The 31st Annual IEEE International SOI Conference, the premier conference dedicated to current trends in Silicon-on-Insulator technology, will be held October 3–6, 2005 at the Hyatt Regency Waikiki Resort & Spa in Honolulu, Hawaii. A one-day Tutorial Short Course will precede the conference on Monday, October 2nd.

The SOI conference was established with the support of IEEE to provide a forum for open discussion in all areas of silicon-on-insulator technologies and their applications. Ever increasing demand and modifications in this technology bring the industry together to discuss new accomplishments and gains. Original papers presenting new developments in the industry will be presented at the conference.

The 2005 SOI International Conference will begin with a half-day plenary session followed by two days of oral sessions, a poster session and a late news session. A Best Paper Award will be presented at the closing on Thursday. Session topics will focus on basic materials research, device research, circuit development (special and improved) and applications and uses. Rump sessions will be held on Wednesday evening, October 5. These sessions encourage attendees to share their opinions and expertise on the chosen topics of discussion.

Additionally, a materials and equipment exhibition relating to SOI technology will be held concurrently with the conference. Participants will have the opportunity to visit the exhibit area to see what’s new in SOI. Overall, the 2005 SOI International Conference offers attendees a broad spectrum of information, opportunities for discussion with one’s peers, and is a must for engineers with direct involvement or partial involvement in SOI.

continued on page 7
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

<table>
<thead>
<tr>
<th>Issue</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>October 1st</td>
</tr>
<tr>
<td>April</td>
<td>January 1st</td>
</tr>
<tr>
<td>July</td>
<td>April 1st</td>
</tr>
<tr>
<td>October</td>
<td>July 1st</td>
</tr>
</tbody>
</table>

IEEE Electron Devices Society Newsletter (ISSN 1074-1879) is published quarterly by the Electron Devices Society of the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. Printed in the U.S.A. One dollar ($1.00) per member per year is included in the Society fee for each member of the Electron Devices Society. Periodicals postage paid at New York, NY and at additional mailing offices. Postmaster: Send address changes to IEEE Electron Devices Society Newsletter, IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

Copyright © 2005 by IEEE: Information contained in this Newsletter may be copied without permission provided that copies are not used or distributed for direct commercial advantage, and the title of the publication and its date appear on each photocopy.
MESSAGE FROM THE EDS PRESIDENT

With half a year remaining as President of the Electron Devices Society, I would like to report on the status of the Society’s efforts at this point. In order for EDS to be more flexible in its ability to respond quickly to technical shifts in the community and to allow the technical committees to have more leverage in influencing the Society’s directions, we made the Technical committees and Meetings Committee create concrete action items at the May 2004 AdCom Meeting series. With these actions, we encouraged the representatives of EDS Sponsored and Technically Co-Sponsored meetings to become members of the relevant technical committees in order to provide input concerning the new movement of EDS related conferences. We recognized that Nano and Organic Electronics are strategically important fields for the future EDS direction and are preparing to launch an EDS sponsored emerging electronics workshop to cover such areas.

Education is an important role of the Society, and the Distinguished Lecturer (DL) Program is one of the most attractive programs for the members. Based on the plan announced at the May 2004 AdCom meeting series, we are on the way to increase the number of DLs. In fact, since May 2004, we have added 40 new DLs, with the total now being 138. EDS is also making a specific effort to increase the number of DLs in the regions where the counts are low, such as Asia and the Pacific, Latin America and Africa. EDS also has a procedure in place to try to keep its DLs active and to eliminate those who are not active. We are more flexible now with increasing the DL budget, since we have a strong collaboration between the Educational Activities and the Regions/Chapters committees. Also, EDS started to provide a special budget for mini-colloquia whereby a group of lecturers visit a given geographic area and give talks at one or more locations.

To make EDS membership more useful and attractive to the members, last December we published an Archival DVD Collection which includes all issues and years of Transactions on Electron Devices (T-ED), and Electron Device Letters (EDL), and all published digestes of the International Electron Devices Meeting (IEDM), which is available to our members for only 30 USD. If you are interested in purchasing the DVD, please contact the EDS Executive Office. EDS is now closely working with its flagship conference, the IEDM, to promote both EDS and IEDM services to the members/participants. It was decided that the General Chair and Program Chair of the IEDM regularly participate in the meetings of the EDS Executive Committee to discuss issues such as encouraging and increasing the student and industry participation for both the IEDM and EDS.

