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PAUL K.-L. YU NEW EDS PRESIDENT



Paul K.-L. Yu
EDS President

During the EDS AdCom meeting series, held in conjunction with the 2011 IEEE International Electron Devices Meeting (IEDM), Paul Yu became the 23rd President of the Electron Devices Society, taking over from Renuka Jindal. Paul is looking to build on the successes of his predecessors

and plans to continue to expand the breadth and depth of all that EDS does and offers to its Members.

Paul Yu was born in Hong Kong, on July 12, 1957. He received a B.S. in Physics, M.S., and Ph.D. in applied physics from Caltech, Pasadena, California in 1979, and 1983, respectively.

In 1983, he joined the Electrical and Computer Engineering Department at the University of California, San Diego and has been a professor there since 1993. His research work is mainly in the area of optoelectronic semiconductor devices for digital and analog optical communications. In particular, he worked on high power waveguide photodiode, traveling wave electro-absorption

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2012 IEEE PHOTOVOLTAIC SPECIALISTS CONFERENCE (PVSC)



Austin Convention Center, the 38th IEEE PVSC venue

We invite you to join us for the 38th IEEE Photovoltaic Specialists Conference (PVSC), being held June 3–8, 2012, in Austin, Texas. Now entering its second half-century, the PVSC has secured its place as the world's foremost technical conference uniting PV scientists, engineers and key industry stakeholders. Our unparalleled technical program spans the full gamut of PV, from fundamental science to installed systems. Additionally, our industrial exhibition draws participants from leading developers of the manufacturing

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SAVE THE DATES!

Spring EDS AdCom Series

June 2–3, 2012

Leuven, Belgium

ELECTRON DEVICES SOCIETY

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EDS AdCom

Elected Members-at-Large

Elected for a three-year term (maximum two terms) with 'full' voting privileges

2012	TERM	2013	TERM	2014	TERM
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				E. Sangiorgi	(1)

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CONTRIBUTIONS WELCOME

Readers are encouraged to submit news items concerning the Society and its members. Please send your ideas/articles directly to either the Editor-in-Chief or appropriate Editor. The e-mail addresses of these individuals are listed on this page. Whenever possible, e-mail is the preferred form of submission.

NEWSLETTER DEADLINES

ISSUE	DUE DATE
January	October 1st
April	January 1st
July	April 1st
October	July 1st

The EDS Newsletter archive can be found on the Society web site at <http://eds.ieee.org/eds-newsletters.html>. The archive contains issues from July 1994 to the present.

IEEE Electron Devices Society Newsletter (ISSN 1074 1879) is published quarterly by the Electron Devices Society of the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. Printed in the U.S.A. One dollar (\$1.00) per member per year is included in the Society fee for each member of the Electron Devices Society. Periodicals postage paid at New York, NY and at additional mailing offices. Postmaster: Send address changes to IEEE Electron Devices Society Newsletter, IEEE, 445 Hoes Lane, Piscataway, NJ 08854.

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UPCOMING TECHNICAL MEETINGS

2012 IEEE SYMPOSIUM ON VLSI TECHNOLOGY

The 32nd Annual Symposium on VLSI Technology will be held June 12–14, 2012, at the Hilton Hawaiian Village in Honolulu, Hawaii. This symposium is jointly sponsored by the IEEE Electron Devices Society (EDS) and the Japan Society of Applied Physics (JSAP), and is well recognized as one of the premiere international conferences on semiconductor technology. A unique aspect of this conference is that it is held jointly with the IEEE Symposium on VLSI Circuits (June 13–15). A single registration fee covers both events. The overlap in the symposia schedules promotes interactions between technologists and circuit/system designers in an open forum.

Research results presented at the Symposium on VLSI Technology span a broad spectrum of VLSI technology topics, including:

- New concepts and breakthroughs in VLSI processes and devices
- Advanced materials, gate stacks, and interconnects in VLSI processes and devices
- Advanced lithography and fine-patterning technologies for high-density VLSI
- New functional devices beyond CMOS with a path for VLSI implementation
- Packaging of VLSI devices including 3D-system integration
- Advanced theory, fundamentals, characterization, analysis, modeling, and reliability for VLSI devices
- New concepts and technologies for VLSI manufacturing
- Heterogeneous integration of non-Si materials/devices on large Si substrates

In recent years, the Symposium on VLSI Technology has placed a strong



Hilton Hawaiian Village, Honolulu, Hawaii

emphasis on Design Enablement (how new devices and process and materials technologies impact VLSI circuit design and their implications for product performance and cost).

In 2012, for the first time, joint Technology and Circuits focus sessions comprising invited and contributed papers in two areas of joint interest will be offered:

- Memory (embedded SRAM, DRAM and NVRAM) Technology/ Design co-optimization
 - Design in scaled technologies (impact of advanced device and interconnect materials or structures on digital and analog/RF circuit performance, power, and density).
- In addition, two technology focus sessions comprising invited papers will cover the following special areas of interest:
- Low power and steep sub-threshold technology (including Tunnel-FETs and nanoelectromechanical relays)
 - 3D-system integration (BEOL, far-BEOL, TSV)

One of three “Rump Sessions” to be held in the evening of June 12th

will be jointly sponsored by the symposia, on a topic of interest to both technologists and circuit designers. This joint rump session will complement the two other technology rump sessions covering key issues of interest to the VLSI technical community.

The innovative technical work presented at the conference will be preceded by a one-day short course on “14 nm CMOS Technology & Design Co-optimization: FinFET, Novel Devices and Memory Technology” given by key experts from academia and industry, on June 11th. This course offers an excellent opportunity to learn about the latest advances in semiconductor devices and their implications for VLSI circuit design.

Also preceding the conference is a satellite workshop on Silicon Nanoelectronics, which will be held June 10–11, 2012. This workshop is also sponsored by the IEEE Electron Devices Society, and covers nanometer-scale devices and technologies which utilize silicon or are based on silicon substrates. For more information, visit the workshop website <http://www-device.eecs.berkeley.edu/snw/>.

Other unique features of the Symposium on VLSI Technology are its spirit of international collaboration and its informal atmosphere, which promote discussion and debate on new ideas and technology directions. The Symposia location alternates between the United States and Japan, giving it a true international setting. Over 550 participants from around the world attended the 2011 Symposium on VLSI Technology in scenic Kyoto, Japan.

The 2012 venue in Honolulu, Hawaii, offers many scenic and cultural attractions. Travel to the other surrounding

Hawaiian Islands, each of which offers a unique setting and flavor, is also relatively easy. A luau banquet hosted by the Symposia offers attendees an opportunity to further experience Polynesian food and culture. The Hilton Hawaiian Village Hotel, located on Waikiki Beach, is a world-class facility that offers a wide range of recreational activities. The hotel is easily accessible by taxi from nearby Honolulu International Airport.

For further information, please visit the symposia website at <http://www.vlsisymposium.org> or contact the following conference secretariats:

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We cordially invite you to attend the 2012 IEEE Symposium on VLSI Technology to learn about recent state-of-the-art advancements in semiconductor

technology and to take advantage of the opportunities for technical interactions and cultural exchange offered by the Symposium!

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Globalfoundries

Hitoshi Wakabayashi
2012 Symposium Co-Chair
Sony Corporation

Klaus Schroefer
2012 Program Chair
Intel Mobile Communications

Toshiro Hiramoto
2012 Program Co-Chair
The University of Tokyo

2012 IEEE COMPOUND SEMICONDUCTOR IC SYMPOSIUM (CSICS)

We cordially invite you to the 2012 IEEE Compound Semiconductor IC Symposium (CSICS), being held October 14–17 at the Hyatt Regency Hotel located in La Jolla, California. Over the last 34 years the Symposium has continued to be the preeminent international forum in which advances in semiconductor circuit and device technology are presented, debated, and discussed. The scope of the Symposium encompasses devices and circuits in GaAs, SiGe, InP, GaN, and InSb as well as RF/mm-wave and high-speed digital CMOS to provide a truly comprehensive conference. This is the ideal forum for presentation of the latest results in microwave/mm-wave, high-speed digital, analog, mixed mode, optoelectronic integrated circuits, and power conversion.

The 2012 CSIC Symposium is comprised of a full 3-day technical program, one or two short courses, a primer course, and a technology exhibition. The technical program consists of approximately 60 high



quality state-of-the-art technical papers, 4 panel sessions, and an Industry Exhibit. The short courses will be run in parallel on Sunday, October 14th to provide the attendees with a unique opportunity to learn from world-renowned instructors in their respective areas of expertise. The Symposium will also be offering the popular annual introductory level primer course on "Basics of

Compound Semiconductor ICs." This year the Symposium will feature approximately 15 invited papers on a wide range of important topics encompassing device engineering to circuit application using advanced compound and other related semiconductor technologies. In addition, the Symposium will continue the tradition of including important "late breaking news" papers.

The technology exhibition will be held on Monday and Tuesday. The exhibition will feature informative and interesting displays with corporate representatives on hand. The list of exhibitors can be found in the CSICS advance program which will be published and distributed in late June.

To complement the Symposium, there are several social events which include the Sunday Evening CSICS Opening Reception, the Monday CSICS Exhibition Opening Reception, CSICS Exhibition Luncheon on Tuesday, and a conference event on Tuesday evening. Breakfasts and coffee

breaks will also be served on Monday, Tuesday and Wednesday. The Symposium will be held at the Hyatt Regency La Jolla at Aventine. Attendees can enjoy a seaside destination with the charm of a European village and the panache of Southern California. Set on 11 prime acres in La Jolla, the Hyatt Regency is a luxurious hotel boasting recently-updated guestrooms, a Sports Club and spa, and a gourmet restaurant row. Located in the city known as "The Jewel of the Pacific," the La Jolla hotel offers incomparable beaches, shopping, dining, galleries and attractions. Visit Stephen Birch Aquarium & Museum, spend a day kayaking, take a Baja Lobster or Wine tour, see live theater or shop San Diego's trendy boutiques; all just minutes away.



Photo provided courtesy of La Jolla Hyatt Regency Hotel

For registration and up-to-date information please visit the CSICS website at <http://www.csics.org>. Further questions may be addressed to the Symposium Chair: Sorin Voinigescu, by phone: 1-416-946-8664 or e-mail: sorinv@eecg.toronto.edu.

We hope you can attend. The 2012 IEEE CSICS Organizing Committee.

*Jim Carroll
2012 CSICS Publicity Chair
AWR Corporation
Allen, TX, USA*

2012 IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE (IITC)

With a renewed focus on 3D integration and advanced back-end memory, the EDS-sponsored IEEE International Interconnect Technology Conference (IITC) returns to the greater San Francisco Bay area this year. It is the semiconductor industry's premier interconnect conference and is dedicated to the advancement of interconnect solutions, featuring technical presentation on all aspects of interconnections for device, circuit- and system-level applications. Scheduled for June 3–6, 2012, at the DoubleTree Hotel in San Jose, California, the IITC is expected to draw professionals in semiconductor design, processing and manufacturing technology from industry, academia, and equipment suppliers around the world.

Recognizing the industry's continuing emphasis on 3D and memory technology, the 15th annual IITC will feature sessions dedicated to back-end memory technologies, 3D interconnect options, and related material interactions. Other topic areas for IITC

2012 include presentations on the integration or large scale interconnect systems, aggressive pitch scaling options, and material enhancements for performance and reliability.

IITC 2012 continues to address fundamental interconnect performance issues, with presentations in the areas of process integration (for logic and/or memory); reliability; advanced interconnects and systems interconnections; through-silicon vias and 3D integration; packaging; novel materials and concepts; process modeling, and all back-end materials and unit processes associated with interconnect technology, including in-depth explorations of related manufacturing issues.

The DoubleTree Hotel in San Jose is conveniently in Silicon Valley and 40 minutes from downtown San Francisco. This US venue is now one of three international locations for the conference, which rotates between Asia, the US, and Europe. In 2011, IITC was held in conjunction

with Materials for Advanced Metalization (MAM) conference in Dresden, Germany, while the 2013 meeting will take place in Asia.

Oral and poster presentations at IITC 2012 will include the following topics:

Materials and Unit Processes

- Dielectric materials and associated deposition
- Metal deposition, planarization and patterning processes/equipment
- Novel or improved tools for interconnect metrology

Novel Materials and Concepts

- Advanced interconnect concepts, optical interconnect, carbon, and spin-based interconnects

3D Processes and TSV

- Materials, process integration, 3D with memory, interactions with packaging, reliability

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2012 IEEE PHOTOVOLTAIC SPECIALISTS CONFERENCE (PVSC)

(continued from page 1)

and measurement tools accelerating the advancement of PV. *This year's conference program offers a special focus on the convergence of terrestrial distributed PV and the Smart Grid and expanded participation from beyond our traditional attendee community.*

38th IEEE PVSC Highlights

Solar Day

Now in its second year, Solar Day offers an opportunity for our PV experts to meet with the local community to help educate them on the benefits of solar. We expect as many as 2,000 guests for this free, one-day event, including regional utility officials, local installers and those interested in implementing solar power. Solar Day will also showcase the results of our High School PV Design Competition, featuring solar projects from budding young PV scientists attending local high schools.

Tutorials

The conference will again feature 10 highly informative tutorials led by industry experts. With topics ranging from PV 101 to the technologies of the future, the tutorials are beneficial for both industry newcomers and veterans.

Technical Program

We expect a record number of technical presentations at the 38th PVSC, which will provide insight into the latest developments across 10 technical areas:

- **Area 1:** Fundamentals and New Concepts for Future Technologies
- **Area 2:** Thin Film Polycrystalline Photovoltaics
- **Area 3:** III-V and Concentrator Technologies
- **Area 4:** Crystalline Silicon Photovoltaics
- **Area 5:** Thin Film Silicon based PV technologies
- **Area 6:** Organic Photovoltaics
- **Area 7:** Space Technologies
- **Area 8:** Characterization Methods
- **Area 9:** PV Modules and Terrestrial Systems
- **Area 10:** PV Velocity Forum

Our highest-caliber papers will also be considered for inclusion in the peer-reviewed IEEE Journal of Photovoltaics, an unprecedented opportunity to highlight and archive the remarkable work of our presenters.

Exhibition

The Austin Convention Center's exhibit hall will join together PV technologists and the members of the commercial sector. Exhibits focus on materials, services, and tools for both R&D and manufacturing.

Student Program

Students from around the world are highly encouraged to attend and participate in the PVSC. Incentives include reduced registration and hotel rates, as well as awards honoring the best technical presentations from each program area. We are also organizing a PV jobs program to match employers with viable candidates for a plethora of available positions.

