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EDS's INAUGURAL WEBINAR WITH CHENMING HU



Chenming Hu
IEEE Fellow

The Electron Devices Society has always had a strong commitment to providing outstanding educational opportunities to both our members and the profession at large. In addition to our robust conference portfolio, we offer over 100 lectures annually through our Distinguished Lecturer and Mini-Colloquia programs.

Overseeing EDS's education outreach is an exciting and enriching part of my job as VP of Education.

As part of our commitment to continually expand our educational offerings, it was decided, at our mid-year ExCom Meeting in Taipei, that EDS should immediately begin offering webinars for our members around the globe. We saw this as the next logical step in our ongoing commitment to keep members on the leading edge of technology innovation and to enhance the value of membership in EDS.

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2012 IEEE INTERNATIONAL MEMORY WORKSHOP (IMW)



Milan cathedral (Duomo di Milano)

The fourth IEEE International Memory Workshop will be held at the Melia Hotel in Milan, Italy, May 20–23, 2012.

In response to the growing global interest in memory technologies, in 2008 the NVSMW – Non Volatile Semiconductor Memory Workshop – and ICMTD – International Conference on Memory Technology and Design – were merged together to incorporate the volatile and non-volatile memory aspects in one forum while maintaining the workshop experience started in 1976 with the first edition of the NVSMW. The workshop is sponsored by the IEEE Electron Devices Society and meets annually in May. While in 2008 the combined 23rd NVSMW & 3rd ICMTD conference was held in Europe, the previous three IMW editions were located in California and in Korea. In 2012, IMW plans to go back to Europe and it will be held in Milan, Italy.

The convergence of consumer, computer and communication electronic systems is leading to an exponential growth in need, mainly for code, computing and data storage. While in the past

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YOUR COMMENTS SOLICITED

Your comments are most welcome. Please write directly to the Editor-in-Chief of the Newsletter at
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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 <https://www.ieee.org/portal/pages/society/eds/pubs/newsletters/newsletter.html>. The archive contains issues from July 1994 to the present.

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UPCOMING TECHNICAL MEETINGS

2012 IEEE INTERNATIONAL MEMORY WORKSHOP (IMW)

(continued from page 1)

we could associate a memory technology to a specific market segment (e.g., RAM to computer, NOR Flash to mobile communication, NAND Flash to consumer SSD), today the new electronic systems stack different memory technologies and use a Controller to facilitate interfacing and managing the overall memory. Moreover, Phase-Change memory technology is entering in the market, providing opportunities for novel applications and challenges for the technology development. The characteristics of these complex memory systems in terms of density, performance, power consumption, packaging and interfacing become of greater interest. The capabilities provided by the new memory technologies, new concepts and material proposed today will drive the definition of these memory systems in the future. The IMW aims to answer this need, extending the scope from non-volatile memory, which had been successfully discussed in more than 30 years of NVSMW's history, to large memory technologies and design, which were the focus of IC-MTD, in the view of systems.

Innovation is our tradition: IMW widened its focus while maintaining the positive characteristics of a workshop. IMW is a unique forum for both specialists in all aspects of microelectronic memory and novices wanting to gain a broader understanding of the field. The workshop is usually attended by a wide international community from North America, Europe and



Lobby of Melià hotel in Milan

Asia. Attendees include industry leaders, researchers in academia and industry as well as end users of memory products. The number of attendees typically exceeded 250 in recent years, reflecting the growing interest in the workshop. Each year we receive over 80 paper submissions and accept about 35 for oral presentation, which corresponds to about 40% acceptance rate. Principal topics for discussion are: device physics, silicon processing, product testing, new technologies including new structures and novel approaches, programmable logic, memory cell design, integrated circuits, solid state disks and memory cards, reliability and new applications. Following the tradition established in previous IMW editions, Sunday the 20 May will be dedicated to a Short Course session. Moreover a poster session for several qualified papers is usually held after the panel discussion. An important goal of IMW is to provide an informal environment to encourage discussions among participants and lively interactions.

There will be morning and afternoon technical sessions, along with a lively evening panel discussion on a hot topic in memory field. Technical interaction among presenters and attendees is encouraged through question and answer sessions and allotting ample time after formal paper presentations for further in-depth discussions. Organized breaks, including snacks and the conference dinner and lunch are provided as opportunities to meet and exchange ideas with colleagues. The morning and afternoon technical sessions are organized in a manner of providing time for the informal exchange and to enjoy the beauty of the Milan area. The hotel is conveniently situated in downtown Milan and it is easily accessible from three international airports situated in the surrounding area. Milan has a rich cultural background with evidences in all fields of art. It has also lots of nice restaurants offering traditional and international cuisine in all town districts. Milan is the gateway to visit Italy with high-speed train connections that connect it to Florence and Rome in less than three hours. For more information about the conference, please register at the website, www.ewh.ieee.org/soc/eds/imw.

I look forward to seeing you next May at IMW 2012 in Milan.

Agostino Pirovano
2012 IMW Finance Chair
Micron
Agrate Brianza (MB), Italy

2012 IEEE INTERNATIONAL VACUUM ELECTRONICS CONFERENCE AND INTERNATIONAL VACUUM ELECTRON SOURCES CONFERENCE (IVEC-IVESC)

The IEEE Thirteenth International Vacuum Electronics Conference and Ninth International Vacuum Electron Sources Conference are being held jointly in Monterey, California, April 24–26, as IVEC-IVESC 2012. The meeting will be held at the Monterey Conference Center at the Portola Hotel and Spa under the sponsorship of the IEEE Electron Devices Society (EDS).

The IVEC-IVESC 2012 conference is organized by a committee made up of representatives of government, industry and university researchers. Members of the 2012 Conference Organizing Committee are listed below.

Conference Organizing Committee

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Dev Palmer, Army Research Office

Jack Tucek, Northrop Grumman Corporation

Bernard Vancil, e beam, Inc.

David Whaley, L-3 EDD

Joan Yater, NRL

Oversight of the conference is provided by the EDS Technical Committee on Vacuum Devices; an international committee chaired by Dr. Baruch Levush of NRL.

IVEC was originally created in 2000 by merging the US Power Tube Conference and the European Space Agency TWTA Workshop, and has now expanded to a fully international conference, being held every other year in the US, and in Europe and Asia alternately every fourth year. Recent conferences were held in Rome, Italy in 2009, Monterey, CA in 2010, and Bangalore, India in 2011. You can learn more about IVEC by visiting VacuumElectronics.org, the EDS Vacuum Electronics Technical Committee website.

IVESC was inaugurated as the Tri-Service Cathode Workshop in 1978, becoming the Tri-Service/NASA Cathode Workshop in 1990 and continuing until 1996 (Eindhoven, the Netherlands) when it, too, was expanded into the international conference it is now. At that time it changed emphasis to encompass a greater variety of vacuum electron sources. Since, then, it has grown into a successful biennial international conference meeting sequentially in the USA, Europe, and Asia. It was most recently held in Nanjing, China, in 2010.

Since inception, IVEC and IVESC have become the premier international venues for presentations in the field of vacuum electronics. IVEC-IVESC 2012 will provide a forum for presentation and discussion of topics on vacuum devices, vacuum microelectronics, applications of vacuum devices, and the theory and technological developments of vacuum electron devices. The combination of IVEC with IVESC will provide an expanded presence in the key area of cathode and gun technology and will offer attendees the opportunity to learn about recent advances in electron emission physics

INTERNATIONAL
VACUUM ELECTRONICS
AND
VACUUM ELECTRON
SOURCES CONFERENCE

MONTEREY
CALIFORNIA
APRIL 24-26, 2012



(e.g., thermal, field, secondary, and photoemission) and electron source technologies in greater depth.

System developers will find that IVEC-IVESC provides a unique snapshot of the current state-of-the-art in vacuum electron devices. These devices continue to provide unmatched power and performance for advanced electromagnetic systems, particularly in the challenging frequency regimes of millimeter-wave and THz electronics.

The 2012 IVEC-IVESC conference will open the first day with a plenary session featuring invited speakers covering several subjects of broad interest to the community. This session will be followed by two and a half days of technical presentations that include both oral and poster sessions. Papers will include presentations on a wide range of classic vacuum devices and vacuum electron sources. The technical subject categories are listed below.

1) Vacuum Electron Devices

- Traveling-wave tubes (all types)
- Crossed-field devices (oscillators and amplifiers)
- Klystrons
- Multiple-beam devices
- Inductive output tubes
- Fast-wave devices (gyrotrons, gyro-amplifiers)
- Free electron lasers and masers
- THz amplifiers and oscillators
- Pulse compression devices
- Plasma filled amplifiers and oscillators

- High-power microwave devices / RF directed energy
- Triodes, tetrodes and pentodes
- Power switches

2) Vacuum Electron Sources and Technologies

- Thermionic emitters
- Photoemitters and secondary emitters
- Field emitters / arrays
- Materials and technology
- Cathode design, fabrication, and characterization
- Accelerator emission physics (breakdown, halo, emittance)
- Flat panel displays

3) Systems and Subsystems

- Microwave and millimeter wave power modules
- Electronic power conditioners, modulators, and supplies
- Linearizers
- Amplifier/antenna coupling
- Device and system integration
- Reliability

4) Technologies

- Component parts (e.g. guns, circuits, windows, collectors)
- Analysis and computer modeling
- Novel materials (e.g. dielectrics, coatings, magnetic materials)
- RF breakdown
- Linearity, intermodulation and noise
- Novel measurement techniques
- Miniaturization
- Thermal power management and control
- Sensors and detectors

5) Applications of Vacuum Electron Devices

- Defense
- Space
- Radar
- Telecommunications
- Medicine
- Particle accelerators
- RF interference
- Instruments and lithography
- Materials Processing
- Television
- Displays
- Electric Propulsion

Extended abstracts of up to two pages in length for IVEC-IVESC 2012 were due electronically by December 23, 2011. Information on the preparation and submission of the abstracts can be found on the conference web site at <http://ivec-ivesc2010.org>.

As in past conferences, the technical meeting and social events will provide a unique opportunity to renew friendships with colleagues and friends, interact with customers, and meet students. A highlight of the meeting will be the presentation of the John R. Pierce Award for Excellence in Vacuum Electronics, the George Miram Award for Achievement in Cathode Research, and a Best Student Paper Award. Complete details about the meeting and these awards can be found on the conference web site at <http://ivec-ivesc2010.org>.

*William L. Menninger
2012 IVEC-IVESC General Chair
L-3 Communications
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2012 IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM (IRPS)

For 50 years, the IEEE International Reliability Physics Symposium (IRPS) has been the premier conference for engineers and scientists to present new and original work in the area of microelectronics reliability. Drawing participants from the United States, Europe, Asia, and all other parts of the world, IRPS seeks to understand the reliability of semiconductor devices, integrated circuits, and micro-electronic assemblies through an improved understanding of both the physics of failure as well as the application environment.

IRPS provides numerous opportunities for attendees to increase their knowledge and understanding of all aspects of microelectronics reliability. It is also an outstanding chance to meet and network with reliability colleagues from around the world.

In addition to the three-day technical program, IRPS offers a variety of events designed to broaden your knowledge of important topics related to semiconductor reliability.

Two-Day Tutorial Program

The IRPS tutorial program is a comprehensive event designed to help

both the new engineer and experienced researcher. The tutorial program contains both beginner and expert tracks, and is broken down into topic areas that allow the attendee to participate in tutorials relevant to their work with a minimum of conflicts between subject areas.

Year in Review Session

These seminars provide a summary of the most significant developments in the reliability community over the past year. This serves as a convenient, single source of information for attendees to keep current with the recent reliability literature. Industry experts serve as the "tour guide" and save you time by collecting and summarizing information to bring you up to date in a particular area as efficiently as possible.

Evening Poster Session

The poster session provides an additional opportunity for authors to present their original research. The setting is informal and allows for easy, one-on-one discussions between authors and attendees.

Evening Session Workshops

Workshops enhance the symposium by providing attendees with an opportunity to meet in informal groups to discuss key reliability physics topics with the guidance of experienced moderators. Some of the workshop topics are directly coupled to the technical program to provide a venue for more discussion on the topic.

Vendor Exhibits

Held in parallel with the technical sessions, the equipment demonstrations provide a forum for manufacturers of state-of-the-art laboratory equipment to present their products. Attendees are encouraged to visit the manufacturers' booths for information and demonstrations.

IRPS 2012 will be held April 15–19, 2012, at the Hyatt Regency Orange County in Anaheim, California, and marks the 50th anniversary of the influential symposium. We look forward to seeing you in Anaheim!

For more information, see www.irps.org.

