

TABLE OF CONTENTS

Spotlight On: EDS Celebrated Member.	1
Upcoming Technical Meetings	4
Society News	12
Regional and Chapter News	33
EDS Meetings Calendar	40

SPOTLIGHT ON: EDS CELEBRATED MEMBER



EDL Founding Editor and Nobel Laureate, George Smith

It goes without saying that the field of electron device engineering has revolutionized, and in many ways defines, 21st century life. As a part of EDS, each of us can take pride in our Society's members' accomplishments. We should draw from them inspiration to advance our field and to achieve more because it is not only their work,

but ours as well, that can help transform the world around us.

It is in this spirit that the EDS Celebrated Member program was created, with the inaugural Celebrated Member Award presented to *Electron Device Letters* founding editor and 2009 Nobel laureate for Physics, George E. Smith. The presentation was made by EDS President, Renuka Jindal at the Photovoltaic Specialists Conference held in Hawaii in June.

The audience in the packed reception hall was treated to George's recounting of how he

(continued on page 14)

2010 IEEE INTERNATIONAL ELECTRON DEVICES MEETING (IEDM)

56TH IEDM SLATED FOR SAN FRANCISCO, CALIFORNIA, DECEMBER 6-8, 2010



San Francisco skyline, as seen from the bay. The lighted towers of the Financial District and northern waterfront gleam under a clear sky just after sunset

© Phil Coblenz, courtesy of the San Francisco Convention & Visitors Bureau

The Election Devices Society's annual technical conference, the IEEE International Electron Devices Meeting (IEDM), is the world's premier forum for leading-edge research into electronic, microelectronic, and nanoelectronic devices and processes. This year's IEDM will be held at the Hilton San Francisco Union Square, San Francisco, California, December 6-8, 2010. The IEDM will be preceded by a full day of short courses on Sunday, December 5th.

The IEDM draws presentations and attendees from industry, academia and governmental agencies worldwide. No other meeting presents as much leading work in so many different areas of microelectronics, encompassing both silicone and non-silicon device and process technology, molecular electronics, nanotechnology, optoelectronics and MEMS (microelectromechanical system) technology.

IEDM 2010 will feature increased participation in the fields of energy harvesting, power devices, biomedical devices and circuit-technology

(continued on page 7)

YOUR COMMENTS SOLICITED

Your comments are most welcome. Please write directly to the Editor-in-Chief of the Newsletter at ninoslav.stojadinovic@elfak.ni.ac.rs

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

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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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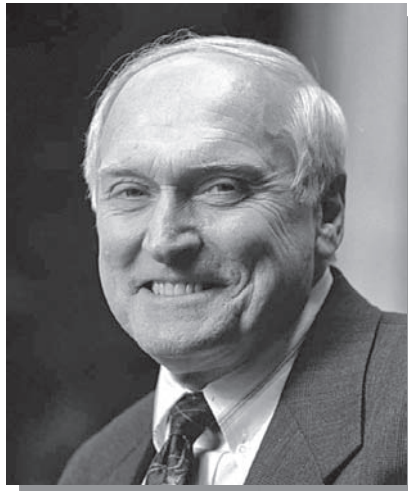
JUNE 2010 AdCOM MEETING SUMMARY

STUTTGART, GERMANY

Opening Remarks: The meeting was called to order at 8:00 a.m. by Renuka Jindal, the new President of the Electron Devices Society. He thanked Joachim Burghartz for the excellent effort made by him and his team, Astrid Hamala and Juergen Ade of IMS CHIPS, in putting together an excellent venue and program for this meeting. Joachim was then asked to give a brief overview of Stuttgart—its art, architecture, sports, new buildings, auto industry, science and technology. There are 12 major companies in Baden-Wurtemberg, which is the third largest state in Germany, having an area comparable to that of the State of Maryland, 30,000,000 people. He commented that the program included a visit for AdCom members to the local Mercedes-Benz Museum, which turned out to be a marvelous event for AdCom members and their guests.

President's Report: Renuka then continued with several items.

- There have been several staff changes in the EDS office since the last AdCom meeting:
 - Jean Bae will be the EDS Conference Coordinator, overseeing the success (or lack thereof) of all the conferences supported by EDS. She comes with considerable conference experience. Thanks, Jean, for your continuing help and cheerful smile!
 - Kellie Gilbert will be the EDS Coordinator of Administrative & Executive Committees, handling the myriad of details, issues, problems, and firestorms that come her way, including trying to keep this secretary's reports accurate and honest! Welcome, Kellie.
 - Joyce Lombardini will continue to serve EDS as before, with primary responsibility to the Newsletter and Member Outreach, but she had to attend a



James L. Merz, EDS Secretary

- different meeting at this time. We look forward to seeing you at the next meeting.
- Fran Urbaniak has left the EDS office but continues to serve IEEE in another position. Congratulations Fran, but we will miss you!
 - Renuka gave an overview of the Mission and Vision statements for EDS, which can be summarized as: (1) EDS serves its members (2) EDS is a volunteer-led, volunteer driven society (3) EDS and its members should continue to think and act globally.
 - Renuka discussed initiatives such as the Photovoltaics Journal, EDS Express, changes to our existing publications, increased efficiency & effectiveness of our

conference activities, and the new EDS website.

- Other comments included the importance of attending AdCom meetings, so that we can have a quorum and do business, that there will be pressure in the future on conferences that lose money to either "shape up or ship out" (secretary's words), our new web site will be crucial for our continuing success, and that active participation of chapters and those members appointed to committees is very important. Finally he mentioned that the first "Celebrated Member" of EDS would be George Smith, winner of the most recent Nobel Prize.
- Questions were taken from the audience about: the PV Journal, available conference support, and the process of consultation with local chapters regarding members of societies who are not compliant or active.
- *MOTION – to approve the list of new VP and Committee Member Appointments.
Approved unanimously.

President Elect's Report on the ExCom Meeting: Paul Yu summarized the ExCom meeting that took place the day before. He felt that every decision we make must foster the

(continued on page 8)



UPCOMING TECHNICAL MEETINGS

2010 IEEE SEMICONDUCTOR INTERFACE SPECIALISTS CONFERENCE (SISC)

The 41st IEEE Semiconductor Interface Specialists Conference (SISC) will be held December 2–4, 2010, at the Catamaran Resort Hotel in San Diego, California, immediately prior to the IEEE International Electron Devices Meeting (IEDM). An evening Tutorial session, free to all registered SISC attendees, will be held on December 1st.

The SISC is a workshop-style conference that provides a unique forum for device engineers, materials scientists, and solid-state physicists, to openly discuss issues of common interest. Principal topics are semiconductor/insulator interfaces, the physics of insulating thin films, and the interaction among materials science, device physics, and state-of-the-art technology. Emphasis is on transistor and memory devices incorporating high- k gate dielectrics and metal gate electrodes on silicon and on high-carrier-mobility substrates. The conference alternates between the East and West Coasts, and meets just before the IEDM to encourage the participation of IEDM attendees. SISC is sponsored by the IEEE Electron Devices Society.

An important goal of the conference is to provide an environment that encourages interplay between scientific and technological issues. Oral sessions of invited and contributed talks, as well as a lively poster session, are designed to encourage discussion. Conference participants have numerous opportunities for social gatherings with renowned scientists and engineers. They also enjoy the lush Catamaran Resort Hotel grounds with colorful fish and tropical birds, just steps from the Pacific Ocean. San Diego boasts Balboa Park, an expansive campus of



The Catamaran Resort Hotel, San Diego, California

museums, parks, and possibly the premier zoo in North America; the Old Town, with preserved buildings and icons of the Spanish heritage of San Diego; the upscale coastal community La Jolla; and Sea World. In December, San Diego typically has fabulous weather.

Conference focus

The program includes about 60 presentations from all areas of MOS science and technology. The topics evolve with the state-of-the-art, and include (but are not limited to):

- High- k gate dielectrics and SiO_2 on Si and their interfaces
 - Insulators on high-mobility and alternative substrates (SiGe, Ge, III-V, GaN, etc.)
 - MOS gate stacks with metal gate electrodes
 - Stacked dielectrics for non-volatile memory
 - Oxide and interface structure, chemistry, defects, passivation:
 - Theory and experiment
 - Electrical characterization, performance and reliability of MOS-based devices
 - Surface cleaning technology and impact on dielectrics and interfaces
- SISC 2010 will further explore novel topics such as:

- Dielectrics on nanowires/tubes, graphene
- Correlated oxides
- Materials for advanced non-volatile memories
- Functional oxides and oxide electronics (LaAlO_3 , SrTiO_3 , etc.)

Invited presentations

This year's invited presentations will include:

- Prof. Chris Hinkle, UT Dallas, USA
In-situ studies of high- k oxide growth on III-V semiconductors
- Dr. Paul Kirsch, SEMATECH, USA
Materials and processes for high- k metal gate stacks for 28 nm and beyond
- Dr. Koji Kita, University of Tokyo, Japan
Understanding of GeO_2 material properties for advanced Ge MIS stacks
- Prof. Jochen Mannhart, University of Augsburg, Germany
Design and fabrication of quantum-enhanced capacitors for CMOS-applications
- Dr. Akihiro Nitayama, Toshiba, Japan
BiCS flash memory technology
- Dr. Marko Radosavljevic, INTEL, Portland, USA
High performance InGaAs quantum well FETs with high- k dielectrics
- Prof. Yee-Chia Yeo, National University of Singapore, Singapore
Nanowire transistors: Performance limitations, strain engineering, reduction of parasitic resistance

Wednesday evening Tutorial – free to all registered SISC attendees

- Dr. Matthias Passlack, TSMC Europe, Leuven, Belgium

Interface state analysis on non-silicon semiconductors and the role of heterostructures

Unique poster session

A unique feature of SISC is the attention paid to the poster presentations. Each author of a poster presentation has the opportunity to introduce their work orally, using two visuals, to the entire SISC audience during special poster introduction sessions. The posters are then presented during a separate poster reception on Thursday evening.

Best student presentation award

SISC is a popular conference with students, who can get immediate and candid feedback on their latest results from the experts in the field. In addition to a strongly reduced registration fee for students, a Best Student Presentation award is given every year in

memory of E.H. Nicollian, a pioneer in the exploration of the metal-oxide-semiconductor system who had a strong presence within the SISC.

Accompanying program

The scientific content of the conference is complemented by informal events designed to encourage lively discussion and debate. A hospitality suite with complimentary drinks is available to attendees to continue their discussions on every evening of the conference. Friday afternoon has no scheduled talks, to allow time to meet informally, relax, or visit local San Diego attractions. On Friday evening the conference hosts a banquet and awards ceremony, complete with the now-famous (and always riotous) limerick contest. The limericks never fail to give the conference presentations, people and events an entirely new perspective.

SISC is always a rewarding experience for specialists, students, as well as newcomers to the field. For more information about the conference, to consult its program and to register, please visit <http://www.ieeesisc.org>. We look forward to seeing you at SISC 2010!

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2011 IEEE INTERNATIONAL VACUUM ELECTRONICS CONFERENCE (IVEC)

The XII IEEE International Vacuum Electronics Conference (IVEC-2011) will be held in the 'Garden City & Techno-hub of India' Bangalore, Karnataka, February 12–24, 2011. The Conference is organized under the IEEE Electron Devices Society Vacuum Electronics Committee of the IEEE Bangalore Section, IEEE ED/SSC Bangalore Chapter, and sponsored by the IEEE Electron Devices Society, Vacuum Electronic Devices and Applications Society (VEDAS), Bangalore, and Defense Research and Development Organization (DRDO), New Delhi. It is also likely to be supported by many other institutions and corporate agencies.

The IEEE IVEC, originally created in 2000 by merging the US Power Tubes Conferences and the European Space Agency TWTA Workshop, has turned into a major international

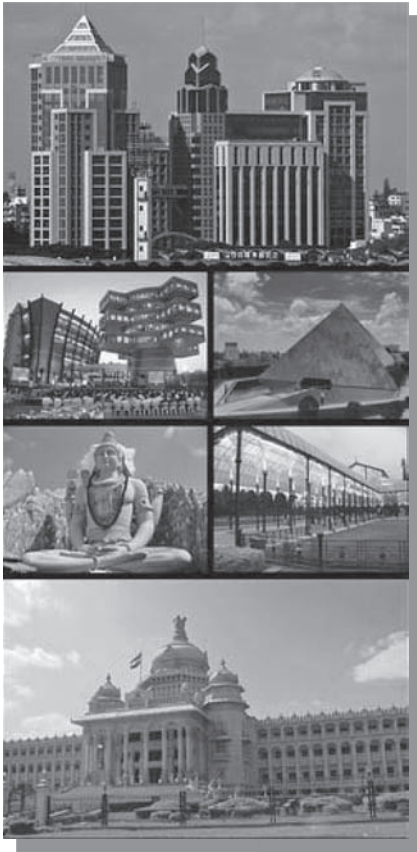


The Vidhana Soudha, located in Bangalore, is the seat of the state legislature of Karnataka

event of the VE-devices & applications community. IVEC is held annually, alternately between the US and Europe/Asia. The 2009 IVEC was held in Rome, Italy and the 2010 IVEC in Monterey, California, USA. In 2011, IVEC reaches the Asia-Pacific region (Region 10) and will be the first Indian edition of the IVEC. The earlier Region 10 events were held in Kitakyushu, Japan (2007) and Seoul, South Korea (2003). IVEC-2011 is supported by the Vacuum Electronics Committee

chaired by Dr. Baruch Levusch, NRL and Chief Patron of the Conference, Dr. VK Saraswat, DRDO.

The IVEC-2011 will commence with a Plenary Session including talks by eminent experts to focus onto the scientific and technological strides that are driving the current and future directions in vacuum electronics research. A number of oral and poster sessions will present current interests in theory and computational tool development, active and passive components, systems, and supporting technologies focusing the topical spectrum of scientific and commercial applications spanning from UHF to THz frequencies. The system developers also will find a unique snapshot into the state-of-the-art in vacuum electronic devices for electronic systems encompassing radar, electronic warfare, digital broadcasting, high



© Photo Courtesy, Wikipedia.org (<http://en.wikipedia.org/wiki/Bangalore>).

Clockwise from top: UB City, Infosys, Glass house at Lal Bagh, Vidhana Soudha, Shiva statue, Bagmane Tech Park

data-rate communications, medical applications, and RF accelerator technology for high energy physics. The students, researchers, professional engineers, system users and industries will all find it useful in enhancing their knowledge and professional networking.

The following topics will be covered:

1. Vacuum Electron Devices

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

- High power microwave devices
- RF directed energy
- Triodes, tetrodes, pentodes, picture tubes, X-ray tubes
- Power switches and vacuum interrupters

2. Technologies

- Analysis and computer modeling
- Thermal power management and control
- Novel measurement techniques
- Cathodes and other electron emitters
- Component parts (guns, circuits, windows, collectors) and packaging
- Novel materials (high density Graphite, dielectrics, coatings, magnetic materials,)
- Linearity, intermodulation and noise
- Miniaturization, micro fabrication techniques
- RF breakdown

3. Systems and Subsystems

- Microwave and millimeter-wave power modules
- Electronic power conditioners
- Modulators and Linearizers
- Microwave transmitters
- Device and system integration
- Amplifier/ antenna coupling
- Reliability and quality management

4. Applications of Vacuum Electron Devices

- Defence and Space
- Radar and Telecommunications
- Medicine
- Particle accelerators
- High energy physics
- EMI / EMC test sources
- Process, test and measurement equipments
- Materials processing
- Microwave power beaming
- Novel applications of microwave and RF

5. Vacuum Microelectronics/ Nanoelectronics

- Microwave, millimeter-wave & THz amplifiers and oscillators
- Field emitter arrays
- Flat panel displays
- Sensors and detectors

Pre-conference Tutorials

Pre-conference tutorials will be a new feature added to the IVEC-2011 particularly for young research engineers. Two parallel tutorials are planned to be organized on:

- Microwave Tubes
- High Power Microwaves.

Exhibition @ IVEC-2011

An indoor exhibition will be parallel organized by the Vacuum Electronic Devices and Applications Society (VEDAS), Bangalore and co-located at the IVEC-2011 venue. It will offer an opportunity to showcase the developments and achievements in the area of vacuum electronic devices and their applications at device, system and production equipment levels through prototypes, models, and visuals, and an excellent business opportunity for interaction with various customers, vendors, end-users, R&D organizations, service personals, academic researchers, etc. (www.vedas.org.in).

Abstracts

The IVEC-2011 invites and encourages researchers to submit extended abstracts (maximum 2 pages) on their original work related to the topics listed above electronically, latest by October 2010.

Award

A special IVEC-2011 Award for 'Excellence in Vacuum Electronics' and a 'Student Paper Award' will also be presented during the conference.