Although there are an enormous number of industrial people in the world participating in Electron Devices development, manufacturing, and application, only a small portion of these individuals are members of the Society. At this moment, there is no clear solution to solve this problem. We will make an effort to enhance industrial fields in conferences and journals, and to provide industrial exhibitions at conferences.

The number of Electron Devices engineers and scientists is increasing very rapidly in the non-US Regions such as Asia. We have made a strong effort to form new chapters in those non-US regions to accommodate the near future situation. In fact, new chapters are being formed in India, China, Brazil, etc. However, the high cost of IEEE membership is a serious problem in securing a sufficient number of members to initiate the chapters. To help support the formation of chapters in low income areas, EDS offers the Membership Fee Subsidy Program whereby IEEE membership is offered at a 50% discount and EDS pays the cost of the other 50% for up to 12 new members. Also, EDS has decided to informally support the formation of groups that include 50% of the required number of members (with 50% of EDS support) as long as the activities and finances are coordinated by a parent chapter. The Regions/Chapters and the Membership committees will work together to promote membership.

In general, the number of the members in IEEE societies has been decreasing for the past few years. Although the decrease is one of the smallest among the societies, it is also true for the EDS. The primary reason for the decrease in society memberships is that the major purpose for becoming an IEEE EDS member has changed. Until about 10 years ago, obtaining a subscription to the Society’s journals as well as receiving conference information by airmail were the main reasons for becoming a member. Now, all the subscriptions can be obtained through university or company networks (regardless of membership), as big organizations purchase large package subscriptions that their employees and students can use. Also, conference information is easily delivered through the Internet. Now, what is the value of becoming an IEEE EDS member? EDS can offer individuals a leading technical community or forum such as the IEDM and Transactions on Electron Devices in which people can publish recognized papers and obtain/exchange/discuss about the most advanced information. This is a very important value of EDS and we will make every effort to maintain our membership and recruit new members by offering some valuable new benefits in the future.

The importance of Electron Devices for the world is increasing more than ever and we are proud that our Society is participating in such important activities in such an exciting period.

I would like to encourage you all to think about ways that we can enhance EDS activities and let me know how the Society can better serve you each individually.

Hiroshi Iwai
EDS President
Tokyo Institute of Technology
Yokohama, Japan

The 2005 IEEE Bipolar/BiCMOS Circuits and Technology Meeting will be held October 9-11 at the Fess Parker DoubleTree Resort in Santa Barbara, California (http://www.fpdtr.com/index1.html).

You will want to be at this conference if you're interested in the leading edge processes, devices, and circuits used in state of the art telecommunication and power control systems. Bipolar/BiCMOS technologies, particularly SiGe HBT BiCMOS technology, continue to play a key role in these systems. Papers covering the design, performance, fabrication, testing and application of bipolar and BiCMOS integrated circuits, bipolar phenomena, and discrete bipolar devices are presented.

The Santa Barbara scenery and atmosphere cannot be beat, with the ocean, mountains, palm trees, ideal climate and many great things to do and see (http://totalsantabarbara.com). The attractions include the waterfront with beaches and a wharf, excellent restaurants, historical buildings like the Santa Barbara Mission, and Wineries. The conference will be held during the wine grape harvest so come and see a place famous for the Pinot Noir grape recently popularized in the movie “Sideways.”

The conference starts with a one-day short course, followed by two full days of contributed and invited papers, including a special session on Emerging Technologies. The BCTM Banquet will be held on Monday evening, and that the details will be announced soon on the conference web page (http://www.ieee-bctm.org). Following the conference on Wednesday, there will be a workshop on compact device modeling for RF/Microwave applications organized by TU Delft.

We are fortunate to have Dr. Herb Kroemer for the keynote. Dr. Kroemer won the Nobel Prize in Physics in 2000 (http://nobelprize.org/physics/laureates/2000/) for developing semiconductor heterostructures used in high-speed and optoelectronics. Dr. Kroemer first proposed the SiGe HBT in a paper in 1954, inventing much of what the BCTM conference focuses on. This is a great opportunity to come and hear Dr. Kroemer speak.

The short course features three renowned experts on “Power Management ICs – Technology and Modeling.”

Invited speakers include:
• “Using SiGe HBTs for Extreme Environment Electronics” John Cressler (GIT, USA)
• “Polar Modulation” Earl McCuine (Tropian, USA)
• “Statistical Modeling Approaches” Michael Schröter (TU Dresden/UCSD)
• “Integration of Magnetic Materials on Silicon for Inductors” Y. Shuang (TU Delft, Netherlands)
• “Advances in Low Voltage Power Devices” Gary Donly (Fairchild, USA)
• “Satellite Microwave Front-ends” Cicero Vaucher (Philips Research, Eindhoven)

Two days of technical paper sessions, a luncheon with guest speaker, exhibits and the evening banquet round out the program. The banquet features entertainment, local history, and promises to be a memorable evening. Exhibition booths are available which feature the latest products.

