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## 2012 PVSC WILLIAM R. CHERRY AWARD WINNER



*Sarah Kurtz  
2012 William R.  
Cherry Award Winner*

This award is named in honor of William R. Cherry, a founder of the photovoltaic community. In the 1950's, he was instrumental in establishing solar cells as the ideal power source for space satellites and for recognizing, advocating, and nurturing the use of photovoltaic systems for terrestrial applications. The William R.

Cherry Award was instituted in 1980, shortly after his death. The purpose of the award is to recognize engineers and scientists who devote a part of their professional life to the advancement of the technology of photovoltaic energy conversion.

This award is presented at each IEEE/EDS Photovoltaic Specialists Conference. The recipient is selected by the William R. Cherry Committee composed of past PVSC chairpersons and past recipients of the award.

Dr. Sarah Kurtz is currently a Principal Scientist and Manager of the Module Reliability and

*(continued on page 36)*

## 2012 IEEE Bipolar/BiCMOS CIRCUITS AND TECHNOLOGY MEETING (BCTM)



*The City of Portland, with Mt. Hood in the distance*

The 2012 IEEE BCTM will be held September 30-October 3 at Embassy Suites Downtown Hotel in Portland, Oregon, USA.

The BCTM is the world's premier forum for technical communication focused on the needs and interests of the Bipolar and BiCMOS community. If you are interested in leading edge Bipolar/BiCMOS devices and technology, circuits, and applications related to analog, digital and RF telecommunications and wireless systems, as well as networking with experts in these areas, BCTM is a conference you should definitely add to your calendar! See our website: <http://2012.ieee-bctm.org> for more details.

The Embassy Suites Portland – Downtown Hotel is located in the historic 1912 Multnomah Hotel building, centrally located in the heart of the city. It is easily accessible by light-rail from the airport and is within walking distance to many of Portland's landmark attractions, such as Powell's City of Books, the Portland Saturday Market, and the Lan Su Chinese Garden. Portland's unique geographical location provides day trip opportunities to the Columbia River Gorge, Mount Hood, the rugged Oregon Coast, and the wineries of the Willamette Valley. Finally, a visit to Portland, or *Beervana*, is

*(continued on page 5)*

### 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](mailto:ninoslav.stojadinovic@elfak.ni.ac.rs).

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### EDS AdCom Elected Members-at-Large

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

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## CONTRIBUTIONS WELCOME

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

### NEWSLETTER DEADLINES

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

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

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# UPCOMING TECHNICAL MEETINGS

## 2012 IEEE INTERNATIONAL INTEGRATED RELIABILITY WORKSHOP (IIRW)

The 2012 IEEE International Integrated Reliability Workshop (IIRW), sponsored by the IEEE Reliability Society and the IEEE Electron Devices Society, will be held at the Stanford Sierra Conference Center on the shores of Fallen Leaf Lake near South Lake Tahoe, California, October 14–18, 2012. This workshop provides a unique forum for open and frank discussions of all areas of reliability research and technology for present and future semiconductor applications.

Hot reliability topics include: transistor reliability including hot carriers and NBTI/PBTI, high-k and nitrided SiO<sub>2</sub> dielectrics, SiGe and strained Si, III-V, SOI, emerging memory technologies and future “nano” technologies, Cu interconnects and low-k dielectrics, product reliability and burn-in, impact of transistor degradation on circuit reliability, reliability modeling and simulation, single event upsets, NEMS/MEMS, and photovoltaics. This year, IIRW is pleased to sponsor research in *resistive memory*. The complete Call for Papers can be found at [www.iirw.org](http://www.iirw.org). Please submit abstracts through [www.iirw.org](http://www.iirw.org) until the submission deadline of July 20, 2012. Contact the Technical Program Chair, Jason Campbell, NIST ([jason.campbell@nist.gov](mailto:jason.campbell@nist.gov)) for any further questions or visit [www.iirw.org](http://www.iirw.org) for continued updates about the conference.

IIRW is quite a bit different from a typical technical conference. From the moment you arrive, you realize that you are taking part in something special. Located 6000ft high in the Sierra Nevada Mountains, the Stanford Sierra Conference Center provides an ideal atmosphere for a relaxing yet informative workshop. All aspects of the workshop, including



*View from the old lodge at the Stanford Sierra Conference Center. The Stanford Sierra Conference Center provides lodging, meals and meeting facilities as well as excellent recreation including hiking in the Desolation Wilderness and boating on Fallen Leaf Lake*

the physical isolation of the location, the absence of distractions such as in room phones and television sets, and the format of the technical program encourage extensive interaction among the workshop attendees. You feel yourself drawn into technical discussions from the start.

Nestled throughout the pines and cedars along the shoreline of Fallen Leaf Lake, attendees stay in cabins furnished in the rustic style of an alpine resort. All rooms have decks with magnificent views of Fallen Leaf Lake and the surrounding Sierra peaks. Comfortable, informal dress is encouraged, affiliations are downplayed, and meals are provided family-style in the lodge dining room. This peaceful setting, free of the distractions of modern life, presents a terrific opportunity to get to know your colleagues, including internationally renowned experts. This is an opportunity not usually available

at larger, more hectic conferences. Instead of watching TV, participants spend their evenings at informal poster sessions, discussion groups, and special interest groups, all with refreshments and snacks provided to stimulate discussions. At the end of the day, attendees are free to relax in front of a roaring fireplace in the rustic Old Lodge.

One advantage of the IIRW is the moderated *Discussion Groups* that are held in the evenings, organized this year by James Wu, PMC-Sierra. Following up on the Discussion Groups are the *Special Interest Groups*, which are composed of small groups of attendees who want to continue their discussions on a particular topic of interest which often continues even after leaving the workshop.

Yet another advantage of attending the IIRW is the extensive collection of *Tutorials*, presented by

leading experts and included at no additional cost. This year the tutorials are jointly organized by Michael Dammann, Fraunhofer, IAF and Todd Weatherford, Naval Postgraduate School, and cover diverse reliability. Check the IIRW website for updates on tutorial presenters.

One unique aspect of the workshop is the opportunity for any attendee to present a walk-in poster of their latest work. No matter how far along your research is your ideas will be accommodated. This is a great way to share that new project you are working on and to get world-class feedback. Speakers at this year's IIRW will include Dr. Gennadi Bersuker

(Sematech), Prof. Koji Eriguchi (Kyoto University), Prof. Suman Datta (Penn State University), Prof. Ru Huang (Peking University), Dr. Janice Nickel (HP Labs), Dr. Kristof Croes (IMEC), and Dr. Joachim Würfl (Ferdinand-Braun-Institute) among others.

Finally, attendees have Wednesday afternoon off to enjoy a variety of outdoor activities such as hiking, volleyball, sailing or kayaking, biking, walking, or simply continuing that intriguing conversation from the night before. This free afternoon is a great way to not only network, but also to build long-lasting friendships.

Additional information about the workshop is available on the IIRW

website at [www.iirw.org](http://www.iirw.org), or by contacting Andrew Turner of IBM, 2012 IIRW General Chair, ([aaturner@us.ibm.com](mailto:aaturner@us.ibm.com)). Note: If you want to take part in this event, please register early as space at the Stanford Sierra Conference Center is limited to roughly 120 attendees and the workshop has sold out in the past.

On behalf of the 2012 IIRW Committee, I look forward to meeting you in Lake Tahoe!

*Richard G. Southwick, III*  
2012 IIRW Communications Chair  
National Institute of Standards and  
Technology  
Gaithersburg, MD, USA

## 2012 IEEE COMPOUND SEMICONDUCTOR IC SYMPOSIUM (CSICS)

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

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



consists of approximately 60 high quality state-of-the-art technical papers, 4 panel sessions, and an Industry Exhibit. The short courses will be run in parallel on Sunday, October 14<sup>th</sup> to provide the attendees with a unique opportunity to learn from world-renowned instructors in their respective areas of expertise. The Symposium will also be offering the popular annual introductory

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

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

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



Tuesday evening. Breakfasts and coffee breaks will also be served on Monday, Tuesday, and Wednesday. The Symposium will be held at the Hyatt Regency La Jolla at Aventine. Attendees can enjoy a seaside destination with the charm of a European village and the panache of Southern California. Set on 11 prime acres in La Jolla, the Hyatt Regency is a luxurious hotel boasting recently-updated guestrooms, a Sports Club and spa,

and a gourmet restaurant row. Located in the city known as "The Jewel of the Pacific," the La Jolla hotel offers incomparable beaches, shopping, dining, galleries and attractions. Visit Stephen Birch Aquarium & Museum, spend a day kayaking, take a Baja Lobster or Wine tour, see live theater or shop San Diego's trendy boutiques; all just minutes away.

For registration and up-to-date information please visit the CSICS

website at <http://www.csics.org>. Further questions may be addressed to the Symposium Chair: Sorin Voinigescu, by phone: 1-416-946-8664 or e-mail: [sorinv@eecg.toronto.edu](mailto:sorinv@eecg.toronto.edu).

We hope you can attend, 2012 IEEE CSICS Organizing Committee

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

## 2012 IEEE Bipolar/BiCMOS Circuits And Technology Meeting (BCTM)

*(continued from page 1)*

not complete without trying a strong Northwest microbrew from one of over 30 regional breweries...more than any other city in the world.

This year's banquet will be held in the McMenamins Crystal Ballroom, a historic music and event venue in Portland for nearly 100 years, famous for its flamboyant décor and astounding "floating" dance floor ([www.mcmenamins.com/crystalballroom](http://www.mcmenamins.com/crystalballroom)).

BCTM offers a one day short course where you can learn directly about the latest developments in the area of Millimeter-wave Systems: modeling, characterization and circuit design from leading experts such as David Root (Agilent), Marco Spirito (TU Delft), John Long (TU Delft), and Ullrich Pfeiffer (U. Wuppertal). Whether or not you currently work in one of these areas or just want to expand your knowledge of them, the short course is an excellent opportunity.

The conference is one of the few that emphasizes all aspects of bipolar devices: Processing Technology, Modeling and Characterization, Device Physics, and Circuit Design, ranging from Analog/Mixed-Signal to Wireless Design. This year we are pleased to have Barrie Gilbert (ADI) opening the conference with his plenary address, "DC to Terahertz, Picoamps to Amps, Millivolts to Hundreds: The Ubiquitous Bipolar Transistor."

As part of our emerging technologies session, invited authorities in Carbon Nanotube Electron Devices, Thin-film Silicon Technology for Highly-Efficient Solar Cells, and Living Chips and Chips for the Living, and DARPA's Diverse Accessible Heterogeneous Integration Program will provide their insight to these exciting new areas. Finally, our topical areas will feature industry leaders presenting invited talks on "From the future to the mainstream:

Has GaAs reliability finally come of age?," "State-of-the-art and future perspectives in calibration and de-embedding techniques or characterization of advanced SiGe HBTs featuring sub-THz  $f_T/f_{max}$ ," "MEMS Module Integration into SiGe BiCMOS Technology for Embedded System Applications," "Advances in High Speed Operational Amplifiers – Processes, Topologies and Performance," and "Innovative Architectures for Advanced Handset Power Amplifier Performance."

See you in Portland!

*John D. Cressler*  
2012 BCTM General Chair  
Georgia Tech  
Atlanta, GA, USA

*Bruce Hecht*  
2012 BCTM Technical Program Chair  
Analog Devices, Inc.  
Wilmington, MA, USA

# SOCIETY NEWS

## EDS ADMINISTRATIVE COMMITTEE ELECTION PROCESS



*Renuka P. Jindal  
EDS Nominations  
and Elections Chair*

The Members-at-Large (MAL) of the EDS AdCom are elected for staggered three-year terms, with a maximum of two consecutive terms. The 1993 Constitution and Bylaws changes mandated increasing the number of elected MAL from 18 to 22, and required that there be at least two members from both IEEE Region 8 (Europe, Middle East & Africa) and Region 10 (Asia & Pacific). In 2003, EDS made changes to its Constitution and Bylaws to require that at least one elected AdCom member is a Graduate of the Last Decade (GOLD member). A GOLD member is defined by IEEE as a member who graduated with his/her first professional degree within the last ten years. It is also required that there are at least 1.5 candidates for each opening. In 2012, seven positions will be filled.

Each nominee needs to be endorsed by a 'full' voting member, i.e., one of the four officers (President, President-Elect, Treasurer or Secretary), the Jr. or Sr. Past President or one of the 22 current AdCom Members-at-Large. The endorser needs to submit an email to Laura Riello (l.riello@ieee.org) stating that he/

she would like to endorse the nominee. It is the responsibility of the endorser to make sure that, if elected, the nominee is willing to serve in the position. In the unlikely event that a nominee wishes to withdraw their name from the election ballot, they must do so by November 1st.

Effective with the 2010 election, the EDS AdCom approved a change to now require that each nominee must have previously served for at least one year as an EDS AdCom Member (Standing and Technical Committee VPs and Members, Publication Editors, Representatives & Chapter Chairs).

The election procedure begins with the announcement and Call for Nominations in the *EDS Newsletter*. The slate of nominees is developed by the EDS Nominations Committee and includes the non-Committee and self-nominations received. Nominees are asked to submit a two-page biographical resume in a standard format.

Nominations are closed on October 15th, and the biographical resumes and endorsement letters are distributed to the 'full' voting members of AdCom prior to the December AdCom Meeting. The election

is then held after the conclusion of the meeting. The nominees do not need to attend the AdCom Meeting/Election to run. On the other hand, if elected, the nominees are expected to attend the two AdCom meetings a year. While the December meet-

ing is organized in connection with the IEEE International Electron Devices Meeting, the mid-year meeting is frequently held outside the US. In general, the travel and accommodation costs to attend these meetings are borne by the elected member, though in select cases, limited support from EDS is available.

A continuing flow of new AdCom members who are interested in working for the improvement of the Society and its related technical areas is essential for the continued development of EDS and the field of electron devices. Those interested in the field, the Society, and its operations are encouraged to attend AdCom meetings, become involved in Society activities, and consider running for election to AdCom.

*Renuka P. Jindal  
EDS Nominations and Elections Chair  
University of Louisiana at Lafayette  
Lafayette, LA, USA*



## CALL FOR NOMINATIONS – ELECTRON DEVICES SOCIETY ADMINISTRATIVE COMMITTEE



*Renuka P. Jindal  
EDS Nominations  
and Elections Chair*

The Electron Devices Society of the IEEE invites the submission of nominations for election to its Administrative Committee (AdCom). Presently, the AdCom meets twice per year and is composed of 22 members. Seven members will be elected this year for a term of three years, and a maximum of two consecutive terms is allowed. In 2012, the election will be held after the AdCom meeting on Sunday, December 9<sup>th</sup>. Electees begin their term in office on January 1, 2013. For your information, the nominees do not need to attend the AdCom Meeting/Election to run.

