IEEE SOLID-STATE CIRCUITS SOCIETY

Where ICs are in IEEE

December 2017

NEWS

Upcoming Webinar

NOISE: You Love It or You Hate It - Presented by Albert J.P. Theuwissen

Wednesday, January 24th @ 10 AM ET

Professional Development Hours can be requested for this webinar

CLICK HERE TO REGISTER!

This webinar was pre-recorded. Albert Theuwissen will be available during the presentation to answer questions regarding content, formulas, or theories. Please follow the link to register for the webinar which is free and open to all SSCS members.

Abstract: This webinar will focus on the various noise sources present in a CMOS image sensor. A CMOS image sensor is a great example of a mixed-signal circuit : the analog pixel array is driven by digital control signals. The analog output signal generated by the pixel

array, goes through a denoising step in the analog domain before being converted to the digital domain. So it should not be surprising that a CMOS image sensor is a complex collection of different noise sources.
This webinar will address the most important noise sources in a CMOS image sensor, from temporal noise to spatial noise. The origin of those noise sources will be explained and countermeasures will be suggested. A lot of the countermeasures are already implemented in today's devices. Without the tremendous noise reduction techniques developed in the last decades, it would never ever have been possible to make colour images at the extreme low light levels like we have at this moment. The noise floor of today's devices is that low that we can almost detect single electrons with standard consumer devices. Noise : do you love it or do you hate it ? As a consumer I hate it, as an imaging engineer I love it !

Bio: Albert J.P. Theuwissen was born in Maaseik (Belgium) on December 20, 1954. He received the degree in electrical engineering from the Catholic University of Leuven (Belgium) in 1977. His thesis work was based on the development of supporting hardware around a linear CCD image sensor.

From 1977 to 1983, his work at the ESAT laboratory of the Catholic University of Leuven focused on semiconductor technology for linear CCD image sensors. He received the Ph.D. degree in electrical engineering in 1983. His dissertation was on the implementation of transparent conductive layers as gate material in the CCD technology.

In 1983, he joined the Micro Circuits Division of the Philips Research Laboratories in Eindhoven (the Netherlands), as a member of the scientific staff. Since that time he was involved in research in the field of solid state image sensing, which resulted in the project leadership of respectively SDTV- and HDTV imagers. In 1991 he became Department Head of the division Imaging Devices, including CCD as well as CMOS solid state imaging activities.

He is author or coauthor of over 200 technical papers in the solid state imaging field and issued several patents. In

1988, 1989, 1995 and 1996 he was a member of the International Electron Devices Meeting paper selection committee. He is co editor of IEEE Micro special issue on Digital Imaging, Nov./Dec. 1998 and of the IEEE Transactions on Electron Devices special issues on Solid State Image Sensors, May 1991, October 1997, January 2003, November 2009, and he acted as chief guest-editor of the special issue on Solid-State Image Sensors January 2016. In 1995, he authored a textbook "Solid State Imaging with Charge Coupled Devices" and in 2011 he co-edited the book "Single-Photon Imaging". In 1998, 2007 and 2015 he became an IEEE ED and SSCS distinguished lecturer.

He acted as general chairman of the International Image Sensor Workshop (formerly IEEE International Workshop on Charge-Coupled Devices and Advanced Image Sensors) in 1997, 2003, 2009 and 2015. He is member of the Steering Committee of the aforementioned workshop and founder of the Walter Kosonocky Award, which highlights the best paper in the field of solid-state image sensors.

During several years he was a member of the technical committee of the European Solid-State Device Research Conference and of the European Solid-State Circuits Conference.

From 1999 till 2010 he was a member of the technical committee of the International Solid-State Circuits Conference. For the same conference he acted as secretary, vice-chair and chair in the European ISSCC Regional Committee and since 2002 he was a member of the overall ISSCC Executive Committee. He has been elected to be International Technical Program Chair vice-chair and chair for respectively the ISSCC 2009 and ISSCC 2010.

In March 2001, he was appointed as part-time professor at the Delft University of Technology, the Netherlands. At this University he teaches courses in solid-state imaging; coaches MSc and PhD students in their research on CMOS image sensors.