Please join us and bring along your colleagues and spouses to meet new friends, renew old contacts, experience and enjoy the professionally stimulating IVEC-2011, the delights of the fastest growing cosmopolitan city of Bangalore and the sights, sound, gastronomy and hospitality of the Incredible India!. There will be ample opportunity for networking and recreation at the conference banquet, cultural program, spouse's program and pre- and post-conference tours. More information will be available shortly on the conference

website (<http://ewh.ieee.org/conf/ivec/2011>) or you may contact members of the conference committee: Dr. Lalit Kumar, General Chair, e-mail: chairmanivec2011@gmail.com or chairman_ivec_2011@mtrdc.drdo.in, phone: +91-80-28381831, fax: +91-80-28381750 OR Dr. KS Bhat,

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2010 IEEE INTERNATIONAL ELECTRON DEVICES MEETING (IEDM)

(continued from page 1)

interactions. The conference will offer a full slate of short courses, evening panel debates, invited plenary talks and presentation of prestigious IEEE/EDS awards, in addition to the outstanding technical program.

Short Courses

The IEDM will sponsor two short courses on Sunday, December 6, from 9 a.m. to 5:30 p.m. One is on the topic of 15nm CMOS technology and while the other will focus on the reliability and yield of advanced integrated technologies. They will be presented by experts in the fields, providing attendees the opportunity to learn about these emerging areas through lectures and introductory material as well as discussing the latest developments. Advance registration is required.

Emerging Technology Session

IEDM 2010 will feature a special session on Tuesday, December 7th with papers focused on next-generation power devices and technologies, including presentations on silicon, silicon carbide, and III-nitride-based power devices and applications.

Technical Program

This year's technical program areas include:

- CMOS Devices and Technology
- Characterization, Reliability and Yield
- Displays, Sensors and MEMS

- Memory Technology
- Modeling and Simulation
- Process Technology
- Quantum, Power, and Compound Semiconductor Devices
- Solid State and Nanoelectronic Devices

CMOS DEVICES & TECHNOLOGY

(CDT): CMOS devices covering device physics, novel MOS device structures, circuit/device interaction and co-optimization, CMOS scaling issues, high performance, low power, analog/RF devices, and CMOS platform technology and manufacturing issues, such as DFM and process control. Other topics of interest are SOI, high-mobility channel devices such as strained silicon and SiGe MOS devices, and 3D integrated circuits.

CHARACTERIZATION, RELIABILITY and YIELD (CRY): All areas of yield and reliability, both front- and back-end. Topics include but are not limited to hot carriers, gate dielectric wearout and breakdown, process charging damage, latch-up, ESD, soft errors, noise and mismatch behavior, bias temperature instabilities, and reliability of high-k and low-k materials, circuits, and packaging. Other topics include interconnect reliability, electromigration, the impact of back-end processing on devices, chip-packaging interaction, manufacturing technologies for reliability, physics of failure analysis, as well as reliability issues for memory and

logic technologies and characterization and measurement.

DISPLAYS, SENSORS, AND MEMS

(DSM): Critical devices, structures, and integration for imaging, displays, detectors, sensors, and micro electro-mechanical systems (MEMS). A subset of key topics in the Displays and Sensors area includes CMOS imagers, CCDs, TFTs, organic, amorphous, and polycrystalline devices, vacuum microelectronics, emissive displays and sensors for chemical, molecular and biological detection. Topics of interest in the MEMS area include resonators, switches, and passives for RF applications, integrated sensors, micro-optical devices, micro-fluidic and biomedical devices, micro power generators and energy-harvesting devices, with particular emphasis on integrated implementations. Other relevant subjects include design, fabrication, reliability, theory, and modeling.

MEMORY TECHNOLOGY (MT):

Papers are solicited covering memory-related technology from novel memory-cell concepts to fully integrated memories and manufacturing. Areas of interest include volatile and nonvolatile memories, processes for advanced memories, novel memory cells include NEMS-based devices, 3D integration, reliability and modeling. Other topics of interest are memory array optimization, 3D memory architecture, novel reading/program/erase schemes and solid state drive (SSD) applications.

MODELING AND SIMULATION (MS): Analytical, numerical, and statistical approaches to modeling electronic, optical and multiphysical devices, their isolation and interconnection. Topics include physical and compact models for devices and interconnects, modeling fabrication processes and equipment, simulation algorithms, process characterization, parameter extraction, early compact models for advanced technologies, performance evaluation, design for manufacturing, reliability and technology benchmarking methodology. Papers on the modeling of interactions between process, device and circuit technology will be given as well.

PROCESS TECHNOLOGY (PT): Front- and back-end process modules for fabrication of logic, memory, and 3D integrated circuits on silicon and non-silicon technologies. Topics related to front-end processing include substrate technologies, interface passivation, lithography, etching, isolation technologies, thin dielectrics, high dielectric constant materials and metal electrodes for transistors and MIM capacitors, shallow junctions, silicides, self-assembly techniques and new materials for memory and logic applications. Topics related to back-end processing include conductor systems, low dielectric constant materials, contact

and via processes, barrier materials, planarization, design considerations for multilevel interconnects, and advanced packaging.

QUANTUM, POWER, AND COMPOUND SEMICONDUCTOR DEVICES (QPC): Compound semiconductors (GaAs, InP, GaN, SiC, SiGe, Antimonides and their related alloys) with electronic and optoelectronic device applications, as well as discrete and integrated high power/current/voltage devices including those on silicon. Topics include FETs, HBTs, LEDs, lasers, external modulators, high power, RF, and microwave and millimeter wave devices. Also of special interest are ballistic and quantum effects, and optoelectronic integrated circuits, optical interconnects, photovoltaics, photonic bandgap structures and crystals, and integrated RF components including inductors, capacitors, and switches.

SOLID STATE AND NANOELECTRONIC DEVICES (SSN): Novel solid state and nanoelectronic devices, including carbon based devices, nanotubes, nanowires, and quantum dots; nanodevices for energy harvesting and storage, spintronic and other non-charge based devices; NEMS-based logic devices; and molecular devices. Also other areas of interest are new device characterization and performance evaluation methodologies.

Evening Panel Discussions

On Tuesday evening, December 7th, beginning at 8:00 p.m., the IEDM will offer two evening panel discussions. One will focus on mitigating the power crunch in power-hungry ICs, while the other will explore heterogeneous device integration.

IEDM Luncheon

The IEDM 2010 luncheon will be held on Tuesday, December 7th at 12:20 pm. Luncheon tickets are available through Advance Registration or on-site at a cost of \$55.00 to conference attendees only.

For registration and other information, visit the IEDM 2010 home page at <http://www.ieee-iedm.org/> or contact Conference Manager, Phyllis Mahoney, 19803 Laurel Valley Place, Montgomery Village, MD 20886, USA; telephone (301) 527-0900, ext. 2; fax (301) 527-0994; or email: phyllism@widerkehr.com. The IEDM committee members look forward to seeing you in December.

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JUNE 2010 AdCOM MEETING SUMMARY

(continued from page 3)

EDS Vision and Mission Statements that have been or soon will be ratified, and that the Treasurer's report is much more positive about our financial health than was expected (see Steve Parke's report). Other highlights include the fact that non-EDS members will be charged for meals at mini-colloquia, that the Distinguished Lecturers are being encouraged to put videos of their presentations on the web *with* voice, and that

we continue to lose members, especially within the U.S. We want to stay at or near 10,000 members, and need enhancement of membership recruiting through the growth and retention of chapters.

Secretary's Report: Jim Merz presented highlights from the December 2009 meeting. He summarized Hiroshi Iwai's report as Senior Past President's concerning his view of the remaining problems/tasks and

future challenges for EDS. Hiroshi suggested ways to attract members through conferences, and suggested more collaboration between regions and societies. Jim also reviewed the motions passed at that meeting, commenting on the unanimity of purpose of AdCom members since all motions passed unanimously, and he emphasized the importance of Renuka Jindal's goal of enhancing the Society's visibility.

Treasurer's Report: Steve Parke showed detailed charts of expenditures past and projected – the numbers are much better than had been expected. The operating margin is \$164K, with reserves of \$5.4 million, of which we can spend 3% on initiatives. The income from publications is \$982K, which is projected to be \$1,054K for 2010. Net income from conferences was \$1,447K. Newsletter layout expenses are increasing to the point where it has been decided to outsource this part of the production. Also, Expert Now short courses will be discontinued. Administrative costs have been low; kept to a minimum. New initiatives for 2011: the Chapter Partner Program will be dropped, saving \$20K, whereas the US chapter rejuvenation will cost \$10K. The Semiconductor Primer Program, Snap Kits activities, and the Women in Engineering Program (WIE) each cost \$5K. Web support will cost \$22K, the DL program was increased \$15K, and the mini-colloquia program \$15K. The motion to approve the preliminary 2011 budget, amended to increase the WIE by \$5K, was approved unanimously.

Report from the Division 1 Director: Hiroshi Iwai attended and reported on the recent TAB meeting. He first gave a very useful overview of the structure of the IEEE, showing the Division 1 societies and councils. Division 1 consists of societies active in devices and circuits, and includes more than EDS. He noted that the IEEE Nanotechnology Council (NANO) was founded by EDS and now has 20 societies supporting it. Membership of Division 1 is nearly 400,000, but is decreasing. Electronic membership is offered to 126 countries having their GDP <\$13,400. He noted that globalization throughout Division 1 is significant, and that 80% of member internet use comes from outside the U.S. Globalization of our Vice Presidents was considered to be important (i.e., almost all of our VPs are from the US), and he noted that most societies elect AdCom

members by a vote of the general membership. There was extensive discussion about two issues: open access, and declining membership vis-à-vis the membership fee structure. People are joining the IEEE, but not the societies, despite the low cost of society membership.

Region 8 Vice Chair's Report (Europe, Africa, and the Middle East): The report was given by Enrico Sangiorgi, on behalf of Ninoslav Stojadinovic who could not be present. Enrico reported that there had been three mini-colloquia this year, with many distinguished lectures, a total of 158 chapter meetings using \$17K subsidy requests. A German chapter was reactivated in March 2009, with Joachim Burghartz serving as interim chair. A workshop on SiC took place in Salerno with 80 participants. They are considering a proposal to support students attending research schools from poorer countries.

Region 9 Vice Chair's Report (South America): Jacobus Swart reviewed the 14 existing chapters in Region 9 and the newly proposed chapter for Argentina. Students have been encouraged to contribute and to attend all activities. It was decided that such funds should come from the region's funding and not require AdCom approval. Five new Distinguished Lecturers were approved, making the total number nine. Jacobus gave an overview of the Summer Course on Microfabrication held at UNICAMP and the funding needed. Steve Parke suggested that all SRC Chairs report budget items now for the 2011 year so to ensure adequate funding for next year. Jacobus voiced concern that Region 9 does not have a representative in AdCom.

Report of the Vice President for Membership: Albert Wang commented that the membership report is not so rosy. This year membership was down 1% (April to April), falling below 10,000 members for the first time. IEEE membership increased 2.3% to 397,000, while EDS numbers fell. Other societies are also down;



e.g. SSC was down 3.9%. Membership seems to be heavily tied to subject. For example, Power Electronics and Power/Energy have increased membership by 3.5% and 10.3%, respectively, while Communications is up a whopping 19.4% and Industrial Electronics is up 13.8%. IEEE society membership overall is up 3.4% to 347,683. There was considerable discussion about ideas for recruiting new members. The challenge is to stop the negative trend by providing more benefits. Albert ended with a list of ideas and incentives for 2010: develop a new membership committee, find new ways to reach out to corporations and universities, reactivate dead chapters, make currency conversion easy for membership fees, enhanced membership drives at flagship conferences, enhanced membership package for new members and life members, and attract affiliate members, which is less expensive than full IEEE membership. Steve Parke suggested that it would cost <\$5K to offer all students world wide free one-year membership; why shouldn't we do it? After much discussion it was decided to have a specific proposal developed and circulated to AdCom members.

Report of the Vice President for Regions/Chapters: Juin Liou told us that the number of chapters has grown from 120 in 2005 to 156 in 2010, and he expects at least 4 more. Regions 8 and 10 are both in the ~40 chapter category. There were a total of 22 MQs, 147 DLs, and 62 chapter-sponsored conferences and workshops. Seventy five chapters get subsidies. Region 10 dominates the

MQs and DLs, whereas Regions 8 and 10 dominate the number of conferences and subsidies. Juin's initiatives for the coming year include developing a chapter activity report form to measure success of chapters, surveying all chapters, developing a Chapter *Mentor* Program in place of the Chapter *Partner* Program, which is being discontinued. In the past, partners helped establish chapters, but Juin wants instead to add this function to the SRCs, who already know the geographical issues. Two specific motions were made and unanimously passed: Eliminate partners, add that function to SRC chairs and vice chairs.

- **Action item** – For December, each region should make a list of chapters needing assistance.
- ***MOTION** –To abolish the Chapter Partner Program henceforth. *Approved unanimously.*
- ***MOTION** –To explicitly add mentorship functions to the SRC Chair/Vice Chair portfolio for new chapters and for those needing guidance to be rejuvenated. *Approved unanimously.*

Report of the Vice President for Educational Activities: Meyya Meyyappan discussed ways to restructure the DL and MQ programs for maximum effectiveness. He felt that we need to obtain detailed reports about the success of these programs; in the past such reports have been used for monitoring activity, but not for evaluation to determine future requests. Laura will keep a data base on this. We also need a questionnaire to evaluate usefulness and clarity of presentation of the Distinguished Lectures. For example, would someone attending a MQ or DL now be interested in joining as a result of the presentations?

Report of the Vice President for Publications: Samar Saha reported that T-ED has moved to ScholarOne, and a new manual was developed. Overall the release went very smoothly. *Transactions on Device and Materials Reliability* will not be

moving to digital printing because it is not cost effective. TDMR has not been compliant with the editorial board, but work is in progress. TED-style page limit guidelines have been instituted. J-MEMS is projected to have a significant negative margin for 2011, and T-SCM has had a negative net budget for several years. We need to try and make these publications as attractive as possible for the future. It was noted that the Author Feedback Surveys have gathered positive feedback. IEDM Short Course DVDs have been made available to members at a reasonable cost. Samar proposed an IEEE EDS social networking site for professionals to network and share data – all with the goal of advancing ED research worldwide. Two new journals were proposed, (1) *EDS Express Journal*, which will have a dedicated section within EDL and (2) the *Journal of Photovoltaics*, with Tim Anderson as Editor-In-Chief.

- ***MOTION** –To launch EDX as a new section of the EDL and not a self-standing publication. *Approved unanimously.*
- ***MOTION** –To approve the IEEE EDS Journal of Photovoltaics. *Approved unanimously.*

Report of the Vice President for Technical Activities: Joachim Burghartz listed the 14 technical committees, as well as any newly appointed Chairs. He listed the functions of the Technical Committee as identification of new technical areas, meeting coordination, and publications involvement. New initiatives for 2010 include the revitalized involvement with conferences and meetings, and the mapping of current conferences to specific technical areas of interest. Among the potential initiatives for 2011 Joachim suggested that a new IEEE book on "Electron Devices" be developed and a review of emerging technical areas in the field of Electron Devices be carried out.

Action Item – The EDS Executive Office will work with Achim to devel-

op a plan for increasing the involvement of Technical Committees with our conferences.

Report of the Vice President for Meetings: Bin Zhao has taken over responsibilities for this area from Jon Candelaria – thanks, Jon, for all your hard work! Bin reported that several new conferences have been approved for sponsorship by EDS. It is felt that these conferences will in several cases increase EDS visibility in Europe, support local sections, and foster further collaborations and information exchange with other IEEE societies. He then reviewed the financial situation of the many conferences supported by EDS. Although there is a surplus of funding resulting from conferences, many are in the red each year (40% have negative surpluses), and several do not provide budget information or close their books for years after the conference is held. Much of the surplus is generated each year by the IEEE Photovoltaic Specialists Conference (PVSC). Bin identified six conferences on the "Exceptions List" for being delinquent or non-compliant and he identified actions to be taken for late conference closure, including a six-month warning, and putting further requests for co-sponsorship on hold after 13 months. On the other hand it was noted that successful conference organizers need to be recognized, and a method needs to be developed to do so. A Conference Performance Matrix will be used to determine whether or not to retract a conference. Conferences may be retracted due to technical field/interest changes over time, poor conference management or poor conference financial results.

Report of the Chair of the Fellows Evaluation Committee: Ade Adesida began his report by reminding us that only 3% of IEEE members are Fellows, which is the highest grade of membership. His committee, consisting of Ade (chair), Baccharani, Claeys, Groeseneken, Lunardi, and Momose, evaluated 45 Fellow

nominations on Saturday, June 5, 2010. There were 26 EDS evaluators (including committee members), and each did about 20 evaluations, so that most nominees were evaluated by 15 people. The Fellows elected by the committee will be announced shortly after the November IEEE Board of Directors meeting.

