni Session: Analog Circuits Techniques II Chairman: Jose Maria de la Rosa
TCAS-II-04683-2019 - "A 0.3-1.2V Schottky-Based CMOS ZTC Voltage Reference"

August 29th 18:05 - 18:30

Room: Goldoni Session: Analog Circuits Techniques II Chairman: Jose Maria de la Rosa
TCAS-II-04687-2019 - "A 28-nm FD-SOI CMOS Variable-Gain Amplifier with Body Bias-Based DC-Offset Cancellation for Automotive Radars"

August 29th 16:25 - 16:50

Room: Pisani Session: Power Electronic Circuits and Systems III Chairman: Edoardo Bonizzoni
TCAS-II-04684-2019 - "Design of KY Converter with Constant On-Time Control under DCM Operation"

August 29th 16:50 - 17:15

Room: Pisani Session: Power Electronic Circuits and Systems III Chairman: Edoardo Bonizzoni
TCAS-II-04705-2019 - "A Fully Integrated 60 mV Cold-Start Circuit for Thermoelectric Energy Harvesting"

August 29th 17:15 - 17:40

Room: Pisani Session: Power Electronic Circuits and Systems III Chairman: Edoardo Bonizzoni
TCAS-II-04711-2019 - "A Self-Powered Piezoelectric Energy Harvesting Circuit with an Optimal Flipping Time SSHI and Maximum Power Point Tracking"

August 29th 17:40 - 18:05

Room: Pisani Session: Power Electronic Circuits and Systems III Chairman: Edoardo Bonizzoni
TCAS-II-04712-2019 - "A Single-Inductor Triple-Input Dual-Output DC-DC Converter for Photovoltaic and Piezoelectric Energy Harvesting Systems"

August 29th 18:05 - 18:30

Room: Pisani Session: Power Electronic Circuits and Systems III Chairman: Edoardo Bonizzoni
TCAS-II-04748-2019 - "Fully Integrated High Voltage Pulse Driver Using Switched-Capacitor Voltage Multiplier and Synchronous Charge Compensation in 65-nm CMOS"

August 29th 16:25 - 16:50

Room: Casanova Session: RF and Communications Circuits and Systems III Chairman: Andreas Demosthenous
TCAS-I-00294-2019 - "Ultra-Low Complex Blind I/Q-Imbalance Compensation"

August 29th 16:50 - 17:15

Room: Casanova Session: RF and Communications Circuits and Systems III Chairman: Andreas Demosthenous
TCAS-I-00302-2019 - "Short-range Quality-factor Modulation (SQuirM) for Low Power High Speed Inductive Data Transfer"

August 29th 17:15 - 17:40

Room: Casanova Session: RF and Communications Circuits and Systems III Chairman: Andreas Demosthenous
TCAS-I-00303-2019 - "Analytical Equivalent Circuit Extraction Procedure for Broadband Scalable Modeling of Three-Port Center-Tapped Symmetric On-Chip Inductors"

August 29th 17:40 - 18:05

Room: Casanova Session: RF and Communications Circuits and Systems III Chairman: Andreas Demosthenous
TCAS-I-00341-2019 - "Maximizing the Data Rate of an Inductively-Coupled Chip-to-Chip Link by Resetting the Channel State Variables"

Welcome Cocktail**August 30th 8:30 - 8:55**

Room: Casanova Session: Data Converters II Chairman: Franco Maloberti
TCAS-I-00291-2019 - "A 10-MHz BW 77.9 dB SNDR DT MASH $\Delta\Sigma$ ADC with NC-VCO-based Quantizer and OPAMP Sharing"

August 30th 8:55 - 9:20

Room: Casanova Session: Data Converters II Chairman: Franco Maloberti
TCAS-I-00297-2019 - "A 13-bit 260MS/s Power-Efficient Pipeline ADC Using a Current-Reuse Technique and Interstage Gain and Nonlinearity Errors Calibration"

August 30th 9:20 - 9:45

Room: Casanova Session: Data Converters II Chairman: Franco Maloberti
TCAS-II-04643-2019 - "Improved Offline Calibration of DAC Mismatch Errors in Delta-Sigma Data Converters"

August 30th 9:45 - 10:10

Room: Casanova Session: Data Converters II Chairman: Franco Maloberti
TCAS-II-04676-2019 - "A Second-Order $\Delta\Sigma$ Time-to-Digital Converter Using Highly Digital Time-domain Arithmetic Circuits"

August 30th 8:30 - 8:55

Room: Goldoni Session: Digital Circuits and VLSI Systems III Chairs: Elena Blokhina, Dimitri Galayko
TCAS-II-04756-2019 - "Current Tracking Technique Enabling 1 bit/cell Storage in Ge-rich Phase Change Memory"

August 30th 8:55 - 9:20

Room: Goldoni Session: Digital Circuits and VLSI Systems III Chairs: Elena Blokhina, Dimitri Galayko
TCAS-II-04763-2019 - "A 0.4 V 298 nJ/op Neural Signal Spectral Feature Extraction Module with Novel Approximate MACs and Custom Compressors"