In April 2002, he joined DALSA Corp. to act as the company's Chief Technology Officer. In September 2004 he retired as CTO and became Chief Scientist of DALSA Semiconductors. After he left DALSA in September 2007, he started his own company "Harvest Imaging", focusing on consulting, training, teaching and coaching in the field of solid-state imaging technology (www.harvestimaging.com).

In 2006 he co-founded (together with his peers Eric Fossum and Nobukazu Teranishi) ImageSensors, Inc. (a California non-profit public benefit company) to address the needs of the image sensor community (www.imagesensors.org).

In 2008, he received the SMPTE's Fuji Gold medal for his contributions to the research, development and education of others in the field of solid-state image capturing. He is member of editorial board of the magazine "Photonics Spectra", an IEEE Fellow and member of SPIE.

In 2011 he was elected as "Electronic Imaging Scientist of the Year", in 2013 he received the Exceptional Service Award of the International Image Sensor Society and in 2014 he was awarded with the SEMI Award.

Earn Continuing Education Hours

Have you attended an SSCS webinar? Attendees of upcoming and past webinars have the opportunity to earn professional development hours. Certificates of completion are offered to participants who view a webinar. A certificate of completion confirms one hour of professional development. After you attend the webinar, you may request a certificate of completion by completing the form **HERE**.

IEEE SSCS Young Professionals, Faculty, & Students Micro-Mentoring & Career Coaching Session

In conjunction with **ISSCC 2018**, the IEEE Solid-State Circuits Society (SSCS) will be holding a Young Professionals & Graduate Students Micro-Mentoring and Career Coaching Session. The event will be held on Tuesday, February 13, 2018 at 6 PM in the Soma Room of the San Francisco Marriott Marquis. The complementary event is open to all graduate students, early career engineers, and faculty within 15 years of their degree. Leading experts from industry, academia, SSCS executive officers & distinguished lecturers will be

available at the mentoring session to talk about career coaching, entrepreneurship, publications, and answer all your questions - both in a town-hall style and one-on-one. There will be complimentary snacks and beverages available for all participants. Student participants will get 1 year complimentary SSCS membership and a free SSCS t-shirt.

Please click here to RSVP. Walk-in's are welcome.

Download the new SSCS Mobile App

VOLTA is now available for download via the Apple Store and GooglePlay

Integrated Circuits (ICs) are at the core of our hi-tech world. They are inside everything electronics. In the coming robot/IoT/AR/VR era, the application and deployment of ICs will become even more prolific and widespread. IEEE Volta is an app developed by IEEE Solid-State Circuits Society (SSCS) aiming at educating the general public about the importance and the history of ICs over the years.

The application is named after Alessandro Volta, a pioneer of electricity and power. The puzzle themes feature the most significant ICs that have changed our way of living. Through learning about these ICs, users gain the historic perspective about this fascinating field and shed some light on what the future ICs may bring for us.

- **Click here** to download via the Apple App Store
- **Click here** to download via GooglePlay

SSCS Resource Center

NEW! SSCS Members, IEEE Members, and Non-Members can now earn Professional Development Hours (PDH's) and Continuing Education Units (CEU's) for our CONFedu series.

In an effort to increase member benefits, SSCS has created the SSCS Resource Center. This informational hub will house technical information such as past webinar videos and slides, ISSCC tutorials and short courses, and more.

Top 3 Downloaded Products on the SSCS Resource Center:

1). Demystifying Linear Time Varying Circuits by Shanthi Pavan

2). Enabling and Exploiting Machine Learning in Ultra-low-power Devices by Naveen Verma

3). Bringing Flexibility to Ultra Low Energy IoE Circuits and Systems by Edith Beigne

Click here to visit the SSCS Resource Center.

CONFERENCES

Upcoming Conferences

2018 International Solid-State Circuits Conference (ISSCC) San Francisco, CA	**February 11 - 15, 2018**
2018 Design, Automation & Test in Europe Conference and Exhibition (DATE) Dresden, Germany	**March 19 - 23, 2018**
2018 IEEE Custom Integrated Circuits Conference (CICC) San Diego, CA	**April 8 - 11, 2018**
2018 International Symposium on VLSI Technology, Systems and Application (VLSI-TSA) Hsinchu, Taiwan	**April 16 - April 19, 2018**
2018 International Symposium on VLSI Design, Automation and Test (VLSI-DAT) Hsinchu, Taiwan	**April 16-19, 2018**
2018 IEEE Radio Frequency Integrated Circuits Symposium (RFIC) Philadelphia, PA	**June 10 - 12, 2018**
2018 IEEE Symposium on VLSI Technology Honolulu, HI	**June 18 - 22, 2018**
2018 IEEE Symposium on VLSI Circuits Honolulu, HI	**June 18 - 22, 2018**
2018 IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED) Seattle, WA	**July 23 - 25, 2018**