Executive Director's Report: Chris Jannuzzi first commented on the organizational structure of new and continuing EDS staff members listed at the beginning of this report. There are a total of eight staff members in addition to himself. Everyone was encouraged to contribute materials to Joyce for the EDS Newsletter, and he mentioned that the Officers want to move the Newsletter out of the IEEE production group to an outside printer to reduce costs. The new site will be under our control, because every time IEEE changes their web-

site it takes ours down. The website will be used to list all the advantages of joining EDS. We should be able to get into the password protected site early this summer to get suggestions about improving the website. New projects include: "Catch the Sun," a video on Photovoltaics, and a newly designed website.

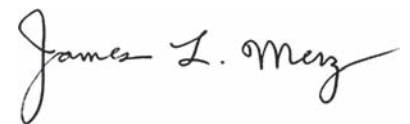
- ***MOTION** – Approve moving the EDS Newsletter out of IEEE's production group.

Approved unanimously.

Site Selection for the 2011 mid-year AdCom meeting: Paul Yu announced that the next mid-year meeting will be held in Taipei, Taiwan on Saturday, May 28th and Sunday, May 29th (Memorial Day weekend). A motion to this effect was approved by the AdCom members. A tentative date for the 2012 meeting has been set for May 26–27. Potential locations are Moscow, Cairo, and South Africa.

Closing Remarks and Adjournment: Renuka Jindal reviewed issues from the President's Strategy meeting. The issues included: rejuvenating chapters, having better response to new members, connecting conferences to technical committees, member benefits, and expanding the active member pool. Renuka challenged everyone to give suggestions for increasing member benefits and attracting new members to EDS.

- ***MOTION** – To approve new member appointments. Approved with one negative vote.
 - ***MOTION** – To adjourn meeting. Approved unanimously.
- Respectfully submitted, Jim Merz,
EDS Secretary



Secretarial Reflections

The Path Not Chosen: The choice of George Smith as the first EDS "Celebrated Member" raised some interesting memories in the mind of this secretary. As I was finishing graduate school I interviewed at Bell Labs, Murray Hill, and was eventually offered two jobs. One was from a guy named George Smith who raced toy cars in his basement and who was working on a secret project having some-



But some of our members seemed in no hurry to get there at all!



For example, Hiroshi Iwai came all the way from Japan in his favorite vehicle.

thing to do with devices involving the coupling of charges. He had an opening in that project. The second was with D.G. Thomas who was discovering isoelectronic traps in compound semiconductors. I chose the latter. Who knows, had I chosen the former I might have been invited to



Jim Merz came in his dream car, the Pope Mobile.

carry George's suitcases to Stockholm last December. I bet that each of you can speculate on a path you chose not to follow.

We all rush to attend the AdCom: As usual, AdCom members come from near and far, using every kind of conveyance.

SOCIETY NEWS

BREAKING NEWS: IEEE JOURNAL OF PHOTOVOLTAICS

EDS is pleased to announce that the proposal to launch the *IEEE Journal of Photovoltaics* was approved 57-0 at the June TAB Meeting held in Montreal.

The proposal was developed by Tim Anderson of the University of Florida and Steve Ringel from Ohio State University in conjunction with EDS volunteer leadership and the Editors-in-Chief of the societies flagship publications.

The IEEE Journal of Photovoltaics will be a peer-reviewed, archival publication reporting original and signifi-

cant research results that advance the field of Photovoltaics (PV). The PV field is diverse in its science base ranging from semiconductor and PV device physics to optics and the materials sciences. This journal will publish articles that connect this science base to PV science and technology.

EDS is currently in discussion with several societies who wish to be cosponsors of the journal with us, underscoring the importance of PV in the future of not just the IEEE, but the world at large. The Photonics, Power Electronics, and Power

and Energy societies, among several others, are actively being sought as partners in the effort.

Release of the first edition is tentatively slated for June 2011, in time for the 37th PVSC conference to be held in Seattle. We will be accepting manuscripts in the fall of 2010. Look for the formal announcement of this in the coming weeks as the launch plans become finalized. If you have any questions, want more information, or wish to become more involved, please contact Chris Jannuzzi in the EDS Executive Office at c.jannuzzi@ieee.org.

YOUR CAREER AND NETWORKING WITH IEEE ELECTRON DEVICES SOCIETY AdCOM MEMBERS



Come join us on Sunday evening, December 5, 2010, at the Hilton San Francisco Union Square Hotel for the EDS Graduates of the Last Decade (GOLD)

event. This free career development strategy session is especially designed for graduate students and young professionals. The program includes a seminar on career de-

velopment strategies for succeeding in today's globally-competitive world; a panel discussion focusing



on career path selection with expert panelists from academia, research, and manufacturing; and a golden opportunity for you to network with EDS Officers and Administrative Committee (AdCom) members. The 2010

Early Career Award winner will also be presented at this event. It's a great opportunity to network and develop some key skills to be competitive in today's global environment.

For additional details on this EDS-sponsored GOLD event, please contact me, Dr. Ravi Todi, at rtodi@ieee.org.

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

IEEE ANNUAL ELECTION - DID YOU VOTE YET?

This is a reminder for EDS members to vote in the 2010 IEEE Annual Election for the following positions and candidates.

Listed below are the positions and candidates that will appear on the 2010 IEEE Annual Election ballot.

Petition Candidates

There were two petition candidates on the 2010 IEEE Annual Election for the position of Division VII Delegate-Elect/

Director-Elect and Region 8 Delegate-Elect/Director-Elect.

Completed ballots must be received by noon U.S. Central Time

(17:00 UTC) on 1 October. Members can also access the ballot and related materials electronically. To learn more, visit the election site at <http://www.ieee.org/elections> or email corp-election@ieee.org.

www.ieee.org/elections or email corp-election@ieee.org.

Position	Candidate
IEEE President-Elect, 2011	<ul style="list-style-type: none"> Gordon W. Day (Nominated by IEEE Board of Directors) Joseph V. Lillie (Nominated by IEEE Board of Directors)
IEEE Division 1 Delegate-Elect/Director-Elect 2011	<ul style="list-style-type: none"> Cor Claeys (Nominated by IEEE Division I) Alfred E. Dunlop (Nominated by IEEE Division I) Irving Engelson (Nominated by IEEE Division I)
IEEE Region 2 Delegate-Elect/Director-Elect, 2011-2012	<ul style="list-style-type: none"> Parviz Famouri (Nominated by IEEE Region 2) Murty S. Polavarapu (Nominated by IEEE Region 2)
IEEE Region 4 Delegate-Elect/Director-Elect, 2011-2012	<ul style="list-style-type: none"> Robert C. Parro (Nominated by IEEE Region 4) Karen S. Pedersen (Nominated by IEEE Region 4) Hamid Vakilzadian (Nominated by IEEE Region 4)
IEEE Region 6 Delegate-Elect/Director-Elect, 2011-2012	<ul style="list-style-type: none"> Michael R. Andrews (Nominated by IEEE Region 6) Roy E. (Gene) Stuffle (Nominated by IEEE Region 6)
IEEE Region 8 Delegate-Elect/Director-Elect 2011-2012	<ul style="list-style-type: none"> Martin J. Bastiaans (Nominated by Petition) Gerhard P. Hancke (Nominated by IEEE Region 8)
IEEE Region 10 Delegate-Elect/Director-Elect, 2011-2012	<ul style="list-style-type: none"> Jose (Joe) B. Cruz, Jr. (Nominated by IEEE Region 10) Toshio Fukuda (Nominated by IEEE Region 10) Ramakrishna Kappagantu (Nominated by IEEE Region 10)
IEEE Standards Association Board of Governors Member-at-Large, 2011-2012	<ul style="list-style-type: none"> Karen Bartleson (Nominated by IEEE Standards Association) Victor Berman (Nominated by IEEE Standards Association)
IEEE Standards Association Board of Governors Member-at-Large, 2011-2012	<ul style="list-style-type: none"> Stanley L. Moyer (Nominated by IEEE Standards Association) Glenn W. Parsons (Nominated by IEEE Standards Association)
IEEE Technical Activities Vice President-Elect, 2011	<ul style="list-style-type: none"> John T. Barr, IV (Nominated by IEEE Technical Activities) William A. Gruver (Nominated by IEEE Technical Activities) Frederick C. Mintzer (Nominated by IEEE Technical Activities)
IEEE-USA President-Elect, 2011	<ul style="list-style-type: none"> Marc T. Apter (Nominated by IEEE-USA) James M. Howard (Nominated by IEEE-USA)
IEEE-USA Member-at-Large, 2011-2012	<ul style="list-style-type: none"> Mauro G. Togneri (Nominated by IEEE-USA) John R. Twitchell (Nominated by IEEE-USA)

NEW IEDM SHORT COURSE DVD AVAILABLE FOR EDS MEMBERS



*Renuka P. Jindal
President
IEEE Electron
Devices Society*

Dear IEEE EDS Member:
As we continue to enhance the value of EDS membership we now present the popular short-courses offered at our annual International Electron Devices Meeting. To con-

trol cost we have used a non-commercial source to develop this DVD product and eliminated copy protection cost to keep the price affordable at \$9.99 and \$29.99 for EDS student and regular members, respectively. Please help us by not sharing your purchased copy with others. As sales volume builds up, we hope to recover our cost and continue to empower you by providing such benefits at a give-away price. This and

other such products can be ordered at <http://shop.ieee.org/>.

Please contact us at eds@ieee.org if you can help and/or provide suggestions how to further enhance the value of this product to you as an EDS member.

*Renuka P. Jindal
President
IEEE Electron Devices Society
University of Louisiana at Lafayette
Lafayette, LA, USA*

REPORT ON THE 2010 IEEE SYMPOSIUM ON VLSI TECHNOLOGY

This year's VLSI Technology Symposium was held at the Hilton Hawaiian Village in Honolulu, Hawaii, June 15–17, 2010. On June 14th, the VLSI Technology short course entitled "Emerging Logic and Memory Technologies for VLSI Implementation," covered topics on High Performance and Low Power Device, Design Enablement, 3D Interconnect, Ge and Beyond CMOS and Memory Technologies.

Two new categories for the symposium, "Design Enablement" and "Heterogeneous Integration," were introduced this year as "Focus Sessions." The number of participants this year was approximately 400, a significant decrease from the number of attendees in 2008. However, the participants at this year's symposium did enjoy highly active exchanges between each other, more so than in previous years.

The plenary talks on "The Smart Grid Technology" and "SiC for Future Energy Technology" were discussed by IBM and Kyoto University, respectively. A two-day overlap schedule with Circuits was introduced this year as well, to encourage the interaction between Circuits and Technology, which was very effective, especially for the Design Enablement session and the Smart Grid Technology topic in the plenary talk.

In ascending order, the accepted



papers were categorized into Advanced CMOS Technologies, Emerging Memories, Device Physics/Characterization/Modeling and others such as non-Si substrates/Materials, Reliability, Design Enablement etc. The world smallest SRAM (0.063 μm^2) was demonstrated by the IBM Alliance Group.

For the "Focus sessions," five distinguished speakers were invited for each session in addition to the regular submitted papers. It is worth noting that Fab-less/lite companies as well as Foundries played an important role in the Design Enablement session.

The conference also had three rump sessions to facilitate informal discussions among researchers. They were "The next decade of VLSI Technology and Circuits – Are we on the same road?" (Joint Rump with Circuit), "What will end Moore's

Law?" and "The future of Embedded Memory."

Looking forward to the symposium on 2011 VLSI Technology: Corresponding the paradigm shift of the Semiconductor industry, we are expecting to welcome engineers/research scientists from all over the world to share their exciting new endeavors. The next symposium will be held from June 14 – 16, 2011, at Rihga Royal Hotel in Kyoto, Japan and the short course will be scheduled for June 13, 2011.

Masaaki Niwa
2010 Symposium General Co-chair
Renesas Technology Corp.

Shuji Ikeda
EDS VLSI Technology and Circuits
Technical Committee Chair
Tei Technology
Austin, TX, USA

SPOTLIGHT ON: EDS CELEBRATED MEMBER

(continued from page 1)

and his colleague Willard Boyle (a fellow EDS member and with whom George shares the 2009 Nobel Prize for Physics) developed the Charged-Coupled Device (CCD) at the famous Bell Laboratories in New Jersey.

They were tasked with developing a new platform for information storage. The device they initially sketched was an image sensor based on Einstein's photoelectric effect, in

which arrays of photocells emit electrons in amounts proportional to the intensity of incoming light. The electron content of each photocell could then be read out, transforming an optical image into a digital one. The charge-coupled device



they created gave rise to the first CCD-based video cameras, which appeared in the early 1970s.

"It took about an hour and half to design the CCD," joked George, "but it took 40 years for us to get the Nobel."

2009 EDS PAUL RAPPAPORT AWARD



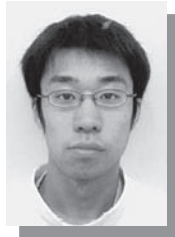
*Samar K. Saha
EDS Vice-President
of Publications*

A high priority of the Electron Devices Society is to recognize and enhance the quality of papers published in EDS archival literature. Every year, the Society confers its prestigious Paul Rappaport Award to the best paper published in the *IEEE Transactions on Electron Devices*. Among other criteria including technical excellence, an important metric for selection for the award is comprehensive and impartial referencing of prior art. The winning paper was selected from among 350 manuscripts that were published in 2009. The article is entitled, "Printed Nonvolatile Memory for a Sheet-Type Communication System." This paper was published in the May, 2009 issue of the *IEEE Transactions on Electron Devices*, and was authored by Takao Someya, Tsuyoshi Sekitani, Koichiro Zaitso, Yoshiaki Noguchi, Kiyoshiro Ishibe, Makoto Takamiya and Takayasu Sakurai. The award will be presented at either the plenary session of the IEEE International Electron Devices Meeting or EDS Administrative Committee Meeting to be held in early December 2010, in San Francisco, California. In addition to the award certificate, the authors will receive a check for \$2,500. On behalf of the Electron Devices Society I would like to congratulate the authors for this achievement. Brief biographies of the authors are given below.



Kiyoshiro Ishibe received the M.S. degree in applied physics from the University of Tokyo in 2010. His research interests include new meth-

od of spectroscopy based on scanning tunneling microscopy. Since 2010, he is working for Murata Manufacturing Co., LTD.



Yoshiaki Noguchi received the Ph.D. degree in applied physics from the University of Tokyo in 2010. From 2008 to 2010 he was a member of

JSPS Research Fellowships. His research interests include organic transistors, large area electronics, and printed electrical devices. Since 2010 he is working for FA-NUC LTD.



Takayasu Sakurai received the Ph.D. degree in Electrical Engineering from the University of Tokyo in 1981 and joined Toshiba Corporation,

where he designed CMOS DRAM, SRAM, processors, and SoC Solutions. From 1996, he is a professor at the University of Tokyo, working on low-power high-speed VLSI and ubiquitous electronics design.



Tsuyoshi Sekitani received the Ph.D. degree in applied physics from the University of Tokyo in 2003. From 2003 to 2009, he was a

Research Associate at the Quantum-Phase Electronics Center, and since 2009, he has been a Research Associate of the Department of Electrical and Electronic Engineering at the University of Tokyo.



Takao Someya received the Ph.D. degree in electrical engineering from the University of Tokyo in 1997. Since 2009, he has been a Professor of

the Department of Electric and Electronic Engineering at the University of Tokyo. His current research interests include printed, flexible, large-area electronics and organic transistors.



Makoto Takamiya received the Ph.D. degrees from the University of Tokyo, Japan, in 2000. In 2000, he joined NEC Corporation, Japan. In 2005, he

joined University of Tokyo, Japan, where he is an associate professor. His research interests include the circuit design of low-power VLSI and organic electronics.



Koichiro Zaitso received the M.S. degree in applied physics from the University of Tokyo in 2009. His research interests included ferroelectric

polymers and the new devices integrated with organic transistors. Since 2009 he is working for TOSHIBA Corporation.

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

2009 GEORGE E. SMITH AWARD

A high priority of the Electron Devices Society (EDS) is to recognize and enhance the quality of papers published in EDS archival literature. The George E. Smith Award was established in 2002 to recognize the best paper appearing in a fast turn-around archival publication of EDS, targeted to *IEEE Electron Device Letters*. Among other criteria including technical excellence, an important metric for selection for the award is comprehensive and impartial referencing of prior art.