PVSC Job Center

The PVSC web site has been updated to provide a continuous, year-round interface between job-seekers and employers in the PV industry. This service to our technical community is free of charge to any registered user of the conference site who wants to view job opportunities posted there by job providers. During the conference, private interview rooms can be reserved at the Convention Center by employers who have posted positions to the site.

Social Program

Each year, we strive to foster relationships among conference attendees, companions, and families. We are planning a week's worth of social activities to showcase the amazing sights, sounds, and tastes of Austin and the neighboring Central Texas Hill country, culminating in the conference banquet in the world famous Austin City Limits studio.

For more information on the 38th IEEE PVSC, please visit www.ieee-pvsc.org. If previous years are any indication, registration numbers will reach new highs and hotel reservations will fill up quickly; please consider making your arrangements early. We're looking forward to seeing you in Austin!

B. J. Stanbery
2012 PVSC General Chair
HelioVolt Corporation
Austin, TX, USA

SOCIETY NEWS

DECEMBER 2011 AdCom MEETING SUMMARY

Each year the December meeting of the IEEE Electron Devices Society Administrative Committee (AdCom) rotates between Washington, DC and San Francisco, preceding the major electron device conference held in the US, the IEDM. Two years ago, however, the December AdCom and IEDM were held in Baltimore due to extensive renovations of the Washington Hilton. This year we returned to our old haunt, which seemed entirely new, at least in its interior. AdCom members enjoyed the elegance and spaciousness of their new surroundings as the meeting began on December 4, 2011.

President's Report

The meeting was opened by Renuka Jindal, outgoing President, who welcomed all attendees and gave a very impressive review of his accomplishments over the past two years. The focus of his message to members dealt with commitment and empowerment – stressing the importance of attending AdCom meetings regularly, engaging in its activities, and serving as an ambassador for EDS. He added that empowering its members is the main focus of EDS and by doing so we fulfill its vision and mission. Thank you, Renuka, for all you have done.



Washington Hilton, Washington, DC

Several novel actions resulting from the last TAB meeting were described by Renuka. IEEE is planning to create a Wide Open Access electronic Journal, designed to fill the gap between conference proceedings and traditional archival journals. It was pointed out that such a journal would compete with the journals published by the various societies, and extensive discussion ensued. It was moved, seconded, and ultimately passed that EDS should form its own ad-hoc committee to consider the formation of an on-line journal in the field of EDS.

The incoming President, Paul Yu, then gave a brief report on the Executive Committee (ExCom) meeting that was held the day before, December 3rd. Most of his report was covered during the course of the AdCom meeting and is reported herein. Paul did not comment on another important ExCom function, the excellent dinner served Saturday evening, pictured on the next page.

Treasurer's Report

The outgoing Treasurer, Steve Parke, gave a generally optimistic report on EDS finances, but pointed out that a slightly negative operating margin of -\$220K is predicted for 2012. In light of these troubled economic times

this was considered reasonable, but a conservative spending approach is recommended. Initiatives that have been approved for 2012 include \$15K for the new Snap Kits (see below), \$10K for Women in Engineering, and \$52K for the important new journal on photovoltaics (J-PV).

Meetings and Conferences

Bin Zhao reported that EDS currently sponsors or co-sponsors a total of 107 conferences, of which 22 are financially sponsored or co-sponsored. None of these are projected to lose money for EDS. He noted that both IEEE and EDS continue to have a growing number of technically co-sponsored conferences in our portfolios, and that the IEEE TAB is reassessing the value and significance of this stance.

Awards Update

Marv White announced some of the winners of 2011 EDS awards, described elsewhere in this Newsletter. The biggest problem is not the quality of nominees nor the process of selection, but the *number* of nominees for these awards, given the huge talent pool in EDS. He asked how we can increase submission rates, and asked attendees to submit ideas.

Regions, Chapters, and Membership Update

There was much discussion, led by Juin Liou and later by M. K. Radhakrishnan and Xing Zhou, about the large number of chapters, but the lack of corresponding membership growth through these chapters. EDS currently has 165 chapters worldwide, among the largest number for any IEEE society. Albert Wang pointed out that



to be stated here) as he gave snap kits to two of his grandsons and then spent most of Christmas Day helping them build circuits. Fernando's message: Share your passion!

Plans for Future Mid-Year AdCom Meetings

Paul Yu described current thinking about tying the mid-year meeting to an appropriate regular, annual technical conference. It was moved that the 2013 mid-year AdCom meeting be held in conjunction with the International Conference on Electron Devices and Solid-State Circuits (EDSSC), which in 2013 will be held in Hong-Kong. This motion passed unanimously. In 2012 the mid-year meeting will be held in Leuven, Belgium.



The meeting ended with comments by Steve Parke concerning the financial impacts of motions that had just been passed, and closing remarks by the outgoing President, Renuka Jindal. The motion to adjourn was passed unanimously.

Immediately following the close of the meeting elections were held for the new Officers and At-Large AdCom Members. A gala dinner was held later that evening for all AdCom members, at which the results of the elections were announced. The new officers will be Renuka Jindal, Junior Past President, Cor Claeys, Senior Past President, Paul Yu, President, Albert Wang, President Elect, Fernando Guarin, Secretary, and Ravi Todi, Treasurer. New At-Large members are listed on page 10.

*Respectfully submitted,
Jim Merz
EDS Secretary*

EDS membership has increased 3.9%, an increase for the first time in many years (congratulations, Albert), but we need to convert chapter activities into more membership and motivate EDS members to serve as chapter mentors.

Joachim Burghartz reported on **Technical Activities**. He first displayed the list of Technical Committee Chairs for 2012, and then described in some detail the plans for the EDS Anniversary Book. EDS is celebrating its 60th anniversary as a committee of the IRE, and 35th anniversary as a society in the IEEE. The book will be a comprehensive masters-level summary of electron devices, will be edited by Achim, published by Wiley-IEEE, and cost \$25. All expect that it will be very well received, an important addition to the literature.

Publications

This critical activity of EDS was summarized by Samar Saha, who told us that T-ED and EDL both have increased rates of submission and continue to be our main sources of revenue. Currently there are 35 editors of T-ED and 25 for EDL. The new Journal of Photovoltaics (J-PV) was released in October with 17 papers. Four issues are planned for 2012. For the coming year there will be major changes in the Editors-in-Chief (EICs) of these journals: Doug Verret, who has been EIC of T-ED for 11 years, will be succeeded by John Cressler; a transition plan is already in place and Yuan Taur, EIC of EDL, will be succeeded by

Amitava Chatterjee. The acceptance rates for T-ED and EDL are 44% and 30%, respectively. However, revenues for the EDS Archival DVD have been declining. After considerable discussion, motions, and amendments to motions, it was decided "to approve that EDS ends production of the DVD after 2012 if it has a loss of more than \$10K." This motion passed with 3 against and 17 in favor.

Educational Activities

Meyya Meyyappan described a key initiative in this area, the online registration tool for Distinguished Lectures and Mini Colloquia (DL/MQ). The tool captures information about attendees, and gives us an opportunity to communicate better with them. The first EDS webinar was held on July 27, 2011, by Chenming Hu, and was very successful. A second one was held later in December with nearly 250 registered to attend.

Snap Kits

EDS-ETC, generally referred to as "Snap Kits," stands for Engineers Demonstrating Science: an Engineering Teacher Connection. Fernando Guarin extolled their merit, pointing out that the goal is to enable chapter members to visit local schools and host events designed to engage young students in the field of electron devices. There are currently 750 circuit projects good for all ages (6–69). This secretary can extend this upper age limit to his own age (not

SECRETARIAL REFLECTIONS

Chris Jannuzzi has told us that he was delighted with the attendance at this meeting; for the first time in recent memory, all voting AdCom members were present, as well as most of the other members. He strongly encouraged us to continue that precedent. Congratulations to all of us!

I personally have been honored and blessed to serve the Electron Devices Society as its secretary during two different periods, 1994–97 and 2007–11 and was a member at-large well before that. I have been privileged to work with an amazing group of



talented, energetic, and visionary men and women who believe in the critical importance of this field, and who enthusiastically transmit their

sense of mission to the next generation of electronic device scientists and engineers. I have seen the Society grow over the last 25 years from a somewhat insular activity to a truly international endeavor. To Steve Parke I say heartfelt thanks for the outstanding job of managing our fiscal integrity. To Paul, Albert, Fernando, Ravi and all the Vice Presidents I wish you Godspeed. To all the inspired members of the AdCom I say Bon Voyage.

JLM

INCOMING PRESIDENT'S MESSAGE

Dear EDS Colleagues,



Paul K.-L. Yu,
EDS President

It is with great pleasure that I write to you as President of the Electron Devices Society. For over 30 years I have been privileged to be a part of EDS, beginning as a student member. In that time, a great deal has changed, both in terms of my career and our field in general, but what has remained the same is that my professional home is EDS.

Many of my professors, my colleagues, and now my students are members of EDS. Through these important relationships I have found, and continue to find, ways to advance, enrich, and energize my professional life. If you are a member of EDS, or are reading this as a prospective member, I encourage you to get involved and stay involved. Your efforts will be richly rewarded.

As our mission states, EDS exists *to foster professional growth of its members by satisfying their needs of easy access to, and exchange of technical information, publishing, education, and technical recognition and enhancing public visibility in the field of Electron Devices.* As president of EDS, I, along with the other volunteer leaders of the society, pledge to honor this mission in everything we do and plan.

In EDS, our diversity is one of our greatest strengths. Our 10,000 members and 165 chapters are located in 84 countries or 6 continents around the globe. But this diversity also presents some significant challenges, namely, how do we maintain close working relationships and actively engage so many engineers spread so far around the world? As president of EDS, I will work diligently to expand our offerings to all our members. Through conferences, workshops, publications, and by leveraging the enhanced networking capabilities of

our new web site, I will do all I can to bring us together.

Before I close, I would like to extend my sincerest thanks and deepest gratitude to my predecessor, Renuka Jindal, who worked tirelessly to add value to membership. His efforts reflect in the success of EDS as a vibrant and vital society.

As I embark on my tenure as EDS President, I look forward to working closely with you to build on the successes of my predecessors and, as EDS's vision statement proclaims, to promote excellence in the field of electron devices for the benefit of humanity.

Respectfully,

Paul Yu,
EDS President
Univ. of California at San Diego
San Diego, CA, USA

2012 EDS AdCom Appointments

ExCom Members

EDS President-Elect	Albert Wang
EDS Treasurer	Ravi Todi
EDS Secretary	Fernando Guarin

AdCom Members (3-year Term)

**Individual re-elected for a 2nd term

Zeynep Celik-Butler, University of Texas at Arlington, Arlington, TX, USA

Mansun Chan, Hong Kong University of Science & Technology, Kowloon, Hong Kong
Steve Chung, National Chiao Tung University, Hsinchu, Taiwan
Simon Deleonibus**, Silicon Technologies, Grenoble, France
Fernando Guarin**, IBM Microelectronics, Hopewell Junction, NY, USA

Tian Ling Ren, Tsinghua University, Beijing, China
Samar Saha**, SuVolta, Inc., Los Gatos, CA, USA
Enrico Sangiorgi, Università di Bologna, Bologna, Italy

DECEMBER 2011 EDS REGIONS 1, 2, 3 AND 7 CHAPTERS MEETING



Durga Misra
EDS SRC Chair
North America East

On December 4, 2011, on the side-line of IEDM 2011, EDS held its biannual meeting for chapters in Regions 1, 2, 3 and 7 (North America East) at the Washington Hilton. It was presided over

by EDS Vice-President of Regions/Chapters, Juin Liou and EDS Subcommittee for Regions and Chapters (SRC) North America East Chair, Durga Misra. EDS President, Renuka Jindal and EDS Executive Director, Chris Jannuzzi also attended the meeting, as well as EDS SRC Vice-Chairs for NAE, Murty Polavarapu and Karim Karim.

The meeting began with a welcome address and opening remarks by Durga Misra, followed by Juin Liou, who provided attendees with an update on the status of chapter formations for 2011. Juin explained that although the NAE regions have had little to no growth in the past two years there were many chapters formed in Region 8 and Region 10. He outlined the EDS DL/MQ activities worldwide

and mentioned that in 2012 chapter subsidies would be approved more selectively. He announced that the **2011 EDS Chapter of the Year Award was awarded to the SSC/ED Hong Kong Chapter** for an outstanding record of sustained chapter activities that contribute substantially to the vitality of the Electron Devices Society.

Durga provided an update of activities from the North American East (NAE) region including DL/MQ events and the number of L31 Reports submitted for each region, mentioning that the total number of EDS Chapters in North America East is 28, out of which 18 are joint chapters. In 2011 the number of DL talks was 20 compared to 23 in 2010. There were three mini-colloquia held in Regions 1, 2, 3 and 7; one by the Mid-Hudson Chapter, another by the North Jersey Chapter and the third by the Montreal Chapter. He also mentioned IEEE products to support chapters like [ieeetv](http://ieeetv.org) and [vTools](http://vtools.ieee.org) (<http://vtools.ieee.org>). Afterward EDS leadership including the President, Past-Presidents, President-Elect and Executive Director held a dinner meeting with local

chapter leaders prior to the EDS ExCom meeting to discuss chapter activities.

The following NAE chapters gave reports on their activities: **Region 1 - ED Mid-Hudson Valley** was represented by Fernando Guarin on behalf of Chapter Chair Dr. Subu Iyer. Fernando described chapter goals that include (i) offering technical talks and networking events, (ii) providing supports to local student chapters and (iii) promoting science, engineering and math at local schools. Since the major employers of EDS members in their chapter are West Point, SUNY, New Paltz, IBM, Samsung, and Toshiba, non-members are invited to most events and reminded of the importance of joining **IEEE EDS. ED/SSC New York**, represented by Chapter Chair John Kymissis mentioned that his chapter covers NYC, Westchester and Rockland counties with many people from Northern NJ also joining their events. The New York Chapter has 180 members, mostly from IBM, CUNY, Columbia, and NYU with their technical events often co-sponsored by SID, IEEE BTS, and SMPTE to attract

a broader audience. The Tappan Zee subsection is also active and has about 8 events a year. The Chapter has established financial autonomy from the NY Section and created a handbook for smooth transitioning of new chapter officers.

ED/CAS North Jersey Chapter Chair Durga Misra who mentioned how their chapter has been honoring the work of significant contributors in the ED community, with an MQ held to honor the work of Dr. Marty Lepselter.