ISSCC 2018 Workshop on Circuits for Social Good

February 11, 2018
Reception: 5 PM - 6 PM
Workshop: 6 PM - 9 PM
OPEN TO ALL

The Workshop on Circuits for Social Good highlights various ways that circuits can help address some of the most important challenges facing society today, ranging from health care to energy conservation.

The program aims to give a broad perspective of how one can have impact. It begins with several keynotes and invited talks from industry, academia and startups followed by interactive round-table discussions on topics including machine learning, medical devices, next generation communications, security and IoT, as well as discussions on career paths in research, product development, and entrepreneurship.

KEYNOTES

- Teresa H. Meng, Professor Emeritus at Stanford, Founder of Atheros, "Winning the game in a male-dominated industry"
- Nevine Nassif, Intel Fellow, "Low power design: how can we help become green?

INVITED TALKS

- Esther Rodriguez-Villegas, Associate Professor at Imperial College London, "Pioneering ultra-low power technologies to empower personal healthcare"
- Christine Ho, Co-Founder at Imprint Energy, "Driving a Ground-Breaking Ultrathin Flexible Printed Battery to Market - My Journey From Technologist to Entrepreneur"

ROUND TABLES (ASK AN EXPERT!)

- Next-Generation Communications

Alyssa Apsel, Professor at Cornell, Ithaca, NY, USA
Azita Emami, Professor at Caltech, Pasadena, CA, USA

- Machine Learning & Multimedia Systems

Vivienne Sze, Associate Professor at MIT, Cambridge, MA, USA
Marian Verhelst, Assistant Professor at KU Leuven, Leuven, Belgium

- Medical Devices and Applications

Rikky Muller, Assistant Professor at UC Berkeley, Berkeley, CA, USA
Esther Rodriguez-Villegas, Associate Professor at Imperial College London, London, UK

- Security and IoT

Edith Beigne, Senior Scientist at CEA-LETI, Grenoble, France
Ingrid Verbauwhede, Professor at KU Leuven, Leuven, Belgium

- Careers in Industry

Andreia Cathelin, Fellow at ST Microelectronics, Crolles, France
Yildiz Sinangil, Circuit Designer at Apple, Cupertino, CA, USA
Trudy Stetzler, Engineering Project Manager at Halliburton, Houston, TX, USA
Bich-Yen Nguyen, Senior Fellow at Soitec, Austin, TX, USA
Sonia Leon, Principal Engineer at Intel, Santa Clara, CA, USA

- Careers in Academia

Terri Fiez, Professor & Vice Chancellor of Research at University of Colorado Boulder, Boulder, CO, USA
Milin Zhang, Assistant Professor, Tsinghua University, Beijing, China

- Entrepreneurship

Christine Ho, Co-Founder of Imprint Energy, Alameda, CA, USA
Teresa H. Meng, Founder of Atheros Communications, Palo Alto, CA, USA

Click here for more information

CALL FOR PAPERS

RFIC 2018: IEEE Radio Frequency Integrated Circuits Symposium - Call for Papers

The 2018 IEEE Radio Frequency Integrated Circuits Symposium (RFIC 2018) will be held in Philadelphia, PA, USA on June 10-12, 2018. For latest information, please visit **rfic-ieee.org**.