Nominees are being sought to fill the slate of candidates. Nominees may be self-nominated, or may be nominated by another person; in the latter case, the nominee must have been contacted and have agreed to serve if elected. Any member of EDS in good standing that has previously served for at least one year as an EDS AdCom Member (Standing and Technical Committee VPs and Members, Publication Editors, Representatives & Chapter Chairs) is eligible to be nominated. The nominees do not need to attend the AdCom Meeting/Election to run. On the other hand, if elected, the nominees are expected to attend the two AdCom Meetings a year. While the December meeting is organized in connection with the IEEE International Electron Devices Meeting, the mid-year meeting is frequently held outside the US. In general, the travel and accommodation costs to attend these meetings are borne by the elected member, though in select cases, limited support from EDS is available.

All nominees must be endorsed by one 'full' voting member, i.e., one of the four officers (President, President-Elect, Treasurer or Secretary), the Jr. or Sr. Past President or one of the 22 current AdCom Members-at-Large. It is the responsibility of the endorser to make sure that, if elected, the nominee is willing to serve in the position. In the unlikely event that a nominee wishes to withdraw their name from the election ballot, they must do so by November 1, 2012.

Please send your nominee's name, address, endorsement letter and supporting information to the EDS Executive Office, Program Manager, Laura J. Riello, IEEE, 445 Hoes Lane, Piscataway, NJ 08854, Fax: 732-235-1626, E-mail: [l.riello@ieee.org](mailto:l.riello@ieee.org) in time to be received by the deadline of **October 15, 2012**. It is very desirable that submissions include a biographical summary in a standard two-page format. The EDS Executive Office can provide you with an example of the format. If you have any questions regarding the nomination requirements or process, feel free to contact Laura Riello ([l.riello@ieee.org](mailto:l.riello@ieee.org)).

*Renuka P. Jindal  
EDS Nominations and Elections Chair  
University of Louisiana at Lafayette  
Lafayette, LA, USA*

## IEEE ANNUAL ELECTION – DID YOU VOTE YET?

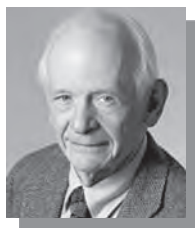
This is a reminder for EDS members to vote in the 2012 IEEE Annual Election for the following positions and candidates. Listed below are the positions and candidates that will appear on the 2012 IEEE Annual Election ballot.1

Position	Candidate
IEEE President-Elect, 2013	J. Roberto B. de Marca (Nominated by IEEE Board of Directors) Tariq S. Durrani (Nominated by IEEE Board of Directors)
IEEE Division I Delegate-Elect/Director-Elect, 2013	Alfred E. Dunlop (Nominated by IEEE Division I) Rakesh Kumar (Nominated by IEEE Division I) Ellen J. Yoffa (Nominated by IEEE Division)

Position	Candidate
IEEE Region 2 (Eastern US) Delegate-Elect/Director-Elect, 2013–2014	Gerard J. Christman (Nominated by IEEE Region 2) Timothy P. Kurzweg (Nominated by IEEE Region 2) Emilio M. Salgueiro (Nominated by IEEE Region 2)
IEEE Region 4 (Central US) Delegate-Elect/Director-Elect, 2013–2014	Robert C. Parro (Nominated by IEEE Region 4) Bernard T. Sander, Jr. (Nominated by IEEE Region 4) Hamid Vakilzadian (Nominated by IEEE Region 4)
IEEE Region 6 (Western US) Delegate-Elect/Director-Elect, 2013–2014	Thomas M. Coughlin (Nominated by IEEE Region 6) Paul J. Kostek (Nominated by IEEE Region 6)
IEEE Region 8 (Africa, Europe & Middle East) Delegate-Elect/Director-Elect, 2013–2014	Saurabh Sinha (Nominated by IEEE Region 8) Costas M. Stasopoulos (Nominated by IEEE Region 8)
IEEE Region 10 (Asia and Pacific) Delegate-Elect/Director-Elect, 2013–2014	Nim K. Cheung (Nominated by Petition) Kukjin Chun (Nominated by IEEE Region 10) Ramakrishna Kappagantu (Nominated by IEEE Region 10)
IEEE Standards Association Board of Governors Member-at-Large, 2013–2014	Wael W. Diab (Nominated by IEEE Standards Association) Philip C. Wennblom (Nominated by IEEE Standards Association)
IEEE Standards Association Board of Governors Member-at-Large, 2013–2014	Paul J. Hearty (Nominated by IEEE Standards Association) Robert S. Oshana (Nominated by IEEE Standards Association)
IEEE Technical Activities Vice President-Elect, 2013	Vincenzo Piuri (Nominated by IEEE Technical Activities) Jacek M. Zurada (Nominated by IEEE Technical Activities)
IEEE-USA President-Elect, 2013	Gary L. Blank (Nominated by IEEE-USA) Clarence L. (Lee) Stogner (Nominated by IEEE-USA)
IEEE-USA Member-at-Large, 2013–2014	Kristi J. Brooks (Nominated by IEEE-USA) Ron T. Ogan (Nominated by IEEE-USA)

Balloting period starts on 15 August and ends at 12:00 noon, Central Time USA (17:00 UTC) on 1 October. All eligible voting members should look for their ballot to arrive via postal mail or access their electronically at [www.ieee.org/elections](http://www.ieee.org/elections). Forward election questions to [corp-election@ieee.org](mailto:corp-election@ieee.org).

## IN MEMORY OF CHARLES KENNEDY BIRDSALL



Charles Kennedy Birdsall, Professor Emeritus of Electrical Engineering and Computer Science at the University of California, Berkeley, died Tuesday, March 6, 2012, at his home in Lafayette, California. He was 86.

Known since childhood as Ned Birdsall, he was born in Manhattan, New York in 1925 to chemical engineer Charles G. Birdsall and school teacher Irene Birdsall. After graduating Valedictorian of his high school

in Rocky River, Ohio, he attended the University of Michigan (UM), where he served in the Naval V-12 Program, and received B.S.E. (1946) and M.S.E. (1948) degrees in electrical engineering. At UM, he won the two mile race twice at the Big 10 Outdoor Track and Field Championships. Ned met Betty Jean Hansen at the UM, and they married before heading to Stanford University, where Ned earned a Ph.D. in Electrical Engineering in 1951.

From 1951-1955 Ned worked on microwave tubes at Hughes Aircraft Company, and from 1955-59 he led

the electron physics group at General Electric Microwave Laboratory, working on electron guns and traveling-wave tubes. Ned and his collaborators invented the resistive-wall, reactive-wall and rippled-wall amplifiers, as well as the ring-bar traveling-wave tubes that remain in use to this day; he also performed the analysis that led to the first multi kilowatt TWT at X-band. The work at Hughes and General Electric led to the publication of 14 journal articles and granting of 27 patents (most co-authored). These significant achievements led to Ned's elevation in 1962 to Fellow of the



Institute of Electrical and Electronics Engineers (IEEE) at the age of 36.

In 1959 Ned joined the Electrical Engineering Department at UC Berkeley (UCB), launching a four-decade academic career. He continued work on microwave sources, and pioneered the new area of, many particle simulation of plasmas. He and his Ph.D. student Bill Bridges discovered virtual cathode oscillation, one of the most important theoretical developments in diode physics, during the 1960s. He later led the development of the Cloud-in-Cell (now usually called Particle-in-Cell) concept. His book, *Plasma Physics via Computer Simulation* [C. K. Birdsall and A. B. Langdon, McGraw-Hill (1985)], has attained classic status, with over 2100 citations in Google Scholar, continues to be cited at an average rate of over 300 citations per year, with continued use in classrooms and research. Ned also co-founded the Energy Resources Group (ERG) at UCB to study the intersection of energy and environmental science and policy. During his long tenure at UC Berkeley, Ned helped build two groups from scratch: the Plasma Theory and Simulation Group; and the Energy and Resources Group. These two groups, under Ned's mentorship, have nurtured a large number of Ph.D. students and junior faculty members, many of whom have become lead-

ers in science and engineering. They include top experts in various fields, members of the National Academy of Science and National Academy of Engineering, and Science Advisor to the President.

In the early 1980's, Ned pioneered the area of bounded-plasma simulation. This effort represented a quantum jump in realistic simulations of whole plasma devices, culminating in a series of very powerful and versatile computer simulation codes that are used worldwide, from fusion (e.g., tokamak edge plasmas), to technologically relevant discharge plasmas (e.g., semiconductor materials processing, lighting, high power microwave sources and pulsed power systems) as well as teaching. The creation and free dissemination of plasma simulation codes by Ned and his group have helped thousands in conducting research.

Ned was the inaugural recipient of the IEEE Plasma Science and Applications Committee (PSAC) Award in 1988; he was awarded the Berkeley Citation in 1991, and the first recipient of the Dawson Award, given at the 2003 International Conference on Numerical Simulation of Plasmas. Ned was the inaugural recipient of the IEEE Marie Skłodowska-Curie Award in 2011, one of the highest awards in the IEEE hierarchy. His citation is "for theoretical investigations and fundamental discoveries

involving microwave tubes, electron beam physics and particle-in-cell simulation of plasma physics."

Outside his professional life, Ned was known for his love of hiking and cross-country skiing in the Sierra Nevada and the Alps. He maintained his love of long-distance running, completing many road races and marathons, including two Boston Marathons and the Napa Marathon in his 70s. He also remained an avid bicyclist into his 80s.

Ned had five children with Betty: Beth, Anne, Barbara, Tom and John. In 1981 Ned married Ginger Pletcher. Ned is survived by Ginger, his wife of 30 years, daughter Barbara Hagen of Bend, Oregon, son Tom Birdsall of San Francisco, son John Birdsall of Yountville, Ginger's daughter Michele Proffitt of Modesto, son Andrew of Capitola, daughter Sandy Glendinning of Alameda along with eight grandchildren and one great grandchild.

A scholarship endowment has been established in Ned's honor: The Charles K. (Ned) Birdsall Endowed Graduate Research Support Fund at University Relations, 2080 Addison Street, MC #4200, Berkeley, California, 94720-4200. Checks should be made out to U.C. Berkeley Foundation.

*John P. Verboncoeur  
Michigan State University  
East Lansing, MI, USA*

## EDS MEMBERS NAMED RECIPIENTS OF 2012 IEEE TECHNICAL FIELD AWARDS



*Marvin H. White  
EDS Vice President  
of Awards*

Seven EDS Members were among the recipients of the 2012 IEEE Technical Field Awards:

**Jean-Pierre Colinge** of the Micro-Nano Electronics Centre,



Tyndall National Institute, University College Cork, Cork, Ireland, has been named the recipient of the 2012 IEEE Andrew S. Grove Award. The citation states, "For contributions to silicon-on-insulator devices and technology."

Seeing the importance of silicon-on-insulator (SOI) technology early on when others did not, Jean-Paul Colinge has been one of SOI's strongest advocates with innovative contributions that have resulted in its widespread use. Dr. Colinge developed thin-film fully depleted SOI devices during the 1980s. He also invented the gate

all-around device in 1990, which has become the ultimate silicon transistor. Also during the 1990s, Dr. Colinge fabricated the first nanowire transistors and explained their quantum effects. His pioneering work on advanced nanowire semiconductor devices has led to multiple-gate field-effect transistors. Today, Dr. Colinge continues to investigate multigate SOI technology for scaling to extremely small dimensions. His invention of a junctionless nanowire transistor in 2010 shows the potential for fabricating SOI devices with dimensions down to 5 nanometers. Dr. Colinge has educated countless engineers with *Silicon on Insulator Technology: From Materials to VLSI* (Kluwer Academic, 1991), which still serves as the standard introduction to SOI. An IEEE Fellow, Dr. Colinge's is currently with the Taiwan Semiconductor Manufacturing Company (TSMC), Hsinchu, Taiwan.



**Leo Lorenz** of Infineon Technologies, Neubiberg, Germany, has been named the recipient of the 2012 IEEE William E. Newell Power

Electronics Award. The citation states, "For contributions to the development of power semiconductor devices and integrated power modules."

Leo Lorenz has developed some of the most important innovations in power electronics, spearheading the movement from conventional power conversion technology to high-frequency and high-power methods. Working with Siemens Semiconductor in Munich, Germany, Dr. Lorenz developed the first ultrafast switching multichannel direct copper bonded-based power metal-oxide-semiconductor field-effect transistor (MOSFET) module in 1986, which serves as the foundation of today's power module technology. He also pioneered the product definition

and concept engineering of the first ultrathin wafer non-punch-through (NPT) insulated gate bipolar transistor (IGBT) in 1987. His role in educating industry on device performance, thermal management, high-temperature operation, and reliability issues was crucial to the successful adoption of the technology. He also developed the "sandwich technology" (the basis for controlled integrated power systems) for advanced integrated power modules, which is an important component in home appliances and automotive applications. He also introduced the CoolMOS power semiconductor, used primarily for offline power supplies, which some engineers consider as one of the greatest achievements in the power semiconductor industry in the past 20 years. An IEEE Fellow, Dr. Lorenz is currently a professor at TU-Ilmenau and president of the European Center for Power Electronics. Till 2011 he was a senior principal with Infineon Technologies, Neubiberg, Germany.



**Subramanian S. Iyer** of the Semiconductor Research & Development Center, IBM Systems & Technology Group, Hopewell Junction, New York, USA, has been named the recipient of the 2012 IEEE Daniel E. Noble Award for Emerging Technologies Award. The citation states, "For the development and implementation of embedded DRAM technologies."

Subramanian S. Iyer's pioneering development of embedded dynamic random access memory (eDRAM) has boosted the power of computer processors for applications ranging from high-end servers to gaming consoles and personal electronics. Dr. Iyer recognized the need for large amounts of high-density, high-performance, and high-bandwidth memory placed close to the integrated circuit to fully exploit the power

of computer processors. His eDRAM technology allows for integration of very large amounts of dense on-chip memory with significantly lower power and higher reliability compared to conventional methods. The on-chip memory solution has enabled more memory to be placed on smaller chips, resulting in systems with higher performance. Dr. Iyer has been the driving force in IBM's commercialization of eDRAM, guiding it through all stages of development, and it has also become a standard feature of IBM's application-specific integrated circuits. An IEEE Fellow and IBM Fellow, Dr. Iyer is chief technologist with the Microelectronics Division of IBM's Systems & Technology Group, Hopewell Junction, New York, USA., responsible for technical strategy, embedded memory, and three-dimensional integration.



**Chih-Yuan (C.Y.) Lu** of the Macronix International Co., Ltd., Hsinchu, Taiwan, has been named the recipient of the 2012 IEEE Frederik Philips Award. The citation states, "For leadership and contributions to research, development, and industrial alliances in semiconductor technology."

Chih-Yuan Lu's strong leadership in developing semiconductor technology has established Taiwan as a major contributor to the industry. An expert in electron devices and integrated circuits, Dr. Lu spearheaded Taiwan's ambitious R&D project, the National Submicron Project, which transformed the country in less than five years into a leading contributor in the world semiconductor industry.