The paper winning the 2009 George E. Smith Award was selected from among 400 articles that were published in 2009. The article is entitled "Graphene-on-Insulator Transistors Made Using C on Ni Chemical-Vapor Deposition." This paper appeared in the July 2009 issue of *Electron Device Letters* and was authored by Jakub T. Kedzierski, Pei-Lan Hsu, Alfonso Reina, Jing Kong, Paul Healey, Peter Wyatt and Craig Keast. The award will be presented at either the plenary session of the IEEE International Electron Devices Meeting or the EDS Administrative Committee Meeting to be held in early December 2010 in San Francisco, California. In addition to the award certificate, the authors will receive a check for \$2,500. On behalf of the Electron Devices Society, I would like to congratulate the authors for this achievement. Brief biographies of the authors follow.



Paul Healey received the M.S. degree in electrical engineering from the University of Connecticut, Storrs, in 1994, with his thesis focused on the realization of II-VI compound laser diodes. From 1995 to 2002, he worked in the semiconductor capital

equipment industry, primarily in the process application development and integration areas. In 2003, he joined the Advanced Silicon Technology Group, Massachusetts Institute of Technology Lincoln Laboratory, Lexington, where his work is concentrated on development of novel processes for the fabrication of advanced microelectronic devices and circuits.



Pei-Lan Hsu received the B.S. degree in electrical engineering (EE) and Physics and M. Eng. degree in EE from MIT in 2007 and 2008, respectively. Her master's research was at MIT Lincoln Laboratory on graphene transistors and their associated gate dielectrics. She is currently an RF component designer at Northrop Grumman and will begin her Ph.D. studies in 2010 at the University of Southern California.



Craig L. Keast is the Associate Head of the Advanced Technology Division and Director of Operations for the Microelectronics Laboratory at MIT Lincoln Laboratory. He received a B.A. degree from Hamilton College, and S.M., E.E., and Ph.D. degrees in electrical engineering and computer science from the Massachusetts Institute of Technology.



Jakub Kedzierski received the Ph.D. degree in electrical engineering from the University of California, Berkeley, in 2001. From 2001 to 2005

he worked on advanced silicon devices at IBM's T. J. Watson Research Center. In 2005, he joined the MIT Lincoln Laboratory, where he is currently an Assistant Group Leader in the Advanced Silicon Technology Group. His current research efforts are focused on graphene transistors, low-power electronics, and microfluidics.



Jing Kong received the B.S. degree in chemistry from Peking University, Beijing, China in 1997 and the Ph.D. degree in Chemistry from Stanford University in the United States, 2002.

In 2004, she joined the Massachusetts Institute of Technology, where she is currently an Assistant Professor in the Electrical Engineering and Computer Science Department. She has worked in the field of carbon nanotubes for over 10 years and has published numerous papers on this subject. She and her colleagues at Stanford were among the first to develop the CVD method for synthesizing individual single-walled carbon nanotubes, and they also initiated the research on carbon nanotube chemical sensors. The research activity in her current group involves controlled synthesis of carbon nanotubes and graphene, investigation of their electronic and optical properties and integration with the CMOS circuits.



Alfonso Reina obtained the B.S. degree in physics engineering from Instituto Tecnológico y de Estudios Superiores de Monterrey in 2004. He

received the Ph.D. degree from the Massachusetts Institute of Technology in 2010 where we worked as a research assistant in the group of Prof. Jing Kong.



Peter W. Wyatt (M1985) received the BS degree in electrical engineering from the California Institute of Technology in 1966 and Ph.D. in engi-

neering and applied science from Yale University in 1971. His thesis work centered on tunneling between superconducting metal films.

He worked for six years on tantalum capacitors for hybrid integrated circuits at Bell Laboratories, and has been at MIT Lincoln Laboratory in Lexington, Massachusetts since 1977. At Lincoln he has worked on MNOS memory, wafer-scale integrated circuits, nitridation of silicon dioxide, SOI CMOS fabrication, testing and modeling,

graphene devices and MEM switch reliability.

Dr. Wyatt served for six years on the Steering Committee of the IEEE International Conference on Wafer-Scale Integration and was Program Chair in 1992 and General Chair in 1993.

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

TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING 2008 BEST PAPER AWARD



*Duane S. Boring
TSM Editor-in-Chief*

The IEEE Transactions on Semiconductor Manufacturing Best Paper Award is presented to the authors of that paper considered by the Transactions' Editorial Staff and reviewers to be the outstanding paper published during the year. The Award is based on the accuracy, originality, and importance of the technical concepts, as well as the quality and readability of the manuscript. The Best Paper is also based on the immediate or potential impact that this work will have on the overall semiconductor manufacturing industry.

The Editorial Staff is pleased to announce that the paper entitled "Optical Proximity Correction with Linear Regression," by Allan Gu and Avidesh Zakhor has been recognized as the best paper published in the 2008 Transactions. This paper, which appeared in the May 2008 issue, has been chosen for its contribution of methods for optical proximity correction (OPC) by which one can accelerate the refinement

of mask layouts to compensate for the non-ideal optical and process effects in optical lithography. Fast linear regression techniques are proposed to predict polygon fragment movements, prior to model-based OPC. The approach is shown to reduce the number of iterations required in model-based OPC, cutting OPC run time by approximately one-third in an example logic design. The paper is a valuable contribution and step forward in presenting methods to compensate for manufacturing process limitations, and to decrease product development time in IC design and manufacturing.



Allan Gu (M'07) received the B.S. degree in electrical engineering and computer science and the M.S. degree in electrical engineering, in 2007,

both from the University of California, Berkeley. His research interests include signal processing, machine learning, numerical simulations, and applications to semiconductor man-

ufacturing. He is currently an Engineer at Intel.



Avidesh Zakhor (F'01) received the B.S. degree from California Institute of Technology, Pasadena, in 1983, and the S.M. and Ph.D. degrees from the

Massachusetts Institute of Technology, Cambridge, in 1985 and 1987, respectively, all in electrical engineering. In 1988, she joined the Faculty at the University of California, Berkeley, where she is currently a Professor in the Department of Electrical Engineering and Computer Sciences. Her research interests are in the general area of image and video processing, multimedia communication, and 3-D modeling. She holds five U.S. patents and is the coauthor of the book *Oversampled A/D Converters*. She cofounded OPC technology, in 1996, which was later purchased by Mentor Graphics, in 1998, Truvideo, in 2000 and UrbanScan, Inc., in 2005. Prof. Zakhor was a General Motors Scholar from 1982 to 1983, was a Hertz Fellow

from 1984 to 1988, she received the Presidential Young Investigators (PYI) Award, and Office of Naval Research (ONR) Young Investigator Award, in 1992. From 1998 to 2001, Dr. Zakhor was an elected member of IEEE Signal Processing Board of Governors. She received

the Okawa Prize in 2004. Together with her students, she has won a number of best paper awards, including the IEEE Signal Processing Society, in 1997, IEEE Circuits and Systems Society, in 1997 and 1999, as well as the International Conference on Image Processing, in

1999, and Packet Video Workshop, in 2002.

*Duane S. Boning
TSM Editor-in-Chief
Massachusetts Institute of
Technology
Cambridge, MA, USA*

EDS MEMBERS NAMED RECIPIENTS OF 2010 IEEE MEDALS AND RECOGNITIONS



Richard M. Swanson of SunPower Corporation, San Jose, California, has been named the recipient of the 2010 IEEE Jun-ichi Nishizawa Medal. His cita-

tion states, "For the conception and commercialization of high-efficiency point-contact crystalline-silicon solar cell technology."

Considered one of the premier authorities on crystalline-silicon solar cell technology, processing and manufacturing, Richard M. Swanson has enabled solar power to become a viable clean-energy resource. Known for a special ability to bridge fundamental and applied research and to bring laboratory concepts to manufacturing more quickly, Dr. Swanson is internationally recognized for both his research and industry accomplishments. His conceptualization, development and commercialization of the point-contact silicon solar cell addressed the challenge of improving efficiencies of converting solar power to electricity in photovoltaic systems. Dr. Swanson's invention is a high-efficiency silicon photovoltaic concentrator cell that uses light-trapping techniques and point-diffused contacts on the rear surface for collection of current. Dr. Swanson shepherded his laboratory concept to viable consumer use by founding SunPower

Corporation in 1991 to develop and commercialize cost-effective photovoltaic power systems. Early on, the company's solar cells helped power Honda Corporation to victory in the 1993 World Solar Challenge and propelled the National Aeronautics and Space Administration's high-altitude solar-powered airplane "Helios" to an altitude of 96,863 feet—a record for a nonrocket-powered aircraft. Today, SunPower is a world leader in photovoltaic systems ranging from residential rooftops to commercial systems to large solar farms. Dr. Swanson has continued his photovoltaic research and development to provide a roadmap for future enhancements of silicon solar technology to further improve conversion efficiencies. An IEEE Fellow, Dr. Swanson is currently the president and chief technical officer at SunPower Corporation, San Jose, California.

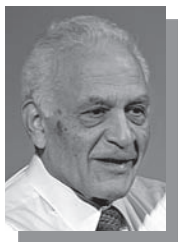


Hidehito Obayashi of Hitachi High-Technologies Corporation, Tokyo, Japan, has been named the recipient of the 2010 IEEE Ernst Weber Engineering Leadership Recognition. His citation states, "*For outstanding engineering and managerial leadership in the field of scanning electron microscopy, including the creation*

and development of critical dimension SEMs for VLSI manufacturing."

Hidehito Obayashi's development and implementation of the critical dimension scanning electron microscope (SEM) provided an indispensable tool for semiconductor manufacturing that has enabled the continued miniaturization of silicon wafers. The ability to characterize the fine layers and structures of silicon wafers is an important component of VLSI semiconductor manufacturing. As optical techniques became incapable of measuring critical dimensions on shrinking silicon wafers, during the 1980s, Dr. Obayashi converted the electron microscope, traditionally used to examine samples with high resolution using accelerated electrons, from a laboratory instrument into the critical dimension SEM for use in semiconductor production. The use of a nondestructive electron gun instead of a thermal electron gun as a source of electrons was crucial to the success of Dr. Obayashi's device. His field emission electron gun provided a low energy electron beam with little radiation damage to the semiconductor material during measuring and monitoring. This enabled high-speed measurement capabilities during continuous use on production lines. Modifications were also needed to make conventional SEMs robust to challenging environments encountered in semiconductor

manufacturing including floor vibration, magnetic field variations and clean room noise. Dr. Obayashi's leadership was critical in incorporating electrical engineers and computer scientists in the development process to address these challenges. The result was a fully automated tool with modular redesign capabilities that was easy to operate. An IEEE Fellow, Dr. Obayashi began his career with Hitachi in 1969 and is currently president, chief executive officer and director at Hitachi High-Technologies Corporation, Tokyo, Japan.



Amar G. Bose of Bose Corporation, has been named the recipient of the 2010 IEEE/RSE Wolfson James Clerk Maxwell Award. His citation states,

“For outstanding contributions to consumer electronics in sound reproduction, industrial leadership and engineering education.”

Amar G. Bose is an engineer, educator and entrepreneur whose name is synonymous with high-end sound systems that produce lifelike audio. Although primarily known for his acoustics patents, there is more to Dr. Bose than meets the ear. As a professor, he is considered a legend at MIT, having influenced thousands of electrical engineering students and even attracting to his classes students pursuing other fields. The teaching award named in his honor is one of the most coveted in MIT's Electrical Engineering Department. His research on nonlinear control theory led to an electromagnetic active control suspension for automobiles. The Bose suspension system uses motors, power amplifiers, and

control algorithms to provide superior comfort by gliding smoothly over bumpy roads, and superior control by keeping the car body level during aggressive maneuvers. Dr. Bose is an IEEE Life Fellow. He was a professor at MIT from 1956 to 2001, and is currently the Chairman and Technical Director of Bose Corporation.

*Alfred U. Mac Rae
EDS Vice-President of Awards
Mac Rae Technologies
Berkeley Heights, NJ, USA*

EDS DISTINGUISHED LECTURERS PARTICIPATE IN THE 23RD WIMNACT - NORTHEAST INDIA

A series of EDS Distinguished Lectures (DL) and Mini-Colloquia (WIMNACT 23) were held at Siliguri Institute of Technology (W.B), IIT Guwahati (Assam), North Eastern Hill University (NEHU), Shillong (Meghalaya) and the National Institute of Technology (NIT), Silchar (Assam). The events were organized by the ED Calcutta Chapter and cosponsored by SKP Engineering College, Thiruvannamalai, Tamil Nadu and Tokyo Institute of Technology, Yokohama, Japan. Although there are some IEEE student branches or student chapters in the Northeastern Indian district, it is a typical outreach region almost separated by Bangladesh. A total of more than 600 northeastern Indian people attended these events, making this an excellent



EDS Distinguished Lecturer, Hiroshi Iwai (center, first row) at Siliguri Institute of Technology

opportunity for EDS to communicate to the engineering community in this region.

DL in Siliguri, West Bengal

A one-day seminar, “Beyond the Definition of Classical Devices and Communication” was held at Siliguri Institute of Technology (SIT), Siliguri,

West Bengal, March 29, 2010. More than 250 people attended, including many students of SIT, as well as Prof. S. Dasgupta (the principal), Anidya Basu, Manas Saha and Sandip Banerjee of SIT and Dr. Angsuman Sarkar, Kalyani Govt. Engineering College (KGEC). Professor Hiroshi Iwai, Tokyo Institute of Technology



EDS Distinguished Lecturers (2nd row, 2nd from left, X. Zhou, H. Iwai, C. Sarkar and M.K. Radhakrishnan) and attendees of MQ at IIT-Guwahati



MQ at North-Eastern Hill University

ing students and Professors Pramod Tandon, Jyoti Narayan, A. K. Das, A. Sinha, Eva Giri, S. Roy, A. K. Maji, K. Upadhyay, H. R. Choudhury of NEHU, and Professors Fairriky Rynjahand, Kishore Choudhuri, Dhruva Roychoudhuri, Yarmiky Shilla from other colleges in Shillong, as well as Professors Mohan Kumar, SKP EC, and Chandan Sarkar of JU. The following lectures were given: "The Past and Future of Nanoelectronic Device Technologies," Prof. Hiroshi Iwai of TIT, Japan; "Variation in Nano CMOS Device Characteristics," Prof. Samar Saha of University of Colorado (UC), USA; "Nano CMOS Device Compact Modeling," Xing Zhou of NTU, Singapore; "Physical Analysis of Nanodevices," Dr. M. K. Radhakrishnan of Nanorel, India; and "Nano Biosensor Technology," Prof. Ramgopal Rao of Indian Institute of Technology Bombay (IIT-B), India. This was the first contact from EDS to NEHU and they are very interested to organize this kind of MQs again and plan to continue an association with us for a possible future joint chapter formation.

MQ in Silchar, Assam

MQ (WIMNACT 23-3) was held at the National Institute of Silchar (NIT-S), Silchar, Assam, April 8, 2010. The event attracted more than 120 people, including the students and Professors A. K. Sil (Director, I/C), R. Gupta (Dean, R & C), Srimanta Baishya (main organizer), Fajal A Talukdar, Madhuchanda Chakroborty, Madhumita Paul, K.L. Baishnab, R.H. Lashkar, Jishan Mehedi, S.K. Gupta, Brinda Shome, Ayon Bhattacharjee, Basana Choudhury, S. Choudhury, L.C. Saikia, Arup Bhattacharjee of NIT-S, and Prof. Chanadn Sarkar of JU. EDS Distinguished Lecturers H. Iwai, S. Saha, X. Zhou and C. Sarkar, gave their excellent talks as presented at the Shillong event. This is a very active IEEE student branch in NIT, and the students

(TIT), Japan, gave a DL on the past and future of nanoelectronic device technologies, followed by a talk on telecommunication theory by Retired. Professor B. N. Chatterji, Indian Institute of Technology, Kharagpur, India. It was a very good opportunity for EDS to communicate with so many students and young faculty members.

MQ in Guwahati, Assam

MQ (WIMNACT 23-1) was held at the Indian Institute of Technology, Guwahati (IIT-G), Assam, April 2, 2010. The MQ attracted approximately 50 attendees, including students and Profs. Ratnajit Bhattacharya, Roy Pally Palathinkal, S. Majhi, Mohan Kumar, SKP Eng. College (SKP EC). The lectures given were: "The Past

and Future of Nanoelectronic Device Technologies," Prof. Hiroshi Iwai (TIT, Japan); "Physical Analysis Nanodevices," Dr. M. K. Radhakrishnan (Nanorel, India); "Nano CMOS Device Compact Modeling," Xing Zhou (Nanyang Technological University, Singapore); Nano CMOS Device Technology, Prof. Chandan Sarkar (Jadavpur University, India). It was discovered that there are at least 40 IEEE members (above student grade) in IIT-G, and they are interested in forming an IEEE Calcutta subsection as well as joint chapters.

MQ in Shillong, Meghalaya

MQ (WIMNACT 23-2) was held in North-Eastern Hill University (NEHU), Shillong, Meghalaya, April 5, 2010. About 70 attendees, includ-

managed the MQ by themselves very successfully. Another successful event for EDS to reach out to university students.