The conference is soliciting papers describing original work in RFIC circuits, systems engineering, design methodology, RF modeling and CAD simulation, RFIC technologies, devices, fabrication, testing, reliability, packaging and modules to support RF applications in areas such as, but not limited to:

- **Wireless Cellular and Connectivity:** 2G/3G/4G/5G (sub-6GHz), LTE, WWAN, WLAN, BT, GPS, FM,UWB
- **Low Power Transceivers:** RFID, NFC, Zigbee, 802.15.4, WPAN, WBAN, Biomedical, Sensor Nodes, IR-UWB, Wake-up Receivers
- **Receiver Sub-Systems and Circuits:** LNAs, Mixers, VGAs, phase shifters, switches, Integrated FEM, amplifiers, filters, demodulators
- **Mixed-Signal RF and Data Converters:** RF and baseband converters(ADC/DAC),Sub-sampling/Over-sampling Circuits
- **Reconfigurable and Tunable Front-Ends:** SDR/Cognitive Radio,Wideband/Multi-band Front-Ends,Interference Cancellation, Full-Duplex, Adaptive Front-Ends
- **Transmitter Sub-Systems and Power Amplifiers:** Power Amplifiers, Drivers, modulators, digital transmitters, Advanced TX circuits, linearization and efficiency enhancement techniques
- **Oscillators:** VCOs, injection-locking frequency dividers/multipliers
- **Frequency Synthesis:** PLLs, DLLs, MDLLS, DDS, LO drivers, frequency dividers
- **Device Technologies, Packaging, Modeling, and Testing:** CMOS, SOI, FinFet, SiGe, GaAs, GaN, MEMS, Integrated Passives, Photonic, Emerging Devices, Reliability, Packaging, Modeling and Testing, EM Modeling/Co-Simulation, Built-in-Self-Test (BIST)
- **Millimeter-and SubMillimeter Wave Systems:** >20GHzSoCs/SiPs for wireless communication (5Gmm-Wave, WiGig, 802.11ay), phased-arrays, imaging, radar, remote sensing
- **High-Speed Data Transceivers:** Wireline, Optical Transceivers, and CDRs for High-Speed Data links

NEW THIS YEAR - A double-blind review process will be used to ensure anonymity for both authors and reviewers.

Electronic Submission Deadlines- Technical Paper Summaries in PDF Format are due 12 January 2018, Final Manuscripts for the Digest and USB are due 22 March 2018.

Submissions must be made at **rfic-ieee.org**.

2018 Symposium on VLSI Circuits: Call for Papers

The 2018 Symposium on VLSI Circuits will be held at the Hilton Hawaiian Village, Honolulu, Hawaii, USA on Monday, June 18, 2018 to Friday, June 22, 2018. Short courses will be held on

June 18, the technical sessions will be held on June 19, June 20, and June 21, and the forum will be held on June 22.

The Circuits Symposium is seeking papers and placing special emphasis on several innovative system focus areas. Paper submissions are encouraged in the following areas:

- Machine and deep learning
- Internet of Things
- Industrial electronics
- Big Data management and analytics
- Robotics and autonomous transportation

In addition, submissions are welcomed in all of the following circuits areas:

- Processors, architectures, and SoCs
- Digital circuits, signal integrity, and IOs
- Memory circuits, architectures, and interfaces
- Biomedical circuits
- Sensors,imagers, and display circuits
- Power conversion circuits
- Analog, amplifier and filter circuits
- Wireless receivers and transmitters
- Data converters
- Frequency generation and clock circuits
- Wireline receivers and transmitters

Submission Due Date: Monday, January 29, 2018 @ 23:59 PST.

The symposia website is the central resource for additional information, including details on paper submissions - **http://vlsisymposium.org**

ISLPED 2018: Call for Papers
International Symposium on Low Power Electronics and Design

The International Symposium on Low Power Electronics and Design (ISLPED) is the premier forum for presentation of innovative research in all aspects of low power electronics and design, ranging from process technologies and analog/digital circuits, simulation and synthesis tools, system-level design and optimization, to system software and applications. Specific topics include, but are not limited to, the following three main tracks and sub-areas:

1. Technology, Circuits and Architecture

1.1. Technologies

Low-power technologies for device, interconnect, logic, memory, 2.5/3D, cooling, harvesting, sensors, optical, printable, biomedical, battery, and alternative energy storage devices.

1.2. Circuits

Low-power digital circuits for logic, memory, reliability, clocking, power gating, resiliency, near-threshold and sub-threshold, variability, and digital assist schemes; Low-power analog/mixed-signal circuits for wireless, RF, MEMS, AD/DA Converters, I/O, PLLs/DLLS, imaging, DC-DC converters, and analog assist schemes.

1.3. Logic and Architecture

Low-power logic and microarchitecture for SoC designs, processor cores (compute, graphics and other special purpose cores), cache, memory, arithmetic/Signal processing, cryptography, variability, asynchronous design, and non-conventional computing.