Dr. Lu co-founded Vanguard International Semiconductor in 1994 and founded Ardentec in 1999. He joined Macronix International in 1999 and led that company to become one of the most profitable memory companies in the world and also a major contributor of innovative nonvolatile

memory technology. Overall, Dr. Lu has demonstrated the impact high-technology development can have on the economic development of a country such as Taiwan. An IEEE Fellow, Dr. Lu is currently president of Macronix International Corporation, Ltd. and chairman of Ardentec Corporation, both in Hsinchu, Taiwan.



**Eli Yablonovitch** of the University of California Berkeley, Berkeley, California, USA, has been named the recipient of the 2012 IEEE Photonics Award. The citation states, "For pioneering contributions to photonic crystals, the photonic bandgap, and photonic bandgap engineering."

Considered a "father of photonic bandgaps," Eli Yablonovitch's pioneering contributions effectively created the new field of photonic band engineering for a variety of advanced technologies. Dr. Yablonovitch originally proposed the idea of photonic bandgaps in 1987 and was the first to successfully demonstrate a photonic crystal in 1991. Dr. Yablonovitch extended the well-known wave function theory of electronic bandgaps in solid-state physics to electromagnetic waves to create the photonic bandgap concept. He then employed an Edisonian approach to discover the first photonic bandgap, demonstrating the electromagnetic equivalent of a semiconductor. That material structure came to be known as "Yablonovite." He demonstrated that "donors" and "acceptors" could be created within photonic crystals by intentionally introducing defects, just as in semiconductors. Prior to his photonic crystal discoveries, Dr. Yablonovitch introduced the benefit of strain, used in almost all semiconductor lasers, including telecommunications lasers, DVD players, and red laser pointers. An IEEE Fellow, Dr. Yablonovitch is currently a professor with the Electric

cal Engineering and Computer Sciences Department at the University of California, Berkeley, and director of the National Science Foundation's Center for Energy Efficient Electronics Science, which is based at Berkeley.



The citation states, "For seminal contributions and leadership in bridging semiconductor electronics with magnetism and spintronics."

Hideo Ohno's vision and leadership in integrating semiconductor technology with spin-transport electronics has built the foundation for the field of spintronics and enabled advanced magnetic-based memory and logic circuits at the nanometer scale. Dr. Ohno's research on synthesizing a new class of ferromagnetic semiconductors during the late 1980s led to new device concepts that combined spin and charge degrees of freedom and demonstrated control of ferromagnetism by electric fields. He further developed these ferromagnetic semiconductors to demonstrate electrical injection of spin-polarized circuits in ferromagnetic heterostructures (1999), control of ferromagnetic phase transition using electric fields (2000), and electric control of magnetization direction (2008). Dr. Ohno also developed a nonvolatile magnetic tunnel junction (MTJ) that demonstrated a world-record tunnel magnetoresistance of over 600%. In 2010, he developed a perpendicular anisotropy MTJ capable of integration at dimensions as small as 40 nm. An IEEE Member, Dr. Ohno is currently a professor at the Laboratory for Nanoelectronics and Spintronics within the Research Institute of Electrical Communication at Tohoku University, Sendai, Japan, where he also directs the Center for Spintronics Integrated Systems.



**Santosh K. Kurinec** of the Rochester Institute of Technology, Rochester, New York, USA, has been named the recipient of the 2012 IEEE Undergraduate Teaching Award. The citation states, "For distinguished contributions integrated research into undergraduate engineering education to develop microelectronic engineers well prepared for future challenges."

Santosh K. Kurinec's graduate-level approach to undergraduate education has inspired students to become high-level microelectronics engineers. Dr. Kurinec has directed an undergraduate program in microelectronics at the Rochester Institute of Technology (RIT) where the education and welfare of students, not just research results, are central to the mission. She has provided undergraduate students with a learning environment normally tailored to graduate students, establishing unique courses and laboratories incorporating research and design projects with real-world relevancy. Her efforts have resulted in the modernization of teaching laboratories and establishment of cutting-edge program tracks at RIT. Dr. Kurinec joined the RIT Microelectronic Engineering Department in 1988. She emphasized providing all undergraduate students with research experience through class projects. Dr. Kurinec has advised over 150 projects over the past 15 years, providing students with hands-on experience for a wide range of microfabrication processes. As department head from 2001–2009, she developed many new degree programs in micro- and nanoelectronics. An IEEE Fellow, Dr. Kurinec is currently a professor of electrical and microelectronic engineering with the Rochester Institute of Technology, New York.

*Marvin H. White  
EDS Vice President of Awards  
Ohio State University  
Columbus, Ohio, USA*

## BREAKING NEWS FROM EDS!



As most of us know, Open Access (OA) publications constitute a burgeoning area, with dozens of OA titles coming on-line every month.

In order to stay competitive, and to ensure that authors have a venerable, trusted name with which to publish, it is vital that EDS launch an Open Access title within our field of interest.

At the June, 2012 Technical Activities Board meeting held in Boston, MA, USA, Renuka Jindal, Junior Past President, and Samar Saha, Vice President of Publications, led a team of EDS volunteers in presenting the final proposal for EDS's new Open Access publication, **the Journal of the Electron Devices Society (J-EDS)**.

We are happy to report that the Journal was overwhelmingly approved by the IEEE Technical Activities Board and plans to launch the J-EDS are now in full swing.

Stay tuned for more about the launch of the J-EDS in the coming months. Details will be made available on the EDS site at [www.ieee.org/eds](http://www.ieee.org/eds) or you may contact the EDS executive office at [eds@ieee.org](mailto:eds@ieee.org) to get more information or submit your name to become a J-EDS reviewer.



## 2012 EDS FELLOW, DR. T. MOGAMI HONORED AT SYMPOSIUM OF VLSI TECHNOLOGY

On June 12, 2012, at the plenary session of the Symposium of VLSI Technology in Honolulu, Hawaii, U.S.A, Past IEEE Division I Director, Hiroshi Iwai, on behalf of the EDS, presented Dr. Tohru Mogami, NEC, 2012 IEEE/EDS Fellows, with a certificate to congratulate him on being elected IEEE Fellow.

More than 400 participants to the symposium joined in congratulating him.



*Dr. Tohru Mogami (left), with Dr. Hiroshi Iwai*



## IEEE NANOTECHNOLOGY COUNCIL ANNOUNCES 2012 AWARD WINNERS

The IEEE Nanotechnology Council Awards Committee (Chaired by Prof. James E. Morris) has announced its 2012 award winners for the IEEE Nanotechnology Pioneer Award, the IEEE NTC Distinguished Service Award and the IEEE NTC Early Career Award. These awards will be presented at IEEE NANO 2012 in Birmingham, United Kingdom, in August 2012.

### **Pioneer Award in Nanotechnology:**

#### **Joseph W. Lyding**

Department of Electrical and Computer Engineering,

University of Illinois, 1406 W. Green Street, Urbana, IL 61801

*"For advances in atomic resolution nanofabrication and discovery of the giant deuterium isotope effect and its application to CMOS technology."*

### **Distinguished Service Award:**

#### **Ning Xi**

Department of Electrical and Computer Engineering,  
Michigan State University, East Lansing, MI 48824

*"For dedicated and distinguished service to IEEE NTC as an Elected Officer"*

### **Early Career Award in Nanotechnology:**

#### **Sayeeef Salahuddin**

Department of Electrical Engineering and Computer Science,  
University of California, Berkeley, CA 94720-1758

*"For contributing to the understanding of the physics of hetero-interfaces in nanostructures and investigating their use for energy efficient applications"*

Congratulations to all the winners.

*Professor James E. Morris*

*2012 IEEE NTC Awards Committee Chair*

*Portland State University,  
Portland, OR, USA*

## STATUS REPORT FROM THE 2011 EDS PHD STUDENT FELLOWSHIP WINNERS



*Agis Iliadis  
EDS PhD Student  
Fellowship Chair*

In 2000, the IEEE approved the establishment of the Electron Devices Society PhD Student Fellowship Program. The Program is designed to promote, recognize, and support graduate level study and research within the Electron Devices Society's Fields of Interest, which include: All aspects of the 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. In deference to the increasing globalization of our Society, at least one fellowship is to be awarded to students in each of three geographical regions: Americas, Europe/Middle-East/Africa, and Asia & Pacific.

In July 2011, EDS announced three PhD Fellowship winners: Sungsik Lee, Nagarajan Raghavan, and Deblina Sarkar. The winners are pursuing distinctly different research topics for their doctoral degrees. The following are brief progress reports written by the award winners.



**Sungsik Lee** has continued pursuing his PhD research in University College London, making a contribution to the research area regarding device physics and modeling for amorphous semiconductor-based transis-

tors and sensors. Also, he has been studying about an analytical extraction method for the density of gap states which is a key measure of degree of disorder in amorphous material-based devices. Regarding his PhD research, he has written several journal papers, including *APL*, *IEEE EDL*, and contributed to a *Nature* paper in collaboration with other institutes. To date, he has more than 30 scientific contributions, including 7 journal papers and 3 US patents. Integrating all those works, he will begin to write up his PhD Thesis in 2012.



**Nagarajan Raghavan** has been making further progress in his research work on high-K dielectric breakdown and resistive switching memory analysis.

His most recent output has been

the development of a fully thermodynamic Kinetic Monte Carlo model that has been used to model the statistical dynamics of percolation in high-K gate stacks accounting for the process-induced microstructural non-uniformities in the dielectric. This work will be presented at the 2012 IRPS Symposium this coming April in California. He is also extending the applicability of his model to examine the variability distribution of RRAM operational parameters. As a part of his graduate study, he is currently on a six-month internship at IMEC, Belgium, focusing on random telegraph noise analysis in RRAM. He is expecting to defend his thesis around mid-August 2012.



**Deblina Sarkar**

is currently a PhD candidate at the Nanoelectronics Research Laboratory in the Department of Electrical and Computer Engineering, University of California, Santa Barbara, USA, working under the guidance of Prof. Kaustav Ba-

nerjee. Her research, which combines the interdisciplinary fields of engineering, physics and biology, includes development of physics based models for quantum transport and band-to-band tunneling, design and fabrication of highly energy efficient tunnel-FETs utilizing novel device structures and materials (semi-metallic nanoparticles and carbon nanomaterials) and exploration of unique physical techniques for ultra-sensitive and super-fast detection of biological species. Recently, she has proposed the idea of leveraging the phenomenon of inter-band tunneling for breaking the fundamental limits of conventional FET based biosensors, which can lead to a paradigm shift in pharmaceutical, clinical and forensic applications.

While completing her Master's degree at UCSB, Deblina researched the high-frequency behavior of graphene ribbons and design of graphene-based super energy-efficient electronic devices such as inductors. She also performed a detailed experimental and theoretical analysis of the impact of strain on the ESD robustness of nanoscale devices in

collaboration with researchers at Infineon and IMEC. As an undergrad researcher, she worked on the modeling and analysis of major sources of leakage in nanoscale MOSFETs and on the design of spin-based energy efficient devices and logic gates.

Deblina has published over a dozen papers as lead author in premier international conferences and journals including the IEDM, IITC, *IEEE Electron Device Letters*, *IEEE Transactions on Electron Devices* and *Applied Physics Letters*. She received the "Outstanding Doctoral Candidate Fellowship" from the University of Virginia, the "Presidential Fellowship" from the University of Buffalo, the Best Paper Award at the All India Paper Presentation Competition "Vyakhan" in 2008, the "Best Female Student Award" during her undergraduate studies and a National scholarship for outstanding performance in the High School Certificate examination in India.

*Agis A. Iliadis*

*EDS PhD Student Fellowships Chair  
University of Maryland  
College Park, MD, USA*

## CONGRATULATIONS TO THE 27 EDS MEMBERS RECENTLY ELECTED TO IEEE SENIOR MEMBER GRADE!

David Abe\*

Monica Blank\*

James Bain

Simon Cooke\*

John Carulli

John Dallesasse

Martin Frank

William Holman

Douglas Holmes

Arvind Kumar

Jinping Liu

Saibal Mukhopadhyay

Daniel Macdonald

Toshiyuki Oishi\*

Paolo Pavan

Mina Raieszadeh

Klaus Schuegraf

Hasan Sharifi

Huiling Shang

Patrick Shea

Riichiro Shirota

Eran Socher

Johannes Solhusvik

Dronamraju Sri Venkateswarlu

Chih-Hao Wang

Michael Wolfson

Yaosuo Xue

*\*Individual designated EDS as nominating entity.*

If you have been in professional practice for 10 years, you may be eligible for Senior Membership, the highest grade of membership for which an individual can apply. New senior members receive a wood and bronze plaque and a credit certificate for up to US \$25 for

a new IEEE society membership. Upon request a letter will be sent to employers, recognizing this new status.

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

To apply for senior member status, fill out the on-line application: <http://www.ieee.org/organizations/rab/md/smelev.html>. Please remember to designate the Electron Devices Society as your nominating entity!



Engineers Demonstrating Science:  
an Engineer Teacher Connection

## EDS-ETC TEAM VISITS LAFAYETTE HIGH

As the first bell rang at 7 a.m., at Lafayette High, in Lafayette, Louisiana, the students in the senior class were greeted by visitors from the University of Louisiana at Lafayette. The team was visiting the school on behalf of the IEEE Electron Devices Society's EDS-ETC (Engineers Demonstrating Science: an Engineer Teacher Connection) program. The visit was organized by the ULL IEEE student members and Professor Renuka Jindal, former President of EDS.

During his presentation, Professor Jindal introduced the concept of an electron and made the students aware of the breath and depth of the field of Electrical Engineering in general, especially Electron Devices, and motivated the students to examine this field as a possible career choice. Two groups of 11th and 12th grade students from Lafayette High, were given a demonstration by the ULL team, utilizing several snap circuits kits, which are the core program tools.

Other demonstrations of innovative projects included the IEEE Re-



*The team consisting of ULL and Lafayette High School faculty and students, from left to right: Ben Hmida, Shelby Williams, Ross Hartley, Jonathan Ramirez, Renuka Jindal, William Meaux, Prasanna Kawatkar, Abhiram Goud*

gion 5 Robot Competition robot, ULL's C.A.P.E (Cajun Advanced Picosatellite Experiment) team's satellite model and an 8x8x8 LED cube programmed to display different LED effects. The demonstration was followed by an extensive question and answer session. The students responded very positively by asking various questions related to the projects and electrical engineering course work.

The purpose of this visit was to introduce the younger generation to the field of Electrical Engineering and Electron Devices and motivate them to pursue higher education in this area.

*William Meaux  
IEEE Region 5*

*Student Branch Treasurer  
Univ. of Louisiana at Lafayette*

## REPORT ON THE EDS REGION 9 CHAPTERS MEETING

The biannual EDS Region 9 Chapters Meeting was held March 12, 2012, at the Hotel City Express in Playa del Carmen, Mexico. Region 9 presently has 13 EDS chapters, with more being developed. The biannual meeting's objective is to review the activities in the region, to interchange experience between chapter officers and to

discuss future plans and actions to be undertaken by chapter and SRC chairs. Most of the chapters were represented at the meeting by their chairs or other officials.