*Mark Porter
2012 IRPS Publicity Chair
Medtronics
Tempe, AZ, USA*



Hyatt Regency Orange County

2012 INTERNATIONAL CONFERENCE ON MICROELECTRONICS (MIEL)

The 28th International Conference on Microelectronics (MIEL 2012) will be held May 13–16, 2012, at the Faculty of Electronic Engineering, University of Nis, Serbia. The 2012 MIEL Conference will be organized by the IEEE Serbia & Montenegro Section – ED/SSC Chapter, in cooperation with the Faculty of Electronic Engineering, University of Nis, Ei-Holding Co.-Nis, and Society for ETRAN, under the co-sponsorship of the IEEE Electron Devices Society (EDS), with the cooperation of IEEE Solid State Circuits Society (SSCS), and under the auspices of Serbian Ministry of Education and Science, Serbian Academy of Science and Arts, Academy of Engineering Sciences of Serbia, and City Assembly of Nis.

MIEL is one of the most outstanding European conferences providing an international forum for the presentation and discussion of the recent developments and future trends in the field of microelectronics. Since 1984, there is an aura of internationalization around the MIEL conferences, providing an opportunity for specialists from both academic and industrial environments from the West and East, as well as from the countries of the Third World, to meet in an informal and friendly atmosphere and exchange experiences in the theory and practice of microelectronics. Since 1995, MIEL was organized under the technical co-sponsorship of the IEEE EDS and then in 2000 received approval for IEEE EDS co-sponsorship.

The topics to be covered by the technical program of the conference include all important aspects of micro- and nano-electronic devices, circuits and systems, ranging from materials and processes, technologies and devices, device physics and modeling, process and device simulation, circuit design and testing, system design and packaging, and characterization and reliability.

Based on the past decade of history, the technical program is expected to consist of about 140 contributed papers by the authors from more than 30 countries all around the world, which will be structured into oral and poster sessions. These papers, together with 13 invited papers, which are to be presented by the world leading authorities in the field of micro- and nano-electronics, will form the solid foundation. The associated Mini-Colloquia on nano-technologies and nano-devices will round off the technical program of the conference.

The invited lectures are:

- “Quantum Transport in Nanowires and Nanographene” (V. K. Arora, Wilkes University, USA);
- “Technology Advances for Flexible Electronics” (J. Burghartz, IMS CHIPS, Germany);
- “Quantum Computers: Registers, Gates and Algorithms” (P. I. Hagouel, Optelec, Greece);
- “Surface Multiplasmonics for Optical Sensing and Solar-Energy Harvesting” (A. Lakhtakia, Pennsylvania State University, USA);
- “Outlook and Challenges of Electrostatic Discharge (ESD) Protection of Modern and Future Integrated Circuits” (J. J. Liou, University of Central Florida, USA);
- “Short Circuit Ruggedness of IGBTs” (J. Lutz, TU Chemnitz, Germany);



The University of Nis on the banks of the Nisava River



Nis, main city square

- "Spatial Statistics for Micro-electronics and Materials Science" (E. A. Miranda, Universitat Autònoma Barcelona, Spain);
- "NeoSilicon Based Nanoelectromechanical Information Devices" (S. Oda, Tokyo Institute of Technology, Japan);
- "Development of Biomedical Applications of Non-equilibrium Plasmas and Possibilities for Atmospheric Pressure Nanotechnology Applications" (Z. Petrovic, The Institute of Physics, University of Belgrade, Serbia);
- "Spintronic Logic and Memory: Prospects and Perspective" (K. Roy, Purdue University, USA);
- "Recent Developments in Advanced Memory Modeling" (S. Selberherr, Technical University Vienna, Austria);
- "Computational Physics Approach toward Micro-Electronics

Engineering" (K. Shiraishi, University of Tsukuba, Japan);

- "Photovoltaics: Emerging Role as a Dominant Electricity Generation Technology in the 21st Century" (R. Singh, Clemson University, USA)

The City of Nis is the administrative, cultural and economic center of southeastern Serbia. Situated in the Nisava Valley, some 240 kilometers away from Belgrade, capital of Serbia, it is one of the busiest road and railway junctions in this part of Europe. Good road and railway connections put Nis within easy striking distance from Belgrade. Rich in ancient monuments that bear witness of turbulent periods of its history, Nis is now a burgeoning seat of learning. The University of Nis, although relatively young, has come to be called "my alma mater" by many of the highly skilled professionals. The Fac-

ulty of Electronic Engineering, one of the organizers of the conference, has constantly given significant contributions to the development of the University of Nis, as one of its most prosperous institutions.

For registration and other information, visit the 2012 MIEL Home Page at <http://miel.elfak.ni.ac.rs>, or contact the MIEL Conference Secretariat, Department of Microelectronics, Faculty of Electronic Engineering, University of Nis, A. Medvedeva 14, 18000 Nis, Serbia; Tel.: +381 18 529 326; Fax: +381 18 588 399; E-mail: miel@elfak.ni.ac.rs.

The MIEL organizers and committee members look forward to seeing you in May 2012.

Ninoslav Stojadinovic
2012 MIEL General Chairman
University of Nis
Nis, Serbia

EDS's INAUGURAL WEBINAR WITH CHENMING HU

(continued from page 1)

Shortly after our return from Taipei, working closely with EDS President Renuka Jindal and the Executive Office, we set out to quickly host our inaugural online event.

Right around the time we were formulating plans for our webinar, Intel announced that it will use 22 nm FinFET technology for CPU production starting late 2011. This represents the beginning of a new era in the IC industry using 3D transistors. It seemed like a very hot topic for our members to learn more about. Thankfully for us, Chenming Hu, an IEEE Fellow and longtime EDS member, was head of the UC Berkeley team that led the development of the latest round of FinFETs. We reached out to him and he was happy to give a talk to EDS members. The talk was entitled *FinFET 3D Transistors & the Concepts Behind it*.

The event took place on Wednesday, July 27th. Professor Hu's talk lasted nearly an hour, and treated attendees to the back story of how the FinFET 3D Transistor came into being as well as shed light on where the developments made by Prof. Hu's team may evolve in the years to come. The talk was followed by a lively Question and Answer period moderated by EDS President Renuka Jindal. During the QA, Renuka also pointed out that fellow EDS member Yutaka Hayashi filed a patent (Japanese Patent 1791730) for a double-gate structure in 1980 which was followed by related publications in 1985 and 1994.

The response to Professor Hu's talk was overwhelming. The 300 available 'seats' were filled up within just a few hours of announcing the event. So, if you missed Chen-

ming's webinar don't worry, it's available as streaming video on the EDS site (www.ieee.org/eds). And be sure to watch out for more webinars to come in 2012. Details will be made available as our plans become finalized.

Lastly, if you have a topic you would like to see addressed in an upcoming webinar, or know of a speaker whom we should contact about giving a webinar, please do not hesitate to reach out to the EDS Executive Director, Christopher Jannuzzi at 732-562-2926 / c.jannuzzi@ieee.org. He would be happy to hear from you.

Meyya Meyyappan
EDS Vice-President of
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OUTGOING PRESIDENT'S MESSAGE



Renuka P. Jindal
EDS President

Fellow EDS Members:

I welcome you to my final report as EDS President. One of the first, and most critical initiatives I began, was to champion the formulation and official adoption of the new EDS vision and mission statements. This took my entire 2 year term as President-Elect of the Society. I say critical because contained in the words of these statements is the guiding principle of current and future EDS administrations. EDS's mission is *"to foster professional growth of its members by satisfying their needs for easy access to and exchange of technical information, publishing, education, and technical recognition and enhancing public visibility in the field of Electron Devices."* In short, it has been my job to ensure that everything we do adds value to membership in the Society. Here are several of the major initiatives I have spearheaded to realize this goal.

- **Website Enhancements.** Being a global Society, it was extremely important to improve our web presence and fully leverage web technology. My vision was that with a few mouse clicks, an EDS member should be able to track EDS events around the globe. To realize this vision I launched a complete revamping of the EDS website. An associated module was to identify all

160+ EDS chapters on the world map and provide the ability to retrieve information about any one of them. Another module was a web-based meeting registration process whereby we could have a record of who was interested in EDS activities and provide us the ability to reach out to these individuals. Yet another module was the generation of a "members only" section by which we could provide a whole slew of member benefits at low cost worldwide. I am happy to report that under the guidance of Paul Yu, EDS President-Elect, the new website was launched last year and enhancements continue to grow.

- **Chapters.** Our chapters are the primary conduit for reaching out to our member community around the world. In keeping with the member focus, it is critical that this connection be kept alive and vibrant. To engage with our chapters, EDS invests over \$250,000 every year in the form of chapter subsidies, distinguished lecturer support and mini-colloquia. Also over the years, thanks to Juin Liou, Vice-President of Regions and Chapters, our chapters have enjoyed a healthy growth with the current number being over 160, among the largest of all IEEE societies. However the paradox has been that this chapter growth was not translated into membership growth. Something was amiss! My predecessors verified my suspicion that over the past many years our Chapter Partners program was losing steam. After many discussions

with various stakeholders during my chapter visits both in the USA and abroad I finally abolished the Chapter Partners program. Beginning this year, this responsibility was transferred to a volunteer team that had already existed before under the auspices of our Subcommittees for Regions and Chapters (SRCs) for the 10 regions of the world. This contingent of volunteers has been grossly underutilized. The new program is referred to as the Chapters Mentor Program. EDS SRCs are being empowered by appropriate funding mechanisms to reach out to our chapters. Each SRC member is being entrusted with a group of chapters in proximity of their home location. Their function is to revitalize, help coordinate more productive chapter activities and suggest positive ways to enhance membership by distributing chapter responsibilities outside a single organization. They will also foster better communication between chapters, volunteer leaders, and the EDS Executive Office. It is my expectation that this will address the major challenge of membership growth in years to come.

- **Membership.** An item closely related to EDS chapters is EDS membership. All societies in Division 1 have, for various reasons, seen membership numbers decline for the past several years. To me the reason is obvious. Back in the 70's when I joined IEEE and EDS, the value proposition for becoming an EDS member was clear: to get a copy of the latest technical

information delivered in your mailbox every single month of the year. With the advent of electronic access and institutional marketing of *IEEE Xplore* this value proposition has eroded over time. Professionals can now access technical information via the WEB using their institutional subscription without becoming an IEEE member. However, I view challenges and opportunities are two sides of the same coin. We must be adept with and adopt technological advances. We now need to leverage technology to create new benefits to attract members. Over the years we have developed several EDS MEMBERS ONLY benefits including the following:

- EDS archival DVD
- EDS annual update DVD
- IEDM short course DVDs
- EDS-Educate Webinar series on timely topics
- QuestEDS – an online forum to get answers to technical questions answered by world experts
- Manuscript copy-editing service for papers authored by all EDS members
- EDS sponsored conference registration discounts which return your membership fees and more
- Electronic access to all EDS and several cross-society publications

We continue to further enhance our benefits portfolio with new items under consideration such as EDS-Connect, a web based EDS members-only portal to build a technical home for our members, electronic table-of-contents delivery, as well as important content and online events exclusively for EDS members. I am happy to report that in 2010 EDS's membership slide was mitigated, and we posted modest gains by the year's end, thanks to the efforts of Albert Wang, Vice-President of Mem-

bership. In 2011, the news is even better. Thanks to aggressive membership campaigns launched at our conferences and our never-ending efforts to continually enhance the value of membership in the society, I am proud to say that as 2011 draws to a close EDS's membership is up 4% over 2010. This is no surprise since we give back to our members so much more in return for small membership fees among the lowest in IEEE societies. The obvious logical question is how do we generate resources to serve our members? The answer is our publications and conferences supported by our endless cadre of volunteers.

- **Publications.** Perhaps the EDS business that I am most familiar with is the publication side of the house since becoming an Associate Editor back in 1987. EDS's publications are near and dear to me and I take pride in making sure that the quality of our publications continues to be enhanced treating each issue as a masterpiece to share. What has sweetened the pie even more is that back in the 80's EDS conference revenue was the primary support mechanism for EDS activities and honestly I was jealous since our publications produced little surplus and once even lost money. However, over the years, under my tenure as EIC and Vice-President of Publications, we have turned the tide around and our publications revenue became the dominant fraction of the EDS budget. Transactions on Device and Materials Reliability, a joint publication with the Reliability Society, thanks to the efforts of EIC Tony Oates, has turned to profitability although more progress is needed. I therefore find it particularly gratifying that under the leadership of Samar Saha, Vice-President of Publications, our publications continue to flourish as our turnaround times continue to get shorter with sup-

port from Doug Verret, Editor-in-Chief of Transactions on Electron Devices (T-ED) and Yuan Taur, Editor-in-Chief of Electron Device Letters (EDL). We are the fastest publishing group within the IEEE. Feedback is a necessary element for healthy growth of any activity. To further enhance the quality of our publications, I initiated the implementation of an on-line author feedback for T-ED and EDL. The results have been extremely gratifying. However, I do see challenges due to a rapid growth in the number of pages we publish and the increasing page length both of which are a drag on the quality and surplus. Going beyond EDS publications, with the help of Samar, I have launched a campaign to streamline several of our co-sponsored publications including the *Journal of Microelectromechanical Systems* and *Transactions on Semiconductor Manufacturing*. We also need to create new revenue streams and embrace areas of rapidly increasing technical activity. With this in mind, I am very pleased to report that we were able to spawn a multi-society sponsored brand new *IEEE Journal of Photovoltaics* with two robust issues in the Fall of 2011. Not only is this publication unique in the sense that it provides a forum for exchange of ideas in a blossoming area but it also provides a much needed IEEE presence in the field of photovoltaics. This is important in keeping with our mission of "Public Visibility." Clean energy is one of the corner stones of attempting to serve humanity at large in concert with EDS's Mission.