2. CAD, Systems, and Software

2.1. CAD Tools and Methodologies

CAD tools and methodologies for low-power and thermal-aware design addressing power estimation, optimization, reliability and variation impact on power, and power-down approaches at all levels of design abstraction: physical, circuit, gate, register transfer, behavior, and algorithm.

2.2. Systems and Platforms

Low-power, power-aware, and thermal-aware system design including data-center power delivery and cooling, Platforms for SoCs, embedded systems, approximate and brain-inspired computing, the Internet-of-Things (IoT), wearable computing, body-area networks, wireless sensor networks, and system-level power implications due to reliability and

variability.

2.3. Software and Applications

Energy-efficient, energy-aware, and thermal-aware software and application design including scheduling and management, power optimizations through HW/SW interactions, and emerging software low-power applications.

3. Industrial Design Track

ISLPED'18 solicits papers for an "Industrial Design" track to reinforce interaction between the academic research community and industry. Industrial Design track papers have the same submission deadline as regular papers and should focus on similar topics, but are expected to provide a complementary perspective to academic research by focusing on challenges, solutions, and lessons learnt while implementing industrial-scale designs. Industrial design papers that focus on any of the topics mentioned in the tracks above are welcome.

Submissions on new topics: emerging technologies, architectures/platforms, and applications are particularly encouraged.

Important Deadlines:
Technical Paper Submission Deadlines: Abstract registration by February 26, 2018 at 11:59 PST, Full paper due by March 5, 2018 at 11:59 PST
Invited Talk, Panel, and Embedded Tutorial Proposals Deadline: April 16, 2018
Notification of Paper Acceptance: May 7, 2018
Submission of Camera-Ready Papers: June 4, 2018

Submissions should be full-length papers up to 6 pages (PDF format, double column, US letter size, using the IEEE conference format).

More information can be found here: **http://www.islped.org/2018/**

BioCAS 2018: Call for Papers
Biomedical Circuits and Systems Conference

BioCAS 2018 is a premier international forum for presenting the interdisciplinary research and development activities at the crossroads of medicine, life sciences, physical sciences and engineering that shape tomorrow's medical devices and healthcare systems.
This conference brings together members of our communities to broaden their knowledge in emerging areas of research at the interface of the life sciences and the circuits and systems engineering. The three-day single-track program for BioCAS 2018 is multidisciplinary in topics including but not limited to:

Biomedical Technologies
* Assistive, Rehabilitation, and Quality of Life Technologies
* Biofeedback, Neuromodulation, and Closed-Loop Systems
* Bio-Inspired and Neuromorphic Circuits and Systems
* Biosensor Devices and Interface Circuits
* Biotelemetry and Energy Harvesting/Scavenging Circuits and Systems
* Body Area/Sensor Network and Wireless/Wearable Health Monitoring
* Electronics for Neuroscience
* Implantable Medical Electronics
* Lab-on-Chip and BioMEMS

Biomedical Applications
* Point-of-Care Technologies for Healthcare
* Biomedical Imaging and Image Processing
* Biosignal Recording, Processing, and Machine Learning
* Genomics and Systems Biology
* Human-Machine Interfaces
* Medical Information Systems and Bioinformatics

Submission Guidelines
The complete 4-page paper (in standard IEEE double-column format), including the title, authors' names, affiliations and e-mail addresses, as well as a short abstract and an optional demonstration video link (3 minute max) are requested. Papers must be submitted electronically in PDF format through **www.biocas2018.org.**

Important Dates

Monday, April 23, 2018: Special Session Proposal Deadline
Monday, June 11, 2018: Regular Paper Submission Deadline
Monday, July 16, 2018: Live Demo Session deadline
Monday, August 13, 2018: Author Notification Date
Friday, August 31, 2018: Author Registration/Final Paper Submission Deadline

PUBLICATIONS

IEEE Solid-State Circuits Letters - Officially Launches

We're happy to announce that our new publication, IEEE Solid-State Circuits Letters, has launched. We are now accepting paper submissions.

For more information, visit:
http://sscs.ieee.org/publications/ieee-solid-state-circuits-letters-ssc-l

For paper submission, visit:
https://mc.manuscriptcentral.com/ssc-l

The latest in SSCS Flagship Publications...