MQ in Kolkata

MQ (WIMNACT 23-4) was held at the Heritage Institute of Technology (HIT), Kolkata, West Bengal, April 9, 2010. Another very successful event with 140 people attending, including HIT students and Professors Probir Benerjee, B. B. Paira, S. N. Biswas, P. K. Agalwal, S. Sen and Atanu Kundu. The lectures presented were: "The past and future of nanoelectronic device technologies," Prof. Hiroshi Iwai of TIT, Japan; "Quantum Effects in Surface Potential Model of CMOS Compact Model," Prof. Anisul Haque of East West University (EWU), Dhaka, Bangladesh; "Nano CMOS Device Compact Modeling," Xing Zhou of NTU, Singapore; and "Nano CMOS Device Technology," Prof. Chandan Sarkar of JU, India. The ED Calcutta Chapter has a very good relation with HIT and has organized these kinds of MQ or DLs every year for the last three years. The institute also has an IEEE student chapter that is very active in organizing many events.



MQ at NIT Silchar



MQ at Heritage Institute of Technology (first row from left) EDS Distinguished Lecturers: A. Haque, X. Zhou, C. Sarkar, H. Iwai

Hiroshi Iwai

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

Chandan K. Sarkar

*IEEE Calcutta Section Vice-Chair
Jadavpur University
Kolkata, India*



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

Subrata Datta
Chong Han
Christopher Lee Henderson*
Muhammad Hussain
David Hwang*

Tetsuya Iizuka
Neha Kumar Choksi
Naoto Matsuo*
Nataliya Sakhnenko
Donald Sherwood

* = 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 member-

ship. 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 an application at <http://www.ieee.org/organizations/rab/md/smelev.htm>

2011 IEEE EDS MASTERS STUDENT FELLOWSHIP CALL FOR NOMINATIONS

At the December 2005 EDS Administrative Committee Meeting, EDS approved a Masters level student Fellowship Program.

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 certificate 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 and accomplishments. 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 March 15, 2011
- Recipients will be notified by May 15, 2011
- 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 be received at the EDS Office.

Send completed package to:

IEEE Operations Center
EDS Executive Office
EDS Masters Student Fellowship Program
445 Hoes Lane, Piscataway, NJ 08854 USA

For more information please visit us on the web: <http://www.ieee.org/portal/pages/society/eds/education/mastersstudentfellowship.html>

ANNOUNCEMENT OF THE 2010 EDS MASTERS STUDENT FELLOWSHIP WINNERS



Meyya Meyyappan



Agis Iliadis



Desmond C. Y. Chek was born in Perak, Malaysia in 1986. He received his Bachelor of Engineering (Electrical-Microelectronics) from Universiti Teknologi

Malaysia (UTM), Skudai, Malaysia. Currently, he is pursuing a Master of Engineering (Electrical) degree in UTM. His research areas are modeling and simulation of nanoelectronic devices as well as the studies of quantum effects in one dimension devices, particularly the quantum effect and high field effect. His current research is focused on the modeling and simulation of carbon nanotube devices and their application in circuits and logic gates. He has authored or co-authored 3 journal papers and more than 10 conference papers.



Oguz Hanoglu received his B.Sc degree in electrical engineering from Middle East Technical University, Ankara, Turkey, in 2009. He is currently

working towards his M.Sc at Bilkent University, Ankara, Turkey. His research topic is low-cost, portable, and highly sensitive nanobiosensors for label-free protein detection. This kind of biosensor is promising for timely and effective diagnostics of various cancer diseases. He is also interested in fabrication and characterization of novel high temperature coefficient of resistance materials and structures. These structures have critical applications in the field of uncooled bolometer based thermal imaging systems.



Shimeng Yu received the B.S. degree from the Department of Microelectronics, Peking University, China, in 2009. He is currently working toward the M.S. degree

and will continue to pursue the Ph.D. degree at the Department of Electrical Engineering, Stanford University, USA, under the supervision of Prof. H.-S. Philip Wong. His undergraduate research activities were the simulation of parameter fluctuation in nanoscale transistors and SRAM cells. He is now working on the fabrication, characterization, and modeling of the emerging resistive switching devices and their applications for neuromorphic computation systems. He has edited a book chapter of metal oxide resistive switching memory published by Springer, and authored or co-authored more than 20 papers on the above topics, including several papers in IEDM, VLSI, *IEEE Transactions on Electron Devices*, and *IEEE Transactions on Nanotechnology*. He also serves as an active reviewer for journals such as Applied Physics Letters, Nanotechnology, Journal of Physics D Applied Physics, Journal of the Electrochemical Society, Electrochemical Solid-State Letters, and others. He is a recipient of the Stanford Graduate Fellowship (2009-2012).

The Electron Devices Society Masters Student Fellowship Program was designed to promote, recognize, and support Masters 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 2010 EDS Masters Student Fellowship winners. Brief biographies of the 2010 recipients appear below. Detailed articles about each Masters Student Fellowship winner and their work will appear in forthcoming issues of the EDS Newsletter.

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

Agis Iliadis
EDS Ph.D. & Masters Student
Fellowship Chair
University of Maryland
College Park, MD, USA

EDS SENIOR MEMBER PROGRAM



Albert Wang
EDS Vice-President
of Membership

The Electron Devices Society established the EDS Senior Member Program to both complement and enhance the IEEE's Nominate-a-Senior-Member Initiative and make IEEE/EDS members aware of the opportunity and

encourage them to elevate their IEEE membership grade to Senior Member. This is the highest IEEE grade for which an individual can apply and is the first step to becoming a Fellow of IEEE. If you have been in professional practice for 10 years, you may be eligible for Senior Membership.

New Senior Members receive an engraved wood and bronze plaque and a credit certificate for US\$25 to be used towards a new IEEE society membership. Upon your request, the IEEE Admission & Advancement Department will send a letter to your

employer recognizing this new status as well. The URL to request this letter is <http://www.ieee.org/web/membership/senior-members/notification.html>.

As part of the IEEE's Nominate-a-Senior-Member Initiative, the nominating entity designated on the member's application form will receive US\$10 from IEEE for each application approved for Senior Member grade when there are at least five approved applications. As an EDS member, we would appreciate it if you could indicate on your Senior Member application form that EDS is your nominating entity.

Please be aware that even if you decide to list EDS as your nominating entity, you still need to have an IEEE member nominate you along with two other references. Your nominator and your references all must be active IEEE members holding Senior Member, Fellow or Honorary Member grade.

For more information concerning Senior Membership, please visit

http://www.ieee.org/membership_services/membership/senior/index.html. To apply for Senior Member grade, please complete an application form, which is available at http://www.ieee.org/membership_services/membership/senior/senior_application.html. You can also request a hard copy Senior Member packet via mail or fax by contacting IEEE Admission and Advancement Department, 445 Hoes Lane, Piscataway, NJ 08854-1331, USA, Fax: +1 732 562 6528, E-mail: senior-member@ieee.org.

We strongly encourage you to apply for IEEE Senior Membership to enhance your career. At the same time, you'll be helping EDS.

Thank you for supporting IEEE and EDS.

Albert Wang
EDS Vice-President of Membership
University of California
Riverside, CA, USA

EDS MEETINGS CALENDAR (As of 25 August 2010)

(continued from page 40)

April 4 - 7, 2011, @ IEEE International Conference on Microelectronic Test Structures, Location: Royal Academy of Arts and Sciences, Amsterdam, The Netherlands, Contact: Annemiek Janssen, E-Mail: a.m.r.j.janssen@utwente.nl, Deadline: 9/17/10, www: <http://www.utwente.nl/ewi/icmts2011>

April 10 - 14, 2011, * IEEE International Reliability Physics Symposium, Location: Hyatt Regency Monterey, Monterey, CA, USA, Contact: David Barber, E-Mail: dbarbsta@aol.com, Deadline: 10/1/10, www: <http://www.irps.org>

April 25 - 27, 2011, T International Symposium on VLSI Technology, Systems and Applications, Location: Ambassador Hotel, Hsinchu, Taiwan, Contact: Clara Wu, E-Mail: clara@itri.org.tw, Deadline: 07/01/10, www: <http://vlsitsa.itri.org.tw>

April 25 - 28, 2011, T International Symposium on VLSI Design, Automation and Test, Location: Ambassador Hotel, Hsinchu, Taiwan, Contact: Elodie Ho, E-Mail: elodieho@itri.org.tw, Deadline: 10/15/10, www: <http://vlsidat.itri.org.tw/>

May 16 - 18, 2011, @ IEEE International Conference on Microwaves, Communications, Antennas and Electronic Systems, Location: David Intercontinental Hotel, Tel Aviv, Israel, Contact: Shmuel Auster, E-Mail: austers@gmail.com, Deadline: Not Available, www: Not Available

May 16 - 19, 2011, T International Electrostatic Discharge Workshop, Location: Stanford Sierra Conference Center, Lake Tahoe, CA, USA, Contact: Lisa Pimpinella, E-Mail: lpimpinella@esda.org, Deadline: 11/20/10, www: <http://www.esda.org/iew.htm>

May 22 - 26, 2011, * IEEE International Memory Workshop, Location: TBD, Monterey, CA, USA, Contact: Tamer San, E-Mail: t-san@ti.com, Deadline: 1/20/11, www: <http://www.ewh.ieee.org/soc/eds/imw/>

May 22 - 26, 2011, @ International Symposium on Power Semiconductor Devices & Integrated Circuits, Location: Paradise Point Resort & Spa, San Diego, CA, USA, Contact: Mohamed Darwish, E-Mail: mdarwish@maxpowersemi.com, Deadline: 10/25/10, www: <http://www.ispsd2011.com/>

May 31 - June 3, 2011, T International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication, Location: JW Marriott Resort and Spa, Las Vegas, NV, USA, Contact: Alan Brodie, E-Mail: alan.brodie@kla-tencor.com, Deadline: 9/1/10, www: <http://www.eipbn.org>

EDS DISTINGUISHED LECTURER VISITS BOISE, IDAHO

In April 2010, EDS Distinguished Lecturer and IEEE Fellow, Prof. Muhammad Alam of Purdue University (West Lafayette, Indiana) visited Boise, Idaho. This visit was sponsored by the IEEE Electron Devices Society, under its Distinguished Lecturer Program. On April 9, 2010, Prof. Alam presented his first talk at the headquarters of Micron Technology, Inc. This lecture was titled "Reliability Considerations in Semiconductor Memories" and was attended by approximately 75 engineers and researchers from the Boise area. In this talk, Prof. Alam discussed the reliability challenges due to process variation and Negative Bias Temperature Instability and proposed solutions at device/circuit levels. He then presented an interesting discussion on the scaling limits of ZRAM transistors, which he concluded to be less scalable than previously presumed. At this point, he introduced a new model-

ing framework for radiation-induced soft-errors in ZRAM and Flash memories. Towards the end, Prof. Alam highlighted the importance of percolation based scaling theories in accurately predicting the composite failure probabilities of memory circuits. This talk was also webcast to all Micron Technology Inc. sites worldwide so that engineers have an opportunity to participate.

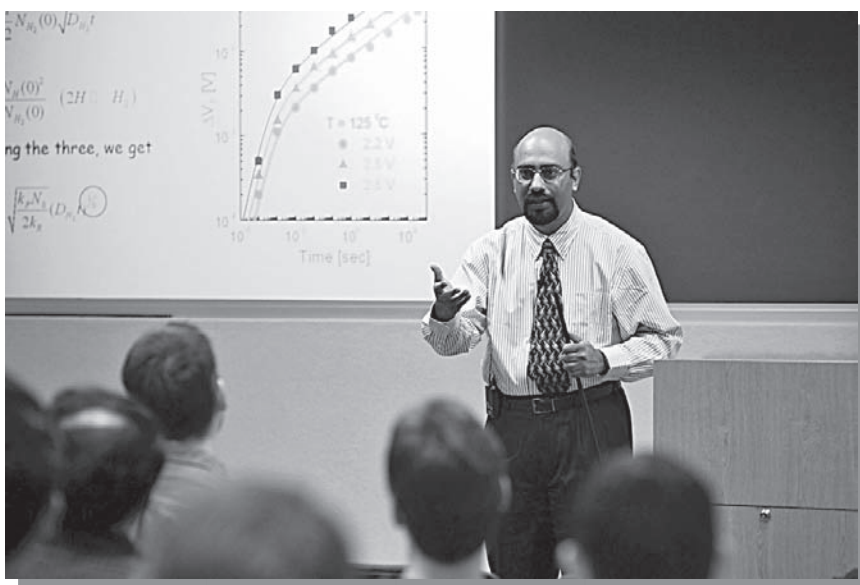
Later in the day, Prof. Alam presented his second talk for the ED Boise Chapter titled "The Physics and Technology of Nanonet Electronics." This lecture was hosted at the Boise State University campus and attended by about 25 students, faculty members, and area engineers/researchers. During this lecture, Prof. Alam introduced the concept of materials based on nanonets (Carbon Nanotubes or Si/ZnO/SiGe Nanowires) for diverse applications such as macroelectronics,



Prof. Alam presenting his EDS Distinguished Lecturer talk on "The Physics and Technology of Nanonet Electronics" at Boise State University campus

bioelectronics, and energy harvesting. He explained the need of predictive transport models for these new electronic components with spatially inhomogeneous transport properties. Most of his talk was focused on a simple theory of the Nanonets based on 2D percolation and fractal dynamics to show how these views are allowing optimization of nanonet transistors, biosensors, and solar-cells. Such understanding will enable the translation of excellent laboratory experiments to practical, disruptive technology.

The topics for both of his talks were timely and of great interest to the local EDS community. Dr. Alam's talks were well received and generated several discussions during and after the lectures. He encouraged the non-IEEE member attendees in the audience to join the IEEE community and the EDS society. The Boise Chapter appreciates the generous support from the EDS DL program to bring in quality speakers to the region.



EDS Distinguished Lecture, Prof. Alam presenting his talk on "Reliability Considerations in Semiconductor Memories," at Micron Technology Inc.'s Boise headquarters

Shyam Surthi
ED Boise Chapter Chair
Micron Technology, Inc.
Boise, Idaho, USA

REPORT ON THE IEEE EDS MINI-COLLOQUIUM AT DALIAN UNIVERSITY OF TECHNOLOGY, CHINA

The EDS Dalian mini-colloquium was successfully held at Dalian University of Technology in Dalian, China, June 10–11, 2010. It was organized by the ED Dalian Chapter and under the leadership of Chapter Chair, Prof. Zhenan Tang. Ten speakers, including five distinguished lecturers, Drs. Cor Claeys, Juin Liou, Hsing-Huang Tseng, Zhou Xing, and another five speakers, including Drs. Jiang Hu, Yiran Chen, Shingo Ohmori, Yashiro Fukuda, A. Q. Liu, and Zhigong Wang, gave seminars in the field of electron devices and related areas. About 100 people attended the MQ and the two-day short courses on nanoelectronics which followed.

*Zhenan Tang
ED Dalian Chapter Chair
Dalian University of Technology
Dalian, China*



Attendees of the Dalian University of Technology mini-colloquium



Attendees of the two-day short course on nanoelectronics, given by two professors from Purdue University

REPORT ON THE EDS MINI-COLLOQUIUM HELD AT INAOE, PUEBLA, MEXICO

The inauguration of the Laboratory for Innovation in MEMS (LIMEMS) was successfully held at the National Institute for Astrophysics, Optics and Electronics- INAOE, April 19–20, 2010. In order to commemorate this important event, the ED Puebla Chapter organized a Mini-Colloquium co-sponsored by the IEEE Electron Devices Society. Lecturers were presented at the inaugural ceremony as special guests. The program included five technical talks related with the new facilities at INAOE, three of them

were given by EDS Distinguished Lecturers. The mini-colloquium started on April 19th, after the inaugural ceremony, with Dr. Subramanian Iyer from IBM, USA, who presented the talk "From deep trenches to skyscrapers: The journey from eDRAM to the three dimensional integration." Dr. Cor Claeys from IMEC, Belgium, who would give the second talk entitled "Trends and challenges in Micro-and Nanoelectronics for Societal Applications," unfortunately could not assist because of the ash clouds

from Iceland's Eyjafjalla volcano that grounded hundreds of flights across Europe for several days. Dr. Claeys talk was substituted by Dr. Wilfrido Moreno from the University of Florida, USA, with "Ibero-American Science and Technology Education Consortium in the nanotechnology area." On April 20th, Dr. Jamal Deen from McMaster University, Canada, gave his talk "Low-cost, high-sensitivity electrical and optical biosensing systems," followed by Dr. Fernando Guarin, from IBM, USA, with "Intelligent water management



(left to right), Dr. Rafael Rios (INTEL, USA), Drs. Don Kendall and Wilfrido Moreno (University of Florida, USA), Dr. Edmundo Gutierrez-Dominguez (INAOE), Dr. Jamal Deen (McMaster University, Canada), Drs. Fernando Guarin and Subramanian Iyer (IBM, USA), Drs. Alfonso Torres-Jacome and Arturo Sarmiento (INAOE)



(left to right), Dr. Don Kendall (StarMega, USA), with EDS Distinguished Lecturers, Dr. Jamal Deen (MacMaster University, Canada), Dr. Subramanian Iyer and Dr. Fernando Guarin (IBM, USA)



Round table "The Nano-era and Latin-America"

Nano-era and Latin America," with Drs. Iyer, Deen, Guarin, Moreno, Don Kendall from StarMega, USA, and Alfonso Torres Jacome from INAOE, discussing the development of nanotechnology in Mexico. Very interesting conclusions were obtained. Lecturers also visited the new laboratory and discussed possible collaborations between INAOE and their Institutions. The event was very successful and the mini-colloquium was attended by more than 100 participants, including EDS members.