- **Conferences.** Conferences are an important part of what EDS brings to its members and the world. Each year, EDS sponsors over 100 meetings and conferences, nearly 30 of which we financially back. However,

managing so many conferences is not a simple task. Hence, I launched a major initiative to re-vamp our conference portfolio keeping a balance between revenue generation and service to the technical community. Under the leadership of Bin Zhao, I am encouraged by the way our conference business weathered the financial storm of the past few years, all without ever sacrificing the quality and quantity of events EDS has been able to support. Based on the suggestion of Jon Candelaria, previous VP of Meetings and Conferences, I have now instituted a new process for conference management. We are bringing together the functions of EDS technical committees and conference management. Bin along with Achim Burghartz, VP of Technical Activities, have come up with a mapping of all of our conferences into our technical committees. Going forward each technical committee will "own" a set of conferences to ensure the highest standards of quality that the professional community has come to expect of EDS. These committees will work proactively with their conferences to invite conference stakeholders as committee members to nurture a closer relationship between EDS and its conferences. This is a vital step in keeping the community close knit.

- **Education.** I remember a bumper sticker back when I was "growing up" at Bell Labs in Murray Hill, New Jersey. It said "If You Think Education Is Expensive, Try Ignorance." I believe this statement to be as true today as it was 30 years back at the local, regional, national and international levels. We truly live in a global community and it is important that education be an important part of the agenda for every volunteer organization as it reaches out to

all parts of the globe. With this backdrop I am sure you can understand why education and dissemination of technical information has been a top priority under my administration and will continue to be the case in the foreseeable future of EDS. I have launched a multitude of initiatives listed under member benefits including EDS-ETC – Engineers Demonstrating Science: an Engineer Teacher Connection, a high-school outreach program being rolled out to EDS chapters worldwide. I thank Fernando Guarin for taking the lead on this. Another initiative is the availability of our International Electron Devices Meeting (IEDM) short-course videos to our chapters for free and to EDS student members of \$9.99 and full members at a slightly higher price. As mentioned earlier our EDS-Educate Webinar series is another such effort to keep our members competitive in the face of rapid technological advancements. In addition, the financial support we provide in sponsoring hundreds of technical talks through our Distinguished Lecture and Mini Colloquia programs go a long way in fulfilling our mission of satisfying the educational needs of our members. I want to thank Meyya Meyyappan, Vice-President of Educational Activities, who has been instrumental in managing these activities to best match our outreach to chapters worldwide.

- **Technical Activities.** At the heart of Electron Devices Society is its technical activities. As such, I have high expectations of our technical committees. Unfortunately, over several past Vice-Presidential terms technical committees have managed to remain fairly dormant. As such, when Achim Burghartz took over as VP, his primary focus was on how to rejuvenate our tech-

nical committees. One way of achieving this is by aligning our conferences with our technical committees. Thus we have taken the important steps to better leverage the expertise of our technical committees to help re-define EDS's conference offerings to meet the needs of our ever-changing industry. In addition, Achim is spearheading an exciting project with Wiley publishing to commemorate EDS's 60th anniversary and highlight the major milestones in the history of electronic devices. It is my expectation that our technical committees will be the driving force behind a significant portion of EDS sponsored activities.

- **Awards.** After all the hard work comes celebration and rejoicing. EDS has long enjoyed a robust and distinguished awards program whereby we recognize individuals in different areas of activity and membership grade through a series of awards. We invest nearly \$100,000 in our awards each year. I have observed that while we are very good at evaluating the nominations we could do better in soliciting them. As such, in consultation with Marvin White, Vice-President of Awards, we have now lowered this threshold for nomination. All you need is to write a paragraph of why an individual should be considered for an award, and if the committee agrees, we will do the rest including finding a willing nominator who is able to put in the time and effort needed to generate a competitive nomination. I want to thank Marv for providing guidance to our various awards committees. I expect EDS awards to become highly subscribed in the future as a result of this change. Of course, this will mean more work for the volunteers but that is what

it is all about: honoring the best of the best. In this vein, I championed the establishment of an EDS Celebrated Member status. The idea was to recognize those professionals whose work has profoundly changed the world around us. Our current celebrated members include Nobel Laureates and long time EDS alumni George Smith and Herb Kroemer. I am very pleased about the Celebrated Member Program because it gives all EDS members an opportunity to share in the work and excitement of our illustrious members, and draw from them inspiration to continue, in the words of EDS's vision statement, *promoting excellence in the field of electron devices for the benefit of humanity*. Congratulations to you both in accepting this recognition and getting EDS closer to becoming a household acronym.

- **Challenges Ahead.** As I pass on the baton to President-Elect Paul Yu, I want to thank him for providing me on-going support on an as-needed basis on many issues that came up during my tenure as President. His taking up the slack was invaluable in the face of my work related and personal commitments. I truly appreciate it. I must confess that the affairs of EDS are not all taken care of by any means. There are significant challenges that lie ahead at both the Institute and the society level. Some of the society level issues include a successful implementation of the technical committee confer-

ence matrix and EDS Chapters Mentor Program, ongoing management of the publication and conference portfolios, and most important of all continuing to generate new member benefits. At the institute level I see Open Access, Member and Geographic Activities (MGA) and Technical Advisory Board (TAB) interactions and IEEE membership models as some of the issue we will need to tackle.

I must state that success of EDS is truly a team success. As President, I have been blessed with an excellent group of dedicated volunteers and EDS staff in Piscataway, who have gone above and beyond the call of duty to thrash out ideas and help implement them. At times, we have hit rough spots but that is part of the game. Of the other members of the executive team that I want to thank, include Stephen Parke as EDS Treasurer for keeping us on a fiscally sound track and Jim Merz as EDS Secretary for keeping our spirits high in spite of institutional and personal challenges. I also want to thank EDS Junior Past-President Cor Claeys and Senior Past-President Ade Ilesanmi for helping me run the Society in the face of several thorny issues at the Institute level. I especially want to thank EDS Executive Director, Chris Jannuzzi, who replaced Bill Van Der Vort a long-time EDS stalwart and IEEE staff member, who continues to convert our ideas to reality in each area of EDS endeavor. The list of fellow volunteers who I would like to thank is LONG. It is long enough to fill a few pages and includes my students at the

University of Louisiana at Lafayette. I dissuaded myself from attempting this daunting task of developing this comprehensive list since I was bound to miss many. So I want to thank all of you around the world who are in my thoughts, in making my Presidency a rewarding experience and giving me an opportunity to grow professionally. Managing such an accomplished and elite group was indeed an educational experience which I will cherish.

As I complete this article, it is humbling to note I have been able to fulfill my election promises in serving the global Electron Devices community. At the same time it is also relieving to realize that my tenure as EDS President is drawing to a close. However, in so many ways, I feel that my time at the helm of EDS has only just begun; to see all the initiatives that we have launched, flourish over time and bear fruit. Looking back on all that we have accomplished, I realize it has indeed been a wonderful journey. My involvement went revving up into high gear when I became President-Elect in 2009 and will wind down to a more relaxed pace over several years to come. I started as a student member of EDS. From there I became an author, a reviewer, an editor, the Editor-in-Chief, and eventually the Vice President of Publications before becoming President in 2010. All told, EDS has been my professional home for 35 years... and counting.

Renuka P. Jindal
EDS President
University of Louisiana
at Lafayette
Lafayette, LA, USA

EDS AND THE IEEE TECHNOLOGY MANAGEMENT COUNCIL



Ravi M. Todi
EDS Representative
TMC Board of
Governors

The EDS is a founding Member Society (one of fourteen) of the IEEE Technology Management Council (TMC) and Ravi M. Todi is currently the EDS voting representative on its Board of Governors. The

TMC provides a critical opportunity to network with leaders from the other Member Societies in their common pursuit of the mission and goals of the TMC, and to explore additional ways for the Member Societies to interact with each other.

The TMC's mission is to assist "technology professionals pursuing excellence in management of innovation, business, and entrepreneurship." It was formed by IEEE in 2008 to replace the existing Engineering Management Society (EMS), which had been active for many decades. The primary difference between an IEEE Council and Society is that individuals join and pay dues to Societies, while Councils are actually supported by their member Societies. So the TMC was formed with the logic that there is broad interest across many different IEEE Societies in technology management, so a Council could serve them all more effectively.

Note that all EDS members can now automatically benefit from TMC, and if they are interested in technology management, they can get involved in their local TMC Chapters. There are several dozen TMC Chapters across the US – these were formed from the previous EMS Chapters, so many of them are already very active and all are now open to any EDS member. Just as being active in the local EDS Chapter offers opportunities for networking and enhancing technical knowledge in the EDS field of interest; becoming active in a local TMC Chapter offers opportunities for enhancing knowledge and skills in the area of technology management, while networking with other management professionals.

The TMC sponsors an annual conference, the ITMC, as well as co-sponsoring numerous regional conferences, workshops and events on technology and innovation management. Schedules and details on all of these can be found on the TMC website shown below. In addition, TMC is also becoming more active in sponsoring management special sessions and tutorials within Member Society technical conferences, with content that is targeted to be useful specifically to managers in that society's technical field of interest. For example, TMC organized an evening panel session entitled "Managing Innovation: An Oxymoron?"

at the IEDM 2010 in Baltimore. The TMC would welcome the opportunity to work with any of the other EDS conferences to organize similar sessions or management tracks within the conference – or even to consider having a full-day management-focused workshop or tutorial session connected with the main conference.

Finally, EDS members may want to consider, when rejoining IEEE for 2012, getting a subscription to the TMC publications. The *Transactions on Engineering Management* is more research-oriented, and the very popular *Engineering Management Review (EMR)* is a compilation of papers reprinted from the most respected Engineering and Technology Management journals in the world, as selected by its editorial board. The EMR is targeted more for the practicing professional, and should be of interest to anyone with interest in the management of technology, management principles in general, or who is a technical professional responsible for technology management or striving to become a manager.

More information about the TMC can be found at <http://www.ieeeetmc.org/> or contact Ravi M. Todi at rmtodi@us.ibm.com.

Ravi M. Todi
EDS Representative
TMC Board of Governors
IBM Microelectronics
Hopewell Junction, NY, USA

FELLOW NOMINATIONS ARE NOW ONLY ACCEPTED ELECTRONICALLY

A change to how Fellow nomination forms are submitted will take place for the 2013 Fellow Class. Previously, nominations were submitted either by hard copy OR through the Fellow online application. After allowing both methods for many years, the Fellow Committee and the IEEE

Board of Directors approved the change to go completely electronic. The 2013 Fellow Class will be the first class where all the forms (nominations, references, endorsements) will have to be submitted electronically. No hard copy forms will be accepted for any reason.

The nomination period for the 2013 Fellow Class is now open and will continue through March 1, 2012. Nominee eligibility requirements, steps to becoming an IEEE Fellow, nomination instructions and much more can be found on the IEEE Fellow Program Web page at www.ieee.org/fellows.

CONGRATULATIONS TO THE 16 EDS MEMBERS RECENTLY ELECTED TO IEEE SENIOR MEMBER GRADE!

Mahmoud Almasri*
Kuan-Neng Chen*
Roger De Keersmaecker*
Lixin Ge*
Avik Ghosh*
Raj Kumar

Wim Melis
Sunhom (Steve) Paak*
Sangwoo Pae
Jagdish Patra
Heike Riel
Jorg Schulze

Yunseop Yu
Prasad Venkatraman
Wojciech Wojciak
Yi Zhao

* = Individual designated EDS as 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>.

Please remember to designate the Electron Devices Society as your nominating entity.

ANNOUNCEMENT OF THE 2011 EDS PH.D. STUDENT FELLOWSHIP WINNERS



Meyya Meyyappan
EDS Vice-President
of Educational
Activities



Agis Iliadis
EDS Ph.D. &
Masters Student
Fellowship Chair

The Electron Devices Society Ph.D. Student Fellowship Program was designed to promote, recognize, and support Ph.D. 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.

The Society is concerned with research, development, design and manufacture related to materials, processing, technology, and applications of such devices, and scientific, technical, educational and other activities that contribute to the advancement of this field.