See you in Santa Barbara!

Alvin Joseph
Publicity Co-Chair, 2005 BCTM
IBM Microelectronics Division
Essex Junction, VT, USA
The 2005 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 Camp on the shore of Fallen Leaf Lake near South Lake Tahoe, CA from October 17th to 20th, 2005. 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. We are now accepting abstract submissions through July 1st, 2005. Submissions on interconnect and product reliability are particularly encouraged in addition to the usually well represented dielectric reliability abstracts and other possible topics listed below.

The Technical Program of the 2005 workshop is being organized by Dr. John F. Conley, Jr., and will focus on these main areas but is not limited to them:

- Designing-in reliability (Products, Circuits, Processes)
- Customer Product Reliability Requirements / Manufacturer Reliability tasks
- Root cause defects, Physical Mechanisms & Simulations and modeling
- Identification and Characterization of New Reliability Effects
- Deep Sub-micron Transistor and Circuit Reliability

These hot reliability topics in research and industry are addressed quite a bit differently than in technical conferences. Attendees stay in cabins without TVs or phones, dress is casual (suits, ties and high heels are shunned), affiliations are downplayed, and meals are provided at the lodge dining room, family-style. Attendees of the workshop are expected to participate actively. You feel yourself drawn into technical discussions from the start. Every aspect of this conference, from the isolated location to the format of the technical program, is designed to get attendees to interact.

The peaceful setting, free from the distractions and annoyances 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 other conferences. Participants spend their evenings at poster sessions, discussion groups, and special interest groups (SIGs), all with refreshments provided to stimulate discussions.

One unique aspect of this workshop is the opportunity for every attendee to present a poster of his or her own research, no matter what state it is in. Just arrange for space when you register or bring last-minute results in your briefcase or backpack. 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. The poster presentations are even eligible for a two page write up in the conference proceedings. The open poster sessions are but one example of the opportunities for the intense interaction that sets the IIRW apart from other conferences.

Another distinction of the IIRW is the moderated Discussion Groups that are held in the evenings. Organized this year by Yvonne Nelson, the Discussion Groups topics include: high-k gate dielectrics, NBTI, interconnects, circuit/memory reliability, New reliability effects and Product reliability. Lively conversations and debate among participants is promised and written summaries will be included in the workshop proceedings.

The Discussion Groups are followed by the Special Interest Group meetings (SIG). The SIGs are composed of small groups of researchers and engineers who often continue their conversations and collaborations even after they leave the workshop. Every attendee has the opportunity to become part of an existing SIG or suggest a new topic and start one of their own. Be warned, remnants of the SIG discussions sometimes rage on into the wee hours of the morning.

Yet, another advantage of attending the IIRW is the extensive Tutorial Course, presented by world-class experts and included at no additional cost. This year’s tutorial course organized by Sylvie Bruyere, includes such Non Volatile Memory, Defects in High-k dielectrics, Product Reliability, Negative Bias Temperature Instability (NBTI) – A design perspective, MEMS, Radiation Effects, Reliability Methodology: Statistical Aspects and Backend Reliability. Tutorials are designed to be beneficial to newcomers as well as experienced members of the reliability community.

Additional information about the workshop is available on the IIRW website at http://www.iirw.org, or by contacting John F. Conley, Jr., (TP.Chair@iirw.org). To take part in this event, please register early as space at the Stanford Sierra Camp is limited to roughly 120 attendees and the workshop has sold out in the past.

On behalf of the 2005 IEEE International Integrated Reliability Workshop Committee, I look forward to meeting you in Lake Tahoe!

Krish Mani
Communications Chair, 2005 IIRW
C M Innovations Inc.
Santa Clara, CA 95054 USA
The Fifteenth International Symposium on Semiconductor Manufacturing (ISSM) will be held Tuesday, September 13 through Thursday, September 15 at the San Jose, California, Fairmont Hotel. Educational workshops will precede the conference on Monday, September 12th. ISSM is the largest world-wide forum specifically designed for semiconductor device manufacturers and suppliers. The conference also welcomes technical articles from Advanced Backend Packaging.