The meeting began with talks by EDS President, Paul Yu, and Regions and Chapters Vice-President, Juin Liou, who presented general over-

views with valuable information for chapter chairs. Following that introduction, a highlight of the meeting was the report delivered by Magali Estrada, who was ending her term as Region 9 SRC Chair after twelve years of highly dedicated and very successful service. Magali began her service in 2001 as the first SRC



*Attendees and EDS Distinguished Lecturers of the MQ in Playa del Carmen, Mexico*

Region 9 Chair, accompanied by Francisco García-Sánchez as its Vice-Chair, who also concluded his term of service. During these years they actively promoted and helped build up the network of Region 9 chapters and EDS activities in the Latin American Region. Region 9 owes its gratitude to both of them for their leadership of regional EDS activities during those years of initial growth.

The new Region 9 SRC Chair, Jacobus Swart from the University of Campinas in Brazil, took over the role of leading SRC Region 9 at this biannual chapters meeting. The two

new Region 9 SRC Vice-Chairs that accompany Jacobus in this task are: Arturo Escobosa from CINVESTAV in Mexico, and Joao Martino from the University of Sao Paulo in Brazil. EDS activities during the last two years were reported in detail by the participating chapter chairs, highlighting the interest and dedication demonstrated by the different chapters.

The meeting was also enhanced by the participation of Siegfried Selberherr and Fernando Guarín as friends and great supporters of Region 9 development. Fernando delivered two presentations about the IEEE Gold Program and EDS-ETC

(Engineers Demonstrating Science: an Engineer Teacher Connection). The meeting was adjourned after an open discussion session about new ideas and avenues to increase and strengthen regional activities. This meeting has confirmed that Region 9 is on the right track of consolidation and expansion based on its solid network of dynamic chapters. The accompanying picture shows the meeting participants.

*Jacobus Swart  
Chair EDS SRC-Latin America  
University of Campinas  
Brazil*

## **CALL FOR NOMINATIONS FOR THE EDS CHAPTER OF THE YEAR AWARD**

The EDS Chapter of the Year Award is given each year based on the quantity and quality of the activities and programs implemented by the chapters during the prior July 1st – June 30th period. Nominations for the award can only be made by SRC Chairs/Vice-Chairs, or self-nominated by Chapter Chairs. The nomination form is available at <https://adobeformscentral.com/?f=qeBo%2ArwYF%2ANRSqwvdDoasw> or by contacting Laura Riello (l.riello@ieee.org) in the EDS Executive Office.

The winning chapter will receive a plaque and check for \$1,000 to be presented at the IEEE International Electron Devices Meeting (IEDM).

The schedule for the award process is as follows:

### **Action**

Call for Nominations E-mailed to Chapter Chairs,  
Chapter Partners, SRC Chairs & SRC Vice-Chairs  
Deadline for Nominations  
Regions/Chapters Committee Selects Winner  
Award given to Chapter Representative at IEDM

### **Date**

6/1/12  
9/15/12  
Early-October  
First week of December



## IEEE EDS SOUTH ASIA CHAPTERS MEETING

The IEEE EDS South Asia Chapter Chairs Meeting was held at GITAM, Bhubaneswar, India, April 8, 2012, hosted by the ED Bhubaneswar Chapter and welcomed to the meeting by Chapter Chair, Partha Sarkar. EDS Jr. Past-President, Renuka Jindal, presided over the meeting and highlighted the importance of this gathering. He explained how this event was initiated more than a decade ago when there were only two EDS chapters in the region; whereas now this is a gathering of fourteen chapters. The good work by all the chapters to extend the activities of the Electron Devices Society to its members is commendable. It was also mentioned that the growing EDS community has a new chapter, the Heritage Institute of Technology Student Chapter at Calcutta.

The proceedings started with the presentation by Prof. Ramgopal Rao, Region 10 SRC Vice-Chair, on the planned IEEE International Con-

ference on Emerging Electronics (ICEE), a biennial conference held every even years, which can be a flagship conference of the Electron Devices Society in the region. This could be technically co-sponsored by EDS and organized by the major institutions and chapters in the region. At first, both IIT Bombay and IISc Bangalore will organize the conference to make a progressive start for a smooth succession.

The activities of all ED Chapters during the last year were reviewed. The major activities reported include the DL-MQ program organized by the Delhi Chapter and out-reach programs and DL visits organized by the Calcutta Chapter and the India Council Chapter. Both the student chapters at NIST and VIT are very active. It was decided to have an annual volunteer recognition for the best member volunteer in the region and a selection criterion has already been worked out. Also, it is planned to select the best student chapter from

the region based on their activities and initiatives.

Discussions on effective communication between chapters culminated in linking all the chapter websites, which will be initiated soon. Further, it was decided that all requests for MQs as well as chapter subsidies must be copied to the EDS Region 10 SRC Chair and Vice-Chairs, so that effective utilization of funds can be monitored and guided, especially for DL and MQ activities. The ED/AP Bombay Chapter is planning to initiate webcasting of DL programs for the chapters in the region.

This 9th South Asia Chapters Meeting was preceded by a DL-MQ program organized on April 7th by the ED Bhubaneswar Chapter. A report on the MQ is published separately in this issue of the EDS Newsletter.

*M. K. Radhakrishnan  
EDS Region 10 SRC Vice Chair  
NanoRel  
Bangalore, India*



*From Left: Atanu Kundu (HITK Chapter), M. Madheswaran (ED India Council Chapter), Ramogopal Rao (Region 10 SRC Vice-Chair), Renuka Jindal (EDS Jr Past-President), M. K. Radhakrishnan (Region 10 SRC Vice-Chair), Ajitkumar Panda (NIST Chapter), Mridula Gupta (Delhi Chapter), Bharadwaj Amurtur (Bangalore Chapter) and Partha Sarkar (Bhubaneswar Chapter)*

## VISIT OF NEW EDS PRESIDENT, PAUL YU, TO JAPAN CHAPTER AND WIMNACT-31

Professor Paul Yu, the new President of EDS, visited the ED Japan Chapter on January 30, 2012. This was the first chapter visit for Paul since his inauguration to the EDS presidency on January 1st. He met with many key chapter members to discuss the relations between Society headquarters and the chapter, and also about services to chapter members. The ED Japan Chapter is one of the largest chapters in the Society, having more than 1,000 members, which is more than 10% of the total EDS membership in the world. In geography, the service area of the chapter spans 2,000 km, from Hokkaido Island in the northeast to the southwest Okinawa Islands. The chapter has a very active DL and MQ program, which provides high-level seminars, given by world-class lecturers. The chapter welcomes more collaboration with the EDS headquarters in order to provide better services to the members, such as having more DLs from outside of Japan. After the discussion, Paul promised to provide the chapter more support to enhance its activities.

Taking the opportunity of Paul's visit, the Chapter organized WIN-

MACT-31, with joint sponsorship provided by Tokyo Institute of Technology (TIT). The event was held January 30th on the Suzukakedai Campus of TIT, Yokohama, Japan. The opening session was chaired by Dr. K. Torii (Hitachi), Chapter Secretary, with opening remarks and a chapter activity report given by the Chapter Chair, Dr. S. Kimura (Hitachi). EDS President, Paul Yu (University of California, San Diego) delivered a talk "Introduction of EDS." Session I was chaired by the Chapter Treasurer, Prof. K. Kita (University of Tokyo). The first lecture by Prof. Yu, entitled, "A Green Campus and PV Research," was followed by a talk from EDS AdCom Member, Prof. Ru Huang (Peking University). Prof. Huang's lecture was titled, "Gate-all-around Si Nanowire Transistors (SN-WTs) for Extreme Scaling: Fabrication, Characterization and Analysis."

After the break, Session II was chaired by EDS AdCom Member, Dr. H. Momose. The session consisted of four lectures: Prof. K. Shiraishi (Tsukuba University), "Computational Science Studies toward Future Nano-Devices;" Prof. A. Toriumi (University of Tokyo), ED Japan Chapter Vice-Chair, "Ther-

mally oxidized SiO<sub>2</sub> formation on 4H-SiC substrate by considering the interface reaction kinetics;" Dr. T. Mogami (NEC), Incoming Chapter Vice-Chair, "CMOS Scaling and Variability;" and Dr. M. Masahara, (AIST), incoming Chapter Treasurer, "Advanced FinFET Process Technology." The final lecture, "Future of Nano-CMOS Technology" and closing remarks, were given by Hiroshi Iwai (TIT).

After the lectures the attendees moved to a reception hall where EDS AdCom Member, Dr. Ikeda (Tei Solutions Inc.), gave a welcome speech. Networking between the President of EDS, EDS AdCom Members and chapter members took place until 8 p.m. The presentation files of the lectures will be uploaded to the chapter's home page.

*Shin'ichiro Kimura*  
Outgoing ED Japan Chapter Chair  
Hitachi  
Tokyo, Japan

*Hiroshi Iwai*  
ED Japan Chapter Mentor  
Tokyo Institute of Technology  
Yokohama, Japan



## WIMNACT-32 (WORKSHOP AND IEEE EDS MINI-COLLOQUIUM ON NANOMETER CMOS TECHNOLOGY)

WIMNACT-32, co-sponsored by the ED Japan Chapter and Tokyo Institute of Technology (TIT), was held at TIT, Yokohama, Japan, February 10, 2012, and invited eight top-level professors from around the world. The workshop began with opening remarks by H. Iwai, Tokyo Institute of Technology, and his lecture titled, "Nano CMOS and High-k Technology," followed by these three invited lecturers: Prof. Ming Liu, Institute of Microelectronics Chinese Academy of Sciences, China, "RRAM - An Emerging Non-volatile Memory Technology;" Prof. Hei Wong, City University of Hong Kong, Hong Kong, "Defects and Disorders in Hafnium Oxide and at Hafnium Oxide/Silicon Interface;" and Prof. Xing Zhou, Nanyang Tech-

nological University, Singapore, "A Unified Compact Model for Generic Heterostructure HEMTs."

After the break, the program continued with the remaining five lectures: Prof. Zhenan Tang, Dalian University of Technology, China, "Some progress of research on semiconductor devices in DUT;" Prof. Zhenchao Dong, University of Science and Technology of China, China, "Electrically driven single molecular fluorescence by STM;" Prof. Junyong Kang, Xiamen University, China, "Fields modification in high Al or In content III-nitrides;" Prof. Weijie Song, Ningbo Institute of Material Technology & Engineering, "ZnO-based transparent conductive oxide thin films;" and Prof. Chandan Sarkar, Jadavpur Uni-

versity India, "Nanocrystal embedded MOS nonvolatile memory."

The final session of the program lasted until 8 p.m., with 30 poster presentations given by TIT students and young researchers. It was a very good opportunity for the students and young researchers to interact with world-class professors in the field of nano- materials and electronics.

*Shin'ichiro Kimura*  
*Outgoing ED Japan Chapter Chair*  
*Hitachi*  
*Tokyo, Japan*

*Hiroshi Iwai*  
*ED Japan Chapter Mentor*  
*Tokyo Institute of Technology*  
*Yokohama, Japan*



## MESSAGE FROM THE EDS NEWSLETTER EDITOR-IN-CHIEF



It is my pleasure to welcome Kuniyuki Kakushima as the new North-east Asia Regional Editor for the *EDS Newsletter*. Dr. Kakushima is replacing Kazuo Tsutsui, who served two 3-year terms for the region.

Kuniyuki Kakushima received his M.S. and Ph.D degrees in electrical engineering from the University of Tokyo, Tokyo, Japan, in 2001 and 2003, respectively. He is currently an Associate Professor of Tokyo Institute of Technology and is investigating novel processes and materials for future scaled MOS devices. Dr. Kakushima is also a member of The Japan Society of Applied Physics.

Please contact your respective Regional Editor directly with news items. A listing of EDS Regional Newsletter Editors is available on page two of this publication.

*Ninoslav D. Stojadinovic*  
*EDS Newsletter Editor-in-Chief*  
*University of Nis*  
*Nis, Serbia*



## REPORT ON THE EDS MINI-COLLOQUIUM HELD IN CAIRO, EGYPT

The EDS Mini-Colloquium on Nanotechnology and Microelectronics was held, March 18–19, 2012, at the Future University in Egypt. The FUE is situated in the 5th Settlement – New Cairo. FUE contains six faculties, including the faculty of Engineering. The university also generously provided lunch for all attendees during the two-day event.

The following lectures were presented:

- 1) "Nanowires in nanoelectronics, Optoelectronics and Sensor Applications," by Prof. M. Meyyapan, Center of Nanotechnology, NASA, USA;
- 2) "Plasmonic-Semiconductor hybrid nanostructure for photo-electronic devices fabrication," by Dr. Mona Mohamed, National Institute of Laser Enhanced Science, Cairo University, Egypt;
- 3) "From Microelectronics to Nanoelectronics; Opportunities and Challenges," by Prof. Hisham Haddara, ECE Department, Ain Shams University, Faculty of Engineering, Egypt;
- 4) "Nano Explosive Devices in Silicon Technology," by Prof. Monuko Du Plessis, University of Pretoria, Department of Electrical, Electronic and Computer Engineering, South Africa;
- 5) "Wide band and noise characterization of various MOSFETs for optimal use in RF circuits," by Dr. Mostafa Ema, Ecole Polytechnique de Louvain University Catholique, Belgium;
- 6) "Silicon Integrated Micro- Optical system technology SiMOST," by Prof. Diaa Khalil, Faculty of Engineering, Ain Shams University and Si-Ware Systems, Egypt.

The attendees included the Dean of the Faculty, two deputies, the staff of the electrical department and the Chairs of the Mechanical, Physi-



*Graduate Students who assisted in organizing the event at Future University, Cairo, Egypt*



*Attendees of the EDS Mini-Colloquium on Nanotechnology and Microelectronics at Future University, Cairo, Egypt*

cal and Chemical departments, and several Professors from Ain Shams University, Cairo University, Military Technical College, American University in Egypt, Benha University, Helwan University, Menoufia University. The graduate students of the electrical department also attended and had a significant role in helping to organize this event.

The MQ was successful by all means, with several questions being asked by the attendees after each

lecture, and the answers were sufficient and fruitful.

Such workshops are very important for transfer of modern technologies from different schools. Our chapter appreciates the technical support of the Electron Devices Society and look forward to future scientific events.

