



**IEEE SOLID-STATE
CIRCUITS SOCIETY**
Where ICs are in IEEE

March 2017

EDUCATION



Upcoming Webinar

"Trends in Broadband Converters and the Quest for the Software Defined System," Presented by David H. Robertson

Thursday, April 6 @ 12:00 PM (ET)

***Professional Development Hours can be requested for this webinar.**

[CLICK HERE TO REGISTER!](#)

Dr. Robertson will be available during the webinar to answer any questions. Please follow the link to register for the webinar which is free and open to all SSCS members.

Abstract: The concept of a "software defined radio", "software defined instrument" or any "software defined" system is to move all the signal processing functions into the digital/software domain, thereby making the system highly reconfigurable. The principle is simple enough, but actually realizing workable systems is challenging, since the performance demands on the data converters can be daunting, not only in bandwidth, but in dynamic range. This talk will explore some of the progress that has been made over the last 15 years, with perspectives on both the driving applications and how converter technology has advanced in an effort to meet the applications challenges.

Bio: David H. Robertson has been with the Data Converter group of Analog

Devices since graduating from Dartmouth College in 1985. He has worked on a wide variety of high speed D/A and A/D converters on complementary bipolar, BiCMOS and CMOS processes. He has held positions as a Product Engineer, Design Engineer, and Product Line Director and VP of Analog Technology, working with product development teams in the US, Ireland, Korea, Japan, and China. Dave is presently the Product and Technology Director for ADI's High Speed Converter group. Dave holds 15 patents on converter and mixed signal circuits, has participated in two "best panel" International Solid State Circuits Conference evening panel sessions, and was co-author of the paper that received the IEEE Journal of Solid State Circuits 1997 Best Paper Award. He served on the ISSCC technical program committee from 2000 through 2008, chairing the Analog and Data Converter subcommittees from 2002 to 2008.

Upcoming Distinguished Lecturer Events in April

| | SPEAKER | CHAPTER | TOPIC |
|----------|--------------|-------------------|--|
| April 24 | Azita Emami | SSCS Toronto | Topic: TBD For more details, please click here. |
| April 27 | Pieter Harpe | SSCS South Brazil | Topic: TBD For more details, please click here. |
| April 28 | Woogeun Rhee | SSCS Atlanta | Topic: TBD For more details, please click here. |

For more information on upcoming Distinguished Lecturer Tours, [CLICK HERE.](#)

CONFERENCES

Upcoming Conferences

| | |
|--|------------------------|
| 2017 International Symposium on VLSI Technology, Systems and Applications (VLSI-TSA) Taiwan | April 24 - 27, 2017 |
| 2017 International Symposium on VLSI Design, Automation and Test (VLSI-DAT) Taiwan | April 24 - 27, 2017 |
| 2017 IEEE Custom Integrated Circuits Conference (CICC) | April 30 - May 3, 2017 |

| | |
|--|--------------------|
| Texas | |
| <u>IEEE 2017 Wireless Power Transfer Conference (WPTC)</u> Taipei | May 10 - 12, 2017 |
| <u>IEEE Radio Frequency Integrated Circuits Symposium (RFIC)</u> Honolulu | June 4 - 6, 2017 |
| <u>2017 Symposia on VLSI Technology and Circuits</u> Kyoto | June 5 - 8, 2017 |
| <u>2017 IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)</u> Taiwan | July 24 - 26, 2017 |
| <u>2017 European Solid-State Circuits Conference (ESSCIRC)</u> Belgium | Sept 11 - 14, 2017 |



2017 IEEE Custom Integrated Circuits Conference

Registration for [CICC 2017](#) is now open. The conference will be held April 30 - May 3 in Austin, Texas.

CICC is the premier conference devoted to IC development. The conference program is a blend of oral presentations, exhibits, panels, and forums. The conference sessions present original first published technical work and innovative circuit technologies that tackle practical problems. CICC is the conference to find out how to solve design problems, improve circuit design techniques, get exposure to new technology areas, and network with peers, authors, and industry experts.