Created more than a decade ago by leading corporate executives, ISSM places an emphasis on sharing industrial experiences, technical solutions and opinions on the advancement of manufacturing science. ISSM has developed into one of the most respected and well-attended conferences in the industry. Now celebrating its fifteenth anniversary, ISSM has a stellar conference planned for 2005.

Recognizing that manufacturing expertise is a cornerstone to corporate success, ISSM places a high priority on relevance, significance and applicability to wafer fabrication. Additionally, plenary presentations provide opportunities for presenting broad visions and outlining key challenges facing the industry.

This year’s event covers timely and important topics like Factory Design; Manufacturing Strategy and Structure; Ultra Clean Technology; Process and Metrology Equipment; Process Materials Optimization; Environment, Safety and Health; Manufacturing Control and Execution; Robust Engineering; Advanced Backend Processing; Process Control and Monitoring; and Yield Enhancement.

As an international conference, ISSM seeks the best talent from around the world. As many as sixty companies from twenty-one countries are represented in a typical year. Conference presenters include manufacturing professionals, engineers, and managers from semiconductor, equipment, and materials companies as well as academic experts from universities and research organizations. Thus, attendees are exposed to the latest technical information.

Each day is introduced with keynote addresses from renowned industry executives. Past speakers have included Gordon Moore, Andy Grove and Craig Barrett from Intel, Morris Chang from Taiwan Semiconductor Manufacturing Corporation, Hector Ruiz from Advanced Micro Devices, Richard Chang from SMIC, Doug Dunn from ASML, Mike Splinter from Applied Materials, Kaoru Tosaka from NEC, Ken Schroeder from KLA-Tencor, Rick Hill from Novellus and many other very recognizable leaders. This year’s speakers are certain to present analyses, strategies and demonstrations as they reveal their perspectives to an attentive and rapt audience.

ISSM 2005 will be held at the Fairmont Hotel in San Jose, California. Located in the heart of Silicon Valley, the area offers a wide variety of interests to those visiting from out of state or out of the country. Extended time can be spent in San Francisco, the Napa Valley wine country, Lake Tahoe, Yosemite National Park or the charming seaside towns of Carmel and Monterey.

Online conference registration and hotel information will be available on the ISSM web site in mid-June (www.issm.com).

For registration or general information about ISSM, please visit our web site at http://www.issm.com, or contact Drue Hulmer at ISSM, c/o Maritz Travel Co., 1777 Botelho Dr., Suite 100, Walnut Creek, CA 94596, Phone: 925-287-5221, FAX: 925-287-5398, e-mail: issm2005@maritz.com.

ISSM is sponsored by IEEE (Electron Devices Society and the Components, Packaging and Manufacturing Technology Society), the Society of Applied Physics of Japan (JSAP), and Semiconductor Equipment & Materials International (SEMI).

Bruce Sohn
Conference Chair, 2005 ISSM
Intel
Rio Rancho, NM, USA
The 2005 SOI Conference seeks papers on a wide range of SOI technology including:

- SOI material science/modification, material characterization, and manufacture
- SOI device Physics and modeling
- SOI circuit applications (high-performance microprocessors, srams, asic, low power, high-voltage, rf, analog, Mixed mode, etc.)
- Double Gate/Vertical Channel Structures; Other Novel Structures
- Strained Si-Ge structures
- New SOI structures, Circuits, and applications (optics, 3d integration, displays, microactuators - MEMS, microsensors, Drop-in RAMS, etc.)
- SOI reliability issues (hot-carrier effects, radiation effects, high-temperature effects, etc.)
- Manufacturability and process integration of SOI devices and circuits
- Alternate silicon-on-insulator material

Abstracts for the SOI 2005 Conference were due no later than May 5, 2005. Late news papers with exceptional merit will be considered for the Late News session if submitted on or before August 13, 2005 to BACM, by e-mail ONLY to SOIPaper@bacminc.com in PDF format.

Once again, the popular One-Day Tutorial Short Course will be offered preceding the 2005 SOI International Conference. Tutorial Short Course instructors have many years of experience in the field of silicon-on-insulator technology. The course is intended to educate attendees in detail about current trends and issues in the SOI industry. The SOI 2005 Tutorial Short Course will focus on future trends in SOI technologies to enable low power electronics. Participants will receive copies of all visual presentations.

Hawaii’s beauty is famous around the world. Oahu is the sun and fun capital of the Hawaiian Islands with lots of sea, land and sporting activities from which to choose. Enjoy hiking through rainforests, biking along mountain ranges and swimming in the azure blue waters of the Pacific.