*Ibrahim A. Salem  
MTT/ED Egypt Chapter Chair  
Future University of Egypt  
Cairo, Egypt*



## REPORT ON THE EDS MINI-COLLOQUIUM HELD IN PLAYA DEL CARMEN, MEXICO

An EDS mini-colloquium was held at the Hotel City Express in Playa del Carmen, Mexico, March 13, 2012. The mini-colloquium was held immediately following the biannual EDS Region 9 Chapters Meeting at the same venue. The program was intensive and extended the full day, with the following series of eight EDS Distinguished Lectures:

- "Green Campus and Photovoltaic Technology," by Professor Paul Yu, California State University at San Diego, California, USA;
- "Electrostatic Discharge (ESD) Protection of Modern and Future Integrated Circuits," Professor Juin J. Liou, University of Central Florida, Orlando, Florida, USA;
- "Integrated Low-cost, High-sensitivity Biosensors for Water Quality Monitoring," Professor Jamal Deen, McMaster University, Hamilton, Canada;
- "Room-temperature magneto-quantum effects in nano-scaled Si devices," Professor Edmundo A. Gutiérrez-D., INAOE, Puebla, México;



*Some of the EDS Distinguished Lecturers who presented at the mini-colloquium*

- "Study of Advanced SOI Transistors as Dynamic Memory Cells (1T-DRAM) without the capacitor (Capacitor-less)," Professor João A. Martino, University of São Paulo, São Paulo, Brazil;
- "Modeling and Characterization of Thin-Film SOI PIN Diodes," Prof. Adelmo Ortiz-Conde, Simón Bolívar University, Caracas, Venezuela;
- "Semiconductor Scaling and Reliability Implications for Advanced CMOS Technologies," Dr. Fernando Guarín, IBM, Fishkill, New York, USA;
- "Transport Modeling for Nanoscale Semiconductor Devices," Professor Siegfried Selberherr, TUWien, Austria.

This outreach program was very much appreciated by the attending chapter officers and other participants, as it brings valuable information and discussions to the region.

*Jacobus Swart  
Chair EDS SRC-Latin America  
University of Campinas  
Brazil*

## REPORT ON THE EDS MINI-COLLOQUIUM HELD AT THE UNIVERSITY OF TWENTE

On Friday June 22nd, the Electron Devices Society sponsored a mini-colloquium at the University of Twente, Enschede, Netherlands. The event featured discussions on advances in microelectronic technology and characterization.

The mini-colloquium program was as follows: Dr. Henryk Przew-

locki spoke on photoemission characterization, Prof. Juin Liou on ESD, Prof. Joachim Burghartz on ultra-thin chips, Dr. Werner Weber on 3D stacking, and Prof. Jurriaan Schmitz on CMOS post-processing. The workshop offered ample opportunities to meet these renowned scientists and learn more about their work. IEEE

EDS members were especially welcomed at the event, which included a lunch and a tour around Twente's newly opened Nanolab facilities.

*Jurriaan Schmitz  
ED Benelux Chapter Chair  
University of Twente  
Enschede, Netherlands*

## REGIONAL AND CHAPTER NEWS

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

#### ED Phoenix

—by Steve Rockwell

The Waves and Devices Chapter of IEEE Phoenix, Arizona was honored, April 16, 2012 to have Dr. Renuka P. Jindal.

Prof. Jindal's presentation described from a historical perspective how key technologies lead to the development of modern wireless and optical networks of terabit capacity with petabits looming in sight. The meteoric advancement in telecommunication technology and communications bandwidths has been made possible by three key developments over the last 60 years. The first of these was the demonstration of the point contact bipolar transistor in 1947 which started the solid-state revolution, followed by the demonstration of the MOS Field-Effect-Transistor in 1960. The second key contributor was the development of Information Theory in 1948. The third key development which ignited this fire was the invention of laser in 1958 with a working demonstration

in 1960. Serious efforts to transform this understanding into high performance lightwave systems started by the design of integrated electronics using MOS technology around 1980. However, initial attempts at boosting receiver sensitivity and data-rates were seriously hampered by a lack of understanding of the noise performance of the MOS device. Author's contributions in this area not only led to a deeper understanding of the noise behavior of MOS devices but also produced an order of magnitude improvement in their performance.

Dr. Renuka P. Jindal (S'77-M'81-SM'85-F'91) received his Ph.D. degree in Electrical Engineering from University of Minnesota 1981. Upon graduation, he joined Bell Laboratories at Murray Hill, New Jersey. His experience at Bell Labs for over 22 years bridged both technical and administrative roles. Dr. Jindal received the Distinguished Technical Staff Award from Bell Labs in 1989. In December 2000 he received the IEEE 3rd Millennium Medal. From 2000 to 2008 he served as the Vice-President of Publications for the IEEE Electron Devices Society (EDS). From 2010 to 2011, Dr. Jindal served as the President of the IEEE Electron Devices Society. He is now an Endowed Professor in the Dept. of Electrical and Computer Engineering at University of Louisiana at Lafayette, and continues to actively be involved with the Society as Junior Past-President.

#### ED Santa Clara Valley

—by Toshishige Yamada

On November 4, 2011, the ED Santa Clara Valley Chapter held a half-day symposium, "Current Status and Future Directions of Non-Volatile Memory Technology," at TI Auditorium. We appreciated their courtesy. The speakers and titles were Dr. A. Fazio, Intel, "Future direction of non-

volatile memory in compute applications," Dr. C. Dennison, Ovonyx, "Scaling challenges and market opportunity for phase change memory," Dr. G. Sandhu, Micron, "Emerging memory opportunities and challenges," Prof. M. Kozicki, Arizona State University and Adesto Technologies, "Ionic memory," and Dr. J. Yang, HP Laboratories, "Metal oxide based nonvolatile memories – promises and challenges." There were well beyond a hundred attendees and with many active discussions.

In February, 2012, we had Dr. A. K. Allan, Intel, give the "2011 ITRS Update." In March, we welcomed Prof. C.-M. Hu, UC Berkeley, who presented "FinFET/Trigate FET and Its SPICE Model," which had more than a hundred people in attendance. In April, Prof. B. Yu, University at Albany, SUNY, gave a lecturer on "2D Carbon/Semiconductor-Enabled Electronics." The chapter co-sponsored a memory workshop, Nano Council organized, which had a hundred attendees.

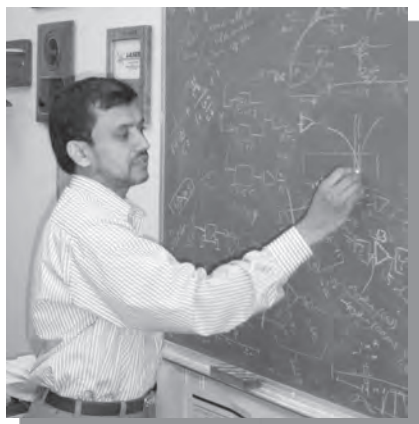
Lastly, we would like to introduce our 2012 officers, Chair T. Yamada, Vice-Chair J. Watt, Secretary S. Sonkusale, Treasurer S. Bahl, Assist Secretary S. Chopra, and Web Master V. Cao.

~Adam Conway, Editor

#### ICCDCS 2012

—by Rodolfo Quintero

The International Caribbean Conference on Devices, Circuits and Systems (ICCDCS) has been taking place biannually since 1995 at a number of locations within the Caribbean basin. The 9th edition, ICCDCS 2012, was held, March 14-17, in Playa del Carmen, México. It was organized under the auspices of the Center for Research and Advanced Studies of the National Polytechnic Institute (Cinvestav) in Mexico, the





*Some of the attendees of ICCDCS 2012*

Universitat de les Illes Balears (UIB) in Spain, Universitat Rovira i Virgili (URV) in Spain, and Mexico City's EDS Chapter, with the technical co-sponsorship of the IEEE Electron Devices Society. Playa del Carmen is a quiet and friendly beach resort just south of famed Cancún. It is located in the northeast of the Mexican state of Quintana Roo in the Yucatán Peninsula, on the coast of the Caribbean Sea. It has excellent turquoise water beaches and it is not far from the Mayan ancient legacy of Chichen-Itza.

ICCDSCS has established itself as the ideal gathering space for electronics professionals from all IEEE regions to meet their Region 9 counterparts in a relaxed and pleasant atmosphere. On this occasion, it was honored by sixty-six regular contributions, three keynote speeches and seven invited talks. Keynote speakers, M. S. Shur, C. Claeys and M. J. Deen, talked about III-N transistors, contacts for III-V CMOS, and information technologies for health care, respectively. There were also seven invited talks by D. Flandre, T. Fjeldy, S. Selberherr, E. A. Gutiérrez, J. P. Raskin, J. J. Liu and M. S. Shur, dealing with, ultra-low power circuits, MOSFET modeling, memories, magneto-conduction, SOI technologies, ESD protection for nanowires and ballistic transport in FETs, respectively. Contributed presentations covered themes related to circuit design, silicon 3D transistor modeling, organic transistors, device reliability, sensors, materials characterization and communications, among other.

The biannual Region 9 EDS Chapters Meeting and Mini-Colloquium, organized by the EDS Region 9 Subcommittee for Regions/Chapters, were also at Playa del Carmen during the two days preceding ICCDCS. The conference committee thanks the efforts of the many people involved, both participants and organizers. The next ICCDCS will be held

during 2014 at another attractive location in the Caribbean basin.

## SEMINATEC 2012

The VII Workshop on Semiconductors and Micro & Nano Technology – SEMINATEC 2012, was organized by and held at Centro Universitário da FEI, in São Bernardo do Campo, State of São Paulo, Brazil, April 12–13. The workshop was coordinated in close collaboration with and co-sponsored by the IEEE Electron Devices Society (EDS) South Brazil Chapter, the EDS Student Branch Chapter of the State University of Campinas, the Solid-State Circuits Society (SSCS) South Brazil Chapter, the Brazilian Microelectronics Society, and NAMITEC Science & Technology National Institute. Funding was provided by Brazil's National Council for Scientific and



*SEMINATEC 2012 Invited Speakers, from left to right: EDS DL James Merz; EDS DL Sorin Cristoloveanu; SSCS DL Vladimir Stojanovic; Marcelo Pavanello, SEMINATEC General Chair; Denis Flandre and EDS DL Francisco García-Sánchez*



*SEMINATEC 2012 participants during Prof. Cristoloveanu's distinguished lecture*





Some SEMINATEC 2012 Organizers and Invited Speakers, from left to right: Jacobus Swart, EDS SRC Region 9 Chair; Denis Flandre; Michelly de Souza; Marcelo Pavanello, SEMINATEC General Chair; Joao Martino, EDS South Brazil Chapter Chair; Francisco García-Sánchez; Renato Camargo Giacomini; Paula Ghedini Der Agopian; Sorin Cristoloveanu

Technological Development (CNPq) and the Federal Agency for Support and Evaluation of Postgraduate Education (Capes).

The objective of SEMINATEC is to promote interaction among industry, academy, research & development centers, government, and students, to look for opportunities to improve education, research, and technology in the areas of optoelectronic devices, fabrication of micro & nano-structures, micro-systems, device modeling and characterization, and integrated circuits. As in the case of its six previous editions, this VII SEMINATEC workshop focused on the presentation and discussion of technology advances and trends related to micro and nano-electronics. The workshop was organized along a single plenary stream with presentations from invited speakers and contributors from academy, industry and research funding agencies.

The Workshop was attended by approximately ninety participants, among those students and professionals from Brazilian universities, such as the University of Sao Paulo, the State University of Campinas, the Federal University of Minas

Gerais, and the Centro Universitário da FEI, as well as from companies such as Toshiba and CPqD research centers.

The workshop's inaugural ceremony was headed by Prof. Marcelo Antonio Pavanello, Vice-Rector for Teaching and Research at Centro Universitário da FEI and SEMINATEC 2012 General Chair, together with that institution's other highest academic authorities. There were five invited speakers: Prof. Denis Flandre, from Université Catholique de Louvain, Belgium, with the presentation "Disruptive Design Techniques Based on Ultra-Low-Leakage CMOS blocks for Ultra-Low-Power Circuits and Microsystems;" Prof. Francisco García-Sánchez (EDS Distinguished Lecturer), from Universidad Simon Bolivar, Venezuela, with the presentation "Explicit Lumped-Parameter Modeling of Solar Cells;" Prof. James Merz (EDS Distinguished Lecturer), from the University of Notre Dame, USA, with the presentation "Flatland Revisited – The Land of Quantum Structures in Compound Semiconductors;" Prof. Sorin Cristoloveanu (EDS Distinguished Lecturer), from IMEP – INP Grenoble MINATEC, France, with the presenta-

tion "Ultrathin SOI for Logic, Memory and Steep Slope Devices;" and Prof. Vladimir Stojanović (SSCS Distinguished Lecturer), from the RLE at MIT, USA, with the presentation "Designing VLSI Interconnects with Monolithically Integrated Silicon-Photonics."

In addition to the five Invited Presentations, a total of thirty six papers, selected by the Program Committee, were presented at the workshop both in oral and poster sessions. A brief review of EDS activities was also presented by EDS DL Prof. Merz. A special address was given about the last achievements of the project "National Institute of Science and Technology on Micro and Nanoelectronic Systems – NAMITEC," a national wide project involving 156 research groups from 23 institutions that are presently working in Micro & Nanotechnologies in Brazil. It was presented by the project coordinator Prof. Jacobus Swart from State University of Campinas, Brazil, who is also Chair of the EDS Region 9 Sub-Committee for Regions and Chapters. The closing presentation was by Mr. Alexandre Guilherme Motta Sarmento, representing Brazil's National Council for Scientific and Technological Development (CNPq), who discussed that agency's funding strategies regarding Micro & Nano Technologies.

~ **Francisco J. García-Sánchez,**  
Editor

## EUROPE, MIDDLE EAST & AFRICA (REGION 8)

### ED Poland

–by Zygmunt Ciota

On March 9, 2012, a joint meeting of the IEEE ED Poland Chapter and the Section of Microelectronics of Committee of Electronics and Telecommunication of the Polish Academy of Science, Lodz, Poland. During the





Participants of the March 9th meeting at the Technical University of Lodz



Credit: Montpellier (France) photographed by Wolfgang Staudt

meeting, Prof. Pawel Grybos from AGH University of Science and Technology, Kraków, Poland, presented a lecture entitled "2D and 3D Pixel Chips." The lecture was held in the Department of Microelectronics and Computer Science (DMCS) of Technical University of Lodz. Taking the opportunity, the areas of interests and research of DMCS were also presented.

~Zygmunt Ciota, Editor

## 2012 ESSDERC

~by T. Zimmer and J. B. Begueret

The 42nd European Solid-State Device Research Conference (ESSDERC 2012) and the 38th European Solid-State Circuits Conference (ESSCIRC 2012) will take place at the Convention Center, Bordeaux, France, September 17–21, 2012. The two conferences have been co-locating for several years and provide an excellent annual forum for the presentation and discussion of the most recent advances in solid-state devices and circuits, both from industry and academia. In 2012, the two conferences will have a common schedule and will share Plenary Keynotes Presentations, and Joint Sessions, with Tutorials sched-

uled for September 17<sup>th</sup> and Workshops on September 21<sup>st</sup>. Besides the benefit of a thoroughly selected Technical Program, a place to network and interact with peers from around the world, conference attendees will have the opportunity of enjoying the city of Bordeaux, in the world-famous wine region. Bordeaux is listed as a UNESCO World Heritage Site; a recognition of this city's value and historic unity.

