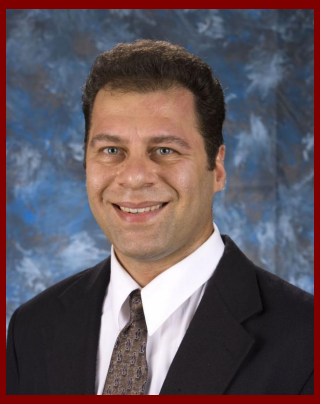
IEEE SOLID-STATE CIRCUITS SOCIETY

Where ICs are in IEEE

May 2016

Education

Upcoming Webinar



"Fundamentals of Millimeter-Wave Frequency Generation and Synthesis in Silicon", Presented by Payam Heydari

Tuesday, May 31st @ 12:00 PM EST.

CLICK HERE TO REGISTER!

The webinar entitled **"Fundamentals of Millimeter-Wave Frequency Generation and Synthesis in Silicon"** will be presented by Professor Payam Heydari from the University of California, Irvine. Please follow the link below to register for the webinar. The webinar is free and open to all SSCS members.

Abstract: Operation in the mm-wave frequency range has gained renewed interest due to abundance of unutilized spectrum. If combined with spectrally efficient (de-)modulation techniques, mm-wave wireless communication has the potential to achieve multi-gigabit-per-second wireless data-rate. In addition, the operation at higher frequency gives rise to smaller sized passive components (most notably antennae), making it possible to design and implement massive phase-array or MIMO systems on a single die or single wafer. As the communication schemes including spectrally-efficient (de-)modulation and carrier aggregation techniques are making progress at RF frequencies, far more challenging requirements will be imposed on the oscillator and frequency synthesis design. Increasing the carrier frequency towards the mm-wave regime only makes these requirements more stringent. This webinar intends to provide a general, yet in depth, overview of frequency generation and synthesis at

mm-wave frequencies. First, the fundamentals of oscillator design at mm-wave frequencies will be revisited and the performance of a number of basic oscillator topologies in terms of phase-noise and minimum gain requirement for oscillation start-up will be compared. Along the way, several oscillator topologies (which are amenable to high frequencies) including modified Clapp, double-stacked cross-coupled pair, inductive tuning, and varactor tuning with loss compensation will be introduced. The webinar talk will then present mm-wave frequency generation using lower-frequency PLLs followed by frequency multipliers, and make a case in favor of this technique to be employed for large transceiver arrays. Finally, a new perspective and design philosophy of mm-wave/THz frequency synthesizer design for the purpose of maximizing output power and frequency tuning and minimizing phase-noise will be provided.

ISSCC 2014 Short Courses - Now Online

The **ISSCC 2014 Short Courses** (members only benefit) are now online. Please click here to view. You will need to sign in with your SSCS/IEEE credentials to access the content. If you have issues accessing the content, please contact SSCS staff - **sscs-staff@ieee.org**

The ISSCC 2014 Tutorials will be available soon.

Upcoming Distinguished Lecturer Tours

JUNE			
June 2	**SSCS - Tony Chan Carusone**	**University of Michigan, Michigan**	**Topic: "Ultra-Short-Reach Interconnects for Package-Level Integration"** **For details please click here**
June 27	**SSCS Macau - Hideto Hidaka & Makoto Ikeda**	**University of Macau,** **China**	**Topic: "How Future Mobility Meets IT: Embedded Cyber-Physical System Designs Revisit Semiconductor Technology"** **Topic: "Basics of CMOS Image Sensors"**

			For more details please click here
June 27	SSCS Hong Kong University of Science & Technology - Hideto Hidaka & Makoto Ikeda	Hong Kong University of Science & Technology, China	Topic: "Embedded Memory Technology Applications and Prospects in Embedded Systems" Topic: "Smart Image Sensors and Applications to 3D Range-Finding" For more details please click here
June 28	SSCS Vietnam - Hideto Hidaka	Ho Chi Minh City, Vietnam	Topic: "How Future Mobility Meets IT: Embedded Cyber-Physical System Designs Revisit Semiconductor Technology" For more details please click here
June 30	SSCS Shanghai - Hideto Hidaka	Fudan University, China	Topic: "Embedded Flash Memory for Embedded Systems: Technology, Circuits to Systems and MCU/SOC Applications" For more details please click here

For more information on upcoming Distinguished Lecturer Tours, CLICK HERE.

Conferences

Upcoming Conferences

2016 IEEE Symposium on VLSI Technology Hawaii	June 13 - 17, 2016
2016 IEEE Symposium on VLSI Circuits	June 13 - 17, 2016

Hawaii	
2016 IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC) Hong Kong	August 3 - 5, 2016
2016 International Symposium on Low Power Electronics and Design (ISLPED) San Francisco	August 8 - 10, 2016
ESSCIRC-ESSDERC 2016 Lausanne, Switzerland	September 12 - 15, 2016
2016 IEEE Bipolar/BiCMOS Circuits and Technology Meeting - BCTM New Jersey	September 25 - 27, 2016
IEEE Dallas Circuits and Systems Conference 2016 Texas	October 9 - 10, 2016

2016 IEEE Asian Solid-State Circuits Conference
Toyama, Japan
Paper Submission Deadline: June 6, 2016

BioCAS 2016
Shanghai, China
Paper Submission Deadline: June 15, 2016

DCAS 2016
Arlington, Texas
Paper Submission Deadline: June 30, 2016

CSICS 2016
Austin, Texas
Paper Submission Deadline (New and Extended Deadline): July 15, 2016

ISSCC 2017
San Francisco, California
Paper Submission Deadline: Sept 12, 2016

PUBLICATIONS

Highlights from the May/June Issue of Design & Test

(Volume 33, Issue 3)

Special Issue on Robust 3-D Stacked ICs

Perspective by Andres Takach, Mentor Graphics, on "High-Level Synthesis: Status, Trends, and Future Directions" - view free access article HERE

The 3-D Interconnect Landscape" by Eric Byne, IMEC - view free access article HERE

Interview by Gabe Moretti on "Accellera's DVCon Conferences Focus on the Community of Practicing Engineers" - view free access article HERE

Tutorial on "Toward Silicon-Based Cognitive Neuromorphic ICs - A Survey" - view free access article HERE

Tutorial on "PUFs as Promising Tools for Security in Internet of Things" - view free access article HERE

News

ISSCC 2017 Call for Papers: New Double-Blind Paper Review

New for ISSCC 2017: Double-Blind Paper Review. The paper selection for ISSCC 2017 will follow a double-blind review process, meaning that both the authors and reviewers will remain anonymous during the paper selection process. The ISSCC 2017 conference theme is "Intelligent Chips for a Smart World".

The Submission Deadline is Monday, September 12, 2016 at 3:00PM Eastern Daylight Time (19:00 GMT).

For more information, please **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 Winter 2016 issue of the Solid-State Circuits Magazine.

Feedback

Let us know what you think! Please **click here** 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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