Claudia Reyes-Betanzo
ED Puebla Chapter Chair
 INAOE
 Puebla, Mexico

and semiconductor fabricators." The talks ended with Dr. Rafael Rios from INTEL, USA, who spoke on the

"Delay of Forever: Improving and extending the Nano realm." The event concluded with a round table on "The

REPORT ON THE IEEE EDS MINI-COLLOQUIUM HELD AT THE UNIVERSITY OF NIŠ, SERBIA

An EDS sponsored Mini-Colloquium (MQ) was held on Sunday, May 16, 2010, at the Faculty of Electronic Engineering, University of Niš, Serbia. This Mini-Colloquium was organized in conjunction with 27th International Conference on Microelectronics – MIEL 2010. Detailed information on

the EDS MQ can be found at http://miel.elfak.ni.ac.rs/Mini_coloquia_on.htm. The objective of the MQ was to present the topics on nanotechnologies and nanodevices.

The event started with a welcome and opening address by Ninoslav Stojadinović, IEEE ED/SSC Ser-

bia and Montenegro Chapter. The opening address was followed by six presentations given by the leading experts in the field, including the IEEE EDS Distinguished Lecturers, as follows: "Nanotechnology in Electronics, Photonics and Sensors" (Meyya Meyyappan, NASA Ames



Professor Ninoslav Stojadinović addressing the audience at the Mini-Colloquium



Attendees at the mini-colloquium in Niš



Professor Meyya Meyyappan speaking on "Nanotechnology in Electronics, Photonics and Sensors"

Research Center, Moffett Field, CA, USA), "Drain Current Computation in Nanoscale nMOSFETs: Comparison of Transport Models" (Enrico Sangiorgi, University of Bologna, Cesena, Italy), "Nanoscaling of MOSFETs

and the Implementation of Schottky Barrier S/D Contacts" (Mikael Ostling, Royal Institute of Technology, Kista, Sweden), "Growth of Dielectric-Embedded Silicon Nanocrystals for Silicon Integrated Photonics" (Hei Wong, City University of Hong Kong, Kowloon, Hong Kong), "Quantum Mechanical Tunnelling in Nanoelectronic Circuits: Design of a Nanoelectronic Single-Electron RAM" (Paul Isaac Hagouel, Optelec, Thessaloniki, Greece), and "Application of Non-equilibrium Plasmas in Top-Down and Bottom-Up Nanotechnologies and Biomedicine" (Zoran Petrović, Institute of Physics, Belgrade, Serbia). The event included a coffee break, lunch and welcome cocktail.

The MQ was very well received by the audience of about 50 people, in terms of organization, technical quality of the contributions and opportunities for discussion. All presentations were interactive with active participation by the attendees. The attendance was mainly MIEL 2010 Conference participants and local students and professors. In particular, the students enjoyed the possibility to interact with the EDS Distinguished Lecturers very much. Following the MIEL 2010 Conference Opening Session and Welcome Cocktail, all the lecturers participated in a meeting with Mr. Božidar Djelić, Minister for Science and Technological Development of the Republic of Serbia, which was aimed to discuss the strategy of scientific and technological development of the Republic of Serbia in the next five-year period. This meeting actually was held in extension of the talk given by Mr. Djelić during the Opening Session.

Ninoslav D. Stojadinović
ED/SSC Serbia and Montenegro
Chapter
University of Niš
Niš, Serbia

REPORT ON THE IEEE EDS MINI-COLLOQUIUM HELD AT THE INSTITUTE FOR MICROELECTRONICS STUTTGART (IMS CHIPS)

On June 7th, the IEEE ED Germany Chapter hosted a mini-colloquium at the Institute for Microelectronics Stuttgart (IMS CHIPS) in Stuttgart, Germany. The colloquium was focused on issues of More Moore and Moore than Moore, which are of particular interest to the German and European industry and academia. We were very fortunate to have

excellent tutorial talks from EDS Distinguished Lecturers (DL) and leaders from the nearby companies Robert Bosch GmbH and Zeiss SMT, as well as from the University of Stuttgart.

We were very glad that the attendance was high and that participants also from Region 8 beyond Germany could be attracted, i.e. from Bulgaria, Israel, Italy, Poland, Russia, South

Africa, Sweden, and Ukraine. Even some EDS members from outside Region 8 were joining in, after having attended the EDS ExCom and AdCom meetings on June 5 and 6 at the Comundo Conference Hotel in Stuttgart.

The colloquium started with a welcome by Prof. Joachim Burghartz, host and ad-interim chair of the German chapter, followed by a brief



overview of the research activities at the Institute for Microelectronics Stuttgart (IMS CHIPS).

In the morning, there were two blocks of More Moore topics with excellent tutorials by Prof. Hiroshi Iwai (Tokyo Institute of Technology, Tokyo, Japan), Winfried Kaiser (Fellow at Zeiss SMT, Oberkochen, Germany), Dr. Samar Saha (SiITerra Inc., San Jose, USA), Prof. Renuka Jindal (University of Louisiana, Lafayette, USA), Prof. Albert Wang (University of California, Riverside, USA), Prof. Juin Liou (University of Central Florida, Orlando, USA) and Prof. Cor Claeys, Imec, Leuven, Belgium). Of

special interest to the EDS members was the presentation by Winfried Kaiser who reported on the general European effort in EUV lithography, and the development program of ASML and Zeiss SMT in particular.

The afternoon belonged to the emerging More than Moore technologies and applications. This section was opened by Dr. Jiri Marek (Robert Bosch GmbH, Reutlingen, Germany) who gave an interesting overview of the sensor and micro system development and products at Bosch. Other talks were from Prof. Mikael Ostling (KTH, Stockholm, Sweden), Prof. Manfred Berroth (University of

Stuttgart, Stuttgart, Germany), Dr. Bin Zhao (Freescale Inc., Irvine, USA), Prof. Jacobus Swart (CTI, Campinas, Brasil) and Prof. Paul Yu (University of California, San Diego, USA).

Over all, there were ten full hours of tutorial talks and discussions after the talks and during the breaks. It was a hard but, considering the throughout positive feedback, rewarding day for all participants and speakers.

*Joachim N. Burghartz
EDS Vice President of
Technical Activities
IMS Chips
Stuttgart, Germany*

ANNUAL DVD UPDATE PACKAGE AVAILABLE TO EDS MEMBERS

The 2009 Annual DVD update package was distributed in April 2010. It includes all issues from 2004 through 2009 of *Electron Device Letters* (EDL) and *Transactions on Electron Devices* (T-ED), as well as the proceedings of the IEEE International Electron Devices Meeting (IEDM) over the same period. This

update is fully compatible with the EDS Archival Collection DVD and the two products work together seamlessly providing extensive search capabilities to all issues of EDL, T-ED and all technical digests of the IEDM. The DVDs include comprehensive author, subject and publications indices, abstract pages

and all articles are in searchable PDF format.

The 2009 EDS DVD Update Package is available exclusively to EDS members for a bargain price of US \$40 (students \$20) through the IEEE online store <http://shop.ieee.org/store/>, or download an order form from the EDS website at, <http://www.>

ieee.org/portal/pages/society/eds/pubs/pubs.html.

You can request the 2010 EDS DVD Update Package in advance as a subscription via your 2011 IEEE membership renewal bill when you receive it this Fall. The 2010 EDS DVD Package will be available at the latest by May 2011. Once you sign-up to receive the 2010 package via your member renewal bill, you

will automatically be billed each year for subsequent versions of the package.

These products are being made available to our members in the spirit of providing technical information at the most affordable price possible. Hand-in-hand with this goes the concept of individual ownership. We hope that you will adhere to this concept and encourage others inter-

ested in using them to acquire their own copy. If you are not currently an EDS member we encourage you to become one to avail of these exceptional products designed to empower our members.

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

ON-LINE ACCESS TO IEEE JOURNALS AVAILABLE TO EDS MEMBERS



Samar Saha
EDS Vice-President
of Publications

As an EDS member you have FREE on-line access to the full articles of the following publications:

- **Electron Device Letters** (All Issues From 1980 through current)
- **Transactions on Electron Devices** (All Issues From 1954 through current)
- **International Electron Devices Meeting** (All Digests From 1955 through current)
- **EDS Newsletter**
- **Journal of Lightwave Technology**

These publications can be viewed through the on-line delivery system, IEEE Xplore, which provides EDS members with the following benefits/capabilities:

- Online access to their IEEE personal subscriptions
- Full-text PDF image files for content, including all original charts,

graphics, diagrams, photographs and illustrative material, from an integrated-circuit schematic to a topographic map to a photograph of a new crystalline structure

- Full-text search allows you to search metadata fields and the associated full-text journal/transaction
- Links to references and cross linking between EDS publications and other IEEE publications is available in articles
- CrossRef search offers outbound links to publications by other leading publishers, employing the google search engine
- Online version available prior to the print equivalent
- Free and unlimited access to abstract/citation records
- Unlimited printing of bibliographic records and full-text documents
- Includes cover to cover material starting (starting in 2004) i.e., letters

to editor, editorial boards, call for papers

To use the *Xplore* system, you must establish an IEEE Web Account. This account is also used for renewing your IEEE membership online. If you need to establish an IEEE Web Account, please visit www.ieee.org/web/accounts/. IEEE members can go to the *Xplore* site through the URL www.ieeexplore.ieee.org. We encourage all members of the Society to use this dynamic system and leverage their membership benefits to the fullest extent.

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: www.ieee.org/go/questeds.

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

EDS MEMBERSHIP FEE SUBSIDY PROGRAM (MFSP)



Albert Wang
EDS Vice-President
of Membership

The EDS Membership Fee Subsidy Program (MFSP) is a chapter program that enables chapters in low income geographical areas to increase their membership. This program is also used to help launch

new IEEE EDS chapters.

The MFSP guidelines are as follows:

IEEE policy currently allows a 50% discount on IEEE dues and one society membership for any individual whose annual salary is less than US\$13,400. This offering is referred to as the Minimum Income Special Considerations Option. The Electron Devices Society currently has a program for its chapters called the Membership Fee Subsidy Program

(MFSP), which both complements the IEEE Minimum Income offering and provides a significant additional benefit for qualified individuals.

With the EDS Membership Fee Subsidy Program, EDS will pay 50% of the IEEE and EDS dues for any new/existing member or student qualifying for the Minimum Income option. EDS will cover up to twelve (12) chapter members/students per year. Each member/student can only be covered 'one time' under this program and four of the twelve members/students each year must be new IEEE/EDS members/students. The individuals can be applying for either regular membership or student membership. This program is also available to all unemployed members. Although the IEEE Minimum Income option allows individuals to purchase publication subscriptions for one-society at a 50% reduced rate, the EDS MFSP

does not cover the payment of publication subscriptions.

If a chapter has individuals who qualify for the reduced IEEE Minimum Income offering and the EDS MFSP, all the Chapter Chair needs to do is obtain the IEEE/EDS membership application forms or IEEE Renewal Bills from all individuals participating in the program (maximum 12) and submit them to the EDS Executive Office. Once received, the application forms will be coded with a special account number and submitted to the pertinent IEEE department for processing.

For any questions concerning the program, please contact the Joyce Lombardini in the EDS Executive Office (j.lombardini@ieee.org).

Albert Wang
EDS Vice-President of Membership
University of California
Riverside, CA, USA

EDS REGION 8 CHAPTERS MEETING SUMMARY

The 2010 EDS Region 8 Chapters Meeting was held at the Commundo Tagungshotel Stuttgart, conveniently located in a suburban area of Stuttgart, Germany, and on the premises of the Stuttgart University Campus, Saturday, June 5th, in conjunction with the EDS Administrative Committee (AdCom) Meeting. This year's meeting was attended by approximately 35 EDS members and more than a dozen chapters representing the entire Region 8 area. The previous EDS Region 8 Chapters Meeting was held in Athens, Greece, in 2008.

The meeting was hosted by EDS President, Renuka Jindal, who opened the meeting with a welcome to the participants.

In his opening remarks, President Jindal raised some fundamental organizational issues such as how critical is EDS funding to sustain and boost chapter activities and what can EDS do to better support chapters. Also the EDS President tackled the issue of a better leverage of the chapters to attract more members and engage current ones. Finally the EDS President announced the coming updating of the EDS website design. This will give Chapters a unique opportunity to play an integral role in terms of keeping an updated list of events being scheduled and even directly update their content or provide input to EDS staff for updating the content. The questions

and issues raised by Renuka ignited a lively and constructive discussion among the attendees.

The meeting continued with a report by Juin Liou, EDS Vice-President of Regions/Chapters who spoke on the history of EDS chapters, chapter subsidies and new chapters.

Fifteen chapters presented reports at the meeting, which was divided into two sessions with a half hour break for refreshments and socializing. During the first half of the meeting, Chapters from Western Europe, the United Kingdom, the Middle East, Africa and Eastern Europe presented reports given by the following representatives: Joachin Burghartz (Germany Chapter) who



Attendees of the 2010 EDS Region 8 Chapters Meeting, Stuttgart, Germany

reported about the newly rejuvenated Germany Chapter which has been very active in its first year of "new life", Olivier Bonnaud (France Chapter), Ivan Buliev (Bulgaria, Varna Chapter), who reported about a very successful two weeks School of CAD in Electronics in Varna, Ali A. Rezazadeh (UKRI Chapter) reporting about the very active Student Branch in Manchester and on the UKRI Mini-Colloquia held by the UKRI Chapter on 5/1/09 at the University College, Dublin, Ireland, Gady Golan (Israel), Monuko DuPlessis (South Africa), Andrzej Napieralski (Poland) reporting also about the Lublin Mini-Colloquia held by the Poland Chapter on 5/7-8/09 in Lublin, Poland.

The second half of the meeting commenced after the refreshment break and was well represented by chapters from the Eastern Europe and Former Soviet Union countries. Chapter representatives Tamar Gogua (Republic of Georgia), Goce L. Arsov (Republic of Macedonia), Elena Skorodumova (Moscow Chapter, Russia), Kostyantyn V. Ilyenko (Karkiv Chapter, East Ukraine), Vladimir Shashkin (Nizhny Novgorod Chapter, Russia), Alexander V. Gridchin (Novosibirsk Chapter, Siberia, Russia), Oleg V. Stukach (Tomsk



A Fountain at Schlossplatz, Stuttgart, Germany

Chapter, Siberia, Russia), and Yuriy Prokopenko (Kiev Chapter, Central Ukraine) shared their experience and Chapter activities with a very interested and active audience. In addition to reports on chapter activities, most speakers show pictures and facts about their homelands, highlighting the diverse cultures of the region.

Following the chapter reports, an open forum discussion was led

by EDS President, Renuka Jindal, continuing the discussion that opened the meeting. Issues like the need for more communication between IEEE and the chapters to better understand IEEE and EDS member benefits and the request for increased funding to chapters who want the assistance were tackled. Many suggestions came on the ways the internet could be used to create new member benefits, increase student membership, advertise existing programs and expand the audience for EDS Distinguished Lecturers and conference short courses.

Thanks was given to Joachim Burghartz, ED Germany Chapter Chair, in recognition for his outstanding assistance to the EDS Executive Office, especially for finding the perfect location for the meeting and being the liaison for visa processing for our meeting attendees. The success of the EDS meetings would not have been possible without his dedicated, enthusiastic service.

*Enrico Sangiorgi
EDS Vice-Chair SRC-EAM
University of Bologna
Cesena, Italy*

REGIONAL AND CHAPTER NEWS

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

ED Boise

—by Shyam Surthi

WMED-2010

WMED 2010 was held at the Boise State Student Union on April 16th. This is the eighth workshop held by the ED Boise Chapter. The workshop's focus is semiconductor devices, but the topics covered are wide ranging and appeal to a large cross section of the workshop audience. The WMED attendance this year was 188 students and professionals representing many areas in the Pacific Northwest region. Such strong participation even in a down economy shows that the workshop is still filling its mission of providing a high quality IEEE EDS workshop to the region.