Honolulu is served by regular flights from most major US mainland gateway cities (New York, Chicago, Los Angeles, Houston, Detroit, San Francisco, Las Vegas, Oakland, Dallas, San Jose, Portland, St. Louis, Newark, Atlanta, Vancouver, Toronto, Seattle), over 400 flights a week, as well as direct flights from Tokyo, Osaka, Sydney, Auckland, Seoul, and Taipei.

You may contact the 2005 IEEE International SOI Conference for additional information as follows: c/o BACM, 520 Washington Blvd., #350, Marina del Rey, CA 90292, Tel: 310-305-7885; Fax: 310-305-1038; Email: bobbi@bacminc.com or the SOI Conference website at http://www.soiconference.org.

Christophe Tretz
Executive Committee
IBM – San Jose Design Center
San Jose, CA, USA
On December 12, 2004, the EDS AdCom held its annual election of officers and members-at-large. The following are the results of the election and brief biographies of the individuals elected.

I. OFFICERS

The following individuals were elected as officers for a one-year term beginning 1/1/2005:

JUIN J. LIOU
(Treasurer) received the B.S. (honors), M.S., and Ph.D. degrees in electrical engineering from the University of Florida, Gainesville, in 1982, 1983, and 1987, respectively. He is now a Professor at University of Central Florida.

Dr. Liou has published 6 textbooks, more than 190 journal papers, and more than 140 papers (including 46 keynote or invited papers) in international and national conference proceedings. He serves as a regional editor for the Microelectronics Reliability.

Dr. Liou received ten different awards on excellence in teaching and research from the University of Central Florida (UCF) and six different awards from the IEEE. Among them, he was awarded the UCF Distinguished Researcher Award three times (1992, 1998, 2002) and the IEEE Joseph M. Biedenbach Outstanding Engineering Educator Award in 2004 for his exemplary teaching, research, and international collaboration.

Dr. Liou is an IEEE EDS Distinguished Lecturer, Vice-Chair of the IEEE EDS Regions/Chapters Subcommittee for North America East and Canada, member of the IEEE EDS Administrative Committee, member of the IEEE EDS Educational Activities Committee, and Senior Member of the IEEE. He holds the Cao Guang-Biao Endowed Professorship at Zeijiang University, China.

JOHN K. LOWELL
(Secretary) received the Ph.D. degree in Applied Physics from the University of London. He has held technical and managerial assignments for United Technologies, Northern Telecom, Mostek, Texas Instruments, British Telecom/Dupont, AMD, Applied Materials, Oracle and PDF Solutions. Presently, he is the President and Chief Consultant at Lowell Consulting in Dallas. He has also been a Professor at Texas Tech University and in the University of Texas system, and held Consulting Professorships at other universities in addition to being a Visiting Scholar at the NSF Center for the Synthesis, Growth and Characterization of Electronic Materials at the University of Texas at Austin.

Dr. Lowell is a Senior Member of the IEEE, a Distinguished Lecturer of the EDS and has held AdCom-level positions previously within the LEO and CAS societies. For fifteen years, he was also the Associate Editor-in-Chief of the IEEE Circuits & Devices Magazine, and was its Guest Editor twice.

II. ADCOM MEMBERS-AT-LARGE

A. SECOND TERM ELECTEES:

MAGALI ESTRADA DEL CUETO was born in Havana, Cuba. Received her Master in Science degree from the Faculty of Physics from the University of London. He has held technical and managerial assignments for United Technologies, Northern Telecom, Mostek, Texas Instruments, British Telecom/Dupont, AMD, Applied Materials, Oracle and PDF Solutions. Presently, he is the President and Chief Consultant at Lowell Consulting in Dallas. He has also been a Professor at Texas Tech University and in the University of Texas system, and held Consulting Professorships at other universities in addition to being a Visiting Scholar at the NSF Center for the Synthesis, Growth and Characterization of Electronic Materials at the University of Texas at Austin.

Dr. Lowell is a Senior Member of the IEEE, a Distinguished Lecturer of the EDS and has held AdCom-level positions previously within the LEO and CAS societies. For fifteen years, he was also the Associate Editor-in-Chief of the IEEE Circuits & Devices Magazine, and was its Guest Editor twice.

A total of seven persons were elected to three-year terms (2005-2007) as members-at-large of the EDS AdCom. Two of the seven individuals were re-elected for a second term, while the other five were first-time electees. The backgrounds of the electees span a wide range of professional and technical interests.