Region 2, - James Oliver provided an update on the **ED/SSC Baltimore** Chapter, which is centrally located between Baltimore, Annapolis and Washington, comprising of members from industry, academia and government. James provided an overview of chapter activities and mentioned that usually 25 to 40 people attend each meeting with 60 to 70% being EDS members. The youngest chapter of

NAE, the **CPMT/ED Pittsburgh** Chapter was represented by Jiahui Zhang on behalf of Chair Dr. Louis Hart. Jiahui mentioned that it has 35 members and Pittsburgh is a good location for IEEE because of all the local industry and academic institutions. He also shared their chapter activities. Prof. Dimitris E. Ioannou then outlined the activities of **ED Washington & Northern Virginia** Chapter.

All the attendees heard an update from Anthony H.W. Choi regarding the **SSC/ED Hong Kong** Chapter that received the 2011 EDS Chapter of the Year Award. The chapter currently has about 55 members (both ED and SSC) from 8 universities and some industry. EDSSC is the flagship event of the Hong Kong Chapter and it will be held in Bangkok, Thailand in 2012. Their 2011 activities were excellent, informative and useful for other chapters.

The presentations were followed by general discussions to improve member benefits for EDS Chapters and to energize them. Some of the suggestions were: (i) strong efforts should be made to engage people within chapters to take leadership roles, (ii) for sharing keynote speakers it is always useful to work with other local chapters, (iii) cross-reference the mailing lists with other event organizers to enhance participation and visibility, and (iv) a separate listserv email service for NAE can spread the word about EDS events. The organizational effort and support of Ms. Kellie Gilbert and Ms. Laura Riello of the EDS Executive Office was highly appreciated.

*Durga Misra
EDS SRC Chair, NAE*

*New Jersey Institute of Technology
Newark, NJ, USA*

2011 EDS CHAPTER OF THE YEAR AWARD



*Juin J. Liou
EDS Vice-President of
Regions/Chapters*

The EDS Chapter of the Year Award is presented annually to recognize an EDS Chapter for the quality and quantity of the activities and programs implemented during the prior July-June period.

On December 4, 2011, at the IEDM held in Washington, DC, the ED/SSC Hong Kong Chapter received the EDS Chapter of the Year Award, which included a plaque and check for \$1,000. The award was received by Hoi Wai Choi, Chapter Chair.



Hoi Wai Choi (left), ED/SSC Hong Kong Chapter Chair, receiving the award from Renuka Jindal, EDS President

The chapter has served as an effective platform for EDS members to liaise with fellow members and external contacts, through the diverse range

of events and activities organized annually. Such events range from Distinguished Lectures (DLs) by inviting renown scientists across the globe to speak in Hong Kong, to the biannual flagship event "International Conference on ED/SSC," to the Student Symposium being planned for the end of the year, benefiting members of all grades, ages and experiences. While the more senior scientists are able to widen their network, the junior students have the chance to explore career opportunities in the field.

*Juin J. Liou
EDS Vice-President of Regions/
Chapters
University of Central Florida
Orlando, FL, USA*

IEEE EDS GOLD STUDENT MIXER

The 2011 IEEE GOLD (Graduates of the Last Decade) Student Mixer, sponsored by the Electron Devices Society, was held at the 2011 IEEE International Electron Devices Meeting (IEDM) in Washington, D.C.

In addition to all the IEEE conference registrants who benefited from the EDS offer of automatic free one-year Society membership; the GOLD mixer was a great success, gaining the Society 23 new IEEE EDS student members. More than 100 attendees took advantage of the opportunity to network with peers and unwind after a long day at the conference.

The highlight of the event was presentation of the 2011 EDS



Mina Rais Zadeh and Ravi Todi (middle), winners of the 2011 EDS Early Career Award, with Paul Yu (left), EDS Incoming President and Renuka Jindal (right), EDS President

Early Career Award to Mina Rais-Zadeh, University of Michigan and Ravi Todi, IBM Microelectronics Division.

Ravi M. Todi
IEEE EDS GOLD Representative
IBM Microelectronics
Hopewell Junction, NY, USA

2011 EDS DISTINGUISHED SERVICE AWARD



Ilesanmi Adesida
2011 EDS
Distinguished Service
Award Winner

The IEEE Electron Devices Society is extremely proud of the services that it provides to its members, while they generate the premier new developments in the field of electron devices and share these results with

their peers and the world at large by publishing their papers in EDS journals and presenting results in its meetings. This is a global activity that is effective because of the efforts of numerous volunteers. Many of these volunteers labor in relative obscurity, with their only reward being the satisfaction that they receive in being an important part of a successful organization, namely of the IEEE Electron Devices Society. One means of thanking these volunteers is to recognize their contributions through the EDS Distinguished

Service Award. This award for 2011 was presented to Ilesanmi Adesida at the IEEE International Electron Devices Meeting in Washington, DC, on December 5, 2011.

Ilesanmi Adesida was born in Ifon, Ondo State, Nigeria. He received his B.S., M.S., and Ph.D. degrees in electrical engineering from the University of California, Berkeley in 1974, 1975, and 1979, respectively. His doctoral thesis work was on electron beam lithography under the supervision of Professor Thomas Everhart. From 1979 to 1984, he worked in various capacities at what is now known as the Cornell Nanofabrication Facility and at the School of Electrical Engineering, Cornell University, Ithaca, New York. He conducted research on high resolution lithography and pattern transfer methods and their applications to novel devices. In 1984, he returned to Nigeria to join Abubakar Tafawa Balewa University, Bauchi, Nigeria, as a Reader in the School of Electrical

Engineering. He served as the Head of Department from 1985 to 1987 where he worked to establish a practical electrical engineering curriculum.

In 1987, he joined the University of Illinois at Urbana-Champaign where he is currently the Donald Biggar Willett Professor of Engineering, Professor of Electrical and Computer Engineering, Professor of Materials Science and Engineering and Co-Director of the Center for Nanoscale Science and Technology. He is also the Dean of the College of Engineering, having assumed this position in 2005. He previously served as the Associate Director of the NSF Center for Compound Semiconductor Microelectronics from 1990 to 1998, and as the Director of the Micro and Nanotechnology Laboratory from 2000 to 2005. In collaboration with his colleagues, his efforts led to the award of the NSF Nanoscale Science and Engineering Center for Chemical-Electrical-Mechanical Manufacturing Systems

to the University of Illinois in 2003. His current research interests include nanofabrication and ultra-high-speed electronic devices. He has extensive experience in the development of novel processes for wide band-gap materials and devices in silicon carbide and gallium nitride materials. He has also worked on ultra-high-speed photodetectors and photoreceivers in various materials systems. He has authored or co-authored over 350 journal papers and 9 book chapters, made over 250 plenary, invited, and contributed presentations, and has three U.S. patents. He has also graduated 34 Ph.D. and 21 M.S. students. At the University of Illinois, he was named a University Scholar and also won the Oakley-Kunde Award for Excellence in Undergraduate Education. He was named an Outstanding Alumnus by the Department of Electrical Engineering and Computer Sciences, University of California, Berkeley in 2009.

He has been very active in serving many organizations and chairing many international conferences. He served as the Program and General Chair of the TMS Electronic Materials Council and Conference between 2000 and 2003 and the Chair of the TMS Bardeen Award Committee in 2006. He is a member of the ASEE Engineering



Involvement in the EDS community fosters close relationships; (left to right) Cor Claeyss, Ilesanmi Adesida and Paul Yu, EDS Officers, at the 2011 IEDM Plenary, enjoying a key member benefit—camaraderie with your peers

Deans Executive Board and served as the Chair of its Public Policy committee from 2009 to 2011. For IEEE, and in particular the EDS, he has served in various capacities since 1992. During his tenure as the Vice President for the EDS Educational Activities Committee, the present EDS Distinguished Lecturer Program was implemented; the mini-colloquia, and the M.S. and Ph.D. Student Fellowships were also initiated. He is a former President of EDS and the Chair of the EDS Fellows Committee. He is a Fellow of the IEEE, and also a Fellow of the American Vac-

uum Society, Materials Research Society, Optical Society of America, and the American Association for the Advancement of Science. He is a member of the U.S. National Academy of Engineering.

Ade and his wife, Patience, live in Champaign, Illinois. Patience is an obstetrician and gynecologist. Their five children are scattered all over! Ade is a "football" (soccer) fanatic.

Marvin White

*EDS Vice-President of Awards
Ohio State University
Columbus, OH, USA*

2011 EDS J.J. EBERS AWARD WINNER



*Stuart Wenham
2011 EDS J.J. Ebers
Award Winner*

The 2011 J.J. Ebers Award, the prestigious Electron Devices Society award for outstanding technical Contributions to electron devices, was presented to Professor Stuart Wenham of The University of New South Wales, Sydney, Australia, at the IEEE International Electron Devices Meeting in Washing-

ton, DC, December 5, 2011. This award recognizes Professor Wenham "For technical contributions and successful commercialization of high efficiency solar cells."

Stuart Wenham is a Scientia Professor at The University of New South Wales (UNSW) where he is Director of the Photovoltaics Centre of Excellence which is best known academically for holding the world-record for silicon solar cell efficiency for more than a decade. He is also CTO of Suntech-Power, the world's

largest solar cell manufacturer. In 1980, Wenham (with Bruce Godfrey) established Australia's 1st solar cell production line, achieving independently confirmed record commercial cell efficiencies of 14.3% (with no anti-reflection coating). In 1984 Wenham (with Martin Green) invented the buried contact solar cell, arguably the most successful new PV technology commercialized in the 1990's, with approaching \$1 billion of product now deployed and listed in Australia's Top 100 Inventions of

the 20th Century. In 1995, Wenham (with others) invented the thin-film crystalline silicon cell forming the basis of the technology now in large scale manufacturing in Germany by CSG Solar. In 2004, Wenham (with Ph.D. student, Ly Mai) took screen-printed cell efficiencies in large scale production to 18% efficiency at Suntech-Power with the development of the Semiconductor Finger solar cell. Even more recently, the laser-doped cell, invented by Wenham (with Green), has become the focus of several licensing agreements and large scale commercialization efforts by companies from several countries. Perhaps most significantly, the PLUTO technology, invented by Wenham (with Jingjia Ji and Zhengrong Shi), has been recently scaled to 0.5GW manufacturing capacity by Suntech-Power, representing annual revenue approaching \$1 billion. In November 2010, the Pluto technology won the 2010 UK Energy Institute International Technology Award, being described as "The world's most commercially successful new solar cell."

In 1998, as Director of the Key Centre for Photovoltaic Engineering at UNSW, Wenham (and his team) developed and implemented the World's 1st Bachelor of Engineering in Photovoltaic Engineering with >40 students enrolling in 2000, growing to >500 students currently enrolled. Wenham has developed and taught many subjects within the program and written corresponding texts. These include one of the best-selling texts internationally in PV "Applied Photovoltaics" (authored with Green, Corkish and Watt) and the "Virtual Production Line" (authored with Bruce), a simulation package and text for the commercial manufacture of solar cells. Both packages have been translated into several languages and are widely used internationally.

Wenham has been honored with several national and international awards including the 2010 Professional Engineer of the Year from the Institute of Engineers Australia, the 2010 University of New South Wales Alumni of the Year Award, the 2009 IEEE William R. Cherry Award, the

2009 New South Innovations Inventor of the Year, the 2009 Green Globe Award from the Premier of New South Wales, the 2008 Australian Academy of Technological Science and Engineering award for outstanding contributions to Science and Engineering (Clunies Ross Award), the 2007 World Technology Award for Energy, 1999 Australia Prize for Science and Technology (jointly with Green) and the 1992 CSIRO medal (with Green) for "outstanding contributions of commercial significance." Other distinctions include being ranked (with Green) in the top three inventors world-wide across all fields (excluding European inventions) in the 2006 European Inventor of the Year. Wenham has published >100 refereed papers in scientific and technical journals, >150 refereed conference papers, 6 books, CD-ROMs and book chapters and 50 patents/patent applications.

Jayant Baliga

*2011 EDS J.J. Ebers Award Chair
North Carolina State University
Raleigh, NC, USA*

CALL FOR NOMINATIONS - 2012 EDS J.J. EBERS AWARD

The IEEE Electron Devices Society invites the submission of nominations for the 2012 J.J. Ebers Award. This award is presented annually for outstanding technical contributions to electron devices. The recipient(s) is awarded a plaque and a check for \$5,000, presented in December at the IEEE International Electron Devices Meeting (IEDM).

The J.J. Ebers Award nomination form can be found on-line at <http://eds.ieee.org/jj-ebers-award.html>. The deadline for submission of nominations for the 2012 award is 1 July 2012.

If you have any questions or need further information on this award, please do not hesitate to contact Laura Riello of the EDS Executive Office at l.riello@ieee.org.

2011 EDS EDUCATION AWARD WINNER

The EDS Education Award recognizes an IEEE/EDS Member from an academic, industrial, or government organization with distinguished contributions to education within the fields of interest of the IEEE Electron Devices Society. The 2011 award was presented to Chenming Hu at the IEEE International Electron Devices Meeting in Washington, DC, on December 5, 2011. The award cites Professor Hu "for distinguished contributions to education and inspiration of students, practicing engineers and future educators in semiconductor devices."

Chenming Hu is the TSMC Distinguished Professor in the Graduate School, University of California, Berkeley. He serves on the boards of SanDisk Corp. and the nonprofit Friends of Children with Special Needs. From 2001 to 2004 he was the Chief Technology Officer of TSMC.

Chenming's first research project as a Berkeley Professor, a gas-electric hybrid car built with ME and EE



Chenming Hu (right) receiving the 2011 EDS Education Award at the IEDM Plenary

students in 1979, was featured in *The San Francisco Chronicle*, *The Los Angeles Times*, etc. In 1983, he wrote his first textbook with Prof. Richard White on solar cells for terrestrial applications. His latest textbook "Modern Semiconductor Devices for Integrated Circuits" appeared in 2010.

He is known for effective classroom teaching and received UC Berkeley's highest honor for teaching, the Berkeley Distinguished Teaching

Award, in 1997. Semiconductor Research Corporation recognized him as an influential mentor to many outstanding research students (over one hundred Ph.D. and postdoc researchers) with the Aristotle Award in 2009. From 1985 to 2001, he taught semi-annually, often with Prof. Ping Ko, an extremely well received two-day course "MOSFET Physics, Technology, and Models," for a total of about one thousand practicing engineers. In July 2011, he gave the first ever IEEE Electron Devices Society Web Seminar, on the new 3D MOSFET—FinFET.

He likens teaching to starting a fire. The teacher must carefully attend to the flames of curiosity, enthusiasm, and inventiveness, and never smother them in the eagerness to teach. In time, the fires will roar. The teacher motivates, encourages, sets high expectation for individual students, points to good examples and directions, and gives the time and effort that students deserve.