## ICNF 2013

~by Luca Varani

The International Conference on Noise and Fluctuations (ICNF) is a biennial event that brings together researchers interested in theoretical and experimental aspects of fluctuations across a wide spectrum of scientific and technological fields: materials (semiconductors, amorphous, superconductors, organic, films), electronic and optoelectronic devices, sensors, mesoscopic systems and nanostructures, analog and digital circuits, complex systems, biological and biophysical systems, social and financial systems, reliability.

Noise and fluctuations are acquiring an increasing importance

in science and technology, as witnessed by the growing number of publications in this field that appear in leading journals. This conference will be a great opportunity for noise researchers operating in very different areas of scientific and technological endeavor to come together and create the basis for renewed cross-fertilization and collaboration.

The 22nd edition of the conference (ICNF 2013) will be held in Montpellier, France, June 24–28, 2013. For more information visit, <http://iscdg2012.insight-outside.fr/>.

~Jan Vobecky, Editor

## ASIA & PACIFIC (REGION 10)

### ED Peking University

~by Runsheng Wang

The ED Peking University (PKU) Student Chapter held a Distinguished Lecture, March 9, 2012, with invited EDS DL, Prof. Cary Y. Yang of Santa Clara University. In Dr. Yang's lecture entitled, "Electrothermal Transport in Nanocarbon Interconnects," he presented the study on the electro-thermal transport in carbon nanofibers, a potential nanocarbon replacement for copper as the next-generation on-chip interconnects material. There were about 50 attendees at the talk. After his talk, Prof. Yang had a more detailed face-to-face discussion with our members and students to share his research experience. The Peking University chapter also held many other events. The detailed information can be found on the chapter's



The Palais Rohan



*EDS Distinguished Lecturer, Cary Yang (front row, 3rd from left), with Prof. Ru Huang (3rd from right), the chapter advisor, Dr. Runsheng Wang (1st from right), the chapter advisor and other members of the chapter*

website, <http://www.ime.pku.edu.cn/soi/edpku.html>.

## ED Taipei

—by Steve Chung

The ED Taipei Chapter held two important events during the first quarter of 2012. An invited talk on March 2nd was arranged by the the student branch chapters at NCTU and NTHU, with co-sponsorship by the ED Taipei Chapter. Professor Cary Yang from Santa Clara University gave a talk on “Electrothermal Transport in Nanocarbon Interconnects,” in which he presented more recent progress on the advanced researches of nanocarbon fibers, a potential replacement for copper as the next-generation on-chip interconnect material. He introduced electrical and thermal transport models to support the ex-

perimental observations. In addition, using the same test structures, the behavior of resistance change due to Joule heating is studied, and the results are explained with a carrier trapping/detrapping model. The talk was attended by more than 50 participants, including students and professors from the local universities.

The second event was a special International Symposium on “Non-volatile Memory - the Technology Driver of the Electronics Industry.” The symposium was sponsored by the National Chiao Tung University, and co-sponsored by the ED Taipei Chapter, ED Tainan Chapter, as well as the IEEE Taipei Section, etc. The event was organized to recognize the invention of nonvolatile memory by Dr. Simon Sze and Dr. Dawon Kahng, as well as their contributions to change the human life

in our time. According to Simon Sze, “Without the floating gate memory invention, it would not be possible to have portable iPods, cell phones, MP3 players, etc.” To celebrate the 45th anniversary of the invention of floating gate memory and to pay tribute to hundreds of thousands of scientists and engineers, who devoted their talents and energies to the research, development, and application of the electronics industry, this event invited 7 world-renowned experts to give special talks on floating gate memory technology, MRAM, RRAM, PCM, and ferroelectric memories. The talk attracted more than 500 participants from the university and science park, with half of them being engineers from the science park.

## ED Tsinghua University

—by Haiming Zhao

On May 29, 2012, we invited Dr. Xing Zhou, an EDS Distinguished Lecturer (DL), to visit Tsinghua University and give a DL for the 19th Electron Devices Forum of Tsinghua University. The event, organized by the EDS Student Chapter of Tsinghua University, began at 10 o'clock, Beijing time. Dr. Zhou gave his talk about HMETs in Room B311 of the Institute of Microelectronics, Tsinghua University. Professor Tianling Ren, advisor for the EDTsinghua University Student Chapter, presided over the forum. The attendees consisted of two professors and sixteen students, three of which were IEEE members.

As we all know, III-V channel field-effect transistors (FETs), such as GaN-based high electron mobility transistors (HMETs), have emerged as promising candidates for future



*March 2nd invited talk at the ED Taipei Chapter, (1st row, 5th from the left) Cary Yang (speaker), Steve Chung (chapter chair), and T. H. Hou (seminar chair)*



*NVM Symposium on March 26th, (left) The speakers and professors, (right) Keynote speaker, Simon Sze*





EDS Distinguished Lecturer, Xing Zhou (3rd from left), with organizers and attendees of the 19th Electron Devices Forum of Tsinghua University

generation high-speed, high-frequency, high-voltage, and high-power ULSI applications. This talk presents a unified compact model for generic heterostructure HMETs. It is based on unified regional modeling (URM) of the 2-dimensional electron gas (2DEG) charge density, including the two lowest sub-bands of the triangular well in the active region, and extending to the sub-threshold region of operation in a single-piece formulation. The 2DEG charge density model is adopted in the surface-potential based URM (Xsim) for bulk/multigate MOSFETs. The developed model has been validated with the exact numerical solutions for a wide range of devices and verified with experimental data of metal-insulator-semiconductor (MIS) HEMT devices.

## ED Delhi

—by *Manoj Saxena*

The ED Delhi Chapter organized an EDS Distinguished Lecture by Prof Vijay K. Arora of Wilkes University, USA, January 13, 2012, at the South Campus of the University of Delhi. Topic of the lecture was “*Drift-Diffusion to Ballistic Transport in Low-*

*Dimensional Nanostructures.*” More than 70 participants from academia and industry, including IEEE members, attended the DL.

The Chapter organized a two day Science Academies Lecture Workshop On “*Frontiers in Science & Engineering – Opportunities for Graduates,*” with the assistance of the Deen Dayal Upadhyaya College of New Delhi on February 17–18, 2012. The workshop was inaugurated by Dr. Krishan Lal, President of the Indian National Science Academy. Nine eminent professors from various institutions like IIT Delhi and Jawaharlal Nehru University gave lectures

on topics covering Nanometer devices, Optoelectronics techniques, Photonics and Quantum effects in processing. More than 150 attendees including students participated in the workshop.

## ED Malaysia

—by *P. Susthitha Menon and Ibrahim Ahmad*

The ED Malaysia Chapter held its’ Annual General Meeting at the IOI Marriott Hotel, Putrajaya, January, 7, 2012. Dr. Ibrahim Ahmad from University Tenaga Nasional (UNITEN), Dr. P. Susthitha Menon from University Kebangsaan Malaysia (UKM) and Assoc.



Prof. V. K. Arora with participants of the DL at the ED Delhi Chapter



Participants of the workshop on Frontiers in Science & Engineering - Opportunities for Graduates, organized by the ED Delhi Chapter



ED Malaysia 2012 ExCom members

Prof. Nizar Hamidon from University Putra Malaysia (UPM) are maintained as the Chapter Chair, Honorary Secretary and Treasurer respectively, whereas Assoc. Prof. Norhayati Soin from University Malaya (UM) was elected as the new Vice-Chair. The major event for 2012 is the 10th IEEE International Conference on Semiconductor Electronics (ICSE2012) scheduled to be held at the Grand Millenium Hotel, Kuala Lumpur, September 19–21, 2012. The conference will be chaired by the Director of the Institute of Microengineering and Nanoelectronics (IMEN), Prof Dato, Dr. Burhanuddin Yeop Majlis. Details about the conference can be obtained from the chapter's website, <http://ieeemalaysia-eds.org/icse2012/>.

A short course on Introduction to Problem Solving Using TRIZ Innovative Methods was co-organized by the ED Malaysia Chapter, the Institute of Microengineering and Nanoelectronics (IMEN), University Kebangsaan Malaysia (UKM) and University Tenaga Nasional (UNITEN), March 6-7, 2012 at UNITEN. A total of 20 participants from academia attended the short course which was delivered by Dr. Prakash R. Apte from the Indian Institute of Technology (IIT), Bombay. The course objective was to introduce all the main TRIZ tools so that delegates can first identify the inventive problem and then find several innovative solutions for the same.

## ED Nepal

-by Bhadra Pokheral

The ED Nepal Chapter organized two technical talks with the first on February, 18th, titled, "*Electronic*

*Transport in Quantized Low Dimensional Semiconductor Systems and Metal Nanoparticles*," given by Dr. Sanju Shresta. His talk was organized in association with Golden Gate College, attracting more than 90 participants. The second talk, on March 23rd at ASCAL Campus, Tribhuvan University, was given by Prof. Devendra Raj. Mishra, on "*Use of Density Function in Characterization of Materials*."

## ED NIST – Berhampur

-by Ajit Kumar Panda

The IEEE ED NIST Student Chapter organized a seminar, January 10, 2012, and invited Dr. Shinji Nozaki of The University of Electro-Communications, Tokyo, Japan, to deliver his lecture entitled, "*MOS device*

*characterization and growth of ZnO nanorods on Si substrate coated with a thick Ag film instead of GaN substrate*." This event was attended by many researchers and students.

In conjunction with the EDS South Asia Chapter Chairs meet at Bhubaneswar, the ED NIST Student Chapter organized a mini-colloquia program, April 12th, at NIST Berhampur. Invited EDS Distinguished Lecturers, EDS Jr Past-President, Prof. Renuka P. Jindal from the University of Louisiana, Lafayette, Louisiana, USA; EDS AdCom Member and Region 10 SRC Vice-Chair, Prof. M. K. Radhakrishnan and Prof. G. N. Dash of Sambalpur University were the guests of honor of this lecture session on Nanoelectronics.

The distinguished lectures on "Nanoelectronics" were attended by more than 100 participants from various institutions in the region. Prof Renuka Jindal gave a lecture on "Millibits to Terrabits 60 years of communication;" Prof. M. K. Radhakrishnan delivered his DL on "Engineering Evolution in Electronics – Micro to Nano;" and Prof. Das spoke on "*Graphene a material for future*."



Prof. Shinji Nozaki (4th from right) with ED NIST Student Chapter members and attendees of seminar



Speakers G. N. Das, Renuka Jindal and M. K. Radhakrishnan at the mini-colloquium





speakers and attendees of the DL program at NIST

### ED/REL/CPMT Singapore

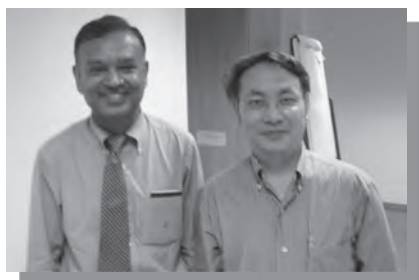
—by Xing Zhou and Yeow Kheng Lim

The EDS Vice-President of Educational Activities, Dr. Meyya Meyyappan, visited the Rel/CPMT/ED Singapore Chapter, February 29th, to give an EDS Distinguished Lecture entitled, "Nanowires in Nanoelectronics, Optoelectronics and Sensor Applications." The event was co-hosted with

at either the 2011 IEDM or Symposium on VLSI Technology. The award winners are posted on the chapter's website, <http://www.ieee-jp.org/>

[japancouncil/chapter/ED-15/ed15\\_award.htm](http://japancouncil/chapter/ED-15/ed15_award.htm).

After the annual meeting, the IEDM 2011 Report Session, given by



Dr. Meyyappan (left) with Prof. Xing Zhou, chapter committee member and DL host



10th EDS Japan Chapter Student Award winners

the NOVITAS Nanoelectronics Center of Excellence at Nanyang Technological University, and attracted more than 50 participants.

~M. K. Radhakrishnan, Editor

### ED Japan

—by Akira Toriumi

On February 1, 2012, the annual meeting of the ED Japan Chapter was held in Tokyo, with the chapter chair, Dr. Shin'ichiro Kimura reporting on last year's activities and plans for 2012. During the meeting the 2011 EDS Japan Chapter Student Award was presented to 7 students who made an excellent presentation



2012 and 2011 Executive Committee Meeting attendees, first row (from left): Prof. A. Toriumi, Prof. H. Iwai, and Dr. S. Kimura. Second row (from left): Dr. M. Masahara, Dr. T. Mogami, Dr. K. Torii, Prof. K. Tsutsui, and Prof. K. Kita

six Japanese members of the IEDM program committee reported on summary, topics and research trends of their committees for the benefit of members who were not able to attend the IEDM. Around seventy members including non-members attended the Session.

The executive committee meeting of the EDS Japan chapter was also held on the same day. The guests: Prof. Hiroshi Iwai, former IEEE Division I Director and Prof. Kazuo Tsutsui, former EDS Newsletter Regional Editor were welcomed by 2011 and 2012 EDS Japan Chapter Executives: Dr. Shin'ichiro Kimura; 2011 EDS Japan Chapter Chair, Prof. Akira Toriumi; 2012 Chair, Dr. Tohru Mogami; 2012 Vice Chair, Dr. Kazuyoshi Torii; 2011 Secretary, Prof. Koji Kita; 2012 Secretary, and Dr. Meishoku Masahara; 2012 Treasurer. The activities in 2011 and the plans for 2012 of the Chapter were approved at the meeting.

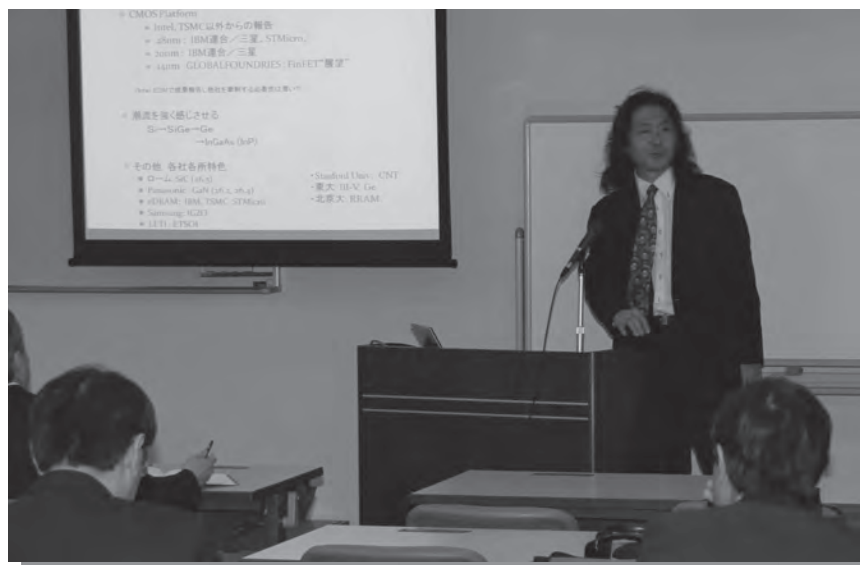
## ED Kansai

—by Michinori Nishihara

The ED Kansai Chapter held a feedback meeting from the 2011 IEDM at Osaka University Nakanoshima Center, Osaka, Japan, with 37 participants from academia and industries.