B. FIRST TERM ELECTEES:

ANNOUNCEMENT OF NEWLY ELECTED OFFICERS AND ADCOM MEMBERS
Region 9 Section/Chapters Subcommittee since 2000 and Adcom member since 2002. Her areas of interest are physics and technology of dielectrics for submicrometric devices, as well as, amorphous and polycrystalline devices, including modeling.

**NINOSLAV D. STOJADINOVIC**

received the D. Sc. degree in electrical engineering from the University of Nis in 1980, where he is now Professor and Head of the Department of Microelectronics. He authorized 67 papers in international journals and 135 conference papers.

Dr. Stojadinovic is IEEE Fellow and EDS Distinguished Lecturer. He is Editor-in-Chief of “Microelectronics Reliability” and Chair of the IEEE International Conference on Microelectronics. He is Chair of the Yugoslavia IEEE Section and the Yugoslavia ED/SSC Chapter.

Dr. Stojadinovic is President of the National Society for Electronics, Telecommunications, Computers, Automation and Nuclear Engineering (ETRAN). He is member of Academy of Engineering Sciences of Serbia & Montenegro and Serbian Academy of Science and Arts.

**B. FIRST-TIME ELECTEES:**

**JOACHIM BURGHARTZ**

received the MS degree from the RWTH Aachen, Germany, in 1982 and the Ph.D. from the University of Stuttgart, Germany, in 1987. From 1987 to 1998 he was with the IBM Research Division, working on selective epitaxial growth, Si and SiGe HBTs, CMOS, RF passive components (particularly on-chip inductors), and RF circuit design. Since 1998 he is a full professor at Delft University of Technology in the Netherlands. In 2001 he became the scientific director of the research institute DIMES at TU Delft.

**MANSUN CHAN**

Dr. Mansun Chan received his Ph.D. degree from University of California at Berkeley where his research contributes to the unified BSIM model for SPICE, which has been accepted by most US companies and the Compact Model Council (CMC) as the first industrial standard MOSFET model. Currently, he is with the EEE department of Hong Kong University of Science and Technology. His research interests include nanodevice technologies, image sensors, SOI technologies, high performance IC, 3D Circuit Technology, device modeling and Nano BIOMEMS technology. Between July 2001 and December 2002, he was a Visiting Professor at University of California at Berkeley and the Co-director of the BSIM program. At present, he is still consulting on the development of the next generation BSIM model.

**SHUJI IKEDA**

received the B.S. degree from Tokyo Institute of Technology, Tokyo, Japan in 1978, the M.S.E.E. degree from Princeton University, Princeton, New Jersey and Ph.D. degree from Tokyo Institute of Technology. He joined Semiconductor Division, Hitachi Ltd., Tokyo, Japan in 1978, where he was engaged in research and development of state of the art SRAM process and devices, including high resistive poly load / thin film transistors for SRAM application. He was also working on developing process technology for LOGIC, embedded memories, Flash and CMOS power RF devices. In October 2000, he joined TRECENTI Technologies Inc. He chaired IEDM in 2002. He is a Fellow of IEEE.

**REBECCA J. WELTY**

received the B.S. degree in Electrical Engineering from the University of California at Davis in 1997. In 1999 she received the M.S. degree and in 2002 the Ph. D. degree in Electrical Engineering, specializing in Applied Physics, from the University of California at San Diego. Her dissertation research focused on high-speed GaInP/GaAs and GaAs/GaInNAs based heterojunction bipolar transistors (HBTs). In 2002 she joined Lawrence Livermore National Laboratory as a Staff Research Engineer in the area of optoelectronic device development in III-V materials has focused on the development of photonic integrated circuits and radiation detectors. Her research interests are in device physics of electron and optoelectronic devices and advanced process technology.

**JEFFREY J. WELSER**

received his Ph.D. in Electrical Engineering from Stanford University in 1995, and joined IBM’s T.J. Watson Research Center. His graduate work focused on utilizing strained-Si and SiGe materials for FET devices. Since joining IBM, Jeff has worked on a variety of novel devices, including nano-crystal and quantum-dot memories, vertical-FET DRAM, and Si-based optical detectors, in addition to teaching as an adjunct professor at Columbia University. In 2000, Jeff took a corporate assignment in Technology group headquarters, and moved from there to the Microelectronics division in 2001, as project manager and then Director of high-performance SOI and BEOL technology development and IBM manager for the Sony, Toshiba, and AMD development alliances. Jeff recently returned to the Research division, and is now Director Next Generation Technology Components at the Almaden Research Center, working on server components and systems for the 2010 timeframe.