EDS proudly announces three EDS Ph.D. Student Fellowship winners for 2011. Brief biographies of the recipients appear below. Detailed articles about each Ph.D. Student Fellowship winner and their work will appear in forthcoming issues of the EDS Newsletter.



Sungsik Lee graduated from Korea Advanced Institute of Science and Technology (KAIST), South Korea, in 2006 and joined

a national laboratory, ETRI, South Korea, as a research staff for investigating solid state sensors and their interface circuits. He is currently a Ph.D. candidate under the supervision of Prof. Arokia Nathan, Fellow IEEE, in London Centre for Nanotechnology, University College London, United Kingdom. He is the recipient of both ORS and GRS Scholarships for the entire Ph.D. program in University College London. His research is focused on the physics underlying the unique conduction mechanism in amorphous oxide semiconductor thin film transistors (TFTs) as well as

particularly investigates density of trap states using a field effect method based on numerical analysis. He has more than 23 scientific contributions, including 5 journal papers as the first author. He is a reviewer of high impact journals, such as IEEE EDL, IEEE TED, IEEE/OSA JDT, and a member of IEEE EDS and MRS.



Nagarajan Raghavan was born in Bangalore, India. He received his B.Eng, 1st Class Honors, (Electronics Engineering, 2007), S.M. (Advanced Ma-

terials for Micro & Nano Systems – AMM&NS, 2008) and M.Eng (Materials Science and Engineering, 2008) from Nanyang Technological University (NTU), National University of Singapore (NUS) and Massachusetts Institute of Technology (MIT), Boston, USA respectively.

He is currently pursuing his Ph.D. in the Gate Oxide Reliability research group at the Division of Microelectronics, EEE, NTU under Prof. Pey Kin Leong focusing on reliability modeling and statistical characterization of novel high- κ gate dielectric stacks for logic and resistive memory applications. His other research interests include electromigration, low- κ dielectric breakdown, 3D interconnects and reliability statistics.

Nagarajan was the recipient of the *NTU President's Research Scholar* (2004–2006) and *Singapore-MIT Alliance (SMA) Graduate Fellowship* (2007–2008) awards. He is also one of the five recipients of the *IEEE Reliability Society Graduate Scholarship Award* in 2008 for his research

accomplishments in reliability and its application to micro and nanoelectronics.

To date, he has authored/co-authored approximately 43 international journal and conference publications and an invited book chapter as well. He also serves on the *review committee* for various IEEE journals (TED, EDL and TDMR) and was invited to join the technical program committee of IIRW and ESREF 2011. He is an active member of the IEEE since 2005.



Deblina Sarkar received the B.Tech. degree in electronics engineering from Indian School of Mines University (ISMU), Dhanbad,

India, in 2008. She is currently working toward the Ph.D. degree at the Nanoelectronics Research Laboratory in the Department of Electrical and Computer Engineering, University of California, Santa Barbara, USA, under the supervision of Prof. Kaustav Banerjee. Her undergraduate research was focused on novel nanoscale device design and spintronics. During her M.S. degree (March 2011) at UCSB, she worked on the modeling and analysis of high-frequency effects in graphene based interconnects and on-chip inductors as well as novel impact-ionization MOSFETs. Her doctoral research is focused on tunneling field-effect transistors (TFET) including physics-based modeling of interband-tunneling, along with design and fabrication of novel high-performance and low-power TFET structures.

Deblina was an Intern in Prof. Laurens Molenkamp's Spintronics Group, Wurzburg University, Germany during her undergraduate studies (summer of 2007) where she worked on modeling of spin polarized current through gated vertical double barrier structures. During her graduate work at UCSB, she has been an intern with Infineon Technologies AG, Munich, Germany, and with the Interuniversity Microelectronics Centre (IMEC), Leuven, Belgium (from November 2009 to February 2010) where she worked on the analysis of the impact of strain on ESD robustness in nanoscale transistors. During the summer of 2010, she worked on the fabrication of novel silicon-nanowire based tunnel-FETs as a Visiting Student Researcher with the Institute of Microelectronics, Singapore. Deblina has published over a dozen papers in leading international conferences and journals including the IEDM, IITC, IEEE Electron Device Letters, IEEE Transactions on Electron Devices and Applied Physics Letters. She was the recipient of the Best Paper Award at the All India Paper Presentation Competition "Vyakhan" in 2008 and the "Best Female Student Award" during her undergraduate studies at ISMU.

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

Agis Iliadis
EDS PhD & 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>

VISIT BY EDS PRESIDENT REINVIGORATES THE UNIVERSITY OF MASSACHUSETTS/SPRINGFIELD CHAPTER

On July 29, 2011, IEEE EDS President, Renuka Jindal, visited the UMass/Springfield Chapter to give a talk about the Society and to reinvigorate the chapter in Amherst. He met with the ED Chapter Chair, Prof. Paul Siqueira, and other members of the faculty to discuss ways in which EDS can become more closely integrated to the activities on campus and how members can become more involved in the Society.



A view inside M5, the student interactive workspace in UMass' Department of ECE

One of the areas that was discussed was the ECE student workspace known as M5 (previously shown) which is intended to provide students a place to explore electronics in a setting outside of the classroom. The M5 workspace has a parts wall, at left in the previous image. With the help of some local artists, students have painted the area near the "parts wall" with glow-in-the-dark paint. The parts wall consists of integrated circuits and discrete components, donated from alums and local businesses that students can use freely to fuel their ideas for projects in electrical engineering. The 5,000 square foot facility also supports a music studio, space for TA office hours, a lounge to encourage informal student interactions and a project room for constructing one of the latest members of the facility, Emma-five, a semi-autonomous robot meant to explore the campus and Amherst town center. In case you were

wondering, "M5" stands for Marcus, Room #5, but M5 sounds cooler!

While in Amherst, Prof. Jindal gave a talk about the Electron Devices Society, its long term membership goals, and the variety of ways that it supports its members. Renuka also gave a talk about one of the areas of his expertise, "Nano-FET fluctuation physics" in which he talked about inherent noise mechanisms and how they can be improved through changes in the device structure.

Because of Prof. Jindal's visit, the chapter is looking forward to a new year with new goals for increasing membership and participation. The chapter wishes to thank Prof. Jindal for his efforts in the EDS as a whole and for taking the time to visit the University of Massachusetts.

*Paul Siqueira
ED Springfield Chapter Chair
University of Massachusetts
Amherst, MA, USA*

EDS DISTINGUISHED LECTURER VISITS LIMA, PERU

EDS Distinguished Lecturer, Prof. Edval J.P. Santos, from the Devices and Nanostructures Laboratory of Universidade Federal de Pernambuco, Brazil, visited Peru in August 2011. He was invited by the ED Peru Chapter as a guest speaker to give lectures at three universities in Lima, the capital city of Peru. Prof. Santos was received at the Universidad Ricardo Palma (URP), the Universidad de San Martín de Porres (USMP) and the Pontificia Universidad Católica del Perú (PUCP).

Prof. Santos presented the following lectures at the universities: "Design and microfabrication of smart sensors for the oil and gas industry" (August 16th) "Electronic sensing of Pisco alcohol content for quality

control" (August 16th), and "Microelectronics Education: VHDL Custom Design & Fabrication" (August 17th), respectively. The total attendance of approximately 105 people consisted of professionals and students, many of whom (85%) were not IEEE or EDS members. Using EDS's standard



Distinguished Lecturer, Prof. Edval J.P. Santos, from the Universidade Federal de Pernambuco, Brazil

presentation, Prof. Santos explained IEEE and EDS member benefits to the attendees.

His lectures were of great interest and very valuable, containing not only theory but practical applications too. There were many questions from the audience and Dr. Santos answered them charmingly and clearly. He also had the opportunity to meet with the ED Peru Chapter members and IEEE Peru Section directors in order to motivate local and international cooperative ED activities and to increase membership.

*Jorge Tejada
ED Peru Chapter Chair
Universidad de San Martín de Porres
Lima, Perú*



CALL FOR NOMINATIONS
2012 IEEE Electron Devices Society
Masters Student Fellowship

Description: One-year fellowships awarded to promote, recognize, and support graduate Masters level study and research within the Electron Devices Society's field of interest: 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.

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/Mid-East/Africa, Asia & Pacific. Only one candidate can win per educational institution.

Prize: US\$2,000 and a plaque to the student, to be presented by the Dean or Department head of the student's enrolled graduate program.

Eligibility: Candidate must: be an IEEE EDS student member at the time of nomination; be accepted into a graduate program or within the first year of study in a graduate program in an EDS field of interest on a full-time basis; and continue his/her studies at a graduate education institution. Nominator must be an IEEE EDS member and preferably be serving as the candidate's mentor or faculty advisor. Previous award winners are ineligible.

Basis for Judging: Demonstration of his/her significant ability to perform research in the fields of electron devices and proven history of academic excellence in engineering and/or physics as well as involved in undergraduate research and/or supervised project.

Nomination Package:

- Nominating letter by an EDS member who served as candidate's mentor or faculty advisor.
- Two-page (maximum) statement by the student describing his or her education and research interests, accomplishments and graduation date. This can include undergraduate, graduate and summer internship research work.
- One-page biographical sketch of the student (including student's mailing address and e-mail address)
- One copy of the student's transcripts/grades
- A letter of recommendation from an individual familiar with the student's research and educational credentials. Letters of recommendation cannot be from the nominator.

Timetable:

- Nomination packages are due at the EDS Executive Office no later than **April 15, 2012**
- Recipients will be notified by June 15, 2012
- Monetary awards will be presented by the Dean or Department Chair of the recipient's graduate program at the beginning of the next academic term.
- Nomination packages can be submitted by mail, fax or e-mail, but a hard copy must also be received at the EDS Office.

Send completed package to: IEEE Operations Center
EDS Executive Office - Masters 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-masters-student-fellowship-program.html>

REPORT ON THE IEEE EDS MINI-COLLOQUIUM HELD IN ROME, ITALY

The 2nd Edition of the Workshop on Micro and NanoElectronics was held in Rome, Italy, September 29–30, with many technical talks given on the state of semiconductors by researchers from universities, research centers and industry. All had the opportunity to present their state-of-the-art activity and the perspective of development of their laboratory within the frame of national context, with the following European Countries represented: Germany, France, Belgium, Slovakia, Sweden, Poland and Italy.



*Andreas Wild, Esecutive Director of ENIAC
Undertaking*



Fabrizio Famà, Micron Technology



*Enrico Sangiorgi, University of Bologna, Board
of the ENIAC Platform*



*Round Table with Giorgio Chiozzi (R&D Director of Infineon PD), Sergio Galbiati (GM of Micron),
Pietro Palella (GM of STMicroelectronics)*

The focus of the second day's program was on the trends and perspectives of the research on semiconductors and nanoelectronics in Europe. Attendees from the European Community, the European Electronics and Technology Platforms, the European Investment Bank, together with Presidents and

Directors of European Research Agencies and Associations, participated in the program. An exciting discussion transpired with the General Managers and Directors of Industries, the general Director for the International Research of the Italian Ministry of University and Research, and all the researchers.

As a result, a few strategic steps regarding the Roadmap were fixed by Industries (Infineon, Micron Technology, STMicroelectronics.)

*Fernanda Irrera
ED Rome Chapter Chair
University of Rome
Rome, Italy*

REPORT ON THE IEEE EDS MINI-COLLOQUIUM HELD IN MANCHESTER, ENGLAND

The IEEE EDS Mini-Colloquium on Advanced Electron Devices and Technology was held on August 26, 2011, at the University of Manchester, England, United Kingdom. The event was organized to celebrate the establishment of the new IEEE ED Dublin Chapter in Ireland. The new Chapter Chair, Professor Patrick McNally from Dublin, attended the meeting and delivered an invited talk. The event was jointly organized by the IEEE AP/ED/MTT/PHO UKRI Chapter and the IEEE University of Manchester Student Branch.

The event began with a welcome address by the Chair of the UKRI Chapter, Professor Ali Rezazadeh, and followed by an overview of the IEEE and the activity of EDS by Professor J. J. Liou, the EDS Vice-President for Regions/Chapters. The Vice-Chair of the IEEE University of Manchester Student Branch, Mr. Emerson Sinulingga, also welcomed the delegates and highlighted the activities of the Branch.

There were oral and poster presentations. Professor Liou delivered a talk on "Outlook and Challenges in Electrostatic Discharge (ESD) Protec-



Professor Ali Rezazadeh (front row, center), Emerson Sinulingga (front row, right), Professor J. J. Liou (second row, center), Professor Patrick McNally (second row, second right) and Dr. Kamal Samanta (second row, right), with some attendees

tion of Modern and Future Integrated Circuits;" Professor Patrick McNally on "Addressing Semiconductor Roadmap Challenges: New X-Ray Diffraction Imaging Techniques for Imaging Wafer Warpage in Systems on Chip;" and Dr. Kamal Samanta from Astrium, EADS, on "Development of high performance and compact mm-wave components and MCMs using Advanced multilayer Thick-film SIP Technology." Professor Ali Rezazadeh also delivered a talk on "Design and Development of Compact 3D MMICs."