Dr. Masami Hane of Renesas Electronics Corporation reported on Silicon Devices/Processes related sessions as well as the conference overall statistics. He pointed out there were many papers from China indicating strong activity there. Intel reported the result of the study on FETs using compound materials aiming not only high performance but also low voltage operation. According to Dr. Hane it has been rumored that Intel was using dislocation stress intentionally to boost NFET mobility. Intel reported actually using edge dislocations introduced by solid phase epitaxial regrowth showing cross section view which was very impressive.

Prof. Masaaki Kuzuhara from the University of Fukui reported on compound semiconductor devices. He noticed there were more digital



*Dr. Masami Hane at the IEDM feedback meeting*



*Prof. Masaaki Kuzuhara at the IEDM feedback meeting on January 19, 2012*

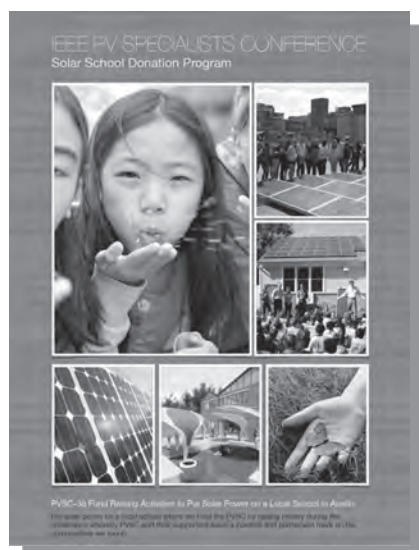
FET applications papers in compound semiconductor sessions than before, such as the ones from Intel as Dr. Hane reported. Many of the technology topics of the new digital applications were already discussed basically many years ago among compound semiconductor device researchers but the people from digital world reported remarkable results quickly. Prof. Kuzuhara believed that is because they had clear view and target to achieve in digital applications.

After the IEDM feedback meeting we held the annual general meeting to review activities of ED Kansai in 2011 and to discuss plans for 2012. We elected Prof. Yukiharu Uraoka of Nara Institute of Science and Technology as a new Vice Chair, to be the successor for Prof. Shigehiko Sasa. We also discussed planning of the upcoming 2012 IMFEDK, which is to be co-sponsored with the Solid-State Circuits Society Kansai Chapter to celebrate the 10th anniversary of IMFEDK.

~Kuniyuki Kakushima, Editor

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The event was held on the opening day of the 38th IEEE Photovoltaic Specialists Conference (PVSC), at the Austin Convention Center in Austin, Texas. The purpose of Austin Solar Day is to leverage the presence of the IEEE Photovoltaic Specialists Conference to raise public awareness of photovoltaics and its potential impact on the community.



Taylor High School student, Jeremy Carr, with the B.L.A.D.E. van

The High School Photovoltaic Design Competition has been held in conjunction with the IEEE PVSC for the past 20 years. This venue provides participating high school students with direct interactions with world-famous photovoltaic technologists and businesses.

The students work on their projects under the supervision of a faculty member. The design projects must demonstrate the use of photovoltaics in a practical application, using only photovoltaics as the power source for the project. The students were judged on originality, quality, and the ability to communicate the results.<sup>1</sup>

<sup>1</sup>Reprinting from 2012 PVSC announcement

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Transforming a donated 1995 GMC Safari into the B.L.A.D.E. van (Beginners Learning Alternative Designs for Energy), an educational community outreach vehicle, and the students with their mentor, John Jarmon, work (play) to educate their community about solar energy. This team won the PV School Contest, not only for building the solar cells, the energy system, netting sponsorships and materials donations, but by teaching the public about solar energy with fun activities like free movies in the

park; all equipment powered by the B.L.A.D.E. van. Gaming consoles, complete with a wide panel TV on the outside of the van, is another fun future project for this team.

### 

Al Sherrouse, Mechanical Engineering & Design, with Tai Alberts, Special Education and Horticulture; two stars at Copperas Cove High School. A need to create a cost-effective heating and surface water reclamation system for their school's greenhouse grew into a school-wide project; engaging not only the special education students who learned valuable life skills, but all faculty





and students at Copperas Cove. The school's team spirit has grown through the roof, thanks to the efforts of AI and Tai.

### **Keystone High School**

This student team created an inexpensive solar-powered water filtration system to remove microbial contamination. The main focus is on



affordability, so it can be implemented in communities in third world nations.

### **Stoney Point High School**

The students built a solar-powered, remote energy and communications system to be used to organize supplies when infrastructures are unable to support local users. The students hope their system will be useful for the military or humanitarian organizations like the Red Cross, during nation-wide disaster efforts.



### **Bowie High School**

Using berry fruit juices, Aditi Sharma, tested the efficiency of different organic dyes in dye sensitized solar cells. These types of cells are very eco-friendly, renewable and cheaper than silicon based cells. Her research is to help make dye sensitized solar cells more efficient.



### **Renaissance High School**

Renaissance student, Nisreen Malley, measured the impact on inside temperatures by raising solar panels higher on traditional tile roofs. She also experimented with increasing the angle during windy conditions, resulting in even lower inside temperatures. Her tests show that in addition to producing energy, solar panels can help keep structures cooler and reduce the amount of energy needed to begin with.



### **University of Arkansas - (GREEN) Solar Cells Center**

Students, Jaron Robison and Justin Johnson train others on PV technology for the University of Arkansas's PVTech certification course. An educated and trained workforce will be needed to install, operate and



maintain solar power systems. The GREEN Center will help to provide job opportunities for new technicians and for those whose jobs may have been eliminated due to changing technologies.

### **Pflugerville High School**

Collaborating with their school's carpentry department, George Kurochin and Cesar Moreno, created an inexpensive water filtration system for homes. Their device removes



contaminants by having the water flow through the sanitizing UV light tube, all contained in a stylish wood cabinet.

### **Austin Community College**

Sergio Chavez and Dustin McInroe, with their see-thru solar house display, uses building pressure flows (shown with fireplace 'smoke') to teach students, PV installers and the public about energy efficiency.





# EDS MEETINGS CALENDAR

## (As of 21 June 2012)

THE COMPLETE EDS CALENDAR CAN BE FOUND AT OUR WEB SITE:

[HTTP://EDS.IEEE.ORG](http://eds.ieee.org). PLEASE VISIT.

02 Jul - 06 Jul 2012

**2012 19th IEEE International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA 2012)**

Conf Record :19910  
Location: Singapore , Singapore  
Contact : Jasmine Leong  
Tel : +65 67432523  
Fax : +65 67461095  
E-mail: [ipfa@pacific.net.sg](mailto:ipfa@pacific.net.sg)  
Deadline : 09 May 2012  
www : <http://ewh.ieee.org/reg/10/ipfa/>

04 Jul - 06 Jul 2012

**2012 19th International Workshop on Active-Matrix Flatpanel Displays and Devices (AM-FPD)**

Conf Record :20108  
Location: Kyoto , Japan  
Contact : AM-FPD Secretariats, Mobara Atecs, Ltd.  
Tel : +81 475 23 1150  
Fax : +81 475 25 7703  
E-mail: [amfpd@atecs.co.jp](mailto:amfpd@atecs.co.jp)  
Deadline :  
www : <http://www.amfpd.jp>

09 Jul - 13 Jul 2012

**2012 25th International Vacuum Nanoelectronics Conference (IVNC)**

Conf Record :20657  
Location: Jeju , Korea (South)  
Contact : Dong Hoon Shin  
Tel : +82 3290 3787  
Fax : +82 2 921 4722  
E-mail: [newcre8or@gmail.com](mailto:newcre8or@gmail.com)  
Deadline : 15 Jun 2012  
www : <http://www.ivnc2012.org>

09 Jul - 10 Jul 2012

**2012 19th Biennial University/Government/Industry Micro/Nano Symposium (UGIM)**

Conf Record :19639  
Location: Berkeley CA , USA  
Contact : Katalin Voros  
Tel : +1 510 642 2911  
Fax :  
E-mail: [voros@eecs.berkeley.edu](mailto:voros@eecs.berkeley.edu)  
Deadline : 05 Mar 2012  
www : <http://nanolab.berkeley.edu/ugim2012>

07 Aug - 09 Aug 2012

**2012 Lester Eastman Conference on High Performance Devices (LEC)**

Conf Record :21054  
Location: Providence RI , USA  
Contact : T. Paul Chow  
Tel : +1 518 276 2910  
Fax : +1 518 276 2990  
E-mail: [chowt@rpi.edu](mailto:chowt@rpi.edu)  
Deadline : 15 Aug 2012  
www : <http://www.leconf.com/index.php>

28 Aug - 30 Aug 2012

**2012 International Conference on Mathematical Methods in Electromagnetic Theory (MMET)**

Conf Record :20934

01 Oct - 04 Oct 2012

**2012 IEEE International SOI Conference**

Conf Record :19774  
Location: Napa CA , USA  
Contact : Joyce Hooper  
Tel : +1 818 795 3768  
Fax : +1 818 855 8392  
E-mail: [joyce@imf.la](mailto:joyce@imf.la)  
Deadline : 24 Aug 2012  
www : <http://www.soiconference.org/>

14 Oct - 18 Oct 2012

**2012 IEEE International Integrated Reliability Workshop (IIRW)**

Conf Record :20174  
Location: South Lake Tahoe CA , USA  
Contact : Andrew Turner  
Tel : +1 802 899 2383  
Fax :  
E-mail: [aaturner@us.ibm.com](mailto:aaturner@us.ibm.com)  
Deadline :  
www : <http://www.iirw.org>

14 Oct - 17 Oct 2012

**2012 IEEE Compound Semiconductor Integrated Circuit Symposium (CSICS)**

Conf Record :19277  
Location: San Diego CA , USA  
Contact : Lisa Boyd, CMP  
Tel : +1 732 562 6359  
Fax : +1 732 465 6447  
E-mail: [l.boyd@ieee.org](mailto:l.boyd@ieee.org)  
Deadline :  
www : <http://www.csics.org/>

15 Oct - 17 Oct 2012

**2012 International Symposium on Semiconductor Manufacturing (ISSM)**

Conf Record :20968  
Location: Tokyo , Japan  
Contact : Naoko Tani  
Tel : +81335603565  
Fax :  
E-mail: [naoko.tani@semiconportal.com](mailto:naoko.tani@semiconportal.com)  
Deadline : 31 Aug 2012  
www : <http://www.semiconportal.com/issm/>

15 Oct - 17 Oct 2012

**2012 International Semiconductor Conference (CAS 2012)**

Conf Record :20271  
Location: Sinaia , Romania  
Contact : Cristina Buiculescu  
Tel : +40 21 269 07 7  
Fax : +40 21 269 07 7  
E-mail: [cas@imt.ro](mailto:cas@imt.ro)  
Deadline : 01 Jun 2012  
www : <http://www.imt.ro/cas>

29 Oct - 31 Oct 2012

**2012 European Microwave Integrated Circuit Conference (EuMIC)**

Conf Record :20432

05 Jan - 10 Jan 2013

**2013 26th International Conference on VLSI Design: concurrently with the 12th International Conference on Embedded Systems**

Conf Record :21077  
Location: Pune , India  
Contact : Niranjana Pol  
Tel : +91 20 4109 821  
Fax :  
E-mail: [Niranjana.Pol@lsi.com](mailto:Niranjana.Pol@lsi.com)  
Deadline : 01 Oct 2012  
www :  
<http://www.vlsidesignconference.org>

12 Feb - 14 Feb 2013

**2013 Spanish Conference on Electron Devices (CDE)**

Conf Record :21134  
Location: Valladolid , Spain  
Contact : Dr. Jose Represa Fernandez  
Tel : +34 629 732878  
Fax :  
E-mail: [jrepresa@ee.uva.es](mailto:jrepresa@ee.uva.es)  
Deadline : 11 Jan 2013  
www : <http://www.cde2013.es>

25 Feb - 26 Feb 2013

**2013 International Symposium on Next-Generation Electronics (ISNE)**

Conf Record :20005  
Location: Kaohsiung , Taiwan  
Contact : Juin J. Liou  
Tel : +1 407 823 5339  
Fax :  
E-mail: [liou@eecs.ucf.edu](mailto:liou@eecs.ucf.edu)  
Deadline :  
www : <http://>

25 Mar - 28 Mar 2013

**2013 IEEE International Conference on Microelectronic Test Structures (ICMTS)**

Conf Record :21133  
Location: Osaka , Japan  
Contact : Tatsuya Ohguro  
Tel : +81 45 776 5697  
Fax : +81 45 776 4104  
E-mail: [tatsuya.ohguro@toshiba.co.jp](mailto:tatsuya.ohguro@toshiba.co.jp)  
Deadline : 14 Jan 2013  
www : <http://www.see.ed.ac.uk/ICMTS/>

12 Apr - 12 Apr 2013

**2013 IEEE Workshop on Microelectronics and Electron Devices (WMED)**

Conf Record :21252  
Location: Boise ID , USA  
Contact : Timothy M. Hollis  
Tel : +1 208 954 9704  
Fax : +1 208 368 3426  
E-mail: [thollis@ieee.org](mailto:thollis@ieee.org)  
Deadline : 08 Feb 2013  
www : <http://www.ewh.ieee.org/r6/boise/wmed2013/WMED2013.html>

14 Apr - 18 Apr 2013

**2013 IEEE International Reliability Physics Symposium (IRPS)**

Conf Record :16752

Location: Kharkiv , Ukraine  
Contact : Dr. Ilya O. Sukharevsky (MMET\*12 Secretary)  
Tel : +380 57 720 37  
Fax : +380 57 315 210  
E-mail: mmet@mmet.org  
Deadline :  
www : <http://>

Location: Amsterdam , Netherlands  
Contact : J.G. bij de Vaate  
Tel : +31 521 595 100  
Fax :  
E-mail: vaate@astron.nl  
Deadline : 22 Jun 2012  
www : <http://www.eumweek.com/2012/EuMIC.asp?id=c>

Location: Monterey CA , USA  
Contact : David Barber  
Tel : +1 828 898 7001  
Fax : +1 828 898 6379  
E-mail: dbarbsta@aol.com  
Deadline : 01 Jan 2013  
www : <http://www.irps.org>

09 Sep - 14 Sep 2012

**2012 34th Electrical Overstress/Electrostatic Discharge Symposium (EOS/ESD)**

Conf Record :20680  
Location: Tucson AZ , USA  
Contact : Lisa Pimpinella  
Tel : +1 315 339 6937  
Fax : +1 315 339 6793  
E-mail: lpimpinella@esda.org  
Deadline :  
www : <http://www.esda.org>