IEEE Journal of Solid-State Circuits

Vol. 53, Issue 12, December 2017

A Wide Dynamic Range Buck Converter With Sub-nW Quiescent Power Arun Paidimarri ; Anantha P. Chandrakasan
Design of Soft-Charging Switched-Capacitor DC-DC Converters Using Stage Outphasing and Multiphase Soft-Charging Nicolas Butzen ; Michel S. J. Steyaert
A Hybrid Switched-Capacitor Battery Management IC With Embedded Diagnostics for Series-Stacked Li-Ion Arrays Christopher Schaef ; Eric Din ; Jason T. Stauth
A Fully Integrated Counter Flow Energy Reservoir for Peak Power Delivery in Small Form-Factor Sensor Systems Xiao Wu ; Kyojin Choo ; Yao Shi ; Li-Xuan Chuo ; Dennis Sylvester ; David Blaauw
Fully Integrated Inductor-Less Flipping-Capacitor Rectifier for Piezoelectric Energy Harvesting Zhiyuan Chen ; Man-Kay Law ; Pui-In Mak ; Wing-Hung Ki ; Rui P. Martins

A Multiphase Class-D Automotive Audio Amplifier With Integrated Low-Latency ADCs for Digitized Feedback After the Output Filter
Daniel Schinkel ; Wouter Groothedde ; Fred Mostert ; Marto-Jan Koerts ; Eric van Iersel ; Daniel Groeneveld ; Lucien Breems

A 19 Capacitive-Gain Amplifier With Switched-Capacitor ADC Driving Capability
Hanqing Wang ; Gerard Mora-Puchalt ; Colin Lyden ; Roberto Maurino ; Christian Birk

A 12-b 10-GS/s Interleaved Pipeline ADC in 28-nm CMOS Technology
Siddharth Devarajan ; Larry Singer ; Dan Kelly ; Tao Pan ; Jose Silva ; Janet Brunsilius ; Daniel Rey-Losada ; Frank Murden ; Carroll Speir ; Jeffery Bray ; Eric Otte ; Nevena Rakuljic ; Phil Brown ; Todd Weigandt ; Qicheng Yu ; Donald Paterson ; Corey Petersen ; Jeffrey Gealow ; Gabriele Manganaro

A 9-GS/s 1.125-GHz BW Oversampling Continuous-Time Pipeline ADC Achieving âˆ'164-dBFS/Hz NSD
Hajime Shibata ; Victor Kozlov ; Zexi Ji ; Asha Ganesan ; Haiyang Zhu ; Donald Paterson ; Jialin Zhao ; Sharvil Patil ; Shanthi Pavan

A Non-Interleaved 12-b 330-MS/s Pipelined-SAR ADC With PVT-Stabilized Dynamic Amplifier Achieving Sub-1-dB SNDR Variation
Hai Huang ; Hongda Xu ; Brian Elies ; Yun Chiu

A 4th-Order Continuous-Time Delta-Sigma Modulator Using 6-bit Double Noise-Shaped Quantizer
Taewook Kim ; Changsok Han ; Nima Maghari

A 10-bit DC-20-GHz Multiple-Return-to-Zero DAC With >48-dB SFDR
Lucas Duncan ; Brian Dupaix ; Jamin J. McCue ; Brandon Mathieu ; Matthew LaRue ; Vipul J. Patel ; Mesfin Teshome ; Myung-Jun Choe ; Waleed Khalil

A Millimeter-Wave Non-Magnetic Passive SOI CMOS Circulator Based on Spatio-Temporal Conductivity Modulation
Tolga Dinc ; Aravind Nagulu ; Harish Krishnaswamy

Analysis and Design of a Millimeter-Wave Cavity-Backed Circularly Polarized Radiator Based on Fundamental Theory of Multi-Port Oscillators
Peyman Nazari ; Saman Jafarlou ; Payam Heydari

An Intrinsically Linear Wideband Polar Digital Power Amplifier
Mohsen Hashemi ; Yiyu Shen ; Mohammadreza Mehrpoo ; Morteza S. Alavi ; Leo C. N. de Vreede

A 50-66-GHz Phase-Domain Digital Frequency Synthesizer With Low Phase Noise and Low Fractional Spurs
Ahmed I. Hussein ; Sriharsha Vasadi ; Jeyanandh Paramesh

