



# IEEE ELECTRON DEVICES SOCIETY

Newsletter

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## SPOTLIGHT ON: EDS LAUNCHES OPEN-ACCESS JOURNAL OF THE ELECTRON DEVICES SOCIETY

The IEEE Electron Devices Society (EDS) announces the launching of its inaugural **Open-Access** publication: the IEEE Journal of Electron Devices Society, or J-EDS.

J-EDS is an all-electronic, rapid-turnaround, scientific journal dedicated to publishing high quality research in the field of Electron and Ion Devices ranging from fundamentals to applied research. This new journal provides authors an affordable outlet for rapid publishing and universal access, coupled with the superior technical quality readers have come to expect from IEEE Electron Devices Society.

Submissions to J-EDS will be accepted beginning in Fall 2012, with the first issue to be released in early 2013. To submit manuscripts for publication consideration and peer-review, and for more information, please check the J-EDS home page (<http://eds.ieee.org/journal-of-the-electron-devices-society.html>) for updated information.

The J-EDS will publish original and significant contributions relating to the theory, modeling,

*(continued on page 5)*

## 2012 IEEE INTERNATIONAL ELECTRON DEVICES MEETING (IEDM)

*58TH ANNUAL IEDM RETURNS TO SAN FRANCISCO  
DECEMBER 10-12, 2012*



*The city of San Francisco is just south of the Golden Gate Bridge*

LEWIS SOMMER, SAN FRANCISCO CONVENTION & VISITORS BUREAU

*Special focus topics: circuit/device interactions, energy harvesting, biomedical devices, power devices, magnetics and spintronics  
Globalfoundries CEO to give luncheon address*

The world's best microelectronics scientists and engineers from industry, academia and government will gather in San Francisco, California, this coming December for the Electron Devices Society's annual technical conference, the IEEE International Electron Devices Meeting. There they will enjoy a technical program of more than 200 presentations along with panels, special sessions, Short Courses, IEEE/EDS award presentations and other events spotlighting more leading work in more areas of the field than at any other conference.

*(continued on page 4)*

### SAVE THE DATES!

EDS AdCom Series  
December 8-9, 2012  
San Francisco, California, USA



## JUNE 2012 AdCOM MEETING SUMMARY



Fernando Guarín  
EDS Secretary

The 2012 mid-year meeting of the IEEE Electron Devices Society Administrative Committee (AdCom) took place in the historic city of Leuven, Belgium on June 2-3, 2012.

**President's Report** – The meeting was opened by our new President Paul Yu who thanked past President, Renuka Jindal for his hard work, leadership and many accomplishments during his tenure. The motion to approve the proposed list of 2012 committee member appointments was approved unanimously. EDS membership numbers are holding steady despite declining numbers for IEEE and most other societies. We continue to leverage the Distinguished Lecturer & Mini-Colloquia (DL/MQ) program to attract new members. The new online event registration tool, launched in May 2012, has received positive volunteer feedback and will be useful in gathering feedback from event attendees.

Paul Yu highlighted that the J-MEMS revitalization has begun and indicated that the Open Access Publication: J-EDS Phase 1 was passed in February 2012 and phase 2 was passed in June 2012 with the target launch date as January 1, 2013. Renuka Jindal will be EIC of this open access journal. The webinar program continues to gain strength. Dr. Subramanian (Subu) Iyer's recent webinar on orthogonal scaling was a great success. EDS plans to expand the amount of video content behind the member firewall, including the IEDM short course videos. In June 2013, the mid-year AdCom meeting will

be held in Hong Kong in conjunction with EDSSC, which is an important devices conference for Region 10.

**Review of ExCom** – Albert Wang provided a review of the EDS ExCom meeting that took place on Saturday, June 2, 2012. Despite budgetary challenges our meetings and conferences are doing well. There has been a big effort by Joachim Burghartz, who is leading the effort to complete the EDS History Book. The 2013 Mid-year AdCom Meeting will be held in Hong Kong and the 2014 Mid-year AdCom Meeting is expected to be held in Region 8, hopefully in conjunction with a conference

**Division 1 Director's Report** – Cor Claeys began by providing an overview of the IEEE Organization. The Director and Delegate of Region 8 is Dr. Marko Delimar. The Division 1 (Circuits & Devices) Director is Cor Claeys. Division 1 consists of 3 societies (Electron Devices Society, Solid State Circuits Society, Circuits and Systems Society) and 2 councils (CEDA, NANO).