IEEE

2012 EDS EDUCATION AWARD

CALL FOR NOMINATIONS



The IEEE Electron Devices Society invites the submission of nominations for the EDS Education Award. This award is presented annually by EDS to honor an individual(s) who has made distinguished contributions to education within the field of interest of the Electron Devices Society. The recipient(s) is awarded a certificate and a check for \$2,500, presented at the IEEE International Electron Devices Meeting (IEDM).

The nominee must be an EDS member engaged in education in the field of electron devices, holding a present or past affiliation with an academic, industrial, or government organization. Factors for consideration include achievements and recognition in educating and mentoring students in academia or professionals in the industrial or governmental sectors. Specific accomplishments include effectiveness in the development of innovative education, continuing education programs, authorship of textbooks, presentation of short-courses at EDS sponsored conferences, participation in the EDS Distinguished Lecturer program, and teaching or mentoring awards.

Since this award is solely given for contributions to education, the nomination should exclude emphasis on technical contributions to engineering and physics of electron devices.

Nomination forms can be found on the EDS web site at <http://eds.ieee.org/education-award.html>.

The deadline for the submission of nominations for the 2012 award is September 1, 2012.

Chenming is also noted for research contributions to MOSFET reliability, the first industry standard model for circuit simulation (BSIM), and the FinFET. From IEEE he has received the Jack Morton Award, the Solid State Circuit Award, and the Jun-ichi Nishizawa Medal. He has been honored with three national academy

memberships – US National Academy of Engineering, Chinese Academy of Sciences, and Academia Sinica.

He received a B.S. degree from National Taiwan University and M.S. and Ph.D. degrees from UC Berkeley. He and his wife, Margaret, met in graduate school at Berkeley. One of their sons, Jason, a Berkeley alumnus and

an industrial designer, lives in Brooklyn, NY. Their other son, Raymond, lives near them in the Bay Area. Raymond and Chenming's paintings may be viewed on Chenming's website.

*Mark Lundstrom
EDS Education Award Chair
Purdue University
West Lafayette, IN, USA*

2011 EDS EARLY CAREER AWARD WINNERS

The EDS Early Career Award recognizes an IEEE/EDS Graduate of the Last Decade (GOLD) member at the time of nomination who is making exciting contributions in an EDS field of interest area.

The 2011 EDS Early Career Award was presented to Mina Rais-Zadeh of the University of Michigan, Ann Arbor, Michigan and Ravi Todi of the IBM Microelectronics, Hopewell Junction, New York, at the EDS GOLD Event held in conjunction with the IEEE International Electron Devices Meeting in Washington, DC, on December 4, 2011.



Mina Rais-Zadeh received the B.S. degree in electrical engineering from Sharif University of Technology and M.S. and Ph.D. degrees both in Elec-

trical and Computer Engineering from Georgia Institute of Technology, Atlanta, in 2005 and 2008, respectively. From August 2008 to 2009, she was a Postdoctoral Research Fellow with the Integrated MEMS Group, Georgia Institute of Technology. Since January 2009, she has been with the University of Michigan, Ann Arbor, where she is currently an Assistant Professor in the Department of Electrical Engineering and Computer Science. Mina is the recipient of NSF CAREER Award (2011), IEEE Electron Device Society Early Career Award (2011) and finalist of student paper



award at the 2007 SiRF, and 2011 IMS conferences. She serves as a member of the technical program committee of IEEE IEDM, IEEE Sensors, and Hilton Head workshop. Her research interests include passive micromachined devices for communication applications, resonant micromechanical devices, gallium nitride MEMS, and micro/nano fabrication process development.



and his doctoral degree in Electrical Engineering in 2007. His graduate research work was focused on gate stack engineering, with emphasis on binary metal alloys as gate electrode and on high mobility Ge channel devices. His research interest includes semiconductor process integration

Ravi Todi received his M.S. degrees in Electrical and Mechanical Engineering from University of Central Florida in 2004 and 2005 respectively,

and device technology, non-conventional CMOS scaling and nano and bio devices. In 2007 he started working as Advisory Engineer/Scientist at Semiconductor Research and Development Center at IBM Microelectronics Division focusing on high performance eDRAM integration on 45 nm SOI logic platform. With a successful transition of 45 nm SOI technology into large scale production, Ravi started working on the advanced research and development of the 22 nm SOI technology and is leading the development of 22 nm eDRAM efforts at IBM. Ravi is a Distinguished Lecturer for the IEEE Electron Devices Society, the IEEE Region-1 Professional Activities Chair and recently was elected to the position of EDS Treasurer. He has also held several other volunteer leadership positions at IEEE over the past ten years.

*Paul Yu
EDS Early Career Award Chair
University of California at San Diego
La Jolla, CA, USA*





2012 EARLY CAREER AWARD



Jack Dempsey, NREL Contract Photographer

CALL FOR NOMINATIONS

For more information :



<http://eds.ieee.org/early-career-award.html>



The IEEE Electron Devices Society invites the submission of nominations for the EDS Early Career Award. The award is presented annually to promote, recognize and support early career technical development within the Electron Devices Society's field of interest.

Prize: \$1,000, a certificate, and travel expenses to attend the award presentation at the annual EDS GOLD Lecture that is held in conjunction with the IEEE International Electron Devices Meeting (IEDM).

Eligibility: Candidate must be an IEEE EDS GOLD (Graduate of the Last Decade) member and must have received his/her first professional degree within the 10th year defined by the August 15 nomination deadline and has made contributions in an EDS field of interest area. Nominator must be an IEEE EDS member. Previous award winners are ineligible.

Deadline: August 15

31 EDS MEMBERS ELECTED TO THE IEEE GRADE OF FELLOW EFFECTIVE JANUARY 1, 2012

Anant Agarwal, Cree Inc., Chapel Hill, NC, USA

for contributions to silicon carbide power device technology

Carlos Araujo, University of Colorado at Colorado Springs, Colorado Springs, CO, USA

for contributions to the field of ferroelectric nonvolatile memories

Masahiro Asada, Tokyo Institute of Technology, Tokyo, Japan

for contributions to semiconductor laser theory and terahertz devices

Kaustav Banerjee, University of California at Santa Barbara, Santa Barbara, CA, USA

for contributions to modeling and design of nanoscale integrated circuit interconnects

Zeynep Celik-Butler, University of Texas, Arlington, Arlington, TX, USA

for contributions to the understanding of noise and fluctuation phenomena in solid-state devices

Luigi Colombo, Texas Instruments Inc., Dallas, TX, USA

for contributions to infrared detectors and high-k gate dielectrics

John David, University of Sheffield, South Yorks, UK

for contributions to avalanche-photodiodes and impact ionization in semiconductors

Gerard Dreyfus, ESPCI-PARISTECH, Paris, France

for contributions to machine learning and its applications

Donald Gardner, Intel Corporation, Santa Clara, CA, USA

for contributions to integrated circuit interconnects and integrated inductor technology

Nadim Haddad, BAE Systems, Oakton, VA, USA

for development of radiation hardened semiconductor device technology and products for space applications

Wilfried Haensch, IBM Thomas J. Watson Laboratory, Yorktown Heights, NY, USA

for contributions to metal-oxide-semiconductor field-effect transistor device physics and scaling

Yoon-Ha Jeong, Pohang University of Science & Technology, Pohang, Korea

for the development of single-electron and high-electron mobility transistors

Clifford King, L-3 Communications, Gloucester, MA, USA

for contributions to silicon germanium heterojunction devices and technologies

Mayuresh Kothare, Lehigh University, Bethlehem, PA, USA

for contributions to multivariable constrained systems and model predictive control

Francis Kub, Naval Research Laboratory, SW Washington, DC, USA

for leadership in the development of wide bandgap semiconductor power electronics

Veena Misra, North Carolina State University, Raleigh, NC, USA

for contributions to metal electrodes and high-K dielectrics for CMOS applications

Tohru Mogami, Selete, Ibaraki, Japan

for contribution to surface-channel

pMOSFET and nanoscale transistor technology

Oleg Mukhanov, HYPRES, Inc., Elmsford, NY, USA

for leadership in research and development of superconducting digital electronics

Anthony Oates, TSMC, Hsinchu, Taiwan

for contributions to the engineering and understanding of interconnect reliability in integrated circuits

Shunri Oda, Tokyo Institute of Technology, Tokyo, Japan

for contributions to silicon quantum dot devices

William Palmer, US Army Research Office, Durham, NC, USA

for leadership and contributions in microwave and millimeter wave systems and sources

Ci-Ling Pan, National Tsing Hua University, Hsinchu, Taiwan

for contributions to optoelectronic and liquid crystal devices for ultra-fast and terahertz photonics

Unil Perera, Georgia State University, Atlanta, GA, USA

for contributions to quantum structures for infrared and terahertz detection

Valluri Rao, Intel Corporation, Santa Clara, CA, USA

for contributions to the characterization technologies for microprocessor and logic circuits

Koji Sakui, Micron Japan, Ltd.-Tokyo Office, Tokyo, Japan

for the contribution to NAND flash memories

Johnny Sin, Hong Kong University of Science and Technology, Kowloon, Hong Kong

for contributions to the design and commercialization of power semiconductor devices

John Suehle, National Institute of Standards and Technology, Gaithersburg, MD, USA

for contributions to the understanding of thin gate dielectric films

Chris Van de Walle, University of California at Santa Barbara, Santa Barbara, CA, USA

for contributions to the theory of interfaces, doping and defects in semiconductors

Keh-Chung Wang, Hong Kong Applied Science & Technology Research Inst., Hong Kong, China

for contributions to GaAs HBT integrated circuits for high speed data conversion and optical fiber communication systems

James Warnock, IBM Thomas J Watson Laboratory, Yorktown Heights, NY, USA

for contributions to circuit design of high-performance microprocessors

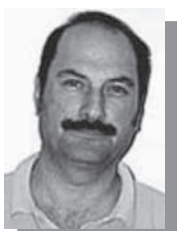
Edward Yu, University of Texas at Austin, Austin, TX, USA

for contributions to characterization and device applications of semiconductor nanostructures

STATUS REPORT FROM THE 2011 EDS MASTERS STUDENT FELLOWSHIP WINNERS



Meyya Meyyappan
EDS Vice-President
of Educational
Activities



Agis Iliadis
EDS Masters
Student Fellowship
Chair

The EDS Masters Student Fellowship program is designed to promote, recognize, and support Masters level study and research within the Electron Devices Society's Fields of Interest.

The 2011 EDS Masters Student Fellowship winners were: Qian Zhang from Hong Kong University and Haowei Zhang from Stanford University. The winners are pursuing distinctly different research topics in electron devices for their Masters degrees. The following are brief progress reports provided by the award winners.

Qian Zhang is continuing to pursue her M.Phil. Degree in Department of Electrical and Electronic



Engineering at The University of Hong Kong, HK, and is expected to obtain her M.Phil. Degree in September, 2012. During her master studies, she has worked on improving the optical performance of LED devices and proposed a new approach to generate polarized light from LED by employing close-packed nanosphere opal coating. She also demonstrated the fabrication of ITO sub-micron lenses on GaN LED. In the past year, Qian Zhang published her works in ICNS-9 (Glasgow, UK, 2011) and Applied Physics Letters, and won a Best Paper Award at the IEEE Student Symposium on EDS/SC (HK, 2011).



Haowei Zhang (S'11) was born in Henan, China, in 1988. He received his B. S. degree in microelectronics from Peking University, Beijing, China, in 2010. He is

now working on his M. S. degree in Department of Electrical Engineering, Stanford University, California, USA.

His research interests range from emerging semiconductor device (e.g. RRAM, carbon nanotubes) simulation, modeling, fabrication, to energy-efficient circuits/architectures. While a research assistant in the Novel Device Group, Institute of Microelectronics, Peking University, he and his colleagues developed methods to improve performance of HfO_2 and ZrO_2 RRAM devices.

The IEEE EDS is proud to support Engineering Education in Electron Devices world-wide.

Meyya Meyyappan
EDS Vice-President of Educational
Activities
NASA Ames Research Center
Moffett Field, CA, USA

Agis Iliadis
EDS Masters Student Fellowship
Chair
University of Maryland
College Park, MD, USA



CALL FOR NOMINATIONS
2012 IEEE Electron Devices Society
PhD Student Fellowship

Description: One year fellowships awarded to promote, recognize, and support PhD level study and research within the Electron Devices Society's field of interest: The field of interest for EDS is all aspects of engineering, physics, theory, experiment and simulation of electron and ion devices involving insulators, metals, organic materials, plasmas, semiconductors, quantum-effect materials, vacuum, and emerging materials. Specific applications of these devices include bioelectronics, biomedical, computation, communications, displays, electro and micro mechanics, imaging, micro actuators, optical, photovoltaics, power, sensors and signal processing.

It is expected that three fellowships will be awarded, with the intention of at least one fellowship being given to eligible students in each of the following geographical regions every year: Americas, Europe/Middle East/Africa, and Asia & Pacific. Only one candidate can win per educational institution.

Prize: US\$5,000 to the student and if necessary funds are also available to assist in covering travel and accommodation costs for each recipient to attend the EDS Administrative Committee meeting for presentation of the award plaque. The EDS Newsletter will feature articles about the EDS PhD Fellows and their work over the course of the next year.

Eligibility: Candidate must: be an IEEE EDS student member at the time of nomination; be pursuing a doctorate degree within the EDS field of interest on a full-time basis; and continue his/her studies at the current institution with the same faculty advisor for twelve months after receipt of award. Nominator must be an IEEE EDS member. Previous award winners are ineligible.

Basis for Judging: Demonstration of his/her significant ability to perform independent research in the fields of electron devices and a proven history of academic excellence.

Nomination Package:

- Nominating letter by an EDS member
- Two-page (maximum) statement by the student describing his or her education and research interests, accomplishments and graduation date
- One-page biographical sketch of the student (including student's mailing address and email address)
- One copy of the student's under-graduate and graduate transcripts/grades. Please provide an explanation of the grading system if different from the A-F format.
- Two letters of recommendation from individuals familiar with the student's research and educational credentials. Letters of recommendation can not be from the nominator.

Timetable:

- Nomination packages are due at the EDS Executive Office no later than **May 15, 2012**
- Recipients will be notified by July 15, 2012
- Monetary awards will be given by August 15, 2012
- Formal award presentation will take place at the EDS Administrative Committee Meeting in December 2012.
- Nomination packages can be submitted by mail, fax or e-mail, but a hard copy must be received at the EDS Office.