A Class-G Voltage-Mode Doherty Power Amplifier
Voravit Vorapipat ; Cooper S. Levy ; Peter M. Asbeck

Dual-Terahertz-Comb Spectrometer on CMOS for Rapid, Wide-Range Gas Detection With Absolute Specificity
Cheng Wang ; Ruonan Han

A 28-GHz 32-Element TRX Phased-Array IC With Concurrent Dual-Polarized Operation and Orthogonal Phase and Gain Control for 5G Communications
Bodhisatwa Sadhu ; Yahya Tousi ; Joakim Hallin ; Stefan Sahl ; Scott K. Reynolds ; Örjan Renström ; Kristoffer Sjögren ; Olov Haapalahti ; Nadav Mazor ; Bo Bokinge ; Gustaf Weibull ; Håkan Bengtsson ; Anders Carlinger ; Eric Westesson ; Jan-Erik Thillberg ; Leonard Rexberg ; Mark Yeck ; Xiaoxiong Gu ; Mark Ferriss ; Duixian Liu ; Daniel Friedman ; Alberto Valdes-Garcia

Arbitrary Analog/RF Spatial Filtering for Digital MIMO Receiver Arrays
Linxiao Zhang ; Harish Krishnaswamy

Wideband Mixed-Domain Multi-Tap Finite-Impulse Response Filtering of Out-of-Band Noise Floor in Watt-Class Digital Transmitters
Ritesh Bhat ; Jin Zhou ; Harish Krishnaswamy

A 118-mW Pulse-Based Radar SoC in 55-nm CMOS for Non-Contact Human Vital Signs Detection
Nikolaj Andersen ; Kristian Granhaug ; Jørgen Andreas Michaelsen ; Sumit Bagga ; Håkon A. Hjortland ; Mats Risopatron Knutsen ; Tor Sverre Lande ; Dag T. Wisland

All-Digital LTE SAW-Less Transmitter With DSP-Based Programming of RX-Band Noise
Enrico Roverato ; Marko Kosunen ; Koen Cornelissens ; Sofia Vatti ; Paul Stynen ; Kaoutar Bertrand ; Teuvo Korhonen ; Hans Samsom ; Patrick Vandenameele ; Jussi Ryynänen

A 14-nm 0.14-psrms Fractional-N Digital PLL With a 0.2-ps Resolution ADC-Assisted Coarse/Fine-Conversion Chopping TDC and TDC Nonlinearity Calibration
Chih-Wei Yao ; Ronghua Ni ; Chung Lau ; Wanghua Wu ; Kunal Godbole ; Yongrong Zuo ; Sangsoo Ko ; Nam-Seog Kim ; Sangwook Han ; Ikkyun Jo ; Joonhee Lee ; Juyoung Han ; Daehyeon Kwon ; Chulho Kim ; Shinwoong Kim ; Sang Won Son ; Thomas Byunghak Cho

A 64-Gb/s 1.4-pJ/b NRZ Optical Receiver Data-Path in 14-nm CMOS FinFET
Ilter Ozkaya ; Alessandro Cevrero ; Pier Andrea Francese ; Christian Menolfi ; Thomas Morf ; Matthias Brändli ; Daniel M. Kuchta ; Lukas Kull ; Christian W. Baks ; Jonathan E. Proesel ; Marcel Kossel ; Danny Luu ; Benjamin G. Lee ; Fuad E. Doany ; Mounir Meghelli ; Yusuf Leblebici ; Thomas Toifl

Design Techniques for a 60-Gb/s 288-mW NRZ Transceiver With Adaptive Equalization and Baud-Rate Clock and Data Recovery in 65-nm CMOS Technology
Jaeduk Han ; Nicholas Sutardja ; Yue Lu ; Elad Alon

