



# IEEE SOLID-STATE CIRCUITS SOCIETY

Where ICs are in IEEE

## January 2016

### President's Message



As I begin my two year service as your President, it is my pleasure to welcome you to the first SSCS eNewsletter of 2016. Introduced as a new member benefit in 2015, the eNewsletter initiative was launched by immediate past-President, Bill Bidermann. The goal of the monthly eNewsletter is to provide timely and relevant information to our members as well as compliment our quarterly magazine , Circuits, and social media outreaches. I hope that you find it useful. Feel free to send us suggestions for items you would like to see included in future issues.

It is my goal as SSCS president to serve our members through timely communication, increased and creative educational and professional programs, continued outreach through chapter activities and the distinguished lecturers program, member recognition, efficient operations and transparency. I won't be able to do so without a group of motivated volunteers. It is therefore I like to recognize the chairs and members of the various SSCS committees including the Chapters (Stefan Rusu), Conferences (Ken O), Education (Ali Sheikholeslami), Membership (Patrick Yue) and Publications (John Long). They are the driving force behind SSCS. Enjoy the newsletter.

Jan Van der Spiegel  
[President-sscs@ieee.org](mailto:President-sscs@ieee.org)

## Upcoming Webinar

Please join us for the webinar  
**"Monolithic Phased Arrays:  
Radio Frequency to Optical"**, presented by  
**Hossein Hashemi** on  
**Friday, February 26th at  
Noon EST.**



**Abstract:** In 1909, accepting the Nobel Prize for Physics for "contributions to the development of wireless telegraphy", Karl Ferdinand Braun stated "It had always seemed most desirable to me to transmit the waves, in the main, in one direction only." He also presented a schematic of a three-antenna system that can form a desired beam in one direction. In the following decades, this simple scheme was advanced to large-scaled phased arrays used for military radars in WWII and beyond. In 1965, Gordon Moore predicted that advancement in integrated circuit technology will enable monolithic microwave phased arrays that can revolutionize radar. Nearly four decades later, monolithic microwave silicon phased arrays were reported for the first time. Today, monolithic radio frequency, microwave, and millimeter wave phased arrays are turning mainstream in commercial products including automotive radars and high speed wireless transceivers. Shortly following the invention of laser in 1960, electronically-steerable laser beam was conceived to be useful in optical radars (nowadays known as lidars), free-space optical communications with moving transmitter and/or receiver, and projection television. While optical beam steering has been around for several decades, monolithic optical phased arrays are more recent thanks to advancements in fabrication technology. Monolithic optical phased arrays may be applicable in compact commercial devices for imaging, ranging, sensing, display, and holography. This talk will cover the basics, history, and applications of phased arrays followed by state-of-the-art realizations from radio frequencies up to optical frequencies.

[\*\*REGISTER HERE\*\*](#)

## Upcoming Distinguished Lecturer Tours

### FEBRUARY

|             |                                 |                 |
|-------------|---------------------------------|-----------------|
| February 8  | SSCS Austin - Shanthi Pavan     | Austin, Texas   |
| February 19 | SSCS Singapore - Chulwoo Kim    | Singapore       |
| February 29 | SSCS Shanghai - Eric Klumperink | Shanghai, China |

For more information, [\*\*CLICK HERE.\*\*](#)

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## Mentoring Opportunities

SSCS strives to offer guidance and support to their young members. We invite SSCS members to volunteer to be mentors for younger SSCS members. This would be a very valuable experience for young members' careers. This is a great opportunity for young members to learn about the benefits of SSCS membership. The main topics that can be discussed are entrepreneurship, career advice, publication advice, etc. If you are interested in being a mentor, please email Emre Ayrancı at [emrea@ieee.org](mailto:emrea@ieee.org).

**The next mentoring event will be held at ISSCC in San Francisco on Tuesday, February 2nd from 6-7 PM in the Foothill E Room. For more information, [\*\*CLICK HERE.\*\*](#)**

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## Conferences



### **ISSCC 2016**

The International Solid-State Circuits Conference will be held on January 31 - February 4, 2016 at the Marriott Marquis in San The theme of this years conference is Silicon Systems for the Internet of Everything. If you haven't already done so, please make your travel arrangements as soon as possible. More information can be found [here](#).

## Upcoming Conferences

[\*\*2016 IEEE International Solid-State Circuits Conference \(ISSCC\)\*\*](#) January 31 - February 4, 2016

San Francisco, CA

[\*\*2016 Design, Automation, and Test in Europe Conference & Exhibition \(DATE\)\*\*](#) March 14 - March 18, 2016

Dresden, Germany

[2016 International Symposium on VLSI  
Design, Automation, and Test \(VLSI-DAT\)](#)

Taiwan

April 25 - April 27, 2016

[2016 IEEE Symposium on VLSI Technology](#)

Hawaii

June 14 - June 16, 2016

[2016 IEEE Symposium on VLSI Circuits](#)

Hawaii

June 14- June 16, 2016



## Call for Papers

[2016 IEEE Conference on Electron Devices and  
Solid-State Circuits](#)

Hong Kong

Paper Submission Deadline: April 1, 2016

[Bipolar/BiCMOS Circuits and Technology Meeting](#)

New Brunswick, New Jersey

Paper Submission Deadline: April 1, 2016

[2016 IEEE Compound Semiconductor IC  
Symposium](#)

Austin, Texas

Paper Submission Deadline: April 22, 2016

## Publications

### Journal on Exploratory Solid-State Computational Devices and Circuits

The 2015 inaugural issue of the

[Journal on Exploratory Solid-State Computational Devices and Circuits](#)

(or JXCDC) was completed in December. This issue starts an era of IEEE having a multi-disciplinary journal focused on publishing seminal research towards the future exploration towards of energy efficient computing based on physics, materials, devices, circuits and architecture that will be of great interest to researchers and those working in the IT industry. The inaugural issue includes 12 papers which can be categorized into

the following fields;

- A) New types of transistors that have a steep current turn-on response, i.e. low input voltage swing.
- B) Benchmarking methodology and analyses for currently researched beyond CMOS devices
- C) Spintronic devices and interconnect (based on Magnetics and Spin Physics)
- D) Neuromorphic Computing, Associative Processors using Nanotechnology based Coupled Oscillators

The inaugural papers listed order of popularity can be seen online at;

<http://ieeexplore.ieee.org/xpl/topAccessedArticles.jsp?punumber=6570653>

The Journal on Exploratory Solid-State Computational Devices and Circuits, or JXCDC, is "Open Access". The papers eight pages in length with additional supplementary material in many cases.

For paper submission details you can go to

<http://mc.manuscriptcentral.com/jxcdc>

*Ian Young, Editor-in-Chief, Journal on Exploratory Solid-State Computational Devices and Circuits*

## News

### 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!

**For more chapter news, check out the Winter 2016 issue of the Solid-State Circuits Magazine.**

## Upcoming

### Reading Made Easy

In the next couple of months, we'll be rolling out a new member benefit! Remember those old piles of journals back in the 80's? You'll soon be able to read past versions of JSSC on your tablet. Stay turned for more details!

## Feedback

Let us know what you think! Please [\*\*click here\*\*](#) to send us your comments about the newsletter, what you'd like to see included each month, or any other comments.

[\*\*CLICK HERE TO VISIT OUR WEBSITE\*\*](#)