Historic Town Hall, Leuven

EDS is the largest society in Division 1. Societies are crucial to IEEE, and care needs to be taken to ensure that societies work together and engage in joint activities. It is important to have strong ties to the local regions as well. Division 1 Chapters in Region 8 are distributed as follows: CAS 28, EDS 48, SSC 27.

The IEEE Board is responsible for the management of IEEE including strategic planning, publications, education, fellows, awards, appointments, finance and legal strategy. Currently there are over 400,000 IEEE members and revenue of \$200,000,000.

**Secretary's Report and EDS ETC Program** – Fernando Guarín

The motion to approve the December 2011 AdCom meeting minutes was approved unanimously. Fernando provided an overview of the Engineers Demonstrating Science: an Engineer Teacher Connection (EDS-ETC) program. EDS-ETC is designed to be a "hands on" approach to engage young students in the field of electron devices. Fernando encouraged all attendees to utilize the program and provided great examples of the work of several chapters (Brazil, Egypt, Colombia, Russia and the United States) their work with local schools has been very successful. This year's program will include the revolutionary QAMA calculator. It only provides an answer once a suitable estimate is provided. "The calculator that thinks only if you think too."

**Treasurer's Report** – Albert Wang presented for Ravi Todi, EDS Treasurer. Currently, the 2012 revenue forecast is \$6533K with an operating margin of \$-321K. The financial status of our publications was reviewed. EDL is doing well this year and T-ED is only slightly down from 2011, but all other

journals are losing money. The 2012 Quarter 1 forecast for publications net income is \$876K, which is down from \$939K in 2011. Conference revenues are down slightly over projections for 2012. Proceedings revenue is down by nearly \$230K. The 2011 IEDM netted \$102K in surplus and the 2011 PVSC netted \$241K in surplus, which is about 80K more than what was expected.

Executive Office and IEEE Administration expenses: IEEE warehouse and support fees have increased significantly this year, as usual. The IEEE fees are based on the number of EDS members and staff. The increase in the number of pages published is hurting our bottom line. We are predicting a \$300K deficit in 2012.

**Meetings and Conferences Report** – Bin Zhao reported that in 2011 we sponsored 15 conferences, and had 4 million dollar revenue with \$500K surplus. EDS sponsors or co-sponsors about 108 conferences. There were 11 Financially Sole or Co-sponsorships, 11 alternate support between Financial and Technical Co-Sponsorships and about 86 were Technically Co-Sponsored (TCS). EDS will financially sponsor or co-sponsor 16 conferences in 2012. There is an initiative to increase conference Return on Investment (ROI) – currently, the average rate of return over the past five years is around 10%. This initiative will help to incentivize conferences to commit to returning a 20% surplus to EDS and share revenue with conferences, improve relationships with conferences and keep them motivated to perform financially. The program is to be piloted with IEDM and PVSC.

**Technical Activities Report** – Joachim Burghartz provided an overview of the EDS technical activities and Technical Committee Chairs and was pleased to report that the EDS Anniversary book is well underway. Many Technical Committee Chairs are involved in the content preparation. Joachim gave an overview of

the book's design and table of contents. The color coded historic time line runs throughout the entire book; this feature really sets it apart from other reference books. The timeline includes EDS history and historical milestones.

The books will be ready for shipment in 2013. The goal is to have samples on display at the December 2012 IEDM.

The book is being published by Wiley-IEEE. Royalties are waived for the editor and co-authors; they will each receive a free copy of the book. The lump sum contribution from EDS will be \$5K, with a minimum bulk purchase of 200 copies. Each copy of the book is worth \$75, but in 2012 and 2013 the book will be \$25 for EDS members.

**Educational Activities Report** – Meyya Meyyappan reported the EDS webinar program has been very successful so far. The most recent webinar by Dr. Subramanian (Subu) Iyer was held in conjunction with SSCS, and received very positive feedback from attendees. In the future, webinars will be hosted at different times during the day so that attendees in all regions can be better accommodated.

The online event registration tool, launched in May 2012, has received positive volunteer feedback and will be useful in gathering feedback from

Mini-Colloquia attendees. Outreach efforts to all Mini-Colloquia will begin soon. The goal is for all MQs to utilize the online event registration tool in 2013. This tool allows for easier outreach out to attendees, and a calendar snapshot of upcoming events.