Send completed package to: IEEE Operations Center
EDS Executive Office - PhD Student Fellowship Program
445 Hoes Lane, Piscataway, NJ 08854 USA

For more information contact: edsfellowship@ieee.org

Visit the EDS website: <http://eds.ieee.org/eds-phd-student-fellowship-program.html>

LETTERS TO THE EDITOR

November 16, 2011

Subject: Sad news - Passing of our colleague, Prof. Nataliya Lukyanchikova

Dear Colleagues:

It is with deep regret that I write to inform you that our colleague, Prof. Nataliya Lukyanchikova, passed away on October 31, 2011. Despite being terminally ill, she worked intensively to the last week of her life. In fact, her last post-graduate student, Valeriya Kudina, successfully defended her Ph.D. thesis some days before Nataliya's death. Nataliya is survived by her husband, Prof. Grygoriy Pekar.

Nataliya was well-known in the noise community for her dedication

to research and her students, her friendly demeanor and charm, and her collegiality. In addition to publishing numerous high-quality articles in the noise field, she also found time to write an excellent research book "Noise Research in Semiconductor Physics" - N. B. Lukyanchikova, Gordon and Breach Science Publishers, 1996 - Technology & Engineering.

Condolences and other expressions of sorrow can be sent to her husband at pekar@isp.kiev.ua.

Sincerely,
Professor M. Jamal Deen
McMaster University
Ontario, Canada

December 16, 2011

Subject: Thank you for these remarkable WEBINARS

I just wanted to thank you for this last interesting WEBINAR and all other webinars you provide for EDS Members.

I'm renewing my membership right now and would like to thank you all for your efforts.

Yours,
Eng. Sami Al-Ghamdi
SCE & IEEE Member
Indiana, USA

FinFET Webinar with Chenming Hu
(<http://eds.ieee.org/webinars.html>)

CONGRATULATIONS TO THE 37 EDS MEMBERS RECENTLY ELECTED TO IEEE SENIOR MEMBER GRADE!

Muhannad	Bakir
Hengky	Chandahalim
Stefan	De Gendt
Roger	De Keersmaecker*
Bogdan	Govoreanu
Hans	Hjelmgren
Andrew	Hoff
Aileen	Honka
Ray-Hua	Hornig
Erdin	Ihsan
Andrea	Irace
Won-Young	Jung
Nikawa	Kiyoshi*

Raj	Kumar
Tatsuya	Kunikiyo*
Sang-Seok	Lee*
Weidong	Liu
Zhijian	Ma
Carlos	Mastrangelo
William	Menninger
Masahiro	Moniwa*
Reza	Navid
Koji	Nii
Akihiro	Nitayama
Mang	Ou-Yang

Sangwoo	Pae
Carl	Petersson
Cyrus	Shafai
Jintang	Shang
P.C.	Sharma
Walter	Snoeys
Hiro Yoshi	Tanimoto
Rakesh	Vaid
Hiroshi	Watanabe
Barry Bing-Ruey	Wu
Yunseop	Yu
Yi	Zhao

*Individual designated EDS as nominating entity. Please remember to designate the Electron Devices Society as your nominating entity.

If you have been in professional practice for 10 years, you may be eligible for Senior Membership, the

highest grade of membership for which an individual can apply. New senior members receive a wood and bronze plaque and a credit certificate for up to US \$25 for a new IEEE society membership. Upon request a letter will be sent to employers, recognizing this new status.

For more information on senior member status, visit: <http://www.ieee.org/web/membership/senior-members/status.html>

To apply for senior member status, fill out the on-line application: <http://www.ieee.org/organizations/rab/md/smelev.html>.

REPORT ON THE IEEE EDS MINI-COLLOQUIUM HELD AT THE ED/CAS NORTH JERSEY CHAPTER

The ED/CAS North Jersey Chapter held a Mini-Colloquium on November 17, 2011, on *"From Beam-Leads to MEMS and Beyond: Devices, Circuits and Photonics to Systems Approach in Modern Communications"* at New Jersey Institute of Technology (NJIT), Newark, NJ. This Mini-Colloquium was organized to celebrate the contributions of Dr. Marty Lepselter, an inventor. The objective was to honor the work of significant contributors in the ED community. There were

many distinguished speakers including EDS President and Distinguished Lecturer, Dr. Renuka Jindal. The event began with a buffet lunch and a welcome note from the ED/CAS North Jersey Chapter Chair, Durga Misra. Then Dr. Jindal introduced Dr. Marty Lepselter and addressed the audience on *"From Beam-Leads to MEMS and Beyond: A Celebration of Contributions of Dr. Marty Lepselter"*; followed by Dr. James C. Phillips, a retired Bell Labs researcher on *"LCD Displays: What is behind the HD screen?"* The next speaker, Dr. George E. Georgiou, research professor at NJIT gave a talk on *"Marty Lepselter – Lithography, Silicon Processing My Connection – Bell Labs (1980–1990);"* and Dr. Anthony Fiory, a retired, scientist of Bell Labs then spoke about *"Applications of Lepselter Science and Technology."*

After a short coffee break Dr. Marty Lepselter addressed the audience on *"MPL Holding Beam Lead Transistor Model."* Dr. Al Mac Rae, gave a talk entitled, *"Me, Marty and Technology: Ion Implantation."* Dr.

Mac Rae also mentioned the importance of honoring the inventors of technology to encourage bright minds to join science and engineering. His talk was followed by Dr. Haim Grebel of NJIT on *"Field-Effect Transistors with Carbon Nanotube Channels: Gate Control and Photo-Induced Effects."* The final speaker of the event, Dr. Jeffrey S. Walling of Rutgers University, spoke on *"CMOS Power Amplifiers: Switching to a new Paradigm."* The event concluded with presentation of a plaque to Dr. Marty Lepselter by EDS President Dr. Jindal, followed by a vote of thanks by Professor Ravindra of NJIT's Physics Department. All participants attended a reception co-sponsored by the Photonics chapter of the North Jersey Section and New Jersey Institute of Technology.



Dr. Jindal and Dr. Marty Lepselter (right)

*Durga Misra
EDS SRC Chair, No. America East
New Jersey Institute of Technology
Newark, NJ, USA*



The speakers and the participants of the Mini-Colloquium

EDS DISTINGUISHED LECTURERS VISIT THE BEIJING CHAPTER

The Beijing Chapter hosted two EDS Distinguished Lecturers (DLs) in November 2011. On November 2nd Prof. Jordi Suñé from the Universitat Autònoma de Barcelona (UAB) of Spain delivered a DL entitled "Threshold switching and memory switching in electroformed metal oxides," at the Institute of Microelectronics of Chinese Academy of Sciences (IMECAS), hosted by Prof. Jinjun Feng, the Chapter Chair and Prof. Ming Liu from IMECAS. There were more than 30 attendees of local professionals and graduate students from the Beijing Chapter. Prof. Jordi presented recent results regarding the co-existence of threshold and memory switching in metal oxides that might play a role in the SET transition of resistive switching memories as well as in their reliability. The subject is important in RRAM device researches. Afterward, a symposium was held with the attending researchers from the Laboratory of Nano-Fabrication and Novel Devices Integrated Technology of IMECAS. Both sides introduced their recent works, which prompted effective discussions.

On November 15th, Dr. Xing Zhou, an EDS Distinguished Lecturer from Nanyang Technological University (NTU) visited the ED Beijing Chapter and delivered a DL entitled, "Unification of MOS Compact Models

with the Unified Regional Modeling Approach," at the Institute of Microelectronics, Chinese Academy of Science (IMECAS). Professor Liu Ming of IMECAS and Beijing Chapter Secretary, Mr. Yinfu Hu of BVERI (Beijing Vacuum Electronics Research Institute) hosted the activity. This lecture attracted 20 attendees of professionals and graduate students. It was an excellent lecture that introduced the development of a compact model (Xsim) for unification of MOSFET models with the unified regional modeling (URM) approach. Dr. Zhou explained that the core model was directed towards modeling emerging devices and technologies in one unified framework without duplicating efforts, which also provided

seamless transitions among various device structures and operations, with selectable accuracy for simulation and verification of future-generation ULSI circuits. The lecture was well received with a lively question and answer period.

*Jinjun Feng
ED Beijing Chapter Chair
Beijing Vacuum Electronics
Research Institute
Beijing, China*

*Yinfu Hu
ED Beijing Chapter Secretary and
Treasurer
Beijing Vacuum Electronics
Research Institute
Beijing, China*



Prof. Jordi Suñé (lecturer, back row, middle), Prof. Jinjun Feng (ED Beijing Chapter Chair, back row, 3rd from right) and Prof. Ming Liu (back row, 2nd from right) with student members



Attendees with EDS Distinguished Lecturer, Dr. Xing Zhou (middle), November 15, 2011



Prof. Jordi Suñé, EDS Distinguished Lecturer at IMECAS

EDS DISTINGUISHED LECTURERS PARTICIPATE IN THE 30TH WIMNACT - COIMBATORE, INDIA

A series of EDS Distinguished Lecturers (DL) and Mini-Colloquia (WIMNACT-30) was organized by the ED Madras Chapter and Sri Ramakrishna Institute of Technology, Coimbatore, India, December 30, 2011. This is the 30th WIMNACT in its series. There were four technical lectures in the workshop: Hiroshi Iwai of Tokyo Institute of Technology, E. Chang of NCTU, Chandan Sarkar of Jadavpur University and N. Mohan Kumar of SKP Engineering College. The institute's management team organized the event, which attracted approximately 300 participants to the one-day program. WIMNACT-30 was the first such event on nanoelectronics technologies held at the institute, providing light on new technologies to students.



Speakers and participants of WIMNACT-30 held in Coimbatore, India

*N. Mohan Kumar
ED Madras Chapter Chair
SKP Engineering College
Tamil Nadu, India*

*Hiroshi Iwai
IEEE Division 1 Director
Tokyo Institute of Technology
Tokyo Kanagawa, Japan*

EDS-ETC

Engineers Demonstrating Science:
an Engineer Teacher Connection

Report From the AP/ED/MTT/ COM/EMC Tomsk Chapter

In November 2011, the 10th anniversary of the All-Russian Student Olympiad on Electronics was held in conjunction with the Conference "Electronic Devices, Systems and Technologies" for students, post-graduates and young researches. The Olympiad takes place annually

at the National Research Tomsk Polytechnic University with the support of the IEEE Tomsk Joint Chapter and Student Branch.

The youth marathon using Elenco Snap Circuits™ kits, generously provided by the IEEE Electron Devices Society, were employed at the Olympiad for the first time. Five teams competed in the design

of high-speed circuits and industrial automatic circuits of various complexities.

Two student teams named "Pofigistors" and "Lamps & Diodes" successfully solved the problems.

The participants were very impressed with the Snap kits. The great success of this event surpassed all previous contests of the past 10



Young researchers assembling the circuits by using Snap kits

years. We have more ideas for using these kits for future contests and conferences for students and scholars. Many thanks to EDS for a brilliant

idea with the EDS-ETC Program and its implementation within the frameworks of the projects of the IEEE units in Tomsk.

*Oleg Stukach
Tomsk Joint Chapter Vice-Chair
Tomsk Polytechnic University
Tomsk, Russia*

QUESTEDS



*Samar Saha
EDS Vice-President
of Publications*

Interested in knowing why it's not possible to measure the built-in voltage of a PN junction using a voltmeter? Do you need to understand the best way to derive an expression for the average thermal velocity of an electron? Or are you curious about what quantum dots and wires are? The answers to these questions and more are available through the QuestEDS Question and Answer page.

To ask a question not already addressed on the Q&A page, visit www.ieee.org/go/questeds. Technical experts answering the questions posed represent academic, government, and industry sectors.

Questions are grouped into nine technical categories and two general ones. Technical categories cover subject areas like semiconductor and device physics, process technology, device characterization, technology CAD, compact modeling, VLSI interconnects, photovoltaics, and

quantum electronics. Subject areas addressed are anticipated to expand in the future. Two other categories address questions pertaining to educational activities and general inquiries about society membership. Within a two week time frame from when the question is asked, an answer is posted online. Incoming questions are handled by an editor-in-chief who ensures that they fall within the technical scope of EDS and that they are adequately answered.

For the answers to these recent submissions, visit <http://eds.ieee.org/questeds/question-and-answer-page.html>. Your IEEE login is required to view the answer page. After authentication you will be redirected to the answer page, where you can select the appropriate topic link.

*Samar Saha
EDS Vice-President of Publications
SuVolta, Inc.
Los Gatos, CA, USA*

Quantum Electronics

Question 054-11

While solving the Schrodinger's equation for harmonic oscillator by series method, we have to truncate the series after a finite number of terms (n) to get physically acceptable solutions. This leads to quantization of energy levels. Since the series is truncated after a finite n , the number of energy levels should also be finite. But, invariably all the available literature shows that there are infinite numbers of such quantized energy levels ($n = 0, 1, 2, 3, \dots$). Why?

Photovoltaics

Question 055-12

Has there been proven any efficiency increase in a solar cell due to the intermediate band or multi-exciton generation?

Question 056-12

With such a large degradation rates, are organic solar cells a real alternative nowadays? Taking this into account, they do not seem very useful, or cheap, for rural applications as they must be substituted quite often.

REGIONAL AND CHAPTER NEWS

USA, CANADA & LATIN AMERICA (REGIONS 1-6, 7 & 9)

ED Orlando

—by Wen Liu

On November 28, 2011, the ED Orlando Chapter hosted an EDS Distinguished Lecture at the University of Central Florida, Orlando, Florida.

The IEEE EDS Distinguished Lecturer, Dr. Charvaka Duvvury from Texas Instruments (Dallas, Texas, USA), was invited to present a lecture on "Future ESD Challenges for IC Components and Systems." Dr. Duvvury began his lecture describing Electrostatic Discharge (ESD), its impact on electronics system applications and the ESD control status at manufacturing. The ESD challenges and design constraints from advances in silicon technologies were later reviewed, followed by illustration of the state-of-the-art ESD for components and systems. Dr. Duvvury also presented the ESD design efficiency for system level protection and an outlook of future ESD research opportunities at the end of the lecture.

The distinguished lecture provided an excellent opportunity for

UCF graduate and undergraduate students to learn about the state of the art in ESD, to interact and exchange ideas with the speaker, and to discuss research activities. It also provided a great networking opportunity for all the IEEE members in the Central Florida region.

~Fernando Guarin, Editor

2012 ITMC

—by Luke Maki

On behalf of its 14 IEEE Member Societies, the 2012 International Technology Management Conference, ITMC 2012, will occur in Dallas, Texas, June 24–27, 2012, at the Omni Hotel Convention Center.

With a timely theme of Managing Technology during a Business Recovery, this year's conference will explore special sessions on university programs in systems engineering and management, and on financial engineering and macro-economic modeling as they relate to management during times of business recovery.