This year the workshop had a total of six invited speakers. For a sec-



The 180+ attendees at the WMED-2010 rated the workshop high on all accounts and asked some focused questions to each of the invited speakers

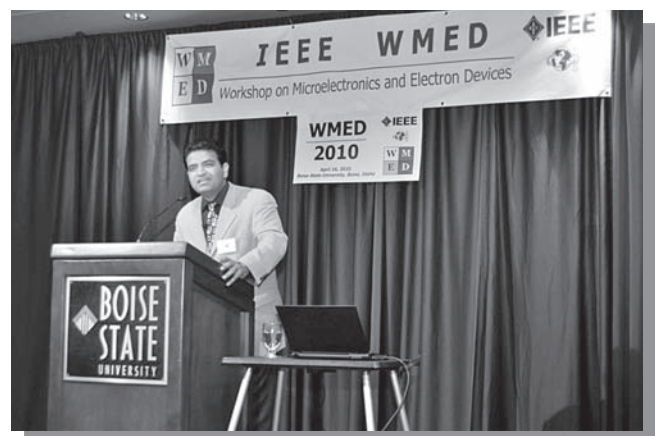
ond year the workshop is proud to have an IEEE Fellow, Dr. Tahir Ganhi from Intel Corporation, give an invited talk. Dr. Ganhi's talk addressed the challenge of continued device scaling in the nanoscale era and how that scaling will continue in the future. Dr. Peter Hartwell of Hewlett-Packard Labs in Palo Alto presented his talk on HP's CeNSE project. This effort consists of billions of MEMS sensors networked to exchange information about the environment. Dr. James Lu from RPI rounded out the morning session with a talk on

3D chips and how TSVs (Through Silicon Vias) will change how the industry approaches semiconductor scaling in design and manufacturing. After lunch Dr. C. R. Wronski from Penn State University, one of the co-inventors of the amorphous thin film solar cells, gave a talk on photovoltaic cells.

The workshop this year featured two technical tutorials. One tutorial, by Dr. Todd Marquart of Micron Technology, discussed the new challenges that are facing reliability engineers as scaling begins to push



In the morning session, Dr. Peter Hartwell (HP Labs) presented an engaging discussion on the Central Nervous System for the Earth, a system with networked nanoscale sensors and actuators



In the afternoon tutorial session, Dr. Kaustav Banerjee (EDS Distinguished Lecturer, UC – Santa Barbara) presented a thorough discussion on Carbon based Nanomaterials as interconnects

physical boundaries. The other tutorial by Dr. Kaustav Banerjee, focused on nanotubes and how they can be used to extend scaling. In addition, the workshop featured twelve accepted technical papers presented by the authors and six posters from regional universities. This year the best paper award goes to Abhijeet Paul from Purdue University for the paper "Atomistic Study of Ultra-scaled Electron and Hole SiGe Nanowire FETs." The best poster award is awarded this year to Chris Gagliano of Boise State University for "A Compact Delay-Locked loop for Multi-Phase Non-overlapped Clock Generation." The workshop encourages engineering student participation by providing a limited number of Student Travel Awards to defray the cost of traveling to the workshop. This year's recipients are Hari Krishnan Kirshnamurthy of Washington State University (Pullman), Ali Mesgarani of University of Idaho (Moscow), and Abhijeet Paul of Purdue University (West Lafayette).

The workshop's success this year is due to the hard work of the volunteers that plan and execute it each year. The IEEE ED Boise Chapter officers and members believe in the concept of WMED to provide quality speakers and papers in semiconductor technology. Along with the professional workshop attendees, this year the workshop also invited local high school seniors to spend the morning at the workshop to see what real engineers are doing, and to challenge them to give serious thought to becoming an engineer.

The workshop is receiving technical co-sponsorship support from the IEEE EDS. In addition, Micron Foundation provides a substantial amount of funding for the workshop each year and the workshop would not be possible without this generous support. Other sponsors of the workshop are the IEEE Boise Section and the Boise State University College of Engineering. The WMED-2011 will be held in April 2011. Please visit the website for

further details: <http://www.ewh.ieee.org/r6/boise/wmed2011/WMED2011.html> or contact: Vishwanath Bhat, 2011 IEEE WMED General Chair, Tel: 208-363-2492, E-mail: vkhat@micron.com. If you are on LinkedIn® join the WMED group to discuss topics for next year's WMED.

~ Adam M. Conway, Editor

EUROPE, MIDDLE EAST & AFRICA (REGION 8)

2010 International Conference on Microelectronics (MIEL)

—by Ninoslav Stojadinović

The 27th International Conference on Microelectronics (MIEL 2010) was held on May 16–19, 2010, at the Faculty of Electronic Engineering, University of Nis, Serbia. The conference was organized by the IEEE ED/SSC Serbia and Montenegro Chapter in cooperation with the Faculty of Electronic Engineering (University of Niš), Ei-Holding Co., and National Society for ETRAN, under co-sponsorship of the IEEE Electron Devices Society, in cooperation with the IEEE Solid-State Circuits Society, and under the auspices of the Serbian Ministry of Science and Technological Development, Serbian Academy of Science and Arts, Academy of Engineering Sciences of Serbia and City Assembly of Nis.

The Opening Address and Keynote Talk by Mr. Božidar Djelić, Minister of Science and Technological Development of the Republic of



Professor Ninoslav Stojadinović addressing the audience at the MIEL 2010 Opening Session



Minister of Science and Technological Development of the Republic of Serbia, Mr. Božidar Djelić addressing the audience at the MIEL 2010 Opening Session

Serbia, on the Strategy of Scientific and Technological Development of the Republic of Serbia, attracted a lot of interest of foreign participants. It was an excellent introduction to the main technical program, which consisted of ten regular sessions: Microsystem Technologies, Opto and Microwave Devices and ICs, Processes and Technologies, Physics and Modeling, Power Devices and ICs, Modeling and Simulation, Reliability Physics, System Design, Circuit Design and Testing, and Circuit and System Design. The attendees, 27 domestic and 84 foreign, came from 33 different countries. The total of 11 keynote invited papers and 85 regular contributions (50 in oral sessions and 35 posters) were presented. The conference proceedings (494 pages) were published through the IEEE Conference Publications Program.

The keynote invited speakers were: S. Dimitrijević (Griffith University, Nathan, Australia), J. Vobecky (ABB Switzerland, Lenzburg, Switzerland / Czech Technical University, Prague, Czech Republic), P. Igić (University of Swansea, United Kingdom), K. Sheinai (University of Toledo, USA), K. Itoh (Hitachi, Ltd., Tokyo, Japan), S. Selberherr (Technical University of Vienna, Austria), M.A. Alam (Purdue University, West Lafayette, USA), V. Stojanović (Massachusetts Institute of Technology, Cambridge, USA), R.S. Popović (Swiss Federal Institute of Technology, Lausanne, Switzerland), V. Oklobdžija (University of Texas, Dallas, USA), and S. Cotofana

(Delft University of Technology, The Netherlands).

Based on evaluation of the quality of the papers and presentations, three Best Paper Awards were presented to M. Benigni (University of Milan, Italy) for an oral paper "Design of Rad-Hard SRAM Cells: A Comparative Study"; to T.V. Perevalov (Siberian Branch Russian Academy of Science, Novosibirsk, Russia) for a poster paper "Electronic Structure of Oxygen Vacancy and Poly-Vacancy in I2O3;" and to D. Valente (University of Tours, France) for a student paper "Platinum Decoration of Silicon Direct Wafer Bonded Interfaces." In addition, Microelectronics Reliability journal awarded the paper "BJT Static Behavior Improvement by Modification Epitaxial Layer" by L. Theolier (ST Microelectronics, Tours, France).

As is among best traditions of MIEL, the social program of this year's conference issue was particularly rich, with a conference banquet and gala dinner as highlights. Besides the high quality of presentations, MIEL conferences are generally flavored by friendly atmosphere and great hospitality of the local people. This special charm adds to very positive impressions the participants bring from the conference, and is one of the reasons why one rarely attends MIEL just once: one who comes will almost certainly come again. So, we are very much looking forward to welcoming old and new friends at MIEL 2012.

ED Israel

—by Gady Golan

The ED Israel Chapter organized the following three seminars during the second and third quarter of this year. All were led by Prof. Gady Golan, the Chapter Chair.

Dr. Eli Ben-Dov, who specializes in wind energy since 1974, presented his lecture on "Wind Energy in Israel" at the Holon Institute of Technology, Holon, Israel, July 8, 2010.

The location of Israel between the sea and the deserts in the east enables

a constant wind potential, estimating about 7,000 MW at various sites if a right tariff is given. More than 150,000 MW of wind farms are installed today in the world, and the industry grows in an amazing rate of 25% each year.

Dr. Sagiv Chen, who is the founder and CEO of SagivTech, a company that specializes in image processing and GPU computing, delivered her seminar entitled "Imatest - a tool for image quality assessment," at the Holon Institute of Technology, Holon, Israel, July 13, 2010.

One of the most important aspects of developing a system for image acquisition and analysis is the ability to assess the quality of the images obtained. The human observer can naturally qualitatively assess the "goodness" of an image. An automatic system for image quality assessment, however, is a great challenge. In this seminar, Dr. Chen discussed various measures for image quality assessment and the way they can be estimated using Imatest.

Prof. Ilan Gravee, Elizabethtown College, Pennsylvania, USA, presented "Echoes from an International Engineering Career," at the Holon Institute of Technology, Holon, Israel, May 3, 2010,

In this talk, addressed to an audience of soon-to-be-engineers, Prof. Ilan Gravé discussed elements of personal choices and attitudes to keep the progression of one's personal career and interests on the dynamic and attractive sides. Ingredients such as lifelong learning, change/expansion of fields of interest, high-tech industry versus academic environments, impact and opportunities in a global market were discussed.

~ Zhirun Hu, Editor

ED Germany

On June 2, 2010, EDS Vice President, Prof. Albert Wang from the University of California visited the ED Germany Chapter. Albert's visit to Berlin was hosted by Prof. Roland Thewes of the Technical University Berlin. The visit started with an IEEE Distin-



Albert Wang (fourth from left) and some students from TU Berlin

guished Lecture, entitled "ESD-RFIC Co-Design", which was held at the Technical University Berlin and received by local friends with technical interests in both electron devices and circuits, including students from TU Berlin.

One of the goals for Albert's visit to Berlin was to communicate with local EDS friends to gain first-hand information about local interests in the Electron Devices Society and to explore the possibility of establishing a new EDS chapter in Berlin, including possible student branch chapter in Berlin area. Over years, we learned that local interests in Electron Devices Society and EDS chapter activities are widely different around the globe. Unlike North America, where there has been traditional strengths in research and development in the field of electron devices and circuits, as well as microelectronics industries, there is a different pattern for local interest in EDS activities. For example, there is only one EDS chapter in Germany, France and United Kingdom (joint with Republic of Ireland), respectively. Yet, the fact is that there are extremely strong R&D and industrial basis in the field of micro and nano electronics in the regions. Having one chapter in one country is an apparent disadvantage in terms of ensuring efficient interactions among local EDS members and organizing EDS events in the country. Albert's visit to Berlin aimed to understand the local thoughts and situations, which shall help to promote EDS

values to local professionals in the field of EDS. We are looking forward to better addressing the local interests in and needs for EDS, as well as prosperity of EDS activities in the region in the near future.

~ Jan Vobecky, Editor

ASIA & PACIFIC (REGION 10)

ED Beijing

~by Jinjun Feng

On April 2, 2010, Prof. Robin W. Tucker visited the ED Beijing Chapter. Prof. Tucker is the head of the theory division in the Physics Department at Lancaster University, UK. He is also a founding member of the Cockcroft Institute of Accelerator Science. He has interests in fundamental aspects of gravitation, electromagnetism, relativistic continuum mechanics, plasma physics and quantum field theory. Prof. Tucker delivered a lecture on Slow Light and Non-linear Electrodynamics at the Beijing Vacuum Electronics Research Institute (BVERI) and Vacuum Electronics National Lab (VENL) in Beijing. Dr. Jinjun Feng, Vice Chairman of the Beijing Chapter hosted the meeting, and there were over 20 attendees including postgraduate students, PH.D. students, and researchers from BVERI and VENL. Prof. Tucker put forward some new topics: Should one explore effective non-linear electrodynamic theories that may describe modifications to classical linear (Maxwell) electrodynamics in high-field regimes before the expected breakdown due to quantum effects? Can one devise laboratory experiments to discriminate such theories from Maxwell's theory in the classical vacuum? Are there any implications for modern technology or astrophysics? He also discussed other aspects of non-linear vacuum electrodynamics.

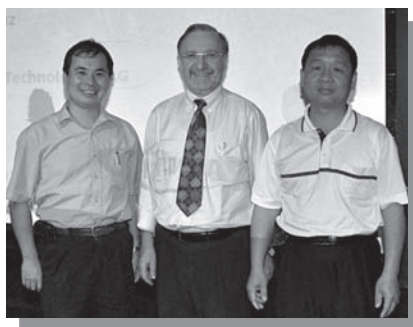


Prof. Robin Tucker (third from left, second row) and Dr. Jinjun Feng (third from right, second row) with audience

ED Tainan

~by Wen-Kuan Yeh

The ED Tainan Chapter held one Distinguished Lecture in Tainan, Taiwan, April 28, 2010, given by Prof. Leo Lorenz from National Cheng Kung University. Prof. Lorenz' talk, entitled "Fast switching Power Semiconductor Devices and Smart Power IC's - An Enabling Technology for Future High Efficient Electronic System," introduced new silicon and device technologies, advanced device concepts, such as IGBT, super-junction devices, and SiC power devices. Future aspects for system integration in the industrial, automotive, and consumer applications, were also



(from left) Prof. Wen-Kuan Yeh (ED Tainan Chapter Chair), Prof. Leo Lorenz (DL speaker), and Prof. Tsorng-Juu, Liang (National Cheng-Kung University)

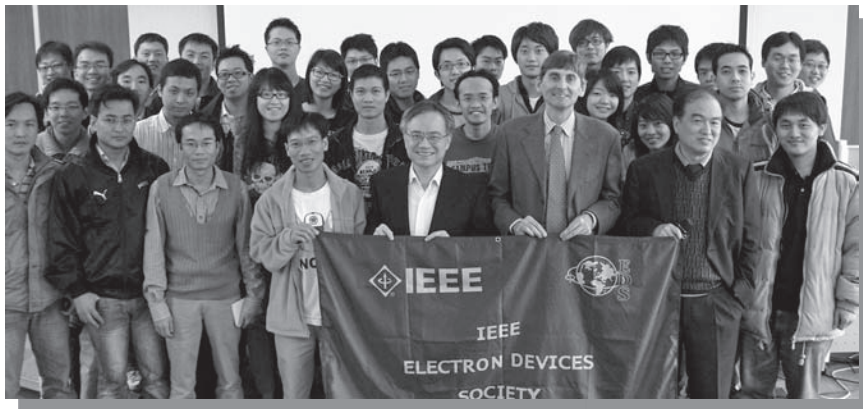
addressed. About 30 students and several professors from local universities attended.

ED Taipei

~by Steve Chung

The ED Taipei Chapter held a special seminar on April 27, 2010, for Prof. Jesus Alamo, MIT, during his visit to Hsinchu for the VLSI-TSA event. Prof. Alamo spoke on, "The prospects for 10nm III-V CMOS." The further scaling of Silicon CMOS has rendered into difficulties and the investigation of alternative channel materials is mandatory. In this talk, he addressed the prospects and the challenges for III-V CMOS technology with gate length in the 10nm range. Current efforts on the research have been reviewed. The talk was attended by 70 participants, including students and professors from local universities.

The 2010 VLSI-TSA, sponsored by the IEEE Electron Devices Society and the IEEE Solid State Circuits Society, has successfully attracted over 550 attendees in the technical sessions and more than 300 in the short course. Approximately 75% of the attendees are from the industry and 25% from the university. The conference will be



ED Taipei invited talk on April 27th_(Holding the flag from the right) Prof. Ed Y Chang (seminar chair), Prof. Jesus Alamo (speaker), and Prof. M. H. Hong (NTHU)

held April 25–27, 2011, and once again located in Hsinchu, Taiwan. The online paper submission deadline is October 31, 2010. For more information, please visit the conference web site at <http://vlsitsa.itri.org.tw/>.

We would like to announce another upcoming event, 2010 IEDMS, which is technically co-sponsored by IEEE EDS. The meeting will be held November 18–19 at National Central University, close to Taipei International Airport. Our ED Taipei and Tainan members are the key organizers of the conference and the paper submission deadline is July 31, 2010. For more details on the conference, please check the web site, <http://iedms2010.ee.ncu.edu.tw/>.