The Poster presentations by Ph.D. students provided a good atmosphere for further discussions. During the refreshment and lunch breaks all the students and invited speakers had the opportunity to discuss their views on the work of the IEEE and their respective research area of interests.

*Ali Rezazadeh
UKRI Chapter Chair
University of Manchester
Manchester, UK*

REPORT ON THE IEEE EDS MINI-COLLOQUIUM HELD IN PRETORIA, SOUTH AFRICA

The first ever IEEE EDS Mini-Colloquium on the continent of Africa was recently held in Pretoria, South Africa, September 23, 2011, at the Carl and Emily Fuchs Institute for Microelectronics (CEFIM) on the campus of the University of Pretoria. This historical event was attended by a total of 42 students, engineers and scientists. It was indeed a very special MQ, with three

EDS Distinguished Lecturers among the speakers.

The first speaker, Prof. Cor Claeys, Director Advanced Semiconductor Technologies, IMEC, Leuven, Belgium, gave a talk on "Emerging CMOS devices: Trends and challenges," discussing the future downscaling of devices to cope with the ITRS roadmap and the many technological challenges and approaches to be tak-

en. He was followed by Prof. Lorenzo Pavesi from the Nanoscience Laboratory at the Department of Physics, University of Trento, Trento, Italy. His talk on "New developments in non-linear silicon photonics," demonstrated the use of nanocrystals and strain engineering to enable novel photonic functionalities in silicon.

After a welcome tea break, two speakers from the USA presented



Attendees at the EDS MQ in Pretoria, South Africa, September 23, 2011

their papers. The first, Prof. Juin J. Liou, from the Department of Electrical and Computer Engineering at the University of Central Florida, Orlando, Florida, USA, presented a talk on "Challenges of electrostatic discharge (ESD) protection in silicon nanowire technology." He gave an overview on ESD sources, models, protection schemes and testing was given, followed by a discussion of ESD characteristics, robustness and challenges of the emerging Si nanowire technology. Prof. Liou was followed by Dr. Jessica E. Koehne from the Center for Nanotechnology, NASA Ames Research Center, Moffett Field, California, USA, who presented her paper on "Nanomaterials for electronics and bioelectronics." Dr. Koehne gave an overview of CVD and PECVD material growth, as well as the development of chemical sensors, biosensors, energy storage devices and novel memory architectures.

After an enjoyable lunch, two further papers were presented, the first by Prof. Philippe M. Fauchet from the Department of Electrical and Computer Engineering, University of Rochester, Rochester, New York, USA, on "Optical signal processing in SOI chips using photonic crystals." Prof. Fauchet described the design and performance of low-power, all-silicon or hybrid E-O modulators to be used for on-chip optical interconnects, as well as biosensors capable of detecting a single virus. A local speaker, Prof. Somnath Bhattacharyya from the School of Physics, University of the Witwatersrand,



*Distinguished Lecturers of the EDS MQ in Pretoria, South Africa, September 23, 2011. Front row, from left to right: Dr. Jessica E. Koehne, Prof. F. Danie Auret, Prof. Monuko du Plessis (EDS DL)
Back row, from left to right: Prof. Somnath Bhattacharyya, Prof. Juin J. Liou (EDS DL), Prof. Cor Claeys (EDS DL), Prof. Philippe M. Fauchet, Prof. Lorenzo Pavesi*

Johannesburg, South Africa, gave a talk on the topic of "Quantum transport in low-dimensional carbon superstructures." In his talk, he investigated the characteristics of nano-electronic devices based on artificially-grown multi-layers of ultra-thin diamond-like amorphous carbon films.

Another short tea break was followed by two South African presentations. Prof. F. Danie Auret from the Department of Physics at the University of Pretoria, Pretoria, South Africa, spoke on "Electrical characterization of irradiation and process induced defects in semiconductors," wherein he discussed the electrical characterization of defects by deep

level transient spectroscopy (DLTS) and high resolution (Laplace) DLTS. Last but not least, Prof. Monuko du Plessis from the Department of Electrical, Electronic and Computer Engineering at the University of Pretoria, Pretoria, South Africa, discussed "Nano explosive devices in silicon technology." In his talk the explosive properties of porous-silicon, impregnated with an oxidant, were presented and future applications for this new technology were proposed.

*Monuko du Plessis
EDS/PHO/CAS South
Africa Chapter Chair
University of Pretoria
Pretoria, South Africa*

EDS PRESIDENT'S VISIT MARKS THE OFFICIAL LAUNCH OF STANFORD'S STUDENT CHAPTER

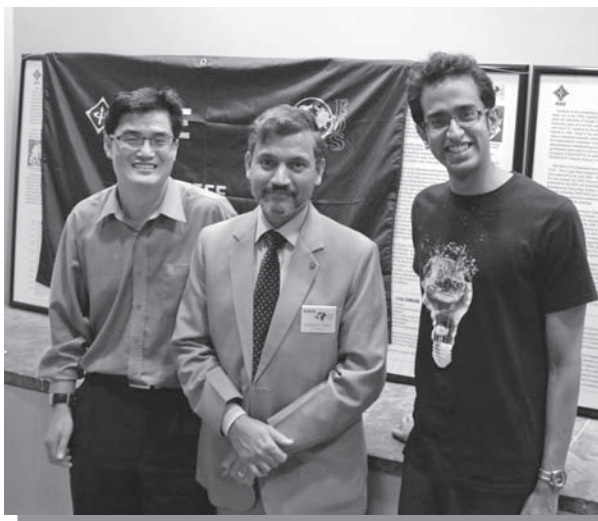
The IEEE Stanford Student Branch was honored to welcome EDS President Renuka P. Jindal for a day-long visit to the campus, October 21, 2011. The visit marked the official launch of Stanford's EDS Student Chapter, a joint venture between the electrical engineering and materials science communities at the university.

"Here at Stanford," said Vijay Narasimhan, the chapter chair, "people are exploring new materials, new device architectures, and new modeling techniques for electron devices across many departments, often in collaborative teams." Narasimhan himself

researches a new type of solar energy conversion based on thermionic emitters. He is a PhD Student in Materials Science with a strong background in Computer Engineering and Nanotechnology and works with a team of Physicists and Electrical Engineers. "Moreover, for many classes of devices, like solar cells, sensors, and optoelectronics, there is widespread interest across the broader Stanford community, particularly those studying energy, policy, and commerce."

Stanford's EDS events are therefore geared to a broad audience. Last year, they held their first unofficial event, inviting Stanford alumni from Electrical Engineering and Materials Science from different eras (2000s, 1990s and 1970s) to take part in a panel to discuss the changing landscape of the electron device industry over the years and the many career options available to students after they graduate from Stanford.

At the EDS launch event, Professor Jindal gave an entertaining talk to Stanford



Dr. Jeongwon Park, from Applied Materials and Renuka Jindal, EDS President with Vijay Narasimhan, the new EDS Stanford Student Branch Chapter Chair

students, faculty, and members of the public entitled "From millibits to Terabits per Second and Beyond: Over 60 years of Innovation," during which he discussed the very colorful history of the transistor, the laser, and the various other parts of light-wave communication systems. The audience was entertained by his focus on the human elements of this story, such as Shannon's unicycle rides through Bell Labs. Jindal

then fielded questions from the audience on current challenges for communications systems, the future of optical communications on-chip, and diverse other topics.

Professor Jindal also hosted a lunchtime talk during which he described how the EDS is delivering value to its members (particularly student members) through innovative services like QuestEDS (the online forum to confer with experts across the world) and copy editing for publications submitted to TED. He also shared his insights on technology and career transitions through the unique lens

of someone who has worked both at Bell Labs and then in an academic institution. Later, students interacted with Professor Jindal, other Stanford faculty studying electron devices, and each other, forming new connections over giga-bites of pizza (perhaps the quickest way of all to get people communicating).

In the coming months, the Stanford Chapter will be working hard with the IEEE Student Branch and the MRS Student Chapter to host events that bring distinguished lecturers, champions of industry, and Stanford alumni back to campus. With a team of enthusiastic student leaders and wise advisors, such as EDS Ad-Com veteran Professor Philip Wong and Visiting Professor Tian-Ling Ren, the chapter is in a great position to expand the EDS community with another home in the Santa Clara Valley.



EDS President, Renuka Jindal (center) and students at the lunchtime talk

*Vijay Narasimhan
EDS Stanford University
Student Branch
Chapter Chair
Palo Alto, CA, USA*

REPORT ON THE IEEE EDS MINI-COLLOQUIUM HELD IN TOKYO, JAPAN

The first IEEE EDS MQ (Mini-Colloquium) 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 Koramae Kaikan in Japanese), Tokyo, Japan, October 4–5, 2011. Two hundred people from 10 countries assembled to encourage a quick recovery for the Japanese electron devices community.

The MQ named the “G-COE PICE International Symposium and IEEE EDS Mini-colloquium on Advanced

vanced hybrid nano-devices, given by the following distinguished speakers: Dr. Tak Ning (IBM), Dr. Akira Nishiyama (Toshiba), Dr. Carlos Diaz (TSMC), Akira Nishiyama (Toshiba), 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).

An entire hour was allocated to nearly 60 presentations, given by young researchers and students, which provided a good opportunity

(Hiqscreen), Dr. Eric Ollier (CEA-LETI; substituted by Dr. Simon Deleonibus), and Dr. Cornel Cobianu (Honeywell). The lecturers were followed by a 45 minute poster session by the posters of the previous day’s schedule.

Finally, the MQ was closed 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



Participants of the IEEE EDS Mini-Colloquium Held in Japan, with IEEE EDS banner

Hybrid Nano Devices,” was organized with the support of the IEEE Electron Devices Society, Tokyo Institute of Technology (TIT) and the European FP7 NEMSIC Project. The MQ began on October 4th, with a welcome by TIT President, Prof. K. Iga, followed by a speech by the ED Japan Chapter Chair, Dr. S. Kimura, who expressed appreciation for the great support given to Japan from all over the world.

Following the opening ceremony there were lectures on future ad-

vanced hybrid nano-devices, given by the following distinguished speakers.

The second day of the MQ featured lectures given by: Prof. Hiroyuki Fujita (Univ. Tokyo), Dr. Joost Van Beek (NXP), Prof. Kazuya Masu (TIT), Prof. William Milne (Cambridge Univ.), Prof. Shunri Oda (TIT), Prof. Adrian Prof. Ionescu (EPFL), Prof. Hiroshi Mizuta (Southampton Univ.), Dr. Julia Pettine (IMEC-NL), Dr. Sorin Cotofana (Delft Univ. Tech.), Dr. Daniel Bertrand

devices community and encourage them, especially the young researchers and students in attendance.

*Hiroshi Iwai
IEEE Division I Director
Tokyo Institute of Technology
Yokohama, Japan*

*Shin'ichiro Kimura
ED Japan Chapter Chair
Tohoku University
Sendai, Japan*

REPORT ON THE EDS MINI-COLLOQUIUM HELD IN KAOHSIUNG, TAIWAN

The ED Tainan Chapter organized a Mini-Colloquium at I-Shou University in Kaohsiung, Taiwan, October 14, 2011. The MQ focused on "The New Concept for Advanced Electronic Device."

The following six speakers were invited to give EDS Distinguished Lectures: Prof. Ching-Ting Lee of National Cheng-Kung University, Taiwan; Prof. J.-Juin Liou of University of Central Florida, USA; Prof. Ming-Dou Ker of I-Shou University, Taiwan; Prof. Jenn-Gwo Hwu of National Taiwan University, Taiwan; Prof. Navab Singh, Institute of Microelectronics, Singapore (by webcam video conferencing); Prof. Hei Wong of City University of Hong Kong, Hong Kong; and Yeong-Her



From left to right: Prof. Jenn-Gwo Hwu (MQ speaker), Prof. Hei Wong (MQ speaker), Ming-Dou Ker (MQ. Speaker), Prof. Ching-Ting Lee (MQ speaker), Prof. Chii-Maw Uang, Prof. J.-Juin Liou (MQ speaker), Prof. Wen-Kun Yeh (ED Tainan Chapter Chair), Prof. Shih-Chiang Lin, Prof. Yu-Jung Huang, and Prof. Po-Ying Chen

Wang of National Cheng-Kung University, Taiwan.

Approximately 120 students and professors from local universities attended the mini-colloquium.

*Wen-Kun Yeh
ED Tainan Chair
National University of Kaohsiung
Kaohsiung, Taiwan*

EDS DISTINGUISHED LECTURER AND MINI-COLLOQUIA PROGRAMS

The EDS Distinguished Lecturer (DL) Program exists for the purpose of providing EDS Chapters with a list of quality lecturers who can potentially give talks at local chapter meetings.