[Click here for registration information](#)

RFIC 2017 Schedule Summary

| Date/Time | Saturday June 3 | Sunday June 4 | Monday June 5 | Tuesday June 6 |
|-----------|--------------------|--|--|-------------------------|
| AM | | RFIC Workshops | RFIC Technical Sessions | RFIC Technical Sessions |
| Lunch | | | 5G Panel | Game/Quiz Panel |
| PM | Registration | RFIC Workshops | RFIC Technical Sessions /*5G Summit | *5G Summit |
| Evening | | RFIC 5G Plenary RFIC Reception Joint Industry Showcase and Interactive Forum | | *5G Executive Forum |

*5G Summit is a separate conference that will offer complementary 5G overview presentations

RFIC 2017

The 2017 IEEE Radio Frequency Integrated Circuits (RFIC) Symposium will be held in Honolulu, Hawaii during June 4-6. The RFIC Symposium is the premier IC design conference focused exclusively on the latest advances in RF, Microwave and Millimeter Wave integrated circuit (IC) technologies and designs, as well as innovations in

high frequency analog/mixed-signal ICs. We cordially invite you to participate in this international symposium.

The 2017 RFIC symposium will begin on Sunday, June 4, 2017, with sixteen RFIC focused workshops (ten full-day and six half-day), there will be several joint RFIC/IMS workshops on Sunday and Monday. These workshops cover a wide range of advanced topics in RFIC technology and IC design including 5G systems and beyond.

Following the full day of Sunday workshops, the RFIC Plenary Session will be held in the evening beginning with conference highlights, the presentation of the Student Paper Awards and the Industry Best Paper Award.

On Monday and Tuesday, the RFIC will have multiple tracks of oral technical paper sessions.

Please visit the RFIC 2017 website (<http://rfic-ieee.org/>) for more details and updates.

CALL FOR PAPERS

2017 ESSCIRC - Call for Papers

The European Solid-State Circuits Conference (ESSCIRC) welcomes the submission of papers. The conference will be held September 11- 14, 2017 in Leuven, Belgium. Manuscript guidelines as well as instructions on how to submit electronically can be found [here](#).

Papers should focus on the 2017 conference topics:

- Analog - OP-Amps and instrumentation amplifiers CT and DT filters; SC circuits, Comparators; Nonlinear circuits; Voltage and current references; HV circuits; Nonlinear analog circuits; Digitally assisted analog circuits
- Data Converters- Nyquist-rate and oversampling A/D and D/A converters; Sample-hold circuits; Time-to-digital converters; ADC and DAC calibration/error correction circuits.
- RF and mm-Wave - RF/IF building blocks like LNAs, mixers, power amplifiers, IF amplifiers; Power detectors; Subsystems for RF, mm-wave and THz design with focus on novel design techniques.
- Frequency Generation - Modulators/demodulators; VCOs; PLLs; DLLs; Frequency synthesizers; Frequency dividers; Integrated passive component.
- Wireless and Wireline Systems - Receivers/transmitters/transceivers for wireless/wireline systems Gigabit serial links; Clock and data recovery; Equalization; Advanced modulation systems; Base station and handset applications; TV/radio/satellite receivers and transmitters; Radars.
- Sensors, Imager and Biomedical - Sensor subsystems and interfaces; Accelerometers; Temperature sensing; Imaging and smart imaging chips; AMOLED; MEMs subsystems; RF MEMs; Implantable electronic ICs; Biomedical imagers; Bio-MEMs integrated systems; Lab-on-chip; Organic LED and liquid-crystal-display interface circuits; Flat panel and projection display.
- Digital, Security and Memory - Techniques for energy efficient and high performance digital circuits; I/O and inter-chip communication; Reconfigurable digital circuits; Security and encryption circuits; Clocking; Arithmetic building blocks; Memories; Microprocessors; DSPs; Memory interfacing; Bus interfacing; Many core and multirate ICs; 3D integration.
- Power Management - Energy transducers; Power regulators; DC-DC converters; Energy-scavenging circuits; LDOs Boost-buck-converters; LED drivers; Sequencers and supervisors; Green circuit.