31 Oct - 02 Nov 2012

**2012 12th Annual Non-Volatile Memory Technology Symposium (NVMTS)**

Conf Record :21218  
Location: Singapore , Singapore  
Contact : Rong Zhao  
Tel : +65 68743385  
Fax :  
E-mail: zhao\_rong@dsi.a-star.edu.sg  
Deadline : 30 Sep 2012  
www : <http://www.dsi.a-star.edu.sg/sites/nvmts2012/pages/index.aspx>

22 Apr - 24 Apr 2013

**2013 International Symposium on VLSI Design, Automation and Test (VLSI-DAT)**

Conf Record :21321  
Location: Hsinchu , Taiwan  
Contact : Elodie Ho  
Tel : +886 3 5919039  
Fax : +886 35820420  
E-mail: elodieho@itri.org.tw  
Deadline : 31 Jan 2013  
www : <http://vlsidat.itri.org.tw/2013/General/>

09 Sep - 12 Sep 2012

**2012 IEEE Custom Integrated Circuits Conference - CICC 2012**

Conf Record :16687  
Location: San Jose CA , USA  
Contact : Melissa Widerkehr  
Tel : +1 301 527 0900  
Fax : +1 301 527 0994  
E-mail: melissaw@widerkehr.com  
Deadline :  
www : <http://www.ieee-cicc.org/>

05 Nov - 09 Nov 2012

**2012 IEEE/ACM International Conference on Computer-Aided Design (ICCAD)**

Conf Record :20718  
Location: San Jose CA , USA  
Contact : Kathy Embler  
Tel : +1 303 530 4562  
Fax :  
E-mail: kathy@mpassociates.com  
Deadline : 17 Aug 2012  
www : <http://www.iccad.com>

22 Apr - 24 Apr 2013

**2013 International Symposium on VLSI Technology, Systems and Application (VLSI-TSA)**

Conf Record :21322  
Location: Hsinchu , Taiwan  
Contact : Sherry Chu  
Tel : +886 3 5914388  
Fax : +886 3 582 0221  
E-mail: sherrychu@itri.org.tw  
Deadline : 31 Oct 2012  
www : <http://vlsitsa.itri.org.tw/2013/General/>

10 Sep - 14 Sep 2012

**2012 22nd International Crimean Conference "Microwave & Telecommunication Technology" (CRiMiCo 2012)**

Conf Record :20508  
Location: Sevastopol , Ukraine  
Contact : Sergey M. Smolskiy  
Tel : +74957071214  
Fax : +74953611620  
E-mail: smolskiysm@gmail.com  
Deadline : 05 Jul 2012  
www : <http://www.crimico.org>

11 Nov - 15 Nov 2012

**2012 International Conference on Advanced Semiconductor Devices & Microsystems (ASDAM)**

Conf Record :20460  
Location: Smolenice , Slovakia  
Contact : Jozef Osvald  
Tel : +421 2 5922 295  
Fax : +421 2 5477 581  
E-mail: elekosva@savba.sk  
Deadline : 15 Oct 2012  
www : <http://www.elu.sav.sk/asdam/>

21 May - 23 May 2013

**2013 14th International Vacuum Electronics Conference (IVEC)**

Conf Record :21029  
Location: Paris , France  
Contact : Dr. Marinella Aloisio  
Tel : +31 71 565 6704  
Fax : +31 71 565 4596  
E-mail: marinella.aloisio@esa.int  
Deadline : 15 Mar 2013  
www : <http://www.ivec2013.org>

17 Sep - 21 Sep 2012

**ESSDERC 2012 - 42nd European Solid State Device Research Conference**

Conf Record :20580  
Location: Bordeaux , France  
Contact : Malbert Nathalie  
Tel : +0540002859  
Fax :  
E-mail: nathalie.malbert@ims-bordeaux.fr  
Deadline : 30 Jun 2012  
www : [http://www.ims-bordeaux.fr/ESSDERC2012/pages/pageDynamiqueSITEExt.php?guidPage=home\\_pagedsdfsdfs](http://www.ims-bordeaux.fr/ESSDERC2012/pages/pageDynamiqueSITEExt.php?guidPage=home_pagedsdfsdfs)

03 Dec - 05 Dec 2012

**2012 IEEE International Conference of Electron Devices and Solid-State Circuits (EDSSC)**

Conf Record :20303  
Location: Bangkok , Thailand  
Contact : Thavatchai Tayjasananant  
Tel : +66891433445  
Fax :  
E-mail: Thavatchai.t@chula.ac.th  
Deadline : 30 Jun 2012  
www : <http://www.EDSSC2012.com>

21 May - 23 May 2013

**2013 IEEE Energytech**

Conf Record :21305  
Location: Cleveland OH , USA  
Contact : Prof. Wyatt Newman  
Tel : +1 216 368 6432  
Fax :  
E-mail: wsn@case.edu  
Deadline : 01 Apr 2013  
www : <http://energyTech2013.org>

19 Sep - 21 Sep 2012

**2012 IEEE Great Lakes Technology Symposium (GLTS)**

Conf Record :20465  
Location: Ann Arbor MI , USA  
Contact : Tayfun Ozdemir  
Tel : +1 734 846 2550  
Fax : +1 734 661 0159  
E-mail: tayfunozdemir@ieee.org  
Deadline :  
www : <http://www.ieeegreatlakes.org/>

06 Dec - 08 Dec 2012

**2012 IEEE 43rd Semiconductor Interface Specialists Conference (SISC)**

Conf Record :18720  
Location: San Diego CA , USA  
Contact : Michel Houssa  
Tel : +32 16 32 72 91  
Fax :  
E-mail: michel.houssa@fys.kuleuven.be  
Deadline :  
www : <http://www.ieeesisc.org/>

26 May - 30 May 2013

**2013 25th International Symposium on Power Semiconductor Devices & IC's (ISPSD)**

Conf Record :21023  
Location: Kanazawa , Japan  
Contact : Dr. Katsumi Satoh  
Tel : +81 92 805 3227  
Fax : +81 92 805 3881  
E-mail: Sato.Katsumi@cb.MitsubishiElectric.co.jp  
Deadline : 10 Mar 2013  
www : <http://www.ispsd2013.com/>

24 Sep - 27 Sep 2012

**2012 XVIIth International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory - (DIPED)**

Conf Record :20462  
Location: Tbilisi , Georgia  
Contact : Dr. Mykhaylo Andriychuk  
Tel : +38 032 258 51  
Fax : +38 032 263 72  
E-mail: andr@iapmm.lviv.ua  
Deadline : 30 Aug 2012  
www : <http://www.ewh.ieee.org/soc/cpmt/ukraine/>

24 Sep - 26 Sep 2012

**2012 International Semiconductor Conference Dresden-Grenoble (ISCDG) - formerly known as the Semiconductor Conference Dresden (SCD)**

Conf Record :20792  
Location: Grenoble , France  
Contact : Insight-Outside c/o Eric Loisy  
Tel : +33 04 38 38 18  
Fax : +33 4 38 38 18  
E-mail: iscdg2012@insight-outside.fr  
Deadline :  
www : <http://iscdg2012.insight-outside.fr>

25 Sep - 27 Sep 2012

**2012 International Conference on Solid State Devices and Materials (SSDM)**

Conf Record :20293  
Location: Kyoto , Japan  
Contact : Shigeru Asari  
Tel : +81 3 5549 6909  
Fax : +81 3 5549 3201  
E-mail: ssdm\_secretariat@intergroup.co.jp  
Deadline : 23 Jul 2012  
www : <http://www.ssdm.jp/>

26 Sep - 28 Sep 2012

**2012 9th International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE 2012)**

Conf Record :20919  
Location: Mexico City , Mexico  
Contact : Judith Esparza Azcoitia  
Tel : +52 55 5747 380  
Fax : +52 55 5747 397  
E-mail: cce@cinvestav.mx  
Deadline : 10 Aug 2012  
www : <http://cce.cinvestav.mx/>

30 Sep - 03 Oct 2012

**2012 IEEE Bipolar/BiCMOS Circuits and Technology Meeting - BCTM**

Conf Record :20104  
Location: Portland OR , USA  
Contact : Jan Jopke  
Tel : +1 952 934 5082  
Fax :  
E-mail: ccsevents@comcast.net  
Deadline : 13 Jul 2012  
www : <http://ieee-bctm.org/>

01 Oct - 05 Oct 2012

**2012 23rd European Symposium on Reliability of Electron Devices, Failure Physics and Analysis - ESREF 2012**

Conf Record :20004  
Location: Cagliari , Italy  
Contact : Gaudenzio Meneghesso  
Tel : +39 0498277653  
Fax : +39 0498277699  
E-mail: esref2012@dei.unipd.it  
Deadline : 30 May 2012  
www : <http://www.esref.org>

10 Dec - 13 Dec 2012

**2012 IEEE International Electron Devices Meeting (IEDM)**

Conf Record :11148  
Location: San Francisco CA , USA  
Contact : Ms. Phyllis W. Mahoney  
Tel : +1 301 527 0900  
Fax : +1 301 527 0994  
E-mail: phyllism@widerkehr.com  
Deadline :  
www : <http://www.ieee-iedm.org>

10 Dec - 12 Dec 2012

**2012 International Conference on Field-Programmable Technology (FPT)**

Conf Record :20848  
Location: Seoul , Korea (South)  
Contact : Soo-Ik Chae  
Tel : +82 2 880 5457  
Fax : +82 2 880 1691  
E-mail: chae@snu.ac.kr  
Deadline : 20 Sep 2012  
www : <http://babel.ssu.ac.kr/ICFPT12/ICFPT2012.htm>

12 Dec - 14 Dec 2012

**2012 Conference on Optoelectronic and Microelectronic Materials & Devices (COMMAD)**

Conf Record :21338  
Location: Melbourne , Australia  
Contact : Assoc. Prof. Jeffrey C. McCallum  
Tel : +61 3 8344 8072  
Fax : +61 3 9347 4783  
E-mail: jeffreym@unimelb.edu.au  
Deadline : 30 Sep 2012  
www :  
<http://commad2012.physics.unimelb.edu.au/>

15 Dec - 17 Dec 2012

**2012 International Conference on Emerging Electronics (ICEE 2012)**

Conf Record :21188  
Location: Mumbai , India  
Contact : ICEE Secretariat  
Tel : +91 22 2576 4435  
Fax :  
E-mail: icee@iitb.ac.in  
Deadline : 31 Aug 2012  
www : <http://www.icee.org.in>

16 Dec - 20 Dec 2012

**2012 24th International Conference on Microelectronics (ICM)**

Conf Record :20979  
Location: Algiers , Algeria  
Contact : Rafik Bradai  
Tel : +213 25 43 36 2  
Fax :  
E-mail: r.bradai@univ-blida.dz  
Deadline : 11 Oct 2012  
www : <http://ieee-icm2012.org/>

02 Jan - 04 Jan 2013

**2013 IEEE International Nanoelectronics Conference (INEC)**

Conf Record :20696  
Location: Singapore , Singapore  
Contact : Hong Wang  
Tel : +6567904358  
Fax :  
E-mail: ewanghong@ntu.edu.sg  
Deadline : 02 Oct 2012  
www : <http://www.inec2013.org/index.html>

03 Jun - 05 Jun 2013

**2013 IEEE International Conference of Electron Devices and Solid-State Circuits (EDSSC)**

Conf Record :20930  
Location: Hong Kong , Hong Kong  
Contact : Mansun Chan  
Tel : +852 23588519  
Fax : +852 23581485  
E-mail: mchan@ust.hk  
Deadline :  
www : <http://>

16 Jun - 21 Jun 2013

**2013 IEEE 39th Photovoltaic Specialists Conference (PVSC)**

Conf Record :20112  
Location: Tampa FL , USA  
Contact : Dr. Ryne P. Raffaele  
Tel : +1 585 475 2055  
Fax :  
E-mail: rprsp@rit.edu  
Deadline : 16 Jun 2013  
www : <http://www.ieee-pvsc.org/PVSC39/>

22 Sep - 25 Sep 2013

**2013 IEEE Custom Integrated Circuits Conference - CICC 2013**

Conf Record :18692  
Location: San Jose CA , USA  
Contact : Melissa Widerkehr  
Tel : +1 301 527 0900  
Fax : +1 301 527 0994  
E-mail: melissaw@widerkehr.com  
Deadline :  
www : <http://www.ieee-cicc.org>

04 Dec - 07 Dec 2013

**2013 IEEE 44th Semiconductor Interface Specialists Conference (SISC)**

Conf Record :20912  
Location: Arlington VA , USA  
Contact : Alexander Demkov  
Tel : +1 512 471 8560  
Fax :  
E-mail: demkov@physics.utexas.edu  
Deadline :  
www : <http://www.ieeesisc.org/>

06 Dec - 13 Dec 2013

**2013 IEEE International Electron Devices Meeting (IEDM)**

Conf Record :11125  
Location: Washington DC ,  
Contact : Ms. Phyllis W. Mahoney  
Tel : +1 301 527 0900 (Ext.103)  
Fax : +1 301 527 0994  
E-mail: phyllism@widerkehr.com  
Deadline :  
www : <http://>

## 2012 PVSC WILLIAM R. CHERRY AWARD WINNER

*(continued from page 1)*

Systems Engineering Group at the National Renewable Energy Laboratory (NREL). She has collaborated with others at NREL and around the world researching high-efficiency cells and PV reliability, with special emphasis on concentrator Photovoltaics (CPV).

Dr. Kurtz received her PhD in Chemical Physics at Harvard University in 1985, working with Roy Gordon on the growth of amorphous silicon solar cells, and continued studying amorphous silicon as a post doc at the Solar Energy Research Institute (SERI, now NREL). In 1986, she joined Jerry Olson (at SERI) to implement Dr. Olson's invention of the GaInP/GaAs solar cell. In addition to the device fabrication and optimization, scientific studies included: effects of or-

dering of the group III sublattice on the optical properties, dilute-nitride materials and devices, dopant diffusion driven by non-equilibrium point-defect concentrations, multi-junction solar cell measurement techniques, and spectral effects on multijunction cell performance. In 2004, she worked to implement Mark Wanlass's invention of the inverted metamorphic GaInP/GaAs/GaInAs cell, setting a world record with an efficiency of 37.9%, a record that was surpassed about a month later by a cell from Spectrolab. When the cell efficiencies approached 40%, Dr. Kurtz moved from studying the cells to studying the reliability issues associated with implementing these into complete systems. She now manages a group that attempts to put scientific

rigor behind PV module reliability testing. In the last year, she helped to form the International PV Quality Assurance Task Force to develop comparative test standards for PV modules, with the goal of eventually enabling application-specific lifetime prediction for both flat-plate and CPV modules. She is recognized worldwide as an expert on CPV technology and has received numerous awards both as an individual and as part of a team including the Dan David Prize (in 2007, with Jerry Olson), Energy100 Award by the Department of Energy, and R&D 100 Awards.

*John D. Meakin  
William R. Cherry Committee  
University of Delaware  
Newark, DE, USA*