To arrange for a lecture, EDS chapters should visit the EDS website at <http://eds.ieee.org/distinguished-lecturers.html> to view the listing of EDS DLs and contact the EDS DL directly. A general guideline for the visit, but not the absolute rule, is that the lecturer should be able to include the meeting site with an already planned travel schedule at a small incremental cost to the travel plan. Although the concept of the program is to have the lecturers



minimize travel costs by combining their visits with planned business trips, EDS will help subsidize lecturer travel in cases where few/no lecturers will be visiting an area and/or a chapter cannot pay for all the expenses for a lecturer trip.

EDS is also encouraging Distinguished Lecturer clusters/mini-

colloquia (MQ) to remote areas. This concept generally involves the sending of about 2 or more DLs to travel to a region/chapter and present the latest developments in a particular field. The chapters/regions would be responsible for handling all the arrangements of the event and only

minimal financial support would be required of EDS and could be covered by the MQ Program budget upon request.

For more information on the DL or MQ Programs, please visit the EDS website or contact Laura Riello of the EDS Executive Office (l.riello@ieee.org).

REGIONAL AND CHAPTER NEWS

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

ED Mid-Hudson Valley

—by *Fernando Guarín*

On Friday June 17, 2011, the ED Mid-Hudson Valley Chapter in New York, hosted Professor Dr. Souvik Mahapatra from the Department of Electrical Engineering, IIT Bombay. Dr. Mahapatra delivered a talk entitled, "Characterization and Modeling of NBTI Stress, Recovery, Material Dependence and AC Degradation Using R-D Framework," explaining how the empirical signatures of NBTI degradation are remarkably consistent across different industry and academic sources.

On Wednesday June 29, 2011, Professor Samuel Sia from the Biomedical Engineering Department at Columbia University visited our Chapter and delivered an engaging talk titled "Microfluidics for global health diagnostics." He showed how Lab-on-a-chip (LOC) devices have a tremendous potential for improving the health of people in developing countries by providing immediate diagnosis in the field.

ED Pittsburgh

—by *Louis Hart*

The Pittsburgh Chapter of the Electron Devices Society held a meeting the evening of July 26th at Compunetics' facility in Monroeville, Pennsylvania, USA. Astronomer Dr. Joe Busche of the University of Pittsburgh and Wheeling Jesuit University gave a presentation on "The Cosmic Microwave Background: the Bedrock of Modern Cosmology." He described the history

of concepts of the universe, culminating in the results of the latest research on the cosmic microwave background radiation.

Engineers and students from various organizations attended, hosted by the several IEEE members among the company's employees. Joe's presentation generated much interest and discussion and continued well into the evening, ending when the attendees were offered a tour of Compunetics' manufacturing operations.

In October 2011, the Chapter will host EDS Distinguished Lecturer Dr. Vijay Arora. November 2011 will see a pair of short seminars in one evening, put on by members. One will review methods of transformer cooling, the other will outline recent developments in advanced electronic packaging.

EnergyTech2012

—by *Maximilian C. Scardelletti*

The IEEE Electron Devices Society will be a technical co-sponsor of EnergyTech2012 (www.energysch2012.org), following on the successful launch of IEEE EnergyTech2011. This new conference, also co-sponsored by the IEEE Power and Energy Society, the Great Lakes Energy Institute, IEEE Region 2, and Case Western Reserve University, surveys promising technologies to address the growing demand for sustainable energy. It brings together experts in diverse areas to review and explore technologies that can offer significant contributions towards addressing this global challenge.

Attendees for whom this conference is intended include: power and energy researchers and practitioners; engineers entering energy research, desiring an overview of the current technological challenges in power and energy; research directors and investors seeking clarity of



*Wind Turbine, Great Lakes Science Center,
Cleveland, Ohio, USA*

the most promising energy technologies; and planners and representatives desiring background on energy alternatives impacting public policy.

EnergyTech2011 (www.energysch2011.org) was launched in May, 2011, on the campus of Case Western Reserve University. Keynote talks were offered from representatives of DOE, ARPA-E, NSF and Draper Labs. EnergyTech2011 attracted international contributions both in academic/published-paper tracks and in a parallel industry track. Given the very positive response to the industrial presentations, this aspect will be expanded for 2012.

Electron-device related contributions to EnergyTech2011 included components and techniques for grid tie-in, high-power AC energy conversion, DC-DC conversion, high-power control interfaces, smart-grid and micro-grid interfaces, aging of power electronics, and charging systems. Electronic devices will clearly play a crucial role in future energy solutions, and EDS-related papers are sought for EnergyTech2012. The deadline for paper submissions to EnergyTech2012 is January 15, 2012.

—*Fernando Guarín, Editor*

ED Boise

—by *Shyam Surthi*

The 2012 IEEE Workshop on Microelectronics and Electron Devices

(WMED-2012) will be held on April 20, 2012, at the Boise State University Student Union Building. This workshop provides a forum for reviewing and discussing all aspects of microelectronics including semiconductor processing, electrical characterization, advanced design techniques, and new device technologies. The workshop consists of invited talks, contributed papers, in-depth tutorials, as well as a poster session in the afternoon. With its growing attendance, regional impact, and history of premier invited speakers, this year's workshop is an excellent opportunity for students and professionals to share their work with technologists and engineers from all around the region.

The keynote speech at WMED-2012 will be given by Prof. Rahul Sarpeshkar from MIT, on the topic of bioelectronics. In the past, we have had the privilege of hosting several distinguished speakers like Dr. Han Stork (Texas Instruments), Dr. Al Fazio (Intel Corporation), and Prof. Mark Lundstrom (IEEE Fellow, Purdue University). IEEE-formatted manuscripts can be submitted to the WMED Publications Chair, Suraj Mathew (sjmathew@micron.com, +1 208-363-1633). The manuscript submission deadline is January 27, 2012.

For more information, please visit the workshop website: <http://www.ewh.ieee.org/r6/boise/wmed2012/WMED2012.html>.

ED Santa Clara Valley

—by Sachin Sonkusale

The IEEE ED Santa Clara Valley (SCV) Chapter created a high school scholarship program to motivate students in pursuing studies in mathematics, science, and engineering.

The scholarship includes a \$500 cash award to the best candidate selected from the top candidates nominated by each principal of local high schools. In addition, the top five runner-up candidates receive a cash award of \$100 each as well. Apart



AdCom members of the IEEE ED SCV Chapter, along with the two award recipients and their family members



Raymond Liu receiving an electronic kit from the Chapter Chair, Reza Arghavani

from these monetary awards, the recipient will also be provided an electrical kit designed to inspire students and provide hands on learning experience in electronics. After receiving the nominations, the students are asked to list their achievements in mathematics, science, and engineering along with an essay of person(s) whose contributions in science and engineering tremendously impacted the Society.

The first scholarship was awarded in 2011. This year's recipients submitted an essay on "Bill Gates: 11 things they don't teach in school" and "Andy Grove: How to make an American Job before it's too late," provided their understanding and opinions on the topics.

The 2011 award winners are: (1) *Raymond Liu*, Leland High School, San Jose, California, USA; and (2) *Brian Tran*, Adrian C. Wilcox High School, Santa Clara, California, USA. The awards were presented by the EDS SCV Chair, Dr. Reza Arghavani on April 5, 2011, at the monthly chapter seminar. The winners re-

ceived the awards in the presence of their family and friends.

The ED SCV Chapter envisions that the scholarships awarded to these bright young minds will provide an inspiring example to many high school students to pursue their careers in Math, Science, and Engineering, which are imperative for the growth and prosperity of the Nation and Mankind.

~Adam Conway, Editor

EUROPE, MIDDLE EAST & AFRICA (REGION 8)

ED Poland

—by Zygmunt Ciota

The ED Poland Chapter is a co-organizer of the 5th MICROWAVE and RADAR WEEK – MRW-2012, which will be held May 21–26, 2012, in Warsaw, Poland. The event is the continuation of the series of very successful conferences in Warsaw (2004), Krakow (2006), Wroclaw (2008) and Vilnius (2010) and the following three conferences will take part in this scientific week:

- 19th International Conference on Microwaves, Radar and Wireless Communications – MIKON 2012, May 21–23
- 13th International Radar Symposium – IRS 2012, May 23–25
- 19th International Conference "Mixed Design of Integrated

Circuits and Systems" MIXDES
2012, May 24–26

Also, during MRW, the meetings of the IEEE ED Poland Section and the Microelectronics Section of Electronics and Telecommunication Committee of the Polish Academy of Sciences will take place.

The papers for all the conferences can be submitted until January 15, 2012. The detailed information about this joint event can be found at the web site <http://www.mrw-2012.pl>.

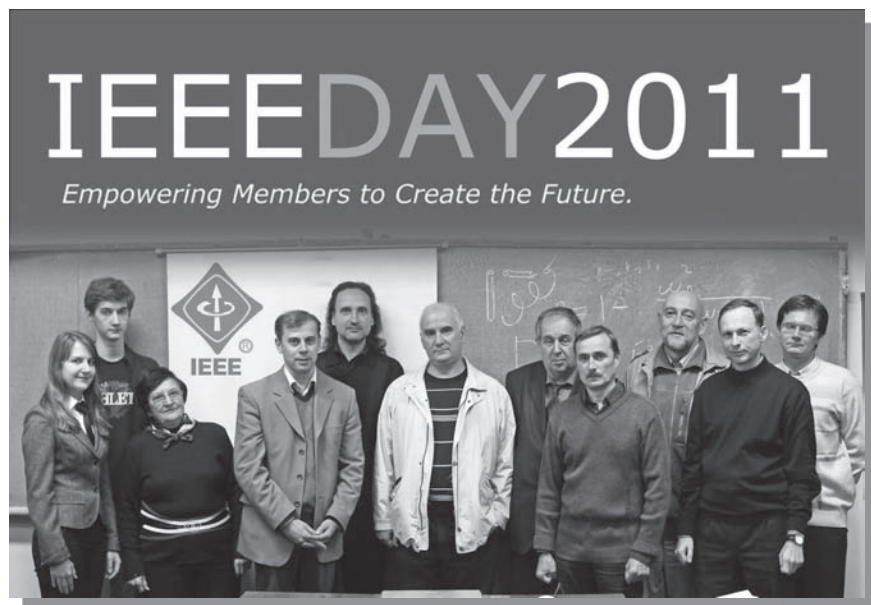
~Zygmunt Ciota, Editor

AP/CPMT/ED/MTT/NPS Saratov

–by Nikita M. Ryskin

NNNPh'2011

On September 13–15, 2011, the 6th Conference for young scientists "Nanoelectronics, Nanophotonics and Nonlinear Physics" (NNNPh'11) was held in Saratov. NNNPh is the annual conference hosted by the Saratov Branch of the Institute of Radio Engineering and Electronics, Russian Academy of Science (IRE RAS) since 2006. This year's conference program included 3 Plenary Lectures presented by invited speakers, 63 talks and 28 posters presented by young scientists and students. The presentations were divided into 4 sessions: "Micro and nanoelectronics, nanomaterials and nanostructures," "Optics and nanophotonics," "Acousto and magnetoelectronics," and "Nonlinear physics." Over 100 participants from Russia, Poland, Germany and Japan attended. The book of abstracts was



Participants of the 2011 Saratov Chapter Workshop

published and distributed at the conference. More information can be found on the conference website at <http://nnnph06.fatal.ru>.

The AP/CPMT/ED/MTT/NPS Saratov Chapter is a technical co-sponsor of the NNNPh, with many IEEE members actively participating as the conference organizers. Dr. Irene E. Kuznetsova chaired the Local Technical Committee, and four IEEE members served as members of the Program Committee.

The Vice-Chair of the IEEE Russian Section, Prof. S.A. Nikitov (IRE RAS, Moscow) served as the Conference Chair. During the conference, he met with Saratov Chapter officers and discussed current activities and future plans.

Chapter Workshop

"Electromagnetics of Microwaves, Terahertz and Optical Waves" and IEEE Day Celebration

On Thursday, October 6, the Saratov/Penza IEEE Chapter celebrated IEEE Day by holding its traditional Workshop "Electromagnetics of Microwaves, Terahertz and Optical Waves" in Saratov State University. The Workshop has been organized every

year since 1995 and it was very helpful for the popularization of IEEE and recruiting new members. Thus, since 2011 the Chapter decided to hold the Workshop twice a year. The first 2011 Workshop was hosted by Saratov State Technical University in May.

At the beginning of the Workshop, the 2011 Activity report was presented by Chapter Chair Prof. N.M. Ryskin. The technical program included 7 talks. Twelve IEEE members and 5 guests attended the Workshop. After the workshop, a reception for IEEE members and guests was held.