[Download the Call for Papers here.](#)

Submissions must be received by April 10, 2017

Click [here](#) for more details

BioCAS 2017 - Call for Papers

The [13th IEEE BioCAS](#) welcomes the submission of papers. The conference will be held October 19 - 21 in Turin, Italy. BioCAS serves as a premier international forum for presenting the interdisciplinary research and development activities at the crossroads of medicine, life sciences, physical sciences and engineering that will shape tomorrow's medical devices and healthcare systems.

Paper topics can be on (but are not limited to) the following topics:

- Assistive, Rehabilitation, and Quality of Life Technologies
- Bio-inspired and Neuromorphic Circuits and Systems
- Biofeedback, Electrical Stimulation, and Closed-Loop Systems
- Biomedical Imaging Technologies & Image Processing
- Biosensor Devices
- Biosensor Interfacing Circuits
- Biosignal Recording & Processing
- Body Area/Sensor Network
- Brain Machine Interfaces
- Brain Machine Interfaces
- Electronics for Brain Science
- Genomics and Systems Biology
- Implantable Electronics
- Innovative Circuits for Medical Applications
- Lab-on-Chip & BioMEMS
- Medical Information Systems and Bioinformatics
- Wireless and Energy Harvesting/Scavenging Technology

[Download the call for papers here](#)

Important Deadlines: April 21 - Special Session Proposal Deadline, June 16 - Paper Submission Deadline, July 14 - Demonstration Proposal Submission Deadline

IEEE Asian Solid-State Circuits Conference (A-SSCC) 2017 - Call for Papers

The Asian Solid-State Circuits Conference (A-SSCC) 2017 welcomes the submission of papers. The conference will be held November 6 - 8, 2017 in Seoul, Korea. A-SSCC is an international forum for presenting the most updated and advanced chips and circuit designs in solid-state and semiconductor fields. Paper submission guidelines will be available on the [A-SSCC website](#) in the beginning of April.

Perspective authors are invited to submit full-length, four-page manuscripts (including figures, tables, and references). Authors submitting papers to Special Session - Industry Program may use a two-page or four-page format.

Papers are solicited in the following categories:

- **Analog Circuits & Systems:** Amplifiers, comparators, switch capacitor circuits, continuous-time & discrete-time filters, voltage/current references; DC-DC converters, power-control circuits; IF/baseband analog circuits, AGC/VGA; non-linear analog circuits.
- **Data Converters:** Nyquist-rate and oversampling A/D, D/A converters, time-to-digital converters, and capacitance-to-digital converters; sub-circuits for data converters including sample-and-hold circuits, calibration circuits, etc.
- **Digital Circuits & Systems:** Design, fabrication, and test of digital VLSI systems; high-speed low-power digital circuits, power-reduction and management methods for digital VLSI, ultra-low-voltage and sub-threshold logic design; leakage reduction techniques; clock distribution, I/O circuits, reconfigurable logic-array circuits; supply/substrate noise measurement and cancellation for digital VLSI, variation and fault-tolerant circuits.
- **SoC & Signal Processing Systems:** System-on-chip (including 3D integration), microprocessors, network processors, baseband communication processing system & architectures, energy efficient signal-processing systems; multimedia and recognition processing systems; cryptographic and security-processing circuits and systems; bio-medical/neural-network processors and sensor network systems.
- **RF:** Receivers/transmitters/transceivers for wireless systems; narrowband RF, ultra-wideband and millimeter-wave circuits; circuits and building-blocks including RF front-end, LNA, mixer, power amplifiers, VCOs, frequency synthesizers, RF filters, RF switches, power detectors, active antennas.
- **Wireline:** Receivers/transmitters/transceivers for wireline systems; optical/electrical data links and backplane transceivers; power-line communication; clock generation circuits, PLL, DLL, spread-spectrum clock generation; building blocks for high-speed wireline communication; analog-digital mixed-mode circuits.
- **Emerging Technologies and Applications:** Advanced system designs and circuit solutions for technologies and applications including state-of-the-art devices and packaging technologies; flexible and printable electronics; smart sensors and transducers; MEMS for analog, RF, and