Topic categories for ITMC 2012:

- Supply Chain Management
- Sustainability
- Globalization and its implications
- Entrepreneurship
- Management of innovation and more

For more information, visit the ITMC website and Call for Papers, <http://ieee-itmc.org>.

ED Santa Clara Valley

—by Toshishige Yamada

In 2011, the ED Santa Clara Valley Chapter invited several distinguished speakers. Chapter members enjoyed talks from industry experts such as: Prof. Tsu-Jae King Liu from UC Berkeley, Prof. Glenn Alers from University of California at Santa Cruz, Dr. Geert Vandenberghe from IMEC, Dr. Charvaka Duvvury from Texas Instruments, Ishai Naveh from Adesto Technologies, Prof. Souvik Mahapatra from Indian Institute of Technology Bombay, Prof. Asen Asenov from University of Glasgow, Prof. Zhiping Yu from Institute of Microelectronics, Tsinghua University, Dr. Maxim Ershov from Silicon Frontline Technologies, Prof. Philip Wong from Stanford University, and Prof. Steve S. Chung from National Chiao Tung University. A half-day symposium on memory was also held with invitations extended to Dr. Al Fazio from Intel, Dr. Chuck Dennison from Ovonyx, Dr. Gurtej Sandhu from Micron, Prof. Michael Kozicki from Arizona State University, and Dr. Joshua Yang from HP Laboratories. The list of speakers and their lecture topics follows:

- In January, Prof. Tsu-Jae King Liu presented "Mechanical Computing Redux: Relays for Integrated Circuit Applications."
- In February, Prof. Glenn Alers presented "Photovoltaic Module Reliability and Failure Analysis: Enduring a storm."
- In March, Dr. Geert Vandenberghe presented "Lithography Options for 22nm and Beyond."
- In April, Dr. Charvaka Duvvury, Distinguished Lecturer, presented "Future ESD Challenges for IC Components and Systems." He



Speaker, organizers and some attendants (first row): Dr. Charvaka Duvvury, Dr. Juin J. Liou, Wen Liu, Zhixin Wang (4th to 1st from the left, respectively); Sirui Luo (2nd row) and some of the attendees

talked about various aspects of ESD and presented strategies for coupling from component to system protection design.

- In April, Dr. Ishai Naveh presented "The History of Flash Memory Technology and What Lies Ahead." He reviewed the progress of Flash memory and the requirements of new emerging memories technologies with respect to successful market adoption. The presentation discussed the challenges of continued scaling of today's non-volatile memories and covered several emerging technologies introduced in last 7–10 years to replace today's flash technology. Furthermore, he also discussed how unique capabilities of some of the emerging memory technologies could affect and enable new system architectures and user experience.
- In May, Prof. Souvik Mahapatra presented "Characterization and Modeling of NBTI Stress, Recovery, Material Dependence and AC Degradation."
- In June, Dr. Asen Asenov presented "Simulation of Statistical Variability and Reliability: From TCAD to Statistical Circuit Simulation." The talk explained the importance of simulation of statistical variability and reliability in the semiconductor industry and how it can help the design of transistors with reduced variability by tailoring the device structure and doping distribution. He presented simulation results of an advanced TCAD simulation tools that allow the predictive simulation of statistical variability and statistical reliability in present and novel CMOS transistors and architecture scaled according to prescriptions of the ITRS. He also presented advanced strategies and tools for statistical compact model extraction and generation and statistical circuit simulation.
- In August, Prof. Zhiping Yu presented "Graphene – Still Head-

ing for Prime." He explained why Graphene with zero band-gap, intrinsic carrier mobility as high as 200,000 cm²/Vs and saturation velocity of 5.5×10^7 cm/s is such an important breakthrough material for electronic devices. The talk started from a brief review of the history for graphene discovery and its physics implication, mainly the massless Dirac fermions. This was followed by discussion on recent progress in graphene FETs with self-aligned processing for short channel length and good RF performance. He also addressed the issues related to graphene's electronic applications include material aspects, theoretical analysis and numerical simulation for phonon scattering, quantum capacitance, etc. Finally, he talked about the optical properties of graphene and its potential applications in optoelectronics and photovoltaic.

- In September, Dr. Maxim Ershov presented "Metal interconnects for large-area power devices – physics, challenges, and solutions."
- In October, Prof. Philip Wong presented "Carbon Electronics – From Material Synthesis to Circuit Demonstration."
- In October, Prof. Steve S. Chung, Distinguished Lecturer, presented "The Variability Issues in Advanced CMOS: Random Dopant Fluctuation and Random Trap Fluctuation."
- In November, the chapter held a half-day symposium, "Current Status and Future Directions of Non-Volatile Memory Technology." Five distinguished speakers on memory technology were invited. Dr. Al Fazio, Intel presented "Future Directions of Non-Volatile Memory in Compute Applications," Dr. Chuck Dennison, Ovonyx presented "Scaling Challenges and Market Opportunity for Phase Change Memory," Dr. Gurtej Sandhu, Micron presented "Emerging Memory Opportunities and Challenges," Prof. Michael

Kozicki, Arizona State University presented "Ionic Memory," and Dr. Joshua Yang, HP Laboratories presented "Metal Oxide Based Non-Volatile Memories - Promises and Challenges." More than one hundred people attended the symposium and there were many discussions between the speakers and attendees.

~Adam Conway, Editor

2012 RFIC

–by Albert Jerng, Chris Rudell and Larry Kushner

Welcome to the 2012 IEEE Radio Frequency Integrated Circuits (RFIC) Symposium (www.RFIC2012.org), which will take place in Montréal, Canada, June, 17–19, 2012. Our Symposium, held in conjunction with the IEEE MTT-S International Microwave Symposium, opens Microwave Week 2012, the largest world-wide RF/Microwave meeting.

This year's exciting technical program will cover a broad spectrum of topics from cellular and wireless-connectivity system ICs, broadband wireless communications, digitally enhanced RF circuits, silicon millimeter-wave ICs and RF device technology to modeling and characterization.

The 2012 RFIC Symposium will start on Sunday with a full day lineup of half-day and full-day workshops. The attendees shall expect thirteen RFIC workshops and one joint RFIC-IMS workshop for 2012.

The conference also includes a Plenary Session with Tom Lee, professor of Stanford University and Rob Gilmore, VP of Engineering at Qualcomm. The three best student paper awards will be presented to encourage the publication of innovative research from university students. The highly anticipated RFIC Reception will follow immediately after the Plenary Session.

During lunch time on Monday and Tuesday, the conference will feature a lively and entertaining panel sessions entitled "THz Integrated



Montreal, Canada, site of the 2012 RFIC Symposium
Photo by DAVID ILIFF, License: CC-BY-SA 3.0

Circuits: Do future markets support highly integrated silicon-based IC development?" and "RF scaling: Can it keep up with digital CMOS? Should it?" respectively.

Technical papers will be presented during oral sessions throughout Monday and Tuesday. The technical program will conclude with the Interactive Forum session on Tuesday afternoon, which will feature poster sessions plus giving attendee a chance to speak directly with authors regarding their work.

This year's location is the Palais des Congrès de Montréal, Montréal, Canada. Montreal, a 3.6 million metropolis, is a very walkable, dense city with a well-preserved historic center besides a modern downtown, plenty of public spaces and parks, a quick and clean transit system, beautiful architecture and neighborhoods, and of course lots of sidewalk cafés for people watching. We hope that you take full advantage of these opportunities on your visit.

On behalf of the RFIC Steering Committee, we look forward to seeing you at the 2012 RFIC Symposium in Montreal.

~Peyman Servati, Editor

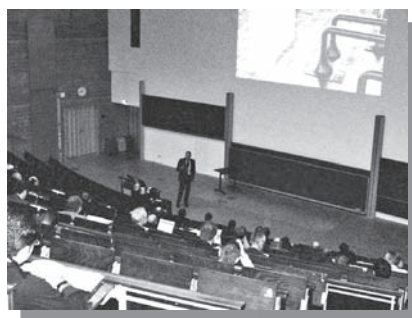
EUROPE, MIDDLE EAST & AFRICA (REGION 8)

2011 SCD

—by Joachim N. Burghartz

The ED Germany Chapter spent considerable effort last year to help set up the technical program of the

Semiconductor Conference Dresden (SCD), held September 27–28 2011, in Dresden, Germany (<http://www.gerotron.de/html/messen/scd.htm>). The chapter also assisted in getting technical co-sponsorship from IEEE EDS and thus, advancing the conference to an international meeting. SCD 2011 was held at the conference center of the Technical University Dresden in the city of Dresden, which is host to the largest microelectronics manufacturing site in Europe with fabs of Global foundries, Infineon and several others. There were 380 participants from Germany, USA, Austria, France, The Netherlands, Switzerland, Russia, Israel and Finland attending the two-day event. The technical program consisted of 3 keynote plenary talks, 11 session invited presentations and 32 contributed talks. One highlight was the keynote speech delivered by Hermann Eul, President of Intel Mobile Communications. The main goal of SCD 2011 was to join together all disciplines relevant to microelectronics manufacturing. Sessions were therefore on circuit and system design, simulation and modeling, measuring and testing, fabrication, automation and reliability, semicon-



ductor materials and technologies, and clean room equipment and services. Besides EDS, MTT and CPMT were two other IEEE societies that provided technical co-sponsorship.

All in all SCD 2011 can be considered a great success. Given that and since SCD in Dresden is being held bi-annually it was decided from 2012 on to organize an annual meeting, alternating between Grenoble in France, the other major European microelectronics center, and Dresden under the new name 'International Semiconductor Conference Dresden – Grenoble' (ISCDG). The 2012 conference will take place in Grenoble on September 24–26, 2012. Please mark your calendars!

~Jan Vobecky, Editor

ASIA & PACIFIC (REGION 10)

ED/SSC Hong Kong

—by Anthony Choi

The IEEE ED/SSC Hong Kong Chapter and the Hong Kong University of Science and Technology co-organized a 3-day Electronic Winter Camp on December 28–30, 2011, to Foster Future Electronic Engineers. The workshop



Students constructing their circuits during the Electronic Winter Camp



Winter Camp participants at the Hong Kong University of Science and Technology

was attended by primary and secondary students, ages 10 to 15, who experienced the fun of electronic designs. The event was initiated by Prof. Mansun Chan from Hong Kong University of Science and Technology, with assistance from instructors and student helpers, all Electronic Engineering undergraduates. In the camp, the young children constructed various electronic gadgets such as running lights, LED dice and electronic pianos on breadboards with generic components. In addition to stimulating the interest of young children to electronic design, the camp also provided an opportunity for the university students to practice their presentation and organization skills. Unlike the traditional approach of education in which students develop their engineering skills with the sequence of Mathematics-to-Physics-to-Engineering, the camp adopted the "Reverse Engineering" approach beginning with Engineering followed by Physics and finally Mathematics. According to Prof. Chan, engineering is more closely related to everyday life and can effectively stimulate the interest of students to the subject. Even though the young children may not understand a number of concepts in the beginning, as long as they find enjoyment in the subject, they will ask and search for more information. The process lets the children become more pro-active in their learning experience.

The camp was a big success with more than 130 participants, with the youngest only 10 years old. About 25 university students were involved in the

preparation and teaching at the camp. Everyone enjoyed the experience. There was lots of learning and laughter.

2011 IWNANO

—by Hiroshi Iwai and N. Mohankumar

The International Workshop on The Future of Nano Electronics Research and Challenges Ahead (IWNANO) 2011, co-sponsored by the IEEE ED Madras and Calcutta Chapters and SKP Engineering College was held, December 26–28, 2011, in Tiruvannamalai, Tamil Nadu, India. Three hundred people from all over India attended to discuss state of the art nanoelectronics technologies.

At the inauguration, the attendees were welcomed by K. Karunanithi, of SKP Institutions, and C. Kumar, K. Natarajan and N. Mohankumar of SKPEC.

The co-sponsors invited 10 distinguished lecturers: H. Iwai, TIT; E. Chang, NCTU; C. Sarkar, JU; D. Misra, NJIT; T. Sahu, BU; P. Banerji, IIT-KGP; S. Shrestha, TU; J. Kedzierski, MIT; A. Dasgupta, IIT-M; and C. Chang, NCTU. In addition to the lectures, 14 oral and 30 poster papers were contributed. All the sessions were well addressed, with strong interactions between the speakers and the participants, making the workshop a huge success.

ED Delhi

—by Manoj Saxena

The ED Delhi Chapter co-organized a national level conference on "Recent Trends in Synthesis and Application of Advanced Materials" along with Delhi Technological University and Maharaja Agrasen Institute of Technology, New Delhi, India, December 5–6, 2011. The attendees, which numbered around 100, were from academia and scientific research labs in the country. The program featured a Keynote Talk by Prof M. S., Sodha, 11 invited talks and 30 technical presentations.

ED HITK

—by Atanu Kundu

It is our great pleasure to report that a new IEEE EDS Student Chapter has been formed at the Heritage Institute of Technology, Kolkata (HITK),



Hiroshi Iwai, (top photo, left) 2011 IEEE Division 1 Director, addressing the workshop audience



Inauguration of the IEEE EDS Student Chapter at Heritage Institute of Technology, Kolkata, India

by the Department of Electronics and Communication Engineering. The Institute is one of the highly reputed Engineering Colleges in Kolkata. The staff and students of the ECE department played a leading role in the formation of the student branch with the co-operation of the Institute, to foster the cause of IEEE EDS among the students with the motivation of excellence.

The inauguration program of the EDS student chapter was jointly organized by the Department of ECE, HITK and the IEEE ED Kolkata Chapter at HITK, on November, 17, 2011. The event was covered and reported by the national daily, Times of India.

The inauguration was performed by Prof. Sabyasachi Sengupta, Vice-Chancellor, West Bengal University of Technology. The event was graced by the presence of Prof. Sivaji Chakraborty, Chair, IEEE Calcutta Section, Prof. B.B. Paira, Director, HITK, Prof. (Dr.) Pranay Chaudhuri, Principal, HITK, Prof. Bhaskar Gupta, HOD, ETCE, Jadavpur University, and Prof. Siladitya Sen, HOD, ECE, HITK.

The attendees enjoyed a technical lecture by special guest, Prof. Jakub Kedzierski, from MIT Lincoln Laboratory, USA.

The student chapter is planning many programs in 2012, under the direction of Chapter Chair and Branch Counsellor, Rahul Raj and Prof. Atanu Kundu from the ECE Department, HITK. The new student chapter is fortunate to have the mentoring of Prof. Chandan Sarkar, ED Kolkata Chapter Chair.

