



**IEEE SOLID-STATE  
CIRCUITS SOCIETY**  
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**April 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.

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## PUBLICATIONS



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### Upcoming Distinguished Lecturer Tours

<b>MAY</b>			
May 2	SSCS San Diego - Osama Shann	UCSD San Diego, California	For details <a href="#">please click here</a>
May 2	SSCS Benelux- Marian Verhelst	Universit Catholique de Louvain-la-Neuve (UCL) Belgium	For more details <a href="#">please click here</a>

May 2	SSCS New York- Ram Krishnamurthy	New York	For more details <a href="#">please click here</a>
May 20	SSCS Boston- Willy Sansen, Gabriele Manganaro & Peter Kinget	MIT, Boston	For more details <a href="#">please click here</a>
May 26	SSCS New York - Shanthi Pavan	Columbia University, New York	For more details <a href="#">please click here</a>

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

## Conferences

### Upcoming Conferences

<a href="#"><u>2016 IEEE Symposium on VLSI Technology</u></a> Hawaii	June 13 - 17, 2016
<a href="#"><u>2016 IEEE Symposium on VLSI Circuits</u></a> Hawaii	June 13 - 17, 2016
<a href="#"><u>2016 IEEE International Conference on Electron Devices and Solid-State Circuits (EDSSC)</u></a> Hong Kong	August 3 - 5, 2016
<a href="#"><u>2016 International Symposium on Low Power Electronics and Design (ISLPED)</u></a> San Francisco	August 8 - 10, 2016
<a href="#"><u>ESSCIRC-ESSDERC 2016</u></a> Lausanne, Switzerland	September 12 - 15, 2016
<a href="#"><u>2016 IEEE Bipolar/BiCMOS Circuits and Technology Meeting - BCTM</u></a> New Jersey	September 25 - 27, 2016
<a href="#"><u>IEEE Dallas Circuits and Systems Conference 2016</u></a> Texas	October 9 - 10, 2016

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### **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

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## News

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### Did you miss last weeks webinar?

Did you miss "The Return of Neuro-Inspired Computing - Why Now?" , Presented by Prof. Jan Rabaey?

The video recording of the webinar held on April 20th is now available to view. A list of questions and answers asked during the broadcast are also available. To view the recording and questions, please click [here](#).



### **New and Improved SCS Website**

Have you visited the SCS website yet? The website has recently been updated with exciting new content, a clean and easy-to-read format, and new pictures. Click [here](#) to check it out.

## 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](mailto:Abira.Sengupta@ieee.org). We look forward to receiving your news articles!

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For more chapter news, [check out](#) the Winter 2016 issue of the Solid-State Circuits Magazine.

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## 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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