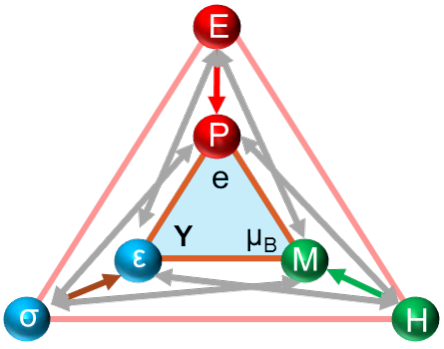
A 40-to-56 Gb/s PAM-4 Receiver With Ten-Tap Direct Decision-Feedback Equalization in 16-nm FinFET
Jay Im ; Dave Freitas ; Arianne Bantug Roldan ; Ronan Casey ; Stanley Chen ; Chuen-Huei Adam Chou ; Tim Cronin ; Kevin Geary ; Scott McLeod ; Lei Zhou ; Ian Zhuang ; Jaeduk Han ; Sen Lin ; Parag Upadhyaya ; Geoff Zhang ; Yohan Frans ; Ken Chang

A 40-Gb/s PAM-4 Transmitter Based on a Ring-Resonator Optical DAC in 45-nm SOI CMOS
Sajjad Moazeni ; Sen Lin ; Mark Wade ; Luca Alloatti ; Rajeev J. Ram ; Milos Popović ; Vladimir Stojanović

A 22.5-to-32-Gb/s 3.2-pJ/b Referenceless Baud-Rate Digital CDR With DFE and CTLE in 28-nm CMOS
Wahid Rahman ; Danny Yoo ; Joshua Liang ; Ali Sheikholeslami ; Hirotaka Tamura ; Takayuki Shibasaki ; Hisakatsu Yamaguchi

IEEE Journal on Exploratory Solid-State Computational Devices and Circuits

2017 Highlights



A Microbeam Resonator With Partial Electrodes for Logic and Memory Elements
Md Abdullah Al Hafiz ; Saad Ilyas ; Sally Ahmed ; Mohammad I. Younis ; Hossein Fariborzi

A Comparative Study Between Spin-Transfer Torque and Spin-Hall Effect Switching Mechanisms in PMTJ Using SPICE
Ibrahim Ahmed ; Zhengyang Zhao ; Meghna G. Mankalale ; Sachin S. Sapatnekar ; Jian-Ping Wang ; Chris H. Kim

MagCAD: Tool for the Design of 3-D Magnetic Circuits
Fabrizio Riente ; Umberto Garlando ; Giovanna Turvani ; Marco Vacca ; Massimo Ruo Roch ; Mariagrazia Graziano

A Thermodynamic Perspective of Negative-Capacitance Field-Effect Transistors
Sou-Chi Chang ; Uygar E. Avci ; Dmitri E. Nikonov ; Ian A. Young

An Energy-Efficient Digital ReRAM-Crossbar-Based CNN With Bitwise Parallelism
Leibin Ni ; Zichuan Liu ; Hao Yu ; Rajiv V. Joshi

Nonboolean Pattern Recognition Using Chains of Coupled CMOS Oscillators as Discriminant Circuits
Vahnood Pourahmad ; Sasikanth Manipatruni ; Dmitri Nikonov ; Ian Young ; Ehsan Afshari

Compact Modeling of Distributed Effects in 2-D Vertical Tunnel FETs and Their Impact on DC and RF Performances
Jie Min ; Peter M. Asbeck

Nonvolatile Spintronic Memory Array Performance Benchmarking Based on Three-Terminal Memory Cell
Chenyun Pan ; Azad Naeemi

CoMET: Composite-Input Magnetoelectric- Based Logic Technology
Meghna G. Mankalale ; Zhaoxin Liang ; Zhengyang Zhao ; Chris H. Kim ; Jian-Ping Wang ; Sachin S. Sapatnekar

Electrical-Spin Transduction for CMOS-Spintronic Interface and Long-Range Interconnects
Rouhollah Mousavi Iraei ; Sasikanth Manipatruni ; Dmitri E. Nikonov ; Ian A. Young ; Azad Naeemi

JxCDC papers listed in order of popularity can be found online **HERE**.

For paper submission details, click **HERE**.

Seeking News

Please send any chapter news or happenings (Distinguished Lecturer visits, events hosted by your SSCS chapter, awards received by members, etc) to Abira Sengupta, SSCS Magazine News Editor, for inclusion in an upcoming issue of the magazine. Please email - **Abira.Sengupta@ieee.org**. We look forward to receiving your news articles!

For more chapter news, check out the Fall 2017 issue of the Solid-State Circuits Magazine.

FEEDBACK

Let us know what you think! Please **email us** to send us your comments about the newsletter, what you would like to see included each month, or any other comments.

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