systems; image sensors; image displays; energy harvesting systems; transceiver systems; medical/bio-electronics/bio-inspired chip design and silicon systems.

- **Memory:** Volatile and Non-volatile memory; new memory designs for 3D/2D architectures, emerging devices such as resistive-/phase change-/magnetic-/ferro-electric- memory devices; data storage and multi-bit-cell memory design; cache-memory system, multi-port memory, and CAM design; yield-enhancing and ECC techniques; memory testing and built-in self-test.

Papers related to integrated circuits for intelligent systems are highly solicited. Papers on low-power and/or low-voltage approaches, signal integrity, noise, test, and manufacturability for all the above categories are welcomed. Measurement results are highly recommended, especially for analog, and RF categories. Design methodologies for SiP, and SoC are included in the scope of the conference; the papers only describing CAD tools and CAD algorithms are not considered.

Deadlines: Papers must be submitted by June 5, 2017, 20:00 (GMT). Submission link will be available on ASSCC.ORG soon.

PUBLICATIONS

The latest in SSCS Flagship Publications...



IEEE Journal of Solid-State Circuits Vol. 52, Issue 2

[Injection-Locked Wideband FM Demodulation at IF](#)

Akshay Visweswaran , John R. Long

[Two mm-Wave Vector Modulator Active Phase Shifters With Novel IQ Generator in 28 nm FDSOI CMOS](#)

Domenico Pepe , Domenico Zito

[A High-Gain mm-Wave Amplifier Design: An Analytical Approach to Power Gain Boosting](#)

Hadi Bameri , Omeed Momeni

[Watt-Level mm-Wave Power Amplification With Dynamic Load Modulation in a SiGe HBT Digital Power Amplifier](#)

Kunal Datta , Hossein Hashemi

[Dynamic Waveform Shaping With Picosecond Time Widths](#)

Xue Wu ; Kaushik Sengupta

[A 0.92-THz SiGe Power Radiator Based on a Nonlinear Theory for Harmonic Generation](#)

Hamidreza Aghasi , Andreia Cathelin , Ehsan Afshari

[A 46 \$\hat{1}\$ / \$\hat{4}\$ W 13 b 6.4 MS/s SAR ADC With Background Mismatch and Offset Calibration](#)

Ming Ding , Pieter Harpe , Yao-Hong Liu , Benjamin Busze , Kathleen Philips , Harmke de Groot

[A 12-b ENOB 2.5-MHz BW VCO-Based 0-1 MASH ADC With Direct Digital Background Calibration](#)

Kareem Ragab , Nan Sun

[A 43-mW MASH 2-2 CT \$\hat{1}\$ / \$\hat{1}\$ " Modulator Attaining 74.4/75.8/76.8 dB of SNDR/SNR/DR](#)

[and 50 MHz of BW in 40-nm CMOS](#)

Alexander Edward , Qiyuan Liu , Carlos Briseno-Vidrios , Martin Kinyua , Eric G. Soenen , Aydın Ilker Karsilayan , Jose Silva-Martinez

[A 40-Gb/s SiGe-BiCMOS MZM Driver With 6-V p-p Output and On-Chip Digital Calibration](#)

Leonardo Vera , John R. Long

[A 0.4 \$\mu\text{g}\$ Bias Instability and 1.2 \$\mu\text{g}/\sqrt{\text{Hz}}\$ Noise Floor MEMS Silicon Oscillating Accelerometer With CMOS Readout Circuit](#)