There was a comment from the audience that all Distinguished Lecturers should list a topic on the DL listing so that event organizers know which speakers they would like to host. Also, they would like to see the percentage of DL invitations that the DL declines. Another request was to list the DL travel plans on the EDS website.

**Regions & Chapters Report** – Jun Liou provided an overview of the EDS chapters formed in 2011, potential chapters for 2012 and the Region 8 SRC Chairs with their mentor assignments. Chapter subsidy budget: \$40K total (each chapter received 75% of its requested amount). SRC budget: \$21K total (\$4.4K for R8, compared to \$5K in 2011). MQ budget: \$50K total (\$121K requested). Fourteen MQs out of 28 requested were funded based on the factors of geography, MQ history, and local needs.

**Update on Region 9 Student Paper Award** – Jacobus Swart spoke on the Region 9 best student paper award, which is given bi-annually. Until the 1990s, Region 9 was isolated. Recently, more local scientific societies have flourished.



Members of EDS AdCom



The Region 9 Student Paper Award is an opportunity to promote EDS in Region 9. The award consists of a certificate and a check for up to \$1500, and is given at a Region 9 conference. In order to increase nominations to the award the following changes were approved by AdCom:

- Remove the IEEE and EDS membership requirements
- Add up to three years of complimentary IEEE and EDS student membership
- Add a requirement that a minimum of five nominations be received in order for the award to be administered for that year

#### **EDS Constitution and Bylaws Changes** – Cor Claeys.

In order to more appropriately reflect the volunteer-led, volunteer-driven nature of the Electron Devices Society, Renuka proposed to change the name of the chief governing body from “EDS Administrative Committee (AdCom)” to the “EDS Board of Governors (BOG).” All roles and responsibilities of this body will remain as presently described in the EDS Constitution and Bylaws. Only the name will change.

**Publications Report** – Samar Saha presented an overview of EDS Publication activities and awards. T-ED and EDL submission and acceptance rates remain level. These journals continue to be main sources

of revenue despite large overruns in 2011 due to increase in manuscripts. Immediate and long term solutions for T-ED page count issues were discussed. T-DMR continues to face challenges and has a decreased submission rate for 2012. On a scale of 1–5, the average score for overall satisfaction with our publications is high, EDL: 4.2, T-ED: 4.1, T-DMR: 4.3. Average of all answers is also high, EDL: 4.4, T-ED: 4.2, T-DMR: 4.3 and J-PV acceptance and submission rates are both up in 2012 compared to 2011.

EDS Paul Rappaport Award recipients: Tibor Grasser, Ben Kaczer, Wolfgang Goes, Hans Reisinger, Thomas Aichinger, Philipp Hehenberger, Paul-Jürgen Wagner, Franz Schanovsky, Jacopo Franco, María Toledano Luque, and Michael Nelhiebel for *The Paradigm Shift in Understanding the Bias Temperature Instability: From Reaction-Diffusion to Switching Oxide Traps*.

EDS George Smith Award Recipients: Mallory Mativenga, Min Hyuk Choi, Jae Won Choi, and Jin Jang for *Transparent Flexible Circuits Based on Amorphous-Indium-Gallium-Zinc-Oxide Thin-Film Transistors*.

EDS open access journal: Journal of Electron Devices Society (JEDS): Phase 1 was approved by TAB on February 18, 2012. Phase 2 was approved by TAB in June 2012. Editor-in-Chief will be Prof. R. P. Jindal.

#### **Fellow Evaluation Chair's Report**

The 2012 Fellows Committee is chaired by Ilesanmi Adesida, and consists of the following committee members: Guido Groeseneken, Renuka Jindal, Leda Lunardi and Hisayo Momose.

The 2012 EDS Fellows Committee Meeting was held on Saturday, June 2, 2012. Fifty-one Fellow nominations were reviewed by 28 EDS Evaluators (including committee members). Typically there are 15 evaluators per nominee, or about 23 evaluations per evaluator. The newly elected IEEE Fellows will be announced shortly after the November IEEE Board of Directors meeting.