Steven J. Hillenius
EDS Nominations and Elections Chair
Agere Systems
Allentown, PA, USA
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 be at least 1.5 candidates for each opening. From 2002 to 2004, eight, seven and seven positions were filled, respectively. In 2005, eight positions will be filled.

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 15 October, and the biographical resumes 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 you are elected, you are expected to attend the two AdCom meetings a year. In general, the travel and accommodation costs to attend these meetings are borne by the elected member.

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.

Steven J. Hillenius
EDS Nominations & Elections Chair
Agere Systems
Allentown, PA, USA

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 Chapter Partners, SRC Chairs/Vice-Chairs, or self-nominated by Chapter Chairs. The winning chapter will receive a certificate and check for $1,000 to be presented at the International Electron Devices Meeting (IEDM).

The schedule for the award process is as follows

<table>
<thead>
<tr>
<th>ACTION</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call for Nominations E-Mailed to Chapter Chairs, Chapter Partners, SRC Chairs &amp; SRC Vice-Chairs</td>
<td>1 June</td>
</tr>
<tr>
<td>Deadline for Nominations</td>
<td>15 September</td>
</tr>
<tr>
<td>Regions/Chapters Committee Selects Winner</td>
<td>Early October</td>
</tr>
<tr>
<td>Award given to Chapter Representative at IEDM</td>
<td>First Week of December</td>
</tr>
</tbody>
</table>
During the past year, the EDS Regions/Chapters Committee has been very active and successful in the formation of new chapters. At the end of 2004 there were in total 114 EDS chapters, which is an annual increase of nearly 5%. Compared to December 2003, new chapters have been formed in Region 5 (Central North Carolina), Region 7 (Vancouver, Canada), Region 8 (student Chapter Lviv, Ukraine), Region 9 (Puebla, Mexico and student Chapter Campinas, Brazil), and Region 10 (Student Chapter at Sri Jayachamarajendra College of Engineering, India). Presently, the formation of another 20 new chapters is in progress or under discussion.

In 2004, we gave for the first time the Outstanding Student Paper Award for Region 9. The award is given biennially to a regional student who authored or co-authored the previous year a paper or conference manuscript in an IEEE Journal or Proceedings Volume. The first winners are Miguel A. Aleman-Arce and Adelton C. Oliveira, Jr. The extension of this initiative to other regions will be explored.

Regional Chapter meetings have been organized in Region 8 (Madrid, Spain, May 2004) and Regions 4-6 (San Francisco, USA, December 2004). The Madrid meeting, in conjunction with the EDS Adcom meeting, was preceded by a mini-colloquium. Other mini-colloquia, in which 5 to 10 Distinguished Lecturers are participating, have been organized in the USA, Boise (WMED, April 2005), Singapore (WIMNACT 4, July 2004), Hong Kong (WIMNACT 5, September 2004) and Taiwan (WIMNACT 6, January 2005). In general, the number of events organized by the different chapters has been growing. In 2004 much attention has been given to increase the number of DLs in the different regions. This will ensure that the successful DL program remains attractive in the future and that the number of chapters using DL presentations will further increase.

Much attention is also given to increase the number of chapters in dedicated regions such as Region 9 (Latin America) and Region 10 (China and India). These regions have a good growth potential and will strongly increase their EDS activities in the coming years. A chapter is in the final stage of formation in Xi’an, China, with plans underway to form chapters in Nanjing and Suzhou as well.

For 2005, Regional Chapter meetings are scheduled for Region 10 (Seoul, Korea, June), Region 9 (Veracruz, Mexico, August) and Regions 1-3 & 7 (Washington, D.C., USA, December). The meeting in Seoul will be preceded by the WIMNACT 7 mini-colloquium and combined with the EDS AdCom meeting. For the Region 9 Chapter Meeting, there are plans for a mini-colloquium. The Regions 1-3 & 7 Chapters Meeting will also be held in conjunction with the EDS AdCom meeting as well as the IEDM in D.C. In addition, WIMNACT 8 has been scheduled to be held in Singapore this July.

The well being of a chapter is directly related to the membership growth and strongly driven by the organization of activities and events in response to the expectations of its members. The chapters are there for their members and their direct involvement and participation is therefore crucial. All possible input is highly appreciated and will surely be taken into account.

Cor L. Claeyss
EDS Vice-President of Regions/Chapters
IMEC
Leuven, Belgium

Congratulations to the EDS Members Elected to the National Academy of Engineering (NAE)

The U.S. National Academy of Engineering (NAE) elected seventeen IEEE members in 2005. Three of the seventeen members elected are EDS members. These members will be inducted into the NAE this October.