Xi Wang , Jian Zhao , Yang Zhao , Guo Ming Xia , An Ping Qiu , Yan Su , Yong Ping Xu

[Low-Power CMOS Vision Sensor for Gaussian Pyramid Extraction](#)

Manuel Suárez , Víctor Manuel Brea , Jorge Fernández-Berni , Ricardo Carmona-Galán , Diego Cabello , Ángel Rodríguez-Vázquez

[Offset-Canceling Current-Sampling Sense Amplifier for Resistive Nonvolatile Memory in 65 nm CMOS](#)

Taehui Na , Byungkyu Song , Jung Pill Kim , Seung H. Kang , Seong-Ook Jung

[A Performance-Aware Low-Quiescent Headphone Amplifier in 65-nm CMOS](#)

Fei Xiao , Pak Kwong Chan

[Design-Oriented Analysis for Miller Compensation and Its Application to Multistage Amplifier Design](#)

Wanyuan Qu , Shashank Singh , Yongjin Lee , Young-Suk Son , Gyu-Hyeong Cho

[A 0.26-nJ/node, 400-kHz Tx Driving, Filtered Fully Differential Readout IC With Parasitic RC Time Delay Reduction Technique for 65-in 169Å-97 Capacitive-Type Touch Screen Panel](#)

Sang-Hui Park , Hyun-Sik Kim , Jun-Suk Bang , Gyu-Ha Cho , Gyu-Hyeong Cho

[CMOS Microflow Cytometer for Magnetic Label Detection and Classification](#)

Pramod Murali , Ali M. Niknejad , Bernhard E. Boser

[A 1000 frames/s Vision Chip Using Scalable Pixel-Neighborhood-Level Parallel Processing](#)

Joseph A. Schmitz , Mahir K. Gharzai , Sina Balkir , Michael W. Hoffman , Daniel J. White , Nathan Schemm

[A 100 MHz Hybrid Supply Modulator With Ripple-Current-Based PWM Control](#)

Min Tan , Wing-Hung Ki

[A Multiphase Switched-Capacitor DC-DC Converter Ring With Fast Transient Response and Small Ripple](#)

Yan Lu , Junmin Jiang , Wing-Hung Ki

[A 5.28-Gb/s LDPC Decoder With Time-Domain Signal Processing for IEEE 802.15.3c Applications](#)

Mao-Ruei Li , Chia-Hsiang Yang , Yeong-Luh Ueng

[3-Gb/s High-Speed True Random Number Generator Using Common-Mode Operating Comparator and Sampling Uncertainty of D Flip-Flop](#)

Sang-Geun Bae , Yongtae Kim , Yunsoo Park , Chulwoo Kim

[Patent Abstracts](#)

K.R. Lakshmikummar

NEWS

New offering for SSCS members



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.

[Click here to visit the SSCS Resource Center.](#)

Upcoming - SSCS Young Professionals & Graduate Students Mentoring and Career Coaching Session

In conjunction with the [Custom Integrated Circuits Conference 2017 \(CICC\)](#), the Solid-State Circuits Society (SSCS) will be holding a Young Professionals & Graduate Students Mentoring and Career Coaching Session.

The event will be held on Tuesday, May 2nd at 5:30 PM in the Lady Bird Studio room at the Hotel Van Zandt in Austin, Texas. 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.

If you're a graduate student or a young professional, [please click here to RSVP](#). Walk-in's are welcome.

SSCS Members Can Join Sister Societies for Just \$5 Use Code SSCXCAS2017 or SSCXEDS2017

If you have not renewed your SSCS membership for 2017, you can enter the promotion code SSCXCAS2017 at checkout to join the Circuits and Systems Society (CAS) for \$5 or SSCXEDS2017 to join the Electron Devices Society (EDS) for \$5.

If you have already renewed for 2017, [click here](#) for more details about the discounted CAS membership and [click here](#) for more details about the discounted EDS membership.

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](#).

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 Winter 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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