VLSI-TSA and VLSI-DAT

–by Clara Wu

The 2010 International Symposia on VLSI Technology, Systems and Applications (2010 VLSI-TSA) and VLSI Design, Automation and Test (2010 VLSI-DAT) were successfully held April 26–29, 2010, and attracted about 700 attendees. To stimulate interaction between the technology and design communities, the symposia overlapped for two days, as they did in 2009.

As a reflection of marketing trends and developing domains in 3D IC technology, a joint-invited session on this topic, with speakers representing both design and technology perspectives, was scheduled for the second day of the conference.



Nearly 300 attendees attended the 2010 VLSI-DAT Opening

3D Integration is emerging as an attractive option to sustain Moore's Law and to enable More-than-Moore. At the 2010 VLSI-TSA/VLSI-DAT joint session on 3D Integration, five distinguished invited speakers from the US, Europe, and Japan were invited to present various aspects of this topic, including TSV-based 3D integration and inductance/capacitance coupling 3D integration, as well as of 3D processes, CAD tools, and design issues, with overviews of major 3D programs by key industrial players.

The aim of the joint conference or joint session is to bring together scientists and engineers actively engaged in research, development, and manufacturing on VLSI technology, systems, and applications and on VLSI design, automation and test to discuss current progress in this field.

Sponsored by the Industrial Technology Research Institute (ITRI) and divided into separate annual sympo-

sia 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.

Original and unpublished papers on all aspects of VLSI technology and manufacturing are solicited for both 2011 VLSI-TSA and VLSI-DAT. The deadline for paper submissions is October 31, 2010. For more information, please visit the conference websites. VLSI-TSA: <http://vlsitsa.itri.org.tw> and VLSI-DAT: <http://vlsidat.itri.org.tw> or contact the VLSI-TSA Symposium Secretariat, Ms. Clara Wu (vlsitsa@itri.org.tw) and VLSI-DAT Symposium Secretariat, Ms. Elodie Ho (vlsidat@itri.org.tw).

~ Mansun Chan, Editor

ED Japan

–by Shin'ichiro Kimura

A Distinguished Lecture entitled "Some Studies of Characteristics of MIM and MOS devices with Hafnium Oxide and Aluminum Oxide as Dielectrics under Electrical and Radiation stress," was given by Prof. A. N. Chandorkar, (Indian Institute of Technology Bombay, India) at Tokyo Institute of Technology, Yokohama, June 11, 2010. His lecture was composed of two parts: "Studies of Electrical Stressing of Hafnium Oxide Based MIM Capacitors." and "Radiation Effect on MOS / MIM Capacitors Having Hafnium Oxide and Aluminum Oxide as Gate Insulators." The second half, effects of e-beam lithography (electron radiations) on HfO_2 MOS capacitors and of Gamma-ray radiations on $\text{TiN}/\text{HfO}_2/\text{TiN}$ MIM capacitors and their process dependence were discussed. Twenty-five people attend the DL and enjoyed the lecturer's meaningful talk.

On June 4, 2010, the URSI-C Committee 7th Opening Meeting, co-sponsored by the ED Japan Chapter, was held at the Faculty of Engineering, Tokushima University, with the theme of "Packaging/Board Integration Technologies for High Frequency and High Speed-data."



Attendees of the DL given by Prof. A. N. Chandorkar, (center, second row) held at the Tokyo Institute of Technology

ED Kansai

—by Michinori Nishihara

The ED Kansai Chapter held the 8th International Meeting for Future of Electron Devices, Kansai (2010 IMFEDK) at Kansai University Centenary Memorial Hall, Osaka, Japan, May 13–14, 2010. The meeting attracted 154 attendees and was preceded by a tutorial seminar with two distinct subjects, a lecturer by Prof. Shigehiko Sasa on “Growth and Device Applications of Zinc Oxide,” and Dr. Hirofumi Shinohara from STARC who spoke on “Low Power Technology for CMOS-LSI.” The formal program followed with encouraging opening remarks by Prof. Yoichi Akasaka.

IMFEDK featured three keynote speakers: “Monitoring and Targeting of Cancer: Current Status of Cancer Serum Test and Practical Hints for Next Generation Advancement of Technology” by Dr. Manami Tanaka from AIST; “Electron Devices of IRT (Information and Robot Technology) in Aging Society” by Prof. Isao Shimoyama from The University of Tokyo and “Future Prospects of Nano-Scale Transistors for VLSI Applications” by Prof. Toshiro Hira-

moto, also from The University of Tokyo. These were timely topics, well balanced from base technology forecast to medical applications.

The meeting program continued with two invited talks: “Current Controllability and Stability in Multi-Mesa-Channel AlGaIn/GaN HEMTs” by Prof. Tamotsu Hashizume of Hokkaido University and “Infrared Imaging for Security and Safety” by Prof. Masafumi Kimata of Ritsumeikan University.

There were three regular technical sessions as usual, with topics on “Silicon Devices and Related,” “Compound Semiconductor Devices” and “Emerging Devices.” One of the major events at IMFEDK is a poster session by students and we had another good showing with 39 posters this year.

At the end of the meeting we selected the best papers and Dr. Nishimura, Executive Committee Chair, gave out the following awards: IEEE EDS Kansai Chapter IMFEDK Best Paper Award was presented to Dai Okamoto of Nara Institute of Science and Technology. The student award was presented to the following: Yosuke Tojo (Nara Institute of Sci-

ence and Technology), Hideo Shimizu (Kyoto Institute of Technology), Dai-shi Ino (Kansai University), Yuta Goto (Hiroshima University), Kumiho Tsuji (Osaka Institute of Technology).

IMFEDK will continue to contribute to our student members in Kansai by providing opportunities to present their ideas in English, hence extend their technical network to other Asian countries.

~ Kazuo Tsutsui, Editor

ED Bangladesh

—by Anisul Haq

The ED Bangladesh Chapter organized three expert lectures at two different technical institutions in Bangladesh. Dr. Samir Iqbal from the University of Texas at Arlington, USA, gave a talk on *Engineering Nanotechnology and MEMS for Smart Sensors* on May 23, 2010 at the Bangladesh University of Engineering and Technology (BUET) and at East West University, Dhaka on May 25, 2010. Both talks were attended by around 100 people including students, faculty and EDS members.



Dr. Samir Iqbal giving his talk at BUET

Dr. Sayeef Salahuddin from Electrical Engineering and Computer Science Department, UC Berkeley, gave a talk on *The possibility of negative capacitance for ultra low power electronics* at East West University on June 29, 2010, which was attended by around 75 including EDS members and other professionals.

ED/AP Bombay

—by Subhananda Chakrabarti

A series of technical talks and Distinguished Lectures by eminent professors were organized by the Chapter.



Poster session at the 8th International Meeting for Future of Electron Devices (IMFEDK)



Award winners: (left to right) K. Tsuji, Y. Goto, D. Okamoto, Y. Tojo, H. Shimizu and D. Ino

The series began with a lecture by Prof. Q.J. Zang of Carleton University, Canada, on "Neural Networks for High-Frequency Electronic Modelling and Design" followed by Prof. Naresh Shanbhag of University of Illinois, on "A communications-inspired Design Paradigm for Nanoscale Systems-on-a-chip." The chapter was delighted to invite Prof. Kaushik Roy of Purdue University, USA, to deliver a lecture on "Low-voltage and variation-tolerant design." Prof. Hiroshi Iwai of Tokyo Institute of technology, Japan and Prof. S. Dutta of Penn State University, USA, motivated the attendees with their excellent lectures in the field of Nanoelectronics. Prof. Vikram L. Dalal of Iowa State University, USA, depicted the current scenario of the research and needs for thin film photovoltaics. Prof. Rajiv Gupta, Director of the Ultra-high Resolution & member of the MGH Radiology community discussed the importance and advancement of medical imaging. Prof. D.H. Dohler of Max Planck Institute for the Science of Light, Germany, focused on terahertz Physics, where ultra-low frequency optics meets ultra-high frequency RF engineering.

For the second phase, the chapter organized technical talks on the recent trends of fabrication and characterization of III-V compound semiconductor based devices. Prof. S. Dhar of University of Calcutta, India, delivered a lecture on the LPE growth of high purity and novel III-V semiconductors. Prof. Simarjeet Singh Saini of University of Waterloo, Canada and CTO of Inometrix, drew the attention towards the FTTH through photonics integrated circuits. A talk on flip-chip technology by Dr. Guenael Ribette of Smart Equipment Technology, France, was very interesting and ended with a lively discussion. These talks were well attended by people working on III-V semiconductors in IIT Bombay. The chapter also hosted EDS Distinguished Lecturer, Prof. Durgamadhab Misra of New Jersey Institute of Technology (NJIT), New-

ark, USA, on "Correlation of Defect Formation during NBTI and TDDB in TiN/High-k Gate Stacks;" and by Dr. Michel Frei of Applied Materials, Inc, on "End-to-end modeling for thin film silicon PV." All these talks were a great success with a large number of attendees from chapter members, students and professionals alike.

ED Calcutta

–by Chandan Sarkar

IEEE CASEDCOM 2010 – an educational program on Recent Trends in Nano Electronics & Communication Systems was organized by the Executive Committees of the IEEE Calcutta Chapters of CAS, EDS and ComSoc. The one day program at the Hyatt Regency, Calcutta, on March 13, 2010, covered microelectronics education, optical networking and optoelectronic devices. There were four expert lectures:

- Role of Online Laboratory in Microelectronics Education, Chinmay K. Maito, (Dept. of Electronics & ECE, IIT Kharagpur)
- Critical Life Skills: Success with Emotional Intelligence (SPAC Program), Archana Rai Law (Principal Consultant, Wipro Ltd., Kolkata)
- Optical Networks Planning and Implementation: Related Issues and Challenges, Somnath Maiti (Chief General Manager, Eastern Telecom Projects, BSNL)
- MOCVD Growth, Fabrication and Characterization of III-V Semiconductor based Optoelectronic Devices, Pallab Banerji (Materials Science Center, IIT Kharagpur)

The CASEDCOM Program was a grand success, attracting 130 partici-



Inaugural session of CASEDCOM 2010 at Calcutta

pants from various Institutes, Colleges & Industrial houses in and around Calcutta & West Bengal, as well as students of both UG & PG levels and some faculty members.

ED Malaysia

–by Zaliman Sauli

The ED Malaysia Chapter is sponsoring Nanotech Malaysia 2010, an international conference on enabling science and nanotechnology (escinano), which will be held in Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia, December 1–3, 2010. The conference is technically co-sponsored by the IEEE Electron Devices Society. The information about the conference can be found at www.fke.utm.my/mine/escinano2010. Nanotech Malaysia 2010 will feature plenary, invited and contributed papers (oral and poster sessions), thematically arranged. Plenary and invited papers will be given by 18 eminent specialists (most of them are EDS Distinguished Lecturers).

AP/ED/MTT/SSC Penang

–by Y.H. Chow

The AP/ED/MTT/SSC Penang Chapter continues to promote engineering excellence by arranging technical talks and EDS Distinguished Lectures. Two recent technical talks by Penang industry experts were given by Sonali



Prof. Vijay Arora giving a Distinguished Lecture at the Penang Chapter event

Sarpotdar of Agilent Technology and Jeff Walt of Altera. One DL by Prof. Vijay Arora of Wilkes University, was organized on June 14, 2010. The talks were held at the Penang Skill Development Center in the evening to suit the working schedule of the engineering community.

~ M.K. Radhakrishnan, Editor

EDS MEETINGS CALENDAR

(As of 25 August 2010)

THE COMPLETE EDS CALENDAR CAN BE FOUND AT OUR WEB SITE:
[HTTP://WWW.IEEE.ORG/SOCIETY/EDS/MEETINGS/MEETINGS_CALENDAR.XML](http://www.ieee.org/society/eds/meetings/meetings_calendar.xml). PLEASE VISIT!

November 1 - 4, 2010, **T International Conference on Solid-State & Integrated Circuits Technology**, Location: Hotel Equatorial, Shanghai, China, Contact: Mengqi Zhou, E-Mail: zhoumq@public3.bta.net.cn, Deadline: 7/15/10, www: <http://www.icsict2010.com>

November 4 - 5, 2010, **@ International Symposium on Next-Generation Electronics**, Location: National Sun Yat-Sen University, Kaohsiung, Taiwan, Contact: Juin Liou, E-Mail: liou@ucf.edu, Deadline: 6/4/10, www: <http://www.isne2010.org>

November 7 - 11, 2010, **T IEEE International Conference on Computer Aided Design**, Location: Double Tree Hotel San Jose, San Jose, CA, USA, Contact: Kathy Embler, E-Mail: kathy@mpassociates.com, Deadline: 4/19/10, www: <http://www.iccad.com/2010/index.html>

November 25 - 26, 2010, **@ International Electron Devices and Materials Symposia**, Location: National Central University, Jhongli, Taiwan, Contact: Jin-Wei Shi, E-Mail: jwshi@ee.ncu.edu.tw, Deadline: 7/15/10, www: <http://www.iedm2010.ee.ncu.edu.tw>

December 1 - 3, 2010, **@ International Conference on Enabling Science and Nanotechnology (ESciNano)**, Location: Kuala Lumpur Convention Centre, Kuala Lumpur, Malaysia, Contact: Secretariat ESciNano 2010, E-Mail: escinano@fke.utm.my, Deadline: 7/1/10, www: <http://www.fke.utm.my/mine/escinano2010>

December 2 - 4, 2010, ***IEEE Semiconductor Interface Specialists Conference**, Location: Catamaran

Resort Hotel, San Diego, CA, USA, Contact: Martin Frank, E-Mail: mmfrank@us.ibm.com, Deadline: 7/23/10, www: <http://www.ieeesisc.org/>

December 6 - 8, 2010, ***IEEE International Electron Devices Meeting**, Location: Hilton San Francisco, San Francisco, CA, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: 6/25/10, www: <http://www.his.com/~iedm/>

December 8 - 10, 2010, **T International Conference on Field-Programmable Technology**, Location: Tsinghua University, Beijing, China, Contact: Jinian Bian, E-Mail: bianjn@tsinghua.edu.cn, Deadline: 6/8/10, www: <http://166.111.68.91/fpt2010/index.htm>

December 11 - 15, 2010, **T International Conference on Fiber Optics and Photonics**, Location: Indian Institute of Technology Guwahati, Guwahati, India, Contact: Sunil Khijwania, E-Mail: skhijwania09@gmail.com, Deadline: 7/30/10, www: <http://www.iitg.ernet.in/photonics2010/>

December 12 - 15, 2010, **T Conference on Optoelectronic and Microelectronic Materials & Devices**, Location: Australian National University, Canberra, Australia, Contact: Hark Hoe Tan, E-Mail: hoe.tan@anu.edu.au, Deadline: 7/9/10, www: <http://commad2010.anu.edu.au/>

December 15 - 17, 2010, **T IEEE Conference on Electron Devices and Solid State Circuits**, Location: Holiday Inn Golden Mile, Hong Kong, Hong Kong, Contact: Hoi Wai Choi, E-Mail: hwchoi@hku.hk, Deadline: 8/16/10, www: <http://edssc10.eee.hku.hk/>

December 19 - 22, 2010, **T International Conference on Microelectronics**, Location: Sofitel El Gezira, Cairo, Egypt, Contact: Mohab Anis, E-Mail: manis@vlsi.uwaterloo.ca, Deadline: 6/14/10, www: <http://www.ieee-icm.com>

January 20 - 21, 2011, **T Dielectric Thin Films for Future ULSI Devices: Science and Technology**, Location: Tokyo Institute of Technology, Tokyo, Japan, Contact: Koji Kita, E-Mail: kita@adam.t.u-kokyo.ac.jp, Deadline: 9/25/10, www: <http://home.hiroshima-u.ac.jp/iwdf/>

February 9 - 11, 2011, **T Spanish Conference on Electron Devices**, Location: Museum Es Baluard, Palma de Mallorca, Spain, Contact: Eugeni Garcia-Moreno, E-Mail: eugeni.garcia@uib.es, Deadline: 10/15/10, www: <http://www.cde-conf.org/>

February 21 - 24, 2011, **@ International Vacuum Electronics Conference**, Location: TBD, Bangalore, India, Contact: Lalit Kumar, E-Mail: director@mtrdc.drdo.in, Deadline: Not Available, www: <http://ewh.ieee.org/conf/ivec/2011>

March 14 - 16, 2011, **T IEEE International Symposium on Quality Electronic Design**, Location: Hyatt Regency Hotel, Santa Clara, CA, USA, Contact: Ali Iranmanesh, E-Mail: alii@svtii.com, Deadline: 9/30/10, www: <http://www.isqed.org>

(continued on page 24)