~Tomislav Suligoj, Editor

ASIA & PACIFIC (REGION 10)

ED Taipei

–by Steve Chung

The ED Taipei Chapter held three very successful events during the third quarter of 2011, which were attended by students and professors from local universities, as well as professionals from surrounding science parks.

The first was an invited talk on August 5th by Dr. Yu-Ming Lin from IBM Yorktown Heights, on "High-Frequency Graphene Devices



Conference Chairman, Prof. Sergey A. Nikitov and Local Technical Committee Chair, Dr. Irene E. Kuznetsova at the Opening Ceremony



(left) ED Taipei August 5th invited talk- (1st row from the right) Steve Chung (ED Taipei Chapter Chair), Yu-Ming Lin (speaker) and participating professors and students



August 24th DL talk, Mei Kay Lau (speaker)

and Circuits," in which he presented recent progress on high-frequency graphene devices and integrated circuits. Two types of graphene synthesized by different approaches were demonstrated for high-frequency devices and circuits. By optimizing the device fabrication and structure, a cut-off frequency of above 100 GHz was achieved for both graphene structures. Graphene circuit operates as a broadband mixer at 10 GHz was also demonstrated. Dr. Yu-Ming's talk was attended by 50 participants.

Invited Distinguished Lecturer, Prof. Vijay Arora from Wilkes University, gave a talk entitled, "Quantum Nanoengineering of Semiconductor Devices and Circuits." A review of the physics behind the breakdown of Ohm's law and existence of quantum effects in engineering low-dimensional nanoelectronic circuits was given. Prof. Arora explained how the voltage and current division laws, the transient phenomenon, and signal processing are affected in micro/nano-regime opening challenges and opportunities for tomorrow's physicists and nano-engineers. His talk was attended by 30 participants.

The last event on August 24th was a DL given by Prof. Kei May Lau from Hong Kong University of Science and Technology, on "III-Nitride Devices on Silicon Substrates by MOCVD." III-nitrides have established their niches in optoelectronic, high-power, and high-frequency applications that cannot be matched by Si electronics. Since silicon has been and will remain the workhorse in the semiconductor industry, to further improve the performance and extend the functionalities of Si-based electronics, the best approach is to combine these well-developed materials and related technologies. This talk attracted more than 100 participants on the topic of integration of III-nitride devices on a Si platform.

ED Peking University

—by Runsheng Wang

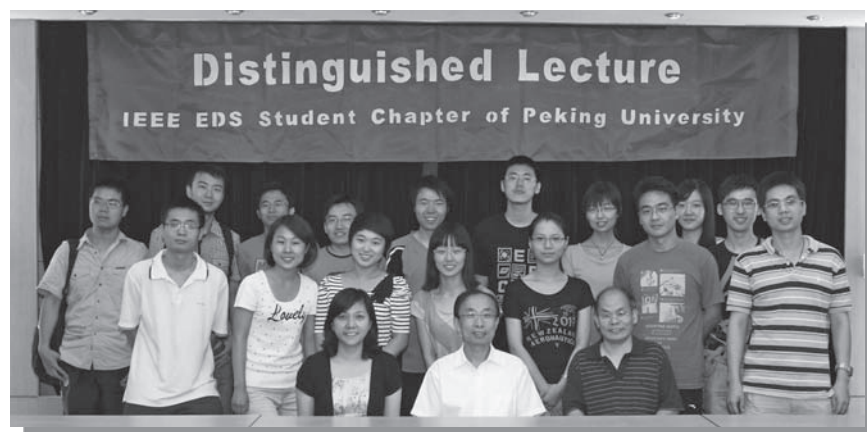
The ED Peking University (PKU) Student Chapter held a DL, July 18,

2011. Prof. H.-S. Philip Wong of Stanford University was invited to deliver a lecture entitled "Emerging Memory Device – Phase Change Memory (PCM) and Resistive Switching Memory (RRAM)." In his DL, he gave an overview of the recent research work in his group on PCM and RRAM, which are focused on understanding the device physics of the memory devices and exploring the scalability of the memory devices at the single-digit nm feature size regime. There were about 70 attendees at the talk and afterwards they enjoyed more detailed face-to-face discussions with Prof. Wong who shared his research experience. The ED Peking University Chapter also held many other lectures and the detailed information can be kindly found on the chapter's website <http://www.ime.pku.edu.cn/soi/edpku.html>.

2012 VLSI-TSA/DAT

The Symposia Highlight New Memory Systems in their 2012 Programs

The 2012 International Symposium on VLSI Technology, Systems and Applications (2012 VLSI-TSA) and the 2012 International Symposium on VLSI Design, Automation and Test (2012 VLSI-DAT) will take place on April 23 to 25, 2012 at the Ambassador Hotel in Hsinchu, Taiwan. In response to the growing importance of



Prof. Philip Wong (middle, front row) pictured with Prof. Ru Huang (left, front row), the chapter advisor and other members of the ED Peking University Student Chapter



Nearly 450 attendees attended the Opening and listened to the keynote speech by Dr. Kelin J. Kuhn, from Intel, USA

heterogeneous integration for both VLSI design and technologies, the two symposia will organize a Joint Plenary Session and a Joint Special Session on various emerging topics in the semiconductor industry.

Special Joint Session

Considering that memory is a particular field that generates interrelationship between the technology and design communities, a joint-invited session with topics of new memory technology, architecture design, and system perspective, is scheduled on the second day of the conference.

Named as New Memory Systems, the 2012 VLSI-TSA/DAT joint session features four distinguished invited speakers from the US and Europe, who will discuss various aspects of this topic from technology perspective to future storage class memory (SCM), and 3D processor-memory architecture by key industrial players and research experts. Following this joint special session, the symposia plan the first Joint Panel Discussion on the same topic. Dr. Nicky Lu, Chairman & CEO of Etron Corp., is invited to be the moderator and a deeper discussion among the speakers and the delegates will be expected.

Featured Programs

In addition to a Joint Plenary Session, a Joint Special Session and 50–70 contributed papers, each symposium will address the interests of

attendees in semiconductor manufacturing and IC design, respectively:

VLSI Technology, Systems and Applications

- 2TSA plenary speakers from academic (Prof. Chenming Hu from UC Berkeley) and industrial leaders
- Special session on SOC/Mobile Technology and Transition Technology
- Invited talks on FEOL, Memory, BEOL, Advanced CMOS
- Two parallel in-depth short courses on Embedded Memory and Power Devices

VLSI Design, Automation and Test

- 2 DAT plenary speakers from academic and industrial leaders
- Three highlight topics on Smart Handheld Platform, Green Electronics, and Emerging Design Practices.
- Industrial sessions with up-to-date research results from leading companies.

Sponsored by Industrial Technology Research Institute (ITRI) and divided into separate annual symposia since 2006, VLSI-TSA and VLSI-DAT are proud to create a platform for technical exchanges and communications between experts from all over the world.

A detailed conference agenda will be released in January 2012; early bird registration will open at the same time. Please visit the conference websites at <http://vlsitsa.itri.org.tw>

or <http://vlsi-dat.itri.org.tw> (for VLSI-DAT).

We look forward to seeing you, and hope that you will enjoy an excellent meeting and warm hospitality at the conference. Should you have any further questions about registration, please contact the conference registrar, Ms. Yvonne Chen at +886-3-5913003 or e-mail to YvonneChen@itri.org.tw for assistance.

Clara Wu

Symposium Secretariat of VLSI-TSA

Elodie Ho

Symposium Secretariat of VLSI-DAT
~Mansun Chan, Editor

ED Malaysia

–by P. Susthitha Menon and Ibrahim Ahmad

The ED Malaysia Chapter organized a technical review meeting at Le Meridien Hotel, Kota Kinabalu, Sabah on the June 1, 2011, in lieu of the IEEE Regional Conference on Micro and Nanoelectronics (IEEE-RSM2011) to be held on the September 27–30, 2011, and co-organized by the ED Malaysia Chapter, the Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia (UKM) and Universiti Malaysia Sabah (UMS). After the technical review meeting, a membership drive seminar and a technical talk on ‘Silicon Photonics’ was given by Dr. Sahbudin Shaari, past-chair of the ED Malaysia Chapter, at the Universiti Malaysia Sabah (UMS). More than 20 participants, mainly faculty and students, attended the technical talk.

A professional short course on Taguchi Method for Product and Process Optimization was co-organized by the IEEE ED Malaysia Chapter and the Institute of Micro Engineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia (UKM), June, 20–23, 2011, at Puri Pujangga UKM. A total of 25 participants both from academia and local industry attended the short course, which was delivered by Dr. Prakash



Attendees of the Technical Talk on Silicon Photonics at Universiti Malaysia Sabah



Participants of the Short Course on Taguchi Method organized by the ED Malaysia Chapter with course instructor Prof Apte (second from right)

R. Apte from the Indian Institute of Technology (IIT) Bombay. The course objective was to explain the basic philosophy of Taguchi method, principles of quality engineering, its applications and economic benefits, its relevance to the Malaysian industry and its successful application in India through the presentation of case studies. Upon completion of the course, all participants received a certificate of participation from the IEEE ED Malaysia Chapter.

ED Nepal

—by Bhadra Pokharel

A one-day IEEE Seminar named Scientific Session, was organized by the ED Nepal Chapter, July 23, 2011. The seminar program consisted of two sessions, with 6 oral presentations and 5 posters. The first session was inaugurated by Chief Guest, Education Minister of Nepal, Mr. Gangal Tuladhar and was addressed by the President of the Nepal Physical Society, Prof. Shekhar Gurung, along

with Prof. Lok Narayan Jha and Prof. Devendra Raj Mishra. The speakers highlighted the science policy of Nepal and the role and relevance of the IEEE EDS Chapter in Nepal. The second session consisted of oral presentations and poster displays. Scientists from many different institutions and universities in Nepal participated in this interesting session. The full-day event attracted a total of 122 participants, including many IEEE members.

On September 24, 2011, the Seminar on "Physics of Materials for Devices and Natural Sciences," was organized by the Chapter in Bharatpur, Chitwan, Nepal. The program with an IEEE Distinguished Lecture by Prof. Chandan Sarkar, also consisted of 11 contributed papers. Professors Sitaram Prasad Byahut, Bhadra Pokharel, Pradeep Kumar Bhattarai and Shankar Shrestha, gave lectures on properties and applications of advanced materials. Scientists and engineers from various institutions and universities in Nepal participated in



Scientific Session organized by the ED Nepal Chapter



Participants and speakers of the International Seminar organized by the ED Nepal Chapter

the program, which registered 104 participants including IEEE members.

~M.K. Radhakrishnan, Editor

ED Japan

~by Shin'ichiro Kimura

Dr. Xing Zhou, Chair, IEEE EDS SRC-AP (Region 10) and also a professor of Nanyang Technological University, Singapore, visited Tokyo Institute of Technology, and gave a DL on August 26, 2011. His talk entitled "Unification of MOS Compact Models with the Unified Regional Modeling Approach," was very instructive and useful for the engineers and students. There were participants from industry such as Sony, with an active Q&A and networking session taking place after the lecture.

The ED Japan Chapter also organized another DL at Tokyo Institute of Technology, entitled "Failure analysis of MOS devices using spatial statistics," given by Prof. Enrique Miranda, Universitat Autònoma de Barcelona, on the afternoon of September 21, 2011. The event was held even in

spite of a strong typhoon approaching. The schedule was not changed because there were already 20 people waiting for his lecture, regardless of the strong rain. The lecture was useful for understanding the current status of the gate oxide reliability. Several discussions were held between the lecturer and the audience, regarding the reliability of ultra-thin oxides.

ED Kansai

~by Michinori Nishihara

The ED Kansai Chapter held a Technical Meeting on July 14, 2011 at Centenary Memorial Hall, Kansai University, Osaka, Japan, by inviting two prestigious lecturers. The first speaker was Prof. Shunri Oda, an IEEE Distinguished Lecturer, from Tokyo Institute of Technology. The title of his lecture was "Silicon Quantum Dots: The Future of Electronics and Photonics," with the following topics: 1) Activity of Silicon Nanodevice Laboratory, 2) Fabrications and assembly of Si quantum dots, 3) Single electron transport, and 4) Si photonics.



Prof. Oda lecturing on Silicon quantum dots



Prof. Omura explaining his idea for an Alcohol detector

Prof. Oda talked about size control technique of Si nano dots down to 8nm within 1 nm variation as well as surface modification process for better assembly of the nano dots. He also discussed electron transport property of quantum dot transistors indicating its opportunity to be used as Quantum Information Devices. Lastly he pointed out the capability of Si nano dots as light emitting devices suggesting unique applications of quantum dots with 5 nm diameter or less. It was a good review of research status of quantum dot devices.