ED Malaysia

–by P. Suthitha Menon and Maizatul Zolkapli

The IEEE Electron Devices Malaysia Chapter organized the 8th IEEE



Members of the IEEE RSM 2011 organizing committee



Participants of the IEEE RSM 2011 conference

Regional Symposium on Micro and Nanoelectronics (IEEE-RSM2011) at Le Meridien Kinabalu, Kota Kinabalu, Sabah, Malaysia, September 28–30, 2011. The conference was co-organized by the Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia, as well as Universiti Malaysia Sabah (UMS). Prior to the conference, on September 28th, Prof. Dr. Anisul Haque, EDS Distinguished Lecturer from East West University of Bangladesh, delivered a tutorial on “Extraction of interface trap densities in High-Mobility Semiconductor MOSFETs.” In the evening, Prof. Dr. Edward Chang, EDS Distinguished Lecturer from National Chiao Tung University, Taiwan, R.O.C., delivered a tutorial entitled “III-V Compound Semiconductor Transistors: Theory, Fabrication and Applications.”

The conference kicked off on September 28th with both. Dr. Haque and Dr. Chang delivering the keynote speeches entitled “Quantum Mechanical Effects in Surface Po-

tential Based MOS Compact Models” and “GaN HEMT on Si for High Power Applications,” respectively. On September 29th, Dr. Hiroshi Iwai, IEEE Fellow, 2011 Division 1 Director and EDS Distinguished Lecturer, delivered the keynote speech entitled “Future of Nano CMOS Technology.” Chief Executive Officer (CEO) of Silterra Malaysia, Sdn Bhd, delivered his keynote speech entitled “2012 Semiconductor Outlook and its Impact to Semiconductor Manufacturing in Malaysia.” A total of 103 contributed papers were presented either through oral or poster sessions in the conference by participants from countries in the region.

ED NIST Student Branch

–by Ajit Kumar Panda

The ED NIST (National Institute of Science & Technology) Student Branch Chapter has been very active these last few months, organizing events at the institute, located in Berhampur, Odisha, India. The lectures and seminars were attended by IEEE EDS members as well as

non-members from M. Tech Scholars of VLSI and Embedded System, Wireless and Communication Technology and Electronics and Communication Engineering.

- On July 29, 2011, a distinguished lecture by Dr. P. K. Basu, Institute of Radio Physics and Electronics, Calcutta University, speaking on Research Methodology on Electron Devices. Prof. Basu was introduced by Prof. Sukanta Kumar Tripathy, Department of ECE, NIST, Berhampur.
- On August 8, 2011, the Chapter held a guest lecture on Active and Passive Microwave Devices given by Dr. G. N. Dash, School of Physics, Sambalpur University, Odisha, India. Prof. G. N. Dash is an IEEE Senior Member and a member of the IEEE Electron Devices Society.

The IEEE ED NIST Student Chapter conducted a Seminar on "A Decade of Nanoelectronics – Journey from classical bulk CMOS to metal-gate FinFETs" by Dr. Jakub Kedzierski, MIT Lincoln Laboratory, USA, November 14, 2011, at NIST, Berhampur. Currently Dr. Kedzierski is visiting faculty at the Indian Institute of Technology, Bombay. He delivered a lecture on silicon based planar devices from CMOS to beyond CMOS in the last decade and introduced Graphene in nano-electronics. The seminar was conducted for IEEE EDS members and student members with the Chairman, Faculty Advisor, and Student Counselor of the Chapter in attendance. Prof Jakub visited the NIST device fabrication laboratory, discussed the future of the student chapter and promised to conduct a one-day workshop at NIST in the next session.

The chapter also conducted a workshop on Electronics Models Presentation on October 20, 2011, with Prof. P. Kabisatpathy, former Professor, CET, Bhubaneswar and Prof. R. K. Mishra, Department of Electronics, Berhampur University, as panelists for evaluating the models.



A Technical Paper Presentation Contest was held on October 21, 2011, with Prof. R. K. Mishra of the Department of Electronics, Berhampur University and Dr. Rajib Panigrahi, Asst. Professor, Department of ECE, NIST, as panelists.



Prof Jakub (middle) with the IEEE EDS committee members at NIST, Berhampur



Prof. Kedzierski with IEEE EDS Committee Members and students at NIST, Berhampur

ED/REL/CPMT Singapore

–by Xing Zhou and Andrew Tay

The ED/Rel/CPMT Singapore Chapter organized one technical talk and one DL for the 4th quarter of 2011. The technical talk by Dr. Tony Low from IBM T.J. Watson Research Center on "Graphene Nanoelectronics: A Device Physics Perspective," took place on November 29, 2011, and was co-hosted by the NOVITAS Nanoelectronics Center of Excellence at Nanyang Technological University (NTU). A discussion on electronic properties of graphene subjected to

typical engineering situations different from silicon, presented both engineering challenges and exciting opportunities. The talk was attended by nearly 30 participants. On



Professors Tan Cher Ming, Ming Dou Ker and Zhou Xing



EDS Distinguished Lecturer, M. K. Radhakrishnan and Chapter Advisor, Partha Mallick, with some of the attendees

December 13, 2011, Prof. Ming-Dou Ker from National Chiao-Tung University gave a Distinguished Lecture on "Design of Ultra-Low-Leakage Power-Rail ESD Clamp Circuits in Nanoscale CMOS Technology." On the following day, Prof. Ker gave another talk at the Singapore Institute of Manufacturing Technology (SIMTech), which included attendees from local industries.

ED VIT Student Chapter

—by Partha Mallick

The ED VIT University Student Chapter organized two Distinguished Lectures (DLs) and a quiz competition - Tech Q, for VIT students. The first DL by Dr. M. K. Radhakrishnan of NanoRelTechnical on "Technology Progression in Nanoscale Devices - Challenges related to Interfaces," was very informative with practical aspects which were inspiring. It was attended by more than 100 students and faculty members on October, 19th. The second DL was held November 9th, with Dr. Jakub Kedzierski of MIT Lincoln Labs, USA, giving a talk on "A Decade of Nanoelectronics – Journey from classical bulk CMOS to metal-gate FinFET." Another very informative talk, attended by students and faculty members.

The technical quiz, "Tech Q," organized for students of undergraduate and graduate level by the VIT Student Chapter, had hundreds of participants with the final quiz held September 29, 2011. All Participants who reached the final stage of the contest were applauded for their efforts. On October 19th, prizes for Tech Q were

presented to the winners by Dr. M. K. Radhakrishnan, EDS AdCom Member and Region 10 SRC Vice-Chair.

—M. K. Radhakrishnan, Editor

ED Japan

—by Shin'ichiro Kimura

The first IEEE EDS MQ (Mini-Colloquium) held in Japan, since the Great East Japan Earthquake and Tsunami Disaster on March 11, 2011, and the subsequent Fukushima Nuclear Accident, was held at Tokyo Tech Front (or Kuramae Kaikan in Japanese) Tokyo, Japan, on October 4–5, 2011. Two hundred people from 10 countries gathered together to encourage the Japanese electron devices community quick recovery. The MQ named "G-COE PICE International Symposium and IEEE EDS Mini-colloquium on Advanced Hybrid Nano Devices," was organized with the support of the Electron Devices Society, Tokyo Institute of Technology (TIT) and the European FP7 NEMSIC Project.

The first day of the MQ began with welcome remarks from TIT President, Prof. K. Iga, followed by a speech given by the ED Japan Chapter Chair,

Dr. S. Kimura, expressing his appreciation of the great support given to Japan from all over the world. Lectures on the future advanced hybrid nano-devices were given by: Dr. Tak Ning (IBM), Dr. Akira Nishiyama (Toshiba), Dr. Carlos Diaz (TSMC), Prof. Dim-Lee Kwong (IME), Dr. Simon Deleonibus (LETI), Prof. Cor Claeys (IMEC), Dr. Hiromichi Ohashi (AIST), Dr. Hitoshi Wakabayashi (Sony), Prof. Ken Uchida (TIT), and Prof. Hiroshi Iwai (TIT). Following the lectures was a full hour of almost 60 presentations given by young researchers and students, providing a good opportunity for them to interact with the world-famous distinguished lecturers.

The second day's schedule featured lecturers given by Prof. Hiroyuki Fujita (U.Tokyo), Dr. Joost Van Beek (NXP), Prof. Kazuya Masu (TIT), Prof. William Milne (Cambridge Univ.), Prof. Shunri Oda (TIT), Prof. Adrian Ionescu (EPFL), Prof. Hiroshi Mizuta (Southampton Univ.), Dr. Julia Petline (IMEC-NL), Dr. Sorin Cotofana (Delft Univ.Tech.), Dr. Daniel Bertrand (Hqscreen), Dr. Eric Ollier (CEA-LETI; substituted by Dr. Simon Deleonibus, and Dr. Cornel Cobianu (Honeywell), followed by a 45 minute poster session as held on October 4th.

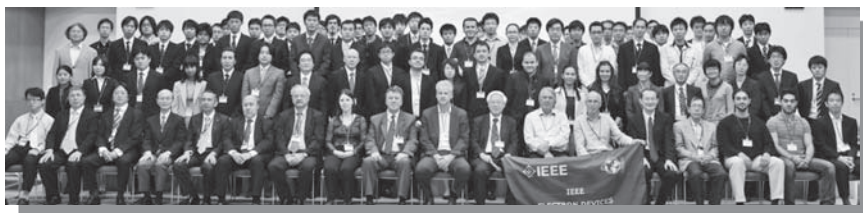
The MQ commenced with a panel discussion on Advanced Hybrid Nano Devices and the presentation of best poster awards. This was really a very good opportunity for the foreign scientists and engineers to visit Japan after the disaster to communicate with the Japanese electron devices community and give



DL seminar by Prof. Yoshio Nishi (center in the sitting row), held on November 11, 2011 in Tokyo Institute of Technology



DL seminar by Profs. Chun Yen Chang and Edward Yi Chang (center two in the sitting row), held on December 19, 2011 at Tokyo Institute of Technology



G-COE PICE International Symposium and IEEE EDS Minicolloquium on Advanced Hybrid Nano Devices held on Oct. 4-5, 2011 in Tokyo Tech Front

encouragement, especially to the young researchers and students.

On November 11, 2011, Prof. Yoshio Nishi, Director, Center for Integrated Systems, Stanford University, CA, USA, visited Tokyo Institute of Technology, Yokohama, Japan, and gave a DL seminar entitled, "Nanoelectronic Devices and Integrations on Silicon Platform Today and Tomorrow. More than 30 people including many from industry attended the seminar. There was a very active Q&A session for 1 hour after Prof. Nishi's talk.

On December 19, 2011, Profs. Chun-Yen Chang and Edward Y. Chang of National Chiao Tung University, Taiwan, visited Tokyo Institute of Technology, Yokohama, Japan, and gave DL seminars entitled, "The first RT CW GaN VCSEL and Various High Efficiency LED" and "Development of III-V QWFET for THz and Future Post-Si-CMOS Applications," respectively. More than 30 people attended the seminar. We learned much from their lectures about the frontier of GaN devices.

ED Kansai

—by Michinori Nishihara

The ED Kansai Chapter hosted the 11th annual Kansai Colloquium Elec-

tron Devices Workshop on October 21, 2011, at Osaka University Nakanoshima Center, Osaka, Japan. The workshop was a success with 37 participants. Fourteen excellent papers from authors in the Kansai area, who were specially selected from major conferences such as the IEDM, the SSDM or technical papers on electron devices published during the past 12 months. The original authors presented the papers and the program was divided into four sections as follows:

- (1) CMOS Device, Process, Circuit and Nanoelectronics,

- (2) Modeling, Reliability,
- (3) Power, Compound, Quantum, and
- (4) Display, Sensor, Emerging.

The Award Committee selected two papers from student presenters for the 11th IEEE EDS Kansai Chapter MSFK Award. The winners were Mr. Hiroyuki Tomita of Osaka University for his paper titled, "High-Speed Spin-Transfer Switching in GMR Nano-Pillars With Perpendicular Anisotropy" and Mr. Naoya Morioka of Kyoto University for his paper titled "Tight-Binding Study of Size and Geometric Effects on Hole Effective Mass of Silicon Nanowires."

The Committee also selected one paper for the IEEE EDS Kansai Chapter of the Year Award. The winning paper was "Blocking-Voltage Boosting Technology for GaN Transistors by Widening Depletion Layer in Si Substrates" by Mr. Hidekazu Umeda of Panasonic Corp.

The presented papers were all excellent and sparked lively conversations with the audience, as they were selected from already qualified papers of major conferences and technical journals. This workshop is playing an important role in encouraging students and young engineers in the industry to extend their technical knowledge and career. The ED Kansai Chapter will continue to serve our members' interests.