August 30th 9:20 - 9:45

Room: Goldoni Session: Digital Circuits and VLSI Systems III Chairs: Elena Blokhina, Dimitri Galayko
TCAS-II-04690-2019 - "Enabling Computational Storage through FPGA Neural Network Accelerator for Enterprise SSD"

August 30th 9:45 - 10:10

Room: Goldoni Session: Digital Circuits and VLSI Systems III Chairs: Elena Blokhina, Dimitri Galayko
TCAS-II-04637-2019 - "Synchronised Interconnected ADPLLs for Distributed Clock Generation in 65 nm CMOS Technology"

Coffee Break**August 30th 10:30 - 10:55**

Room: Casanova Session: RF and Communications Circuits and Systems IV Chairman: Jose Silva-Martinez
TCAS-I-00343-2019 - "A 2.2-GHz 3.2-mW DTC-free Sampling $\Delta\Sigma$ Fractional-N PLL with -110 dBc/Hz In-band Phase Noise and -246 dB FoM and -83 dBc Reference Spur"

August 30th 10:55 - 11:20

Room: Casanova Session: RF and Communications Circuits and Systems IV Chairman: Jose Silva-Martinez
TCAS-II-04613-2019 - "Fully Configurable Capacitor-Less Oversampling DC Offset Cancellation for Direct Conversion Receivers"

August 30th 11:20 - 11:45

Room: Casanova Session: RF and Communications Circuits and Systems IV Chairman: Jose Silva-Martinez
TCAS-II-04649-2019 - "A K-Band Complex Permittivity Sensor for Biomedical Applications in 130 nm SiGe BiCMOS"

August 30th 11:45 - 12:10

Room: Casanova Session: RF and Communications Circuits and Systems IV Chairman: Jose Silva-Martinez
TCAS-II-04664-2019 - "Modified Gilbert-Cell Mixer with an LO Waveform Shaper and Switched Gate-Biasing for 1/f Noise Reduction in 28 nm CMOS"

August 30th 10:30 - 10:55

Room: Goldoni Session: Circuits and Systems for Biomedical Applications I Chairman: Andreas Demosthenous
TBioCAS-0059-2019 - "An Ultra High-Frequency 8-Channel Neurostimulator Circuit with 68% Peak Power Efficiency "

August 30th 10:55 - 11:20

Room: Goldoni Session: Circuits and Systems for Biomedical Applications I Chairman: Andreas Demosthenous
TBioCAS-0080-2019 - "A 74- μ W 11-Mbps Wireless Vital Signs Monitoring SoC for 3-Lead ECG, Respiration Rate, and Body Temperature"

August 30th 11:20 - 11:45

Room: Goldoni Session: Circuits and Systems for Biomedical Applications I Chairman: Andreas Demosthenous
TBioCAS-0087-2019 - "A 2.55 NEF 76dB CMRR DC-Coupled Fully Differential Difference Amplifier Based Analog Front-end for Wearable Biomedical Sensors"

August 30th 11:45 - 12:10

Room: Goldoni Session: Circuits and Systems for Biomedical Applications I Chairman: Andreas Demosthenous
TBioCAS-0089-2019 - "BioWolf: A sub-10 mW 8-channel Advanced Brain Computer Interface Platform with a 9-core processor and BLE connectivity"

Lunch**August 30th 14:00 - 14:25**

Room: Casanova Session: RF and Communications Circuits and Systems V Chairman: Franco Maloberti
TCAS-II-04696-2019 - "A Fully-Integrated 25Gb/s Low-Noise TIA+CDR Optical Receiver designed in 40nm-CMOS"

August 30th 14:25 - 14:50

Room: Casanova Session: RF and Communications Circuits and Systems V Chairman: Franco Maloberti
TCAS-II-04709-2019 - "Gain, signal-to-noise ratio and power optimization of envelope detector for ultra-low-power wake-up receiver"

August 30th 14:50 - 15:15

Room: Casanova Session: RF and Communications Circuits and Systems V Chairman: Franco Maloberti
TCAS-II-04673-2019 - "A Low Power Frequency Tunable FSK Receiver Based on the N-path Filter"

August 30th 15:15 - 15:40

Room: Casanova Session: RF and Communications Circuits and Systems V
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August 30th 14:00 - 14:25

Room: Goldoni Session: Circuits and Systems for Biomedical Applications II Chairman: Alessandro Cabrini
TBioCAS-0090-2019 - "Palm-Sized Uric Acid Test Lab Powered by Smartphone for Proactive Gout Management "

August 30th 14:25 - 14:50

*Room: Goldoni Session: Circuits and Systems for Biomedical Applications II Chairman: Alessandro Cabrini
TBioCAS-0091-2019 - "A 13-Channel 1.53-mW 11.28-mm² Electrical Impedance Tomography SoC Based
on Frequency Division Multiplexing for Lung Physiological Imaging"*

August 30th 14:50 - 15:15

*Room: Goldoni Session: Circuits and Systems for Biomedical Applications II Chairman: Alessandro Cabrini
TBioCAS-0095-2019 - "A 122 fps, 1 MHz Bandwidth Multi-Frequency Wearable EIT Belt Featuring Novel
Active Electrode Architecture for Neonatal Thorax Vital Sign Monitoring"*