The second speaker was Prof. Yasuhisa Omura of Kansai University and the title of his lecture was "Development of in-car Alcohol Sensor to prevent DWI." While QCM (Quartz Crystal Microbalance) has been widely used as an alcohol detector, it is difficult to manage response variability among people. Prof. Omura used FFT spectrum of photoplethysmographic signals to clearly distinguish a person under alcoholic influence. Although there is some work to be done it looks promising as a device for an in-car alcohol detector.

The ED Kansai Chapter will continue to have technical meetings like this every year.

~Kazuo Tsutsui, Editor

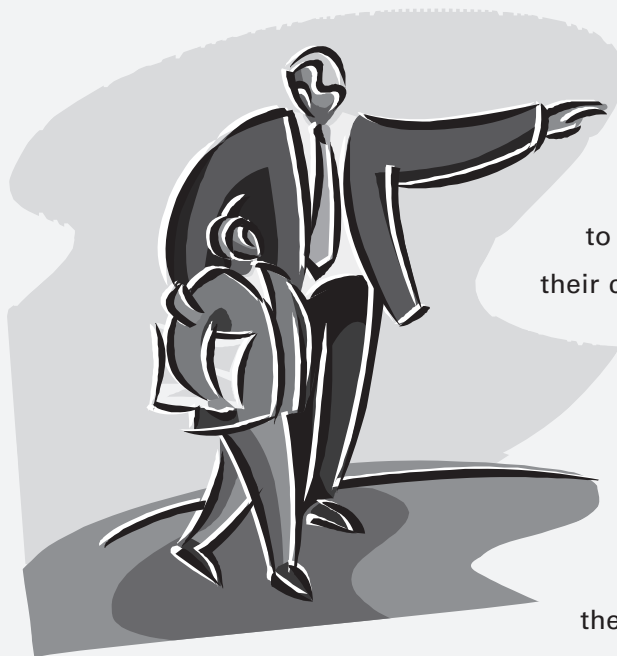


Prof. Xing Zhou (sitting, center first row)



Prof. Enrique Miranda (sitting, center first row)

IEEE MENTORING CONNECTION™ PROGRAM SEEKS MEMBERS TO MENTOR YOUNG PROFESSIONALS



One of the top IEEE Societies with young professional members includes the IEEE Electron Devices Society. Many of these members would appreciate the opportunity to have an “online” mentor to help guide them in their career planning and professional development.

Mentor participation in the IEEE Mentoring Connection Program is open to all IEEE members above the grade of Student Member.

Gary Hinkle, a mentor in the program, says “Helping young engineers develop in their careers is very rewarding. Working with some of these individuals has proven to be quite a challenge, because of the diversity among those seek-

ing mentors. I’m glad to be contributing to this program.”

The program enables the mentee to select their mentoring partner online from a list of individuals who have volunteered to serve as mentors. After mentors are identified as a potential match, they are contacted and asked to begin establishing a relationship. Interested members can visit <http://www.ieee.org/web/membership/mentoring/index.html> for information on the roles and responsibilities of each mentoring partner, including additional program information and an FAQ page. Potential mentors are asked to review the time and effort commitment to the program necessary to ensure a successful mentoring partnership. To access the IEEE Mentoring Connection site, please go to <http://www.mentoringconnection.com> and use the Group ID “IEEE2006” to enter. Once you enter the site, you will need to set your own user id and password.

If you have any questions, please contact the IEEE Mentoring Program Coordinator at IEEEmentoring@ieee.org.

EDS MEETINGS CALENDAR

(As of 11 November 2011)

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)

January 5 - 7, 2012, @ **International Conference on Enabling Science and Nanotechnology (ESciNano)**, Location: Persada Johor International Convention Centre, Johor Bahru, Malaysia, Contact: Sekretariat ESciNano 2012, E-Mail: escinano@fke.utm.my, Deadline: 7/1/11, www: <http://www.fke.utm.my/mine/escinano2012/>

February 21 - 24, 2012, T, **International Conference on "Modern Problems of Radio Engineering, Telecommunications and Computer Science"**, Location: Lviv Polytechnic National University, Lviv, Ukraine, Contact: Mykhalyo Andriychuk, E-Mail: andr@iapmm.lviv.ua, Deadline: 12/1/11, www: <http://www.lp.edu.ua/TCSET2012>

March 5 - 7, 2012, T, **International Conference on Ultimate Integration of Silicon Devices**, Location: MINATEC, Grenoble, France, Contact: Quentin Raffhay, E-Mail: quentin.raffhay@phelma.grenoble-inp.fr, Deadline: 12/19/11, www: <http://uliscconference.org/>

March 14 - 17, 2012, T, **International Caribbean Conference on Devices, Circuits and Systems**, Location: Sandos Caracol Eco Resort & Spa, Playa del Carmen, Mexico, Contact: Rodrigo Picos, E-Mail: rodrigo.picos@uib.es, Deadline: 10/3/11, www: <http://iccdcs.uib.es/>

March 19 - 22, 2012, @ **IEEE International Conference on Microelectronic Test Structures**, Location: Catamaran Hotel, San Diego, CA, USA, Contact: Wendy Walker, E-Mail: wendyw@widerkehr.com, Deadline: 9/16/11, www: <http://www.see.ed.ac.uk/icmts>

March 19 - 21, 2012, T, **IEEE International Symposium on Quality Electronic Design**, Location: Techmart Center/Hyatt Regency, Santa Clara, CA, USA, Contact: Ali Iranmanesh, E-Mail: alii@svtii.com, Deadline: 9/26/11, www: <http://www.isqed.org>

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: 10/3/11, 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 Ra-

ghu, 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://vlsidat.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 - 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/IEW.htm>

May 15 - 17, 2012, T, **IEEE SEMI Advanced Semiconductor Manufacturing Conference**, Location: 534 Broadway, Saratoga Springs, NY, USA, Contact: Margaret Kindling, E-Mail: mkindling@semi.org, Deadline: 10/24/11, 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: Not Available, www: Not Available

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 - 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@momentum-pco.be, Deadline: 10/17/11, www: <http://www.ispsd2012.com>

June 3 - 8, 2012, * **IEEE Photovoltaic Specialists Conference**, Location: Austin Convention Center, Austin, TX, USA, Contact: Americo Forestieri, E-Mail: pvsc@wowway.com, Deadline: 2/06/12, 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: <http://www.nessengr.com/ipmhvc2012/index.html>

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: 1/16/12, 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: Not Available, www: <http://www.vlsisymposium.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: Not Available, www: <http://www.vlsisymposium.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 2 - 6, 2012, T, **European Electromagnetics Conference**, Location: Centre de Congrès Pierre Baudis, Toulouse, France, Contact: Jean-Philippe Parmentier, E-Mail: euroem2012@onera.fr, Deadline: 1/9/12, www: <http://www.euroem.org>

July 4 - 6, 2012 **T International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD)** Location: Ryukoku University, Kyoto, Japan, Contact: AM-FPD Secretariats, c/o Mobara Atecs, Ltd., E-Mail: amfpd@atecs.co.jp, Deadline: 3/20/2012, 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 30 - October 3, 2012 *** IEEE Bipolar/BiCMOS Circuits and Technology Meeting**, Location: Embassy Suites Hotel, Portland, OR, USA, Contact: Janice Jopke, CCS Events, Deadline: 4/30/2012, www:

<http://www.ieee-bctm.org/>, E-Mail: ccsevents@comcast.net

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: Not Available, 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 La Jolla, San Diego, CA, USA, Contact: Lisa Boyd, E-Mail: l.boyd@ieee.org, Deadline: Not Available, www: <http://www.csics.org>

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>

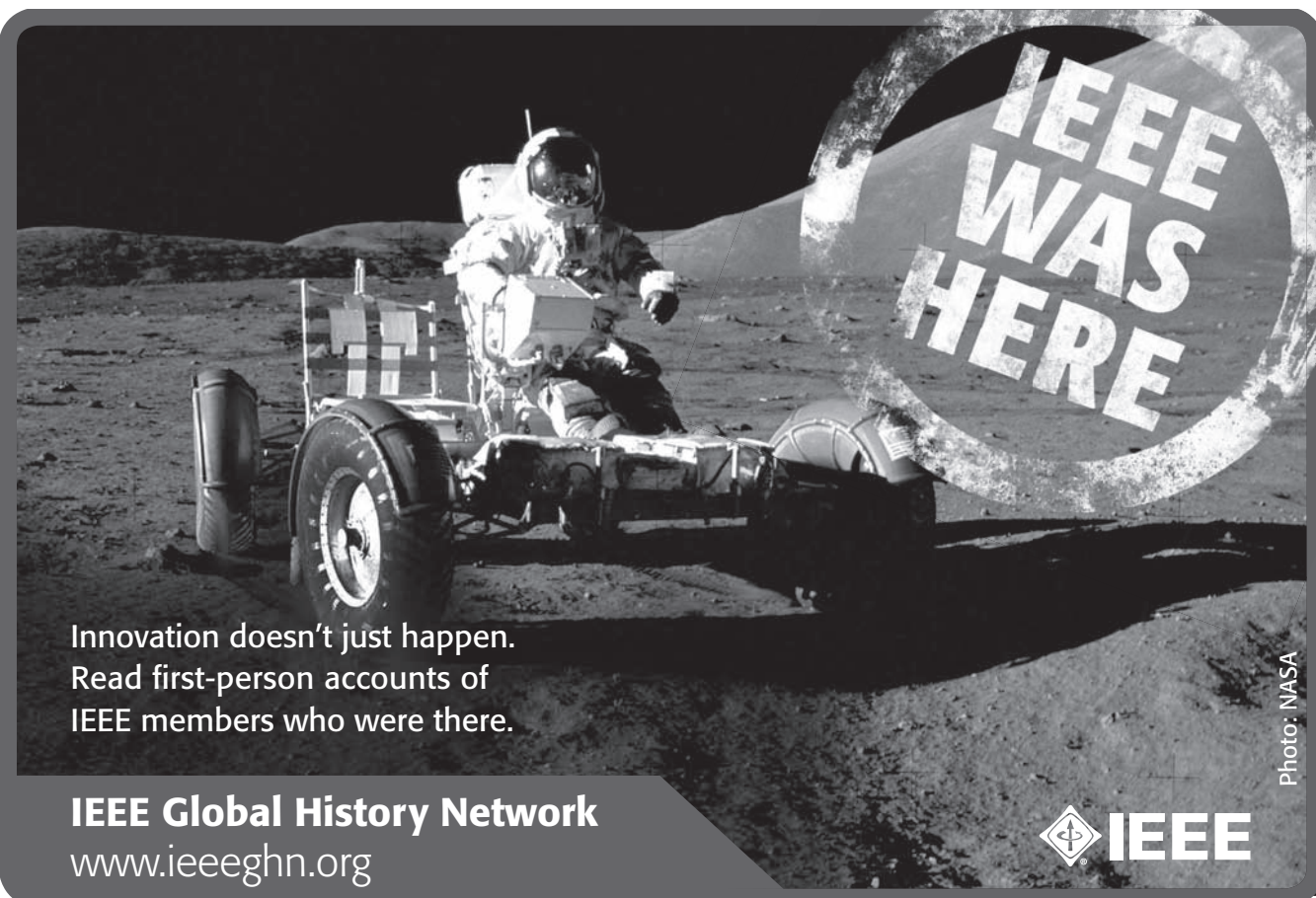
December 10 - 12, 2012, *** IEEE International Electron Devices Meeting**, Location: Hilton San Francisco, San Francisco, CA, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: <http://www.his.com/~iedm/general/future.html>

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>

December 15 - 17, 2014, *** 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.ieee.org/conference/iedm>

December 7 - 9, 2015, *** IEEE International Electron Devices Meeting**, Location: Hilton Washington, Washington, DC, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: 6/26/15, www: <http://www.ieee-iedm.org>

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Furthermore, an EDS member has on-line access to *QuestEDS* questions asked by EDS members and corresponding answers by experts in the field. Please visit: <http://eds.ieee.org/questeds>.

Samar K. Saha
EDS Vice-President of Publications
University of Colorado
Colorado Springs, CO, USA

QuestEDS

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 five technical categories and two general ones. Technical categories cover subject areas like semiconductor and device physics, process technology, device characterization and quantum electronics. Subject areas addressed are anticipated to expand in the future.

Device Physics
Question 052-11 In drain induced barrier lowering the barrier height at the source channel interface will reduce due to lateral drain electric field. Now, more electrons will enter the channel from the source as the barrier is reduced. Would these extra electrons which enter the channel be tied to the gate transverse field or drain lateral field?
Educational Activities
Question 053-11 I am in my final year of Bachelors (Electronic Engineering Technology). I am actively looking for a final year/Senior year project in the areas of Sensors, Power, Communications (Digital/Wireless), or any field that is currently gaining attention. I am looking for project ideas, resources, assistance, and any other help that can be provided.

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> and select the appropriate topic links.

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