~Kazuo Tsutsui, Editor



The winners of the 11th MSFK Award and "The Chapter of the Year" at the 11th Kansai Colloquium Electron Devices Workshop: Mr. Naoya Morioka, Mr. Hiroyuki Tomita, Dr. Hidekazu Umeda and Dr. Akira Takahashi, ED Kansai Chapter Chair (left to right)

EDS MEETINGS CALENDAR

(As of 15 March 2012)

THE COMPLETE EDS CALENDAR CAN BE FOUND AT OUR WEB SITE:
[HTTP://EDS.IEEE.ORG/EDS-MEETINGS-CALENDARS.HTML](http://eds.ieee.org/eds-meetings-calendars.html)

April 15 - 19, 2012, * **IEEE International Reliability Physics Symposium**, Location: Hyatt Regency Orange County, Garden Grove, CA, USA, Contact: David Barber, E-Mail: dbarbsta@aol.com, Deadline: 10/10/11, www: <http://www.irps.org>

April 20 - 20, 2012, T, **IEEE Workshop on Microelectronics and Electron Devices**, Location: Boise State University, Student Union Bldg., Boise, ID, USA, Contact: Prashant Raghu, E-Mail: praghu@micron.com, Deadline: 1/27/12, www: <http://www.ewh.ieee.org/r6/boise/wmed2012/WMED2012.html>

April 23 - 25, 2012, T, **International Symposium on VLSI Design, Automation and Test**, Location: Ambassador Hotel, Hsinchu, Taiwan, Contact: Elodie Ho, E-Mail: elodieho@itri.org.tw, Deadline: 10/15/11, www: <http://vlsi-dat.itri.org.tw/2012/>

April 23 - 25, 2012, T, **International Symposium on VLSI Technology, Systems and Applications**, Location: Ambassador Hotel, Hsinchu, Taiwan, Contact: Clara Wu, E-Mail: clara@itri.org.tw, Deadline: 10/31/11, www: <http://vlsitsa.itri.org.tw/>

May 13 - 16, 2012, * **International Conference on Microelectronics**, Location: University of Nis, Nis, Serbia, Contact: Ninoslav Stojadinovic, E-Mail: ninoslav.stojadinovic@elfak.ni.ac.rs, Deadline: 10/15/11, www: <http://miel.elfak.ni.ac.rs/>

May 14 - 15, 2012, T, **International Workshop on Junction Technology**, Location: FuXuan Hotel, Shanghai, China, Contact: Yu-Long Jiang, E-Mail: yljjiang@fudan.edu.cn, Deadline: 1/31/12, www: <http://www.iwjt.org/>

May 14 - 17, 2012, T, **International Electrostatic Discharge Workshop**, Location: Priory Corsendonk, Oud Turnhout, Belgium, Contact: Lisa Pimpinella, E-Mail: lpimpinella@esda.org, Deadline: 11/14/11, www: <http://www.esda.org/IEV.htm>

May 15 - 17, 2012, T, **SEMI Advanced Semiconductor Manufacturing Conference**, Location: 534 Broadway, Saratoga Springs, NY, USA, Contact: Margaret Kindling, E-Mail: mkindling@semi.org, Deadline: 11/11/11, www: <http://www.semi.org/asmc2012>

May 20 - 23, 2012, * **IEEE International Memory Workshop**, Location: Melia Hotel, Milan, Italy, Contact: Agostino Pirovano, E-Mail: apirovan@micron.com, Deadline: 1/31/12, www: <http://www.ewh.ieee.org/soc/eds/imw/>

May 22 - 25, 2012, T, **International Workshop on Computational Electronics**, Location: University of Wisconsin-Madison, Madison, WI, USA, Contact: Irena Knezevic, E-Mail: knezevic@engr.wisc.edu, Deadline: 1/15/12, www: <http://iwce2012.engr.wisc.edu/>

May 30 - 31, 2012, T, **IEEE Energy Tech**, Location: Case Western Reserve University, Cleveland, OH, USA, Contact: Wyatt Newman, E-Mail: wsn@case.edu, Deadline: 1/15/12, www: <http://energytech2012.org/>

June 3 - 8, 2012, * **IEEE Photovoltaic Specialists Conference**, Location: Austin Convention Center, Austin, TX, USA, Contact: Americo Forestieri, E-Mail: pvsc@wowway.com, Deadline: 2/6/12, www: <http://www.ieee-pvsc.org>

June 3 - 7, 2012, T, **IEEE International Power Modulator and High Voltage Conference**, Location: Hilton San Diego Bayfront, San Diego, CA, USA, Contact: Richard Ness, E-Mail: nessengr@san.rr.com, Deadline: 1/15/12, www: www.nessengr.com/ipmhvc2012/index.html

June 3 - 7, 2012, @ **International Symposium on Power Semiconductor Devices & Integrated Circuits**, Location: Old Sint Jan, Conference Center, Bruges, Belgium, Contact: Sabien De Hanscutter, E-Mail: sabien@momen-tum-pco.be, Deadline: 10/17/11, www: <http://www.ispsd2012.com>

June 4 - 6, 2012, T, **International SiGe Technology and Devices Meeting**, Location: University of California, Berkeley, CA, USA, Contact: Katalin Voros, E-Mail: voros@eecs.berkeley.edu, Deadline: 2/20/12, www: http://www.device.eecs.berkeley.edu/istdm2012/2012_ISTDM/

June 12 - 14, 2012, @ **IEEE Symposium on VLSI Technology**, Location: Hilton Hawaiian Village, Honolulu, HI, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: 1/23/12, www: <http://www.vlssymposium.org>

June 13 - 15, 2012, T, **IEEE Symposium on VLSI Circuits**, Location: Hilton Hawaiian Village, Honolulu, HI, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: 1/23/12, www: <http://www.vlssymposium.org/>

June 17 - 19, 2012, T, **IEEE Radio Frequency Integrated Circuits Symposium**, Location: The Palais des Congrès de Montréal, Montreal, QC, Canada, Contact: Albert Jerng, E-Mail: ajerng@gmail.com, Deadline: 1/11/12, www: <http://www.rfic2012.org/>

June 18 - 20, 2012, T, **Device Research Conference**, Location: Penn State University, University Park, PA, USA, Contact: Suman Datta, E-Mail: sdatta@engr.psu.edu, Deadline: 3/7/12, www: <http://www.deviceresearchconference.org>

July 2 - 6, 2012, T, **European Electromagnetics Conference**, Location: Centre de Congrès Pierre Baudis, Toulouse, France, Contact: Jean-Philippe Parmantier, E-Mail: euroem2012@onera.fr, Deadline: 1/23/12, www: <http://www.euroem.org>

July 2 - 6, 2012, T, **IEEE International Symposium on the Physical and Failure Analysis of Integrated Circuits**, Location: Marina Bay Sands, Singapore, Singapore, Contact: Jasmine Leong, E-Mail: ipfa@pacific.net.sg, Deadline: 1/18/12, www: <http://ewh.ieee.org/reg/10/ipfa/>

July 4 - 6, 2012, T, **International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD)**, Location: Ryukoku University Avanti Kyoto Hall, Kyoto, Japan, Contact: AM-FPD Secretariats, E-Mail: amfpd@atecs.co.jp, Deadline: 3/20/12, www: <http://www.amfpd.jp>

July 9 - 10, 2012, T, **University/Government/Industry Microelectronics Symposium**, Location: University of California, Berkeley, CA, USA, Contact: Katalin Voros, E-Mail: voros@eecs.berkeley.edu, Deadline: 2/1/12, www: <http://microlab2.eecs.berkeley.edu/UGIM2012/>

September 9 - 12, 2012, T, **IEEE Custom Integrated Circuits Conference**, Location: DoubleTree Hotel, San Jose, CA, USA, Contact: Melissa Widerkehr, E-Mail: melissaw@widerkehr.com, Deadline: 4/7/12, www: <http://www.ieee-cicc.org>

September 10 - 14, 2012, T, **International Crimean Microwave Conference "Microwave & Telecommunication Technology"**, Location: Sevastopol National Technical University Sevastopol, Ukraine, Contact: Sergey Smolskiy, E-Mail: smolskiysm@gmail.com, Deadline: 5/10/12, www: <http://www.crimico.org>

September 17 - 21, 2012, T, **European Solid-State Device Research Conference**, Location: Palais des Congrès, Bordeaux, France, Contact: Malbert Nathalie, E-Mail: nathalie.malbert@ims-bordeaux.fr, Deadline: 4/15/12, www: <http://www.ims-bordeaux.fr/ESSDERC2012/>

September 19 - 21, 2012, @ **IEEE Great Lakes Technology Symposium**, Location: Michigan League, Ann Arbor, MI, USA, Contact: Tayfun Ozdemir, E-Mail: tayfunozdemir@ieee.org, Deadline: Not Available, www: <http://www.ieeegreatlakes.org>

September 24 - 27, 2012, T, **IEEE International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory**, Location: Tbilisi State University, Tbilisi, Georgia, Contact: Mykhalyo Andriychuk, E-Mail: andr@iapmm.lviv.ua, Deadline: 8/1/12, www: <http://www.evh.ieee.org/soc/cpmt/ukraine/>

September 30 - October 3, 2012, * **IEEE Bipolar/BiCMOS Circuits and Technology Meeting**, Location: Embassy Suites Hotel, Portland, OR, USA, Contact: Janice Jopke, E-Mail: ccsevents@comcast.net, Deadline: 4/30/12, www: <http://www.ieee-bctm.org/>

October 1 - 4, 2012, * **IEEE International SOI Conference**, Location: The Meritage Resort and Spa, Napa, CA, USA, Contact: Joyce Hooper, E-Mail: Joyce@imf.la, Deadline: 5/14/12, www: <http://www.soiconference.org>

October 1 - 5, 2012, T, **European Symposium on Reliability of Electron Devices, Failure Physics and Analysis**, Location: Hotel Setar, Cagliari, Italy, Contact: Gaudenzio Meneghesso, E-Mail: esref2012@dei.unipd.it, Deadline: 3/16/12, www: <http://www.esref.org>

October 14 - 17, 2012, * **IEEE Compound Semiconductor IC Symposium**, Location: Hyatt Regency LaJolla, San Diego, CA, USA, Contact: Lisa Boyd, E-Mail: l.boyd@ieee.org,

Deadline: 5/7/12 www: <http://www.csics.org>

October 14 - 18, 2012, * **IEEE International Integrated Reliability Workshop (IIRW)**, Location: Stanford Sierra Conference Center, South Lake Tahoe, CA, USA, Contact: Andrew Turner, E-Mail: aaturner@us.ibm.com, Deadline: 7/20/12, www: <http://www.iirw.org>

October 29 - November 2, 2012, T, **IEEE European Microwave Integrated Circuits Conference**, Location: Amsterdam RAI, Amsterdam, Netherlands, Contact: Jan Geralt bij de Vaate, E-Mail: vaate@astron.nl, Deadline: 2/17/12, www: <http://www.eumweek.com/2012/EuMIC.asp?>

November 11 - 15, 2012, T, **International Conference on Advanced Semiconductor Devices and Microsystems**, Location: Smolenice Castle, Smolenice, Slovakia, Contact: Jozef Osvald, E-Mail: elekosva@savba.sk, Deadline: 5/15/12, www: <http://www.elu.sav.sk/asdam/>

December 3 - 5, 2012, T, **IEEE Conference on Electron Devices and Solid State Circuits**, Location: Narai Hotel, Bangkok, Thailand, Contact: Thavatchai Tayjasanant, E-Mail: Thavatchai.t@chula.ac.th, Deadline: 6/30/12, www: <http://www.edssc2012.com/>

December 6 - 8, 2012, * **IEEE Semiconductor Interface Specialists Conference**, Location:

Catamaran Resort Hotel, San Diego, CA, USA, Contact: Michel Houssa, E-Mail: michel.houssa@fys.kuleuven.be, Deadline: Not available, www: <http://www.ieeesisc.org>

December 10 - 12, 2012, * **IEEE International Electron Devices Meeting**, Location: Hilton San Francisco, San Francisco, CA, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: <http://www.his.com/~iedm/general/future.html>

April 14 - 18, 2013, * **IEEE International Reliability Physics Symposium**, Location: Hyatt Regency Monterey, Monterey, CA, USA, Contact: David Barber, E-Mail: dbarbsta@aol.com, Deadline: 10/1/12, www: <http://www.irps.org>

June 16 - 21, 2013, * **IEEE Photovoltaic Specialists Conference**, Location: Tampa Convention Center, Tampa, FL, USA, Contact: Ryne Raffaele, E-Mail: rprsps@rit.edu, Deadline: 2/21/13, www: <http://www.ieee-pvsc.org/PVSC39/>

September 22 - 25, 2013, T, **IEEE Custom Integrated Circuits Conference**, Location: Double-Tree Hotel, San Jose, CA, USA, Contact: Melissa Widerkehr, E-Mail: melissaw@widerkehr.com, Deadline: Not Available, www: <http://www.ieee-cicc.org>

2012 IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE (IITC)

(continued from page 5)

Process Integration and Chip Package Interactions

- Multilevel interconnect processes, novel interconnect structures, contact/via integration, metal barrier and materials interface issues
- Integration processes and issues specific to logic or memory
- Novel non-volatile, interconnect embedded memories

Process Modeling

- CMP, metal/dielectric deposition and etching processes

Reliability

- Metal electromigration and stress voiding, dielectric integrity, thermal effects, passivation issues, interconnect reliability prediction/modeling.

Back-End Memories

- Memory Materials like Phase Change Memory (PCM), Resistive

RAM (RRAM), Conductive Bridge RAM (CB-RAM) and Magnetoresistive RAM (MRAM)

Interconnect Systems

- Interconnect performance modeling and high frequency characterization
- Interconnect system integration, novel architectures and advanced interconnect concepts

Short Course

The popular IITC Short Course on Sunday, June 3rd, provides a unique venue for learning and professional interaction. It will address advanced interconnect process, design and reliability issues. Attendees benefit from a combination of tutorials on interconnect fundamentals, briefings on the latest interconnect technology advances, and direct interaction with experts actively working in the field.

Supplier Exhibits and Seminars

Supplier exhibits and seminars are included as an integral part of the IITC technical program. Held on the first and second days of the conference, the supplier seminars offer additional learning and networking opportunities, and provide alternative forums to address specific technological challenges.

The IITC conference website is <http://www.ieee.org/conference/iitc>. For additional information and inquiries regarding supplier exhibits and seminars, please contact Wendy Walker, IITC Administrator at +1 301-527-0900 Ext. 3, Fax: +1-301-527-0994, or email: iitc@his.com.

General Co-Chairs of IITC 2012
Scott List (Intel Corporation)
Takeshi Furusawa (Renesas Electronics)
Vincent Arnal (STMicroelectronics)

PAUL K.-L. YU, NEW EDS PRESIDENT

(continued from page 1)



The torch is passed! Paul Yu, left, assumes the Presidency of EDS from Renuka Jindal (Read Paul's message to EDS members in the Society News section)

waveguide modulator, mode locked laser, laser array, high power optoelectronic switches, and many other analog photonic components. He has authored and co-authored more than 100 journal papers and several book chapters in the areas of photonics. He serves on the technical program committees and steering committees of several IEEE and OSA conferences and before

his appointment to President-Elect of the IEEE Electron Devices Society, Paul served the Society as its Vice-President of Educational Activities. He is a Fellow of the IEEE, the Optical Society of America and SPIE.

Along with Cor and Renuka, EDS' Senior and Junior Past-Presidents, Paul is pleased to announce that Albert Wang of the University of California at Riverside was selected by AdCom to become EDS President-Elect. For the past 7 years, Albert has successfully served as EDS Vice-President of Membership and his election is the next logical step in a distinguished tenure of service to the society.

In other election news, Fernando Guarin and Ravi Todi were elected to serve as Secretary and Treasurer, respectively. Fernando and Ravi will have big shoes to fill, taking over for 2010–2011 Secretary Jim Merz and 2010–2011 Treasurer Steve Parke.

For many years Jim was the heart and soul of the EDS officer

corps, informing and entertaining us with his detailed AdCom reports and minutes. As secretary Jim proved time and time again that you could have fun and still be an outstanding leader.

Steve successfully managed EDS's complex budget, providing insightful leadership through many years of challenging financial conditions. We never went without a surplus during Steve's tenure and Steve worked to ensure that every dollar we could spare was spent on advancing the mission of EDS. And so, we extend our sincerest thanks and deepest gratitude to Jim and Steve for their dedication and service to the society. It was our pleasure to work with you.

For full coverage of the December EDS AdCom meeting series, please see page 7.

*Christopher Jannuzzi
EDS Executive Director*