Before ending the session the following additional items were presented:

**PELS & EDS Conference Collaboration** – Presented by John Shen

**Compound Semiconductor Devices & Circuits Committee Report** – Presented by Giovanni Ghione

**Update on the 2013 Mid-year AdCom Series** – Presented by Mansun Chan, Paul Yu and Juin Liou. The 2013 mid-year AdCom Series will take place in Hong Kong, June 1–2. It is being held in conjunction with EDSSC, which is taking place at the Hong Kong Polytechnic University, June 3–5.

Christopher Jannuzzi closed the session with the **EDS Website Update**.

On behalf of all the attendees we would like to extend our sincere gratitude to Cor Claeys and his team for their hospitality and planning. They were truly kind and generous hosts.

*Fernando Guarín*  
EDS Secretary  
IBM Microelectronics  
Hopewell Junction, NY, USA

## JUNE 2012 REGION 8 CHAPTERS MEETING



Juin J. Liou  
EDS Vice-President of  
Regions & Chapters

On Saturday, June 2, 2012, the biannual EDS Region 8 (Africa, Europe, Middle-East) Chapters Meeting took place in Leuven, Belgium. Presiding over this meeting were EDS President, Paul Yu, and EDS Vice President of Regions & Chapters, Juin Liou.

Paul opened the meeting with words of gratitude for Cor Claeyls, EDS Sr. Vice President, for his efforts in organizing the meeting series in beautiful Leuven. Attendees were reminded about the successful new webinar program, and advised that future webinars will be broadcasted at different times so that more regions could be accommodated at once. He suggested a Region 8 webinar, and asked for topics to be sent to Meyya Meyyappan, EDS Vice President of Educational Activities.

Juin followed Paul's opening remarks with an overview of EDS Chapters. In 2011, nine new EDS chapters were formed, and there are many potential chapters for 2012. He reviewed the 2012 chapter subsidy information and the Distinguished Lecturer & Mini Colloquia statistics. For 2012, \$40K was distributed for chapter subsidies. Each chapter received 75% of the amount requested. Out of the \$121K requested for Mini-Colloquia, \$50K was distributed. Fourteen Mini Colloquia out of the 28 requested were funded based on the factors of geography, MQ history, and local needs. The funding distribution was as follows: 6 in Region 10 (14 requested), 1 in Region 9 (2 requested), 4 in Region 8 (7 requested), 1 in Region 7 (1 requested), and 2 in Regions 1-6 (4 requested).

After Juin's overview, attendees were provided with updates on lo-



Region 8 Chapter Meeting Attendees in Leuven, Belgium

cal chapter programs and events from the following chapter representatives:

- ED/SSC Bulgaria Chapter – Ivan Buliev
- ED Benelux Chapter – Jurriaan Schmitz
- EDS National Research Univ. of IT, Mech. and Optics Student Branch Chapter – Maria Osipova
- ED/AP/MTT/EMCTomsk Chapter – Oleg Stukach
- ED Israel Chapter – Gady Golan
- ED/MTT Moscow Chapter – Vadim Kaloshin
- EDS IRE NASU-Kharkiv Student Branch Chapter – Illia Fedorin
- EDS Republic of Georgia Chapter – Tamar Gogua
- ED/AP/MTT/AES/GRS/NPS/EMB East Ukraine Chapter – Kostyantyn Ilyenko
- ED Spain Chapter – Benjamin Iniguez

Following the chapter updates was an open forum discussion about strategies to overcome financial and communication challenges. The main topics discussed included: MQ/DL Program Effectiveness, Expansion of the EDS Chapter of the Year Award, Chapter Subsidy Allocation, and SRC Fund Allocations. Juin sug-

gested that chapters become engaged with their local sections since they are able to provide more financial resources than EDS.

The EDS Chapter of the Year Award has been expanded. The award will now be given to a chapter in each of the following regions: 1–7, 8, 9, and 10. Each winning chapter will receive \$500 and will be recognized at an EDS conference or chapter meeting.

To close the meeting, Fernando Guarin, EDS Secretary, presented information about the successful *Engineers Demonstrating Science: an Engineer Teacher Connection (EDS-ETC)* program, and encouraged chapters to utilize the program to engage students in the field of electron devices.

From the presentations at this meeting, it is easy to see that EDS has a number of active chapters being led by enthusiastic and committed leaders. Many thanks to all who devote their time and energy to EDS Chapter related activities.

Juin J. Liou  
EDS Vice President of Regions &  
Chapters  
University of Orlando  
Orlando, FL, USA