A private, nonprofit institution, the NAE has more than 2,100 peer-elected members and foreign associates - senior professionals in business, academia and government who are among the world’s most accomplished engineers.

The three EDS members elected in 2005 were elected as NAE Members. They are: Fellow, Mark T. Bohr; Fellow, Roger T. Howe; and Fellow, Lawrence L. Kazmerski.

The other fourteen IEEE members elected as NAE Members are: Member, Paul G. Allen; Fellow, John E. Bowers; Fellow, A. Robert Calderbank; Fellow, Edmund M. Clarke; Senior Member, David E. Culler; Fellow, Per K. Enge; Fellow, Alexander G. Fraser; Fellow, Richard D. Gitlin; Fellow, Leah H. Jamieson; Life Fellow, David A. Landgren; Member, Michael E. Lesk; Fellow, Marc D. Levenson; Member, Roger R. Schmidt; and Member, Neil G. Siegel.

Our congratulations to all the IEEE members elected to this prestigious institution, and I encourage all of our newly elected and other IEEE/NAE members to actively seek out, identify and arrange for the NAE nomination of worthy IEEE colleagues so that we can add this activity as another reason to be a member of EDS/IEEE.

Jerry M. Woodall
EDS Chair, National Academy of Engineers
Purdue University
West Lafayette, IN, USA
Technical meetings, conferences, and symposia sponsored by the Electron Devices Society are a key part of our professional lives. We present our work, we exchange ideas, we meet new colleagues, and we learn about the state-of-the-art.

The EDS Meetings Committee membership includes representation from twelve of the fourteen Society Technical Committees, the Vice-President of Technical Activities, and the Society Treasurer (see table). The committee receives outstanding support from the EDS Executive Office. One of the goals of the Committee is to encourage an alignment between the actual meetings, conferences, and symposia sponsored by the EDS and the EDS Technical Committees with the Technical Committees serving in an oversight capacity for meetings in their area of interest.

In 2005, EDS will sponsor or co-sponsor 24 meetings and will be technical co-sponsor for another 90 meetings. EDS is involved, overall, in 147 meetings (30 meetings with a financial stake and 117 as technical co-sponsors). In terms of attendance, the International Electron Devices Meeting (IEDM) is usually the largest EDS meeting with as many as 2000 attendees and then there are workshops or regional meetings with as few as 100 in attendance.

EDS supports meetings in two categories; EDS is the full sponsor or co-sponsor (with another IEEE Society or another professional society), or EDS is a technical co-sponsor (with another IEEE Society or another professional society). The meetings that EDS fully sponsors or co-sponsors are the ones for which we have financial responsibility – that is usually a financial advance is provided by EDS to assist with meeting organization and planning and IEEE EDS provides a financial backstop for the meeting and liability insurance. In return, EDS expects the advance to be repaid and EDS to receive any budget surplus as the conference books close (100% for meetings that are solely sponsored by EDS).

Technical co-sponsorship refers to meetings that EDS endorses, allows the use of the IEEE and EDS logos, and notes in calendars and lists of EDS meetings and IEEE meetings. These meetings are deemed to be of technical interest to the membership with some membership involvement, but EDS has no financial liability or stake in the meeting.

Return of budget surplus from financially sponsored meetings is one of the major revenues streams for support of society activities. For an average calendar year, this amounts to approximately $350,000.

For an established EDS sponsored or co-sponsored meeting, plans for the meeting’s next occurrence and the proposed budget is reviewed by the Executive Office, the Vice-President for Meetings, and the Treasurer. EDS repeat meetings scheduled for 2006 were approved at the 2004 December ADCOM Meeting at IEDM. Repeat occurrences of meetings that receive technical co-sponsorship are approved on the same schedule. Proposed new meetings with or without financial involvement are required to provide organizational information and plans to the EDS Executive Office (contact Joyce Lombardini, j.lombardini@ieee.org) and this information is reviewed by Meetings Committee members and relevant EDS Technical Committees to determine what, if any, EDS involvement will occur.

EDS has a very well functioning structure for support of technical meetings of interest to the membership. We welcome your comments and suggestions as to the operations of the Meetings Committee.

Kenneth F. Galloway  
EDS Vice-President of Meetings  
Vanderbilt University  
Nashville, TN, USA
The Power Devices & ICs Committee consists of fifteen members. The present members are: Toshiaki Yachi (Tokyo University of Science) – Chair, Gehan Amaratunga (University of Cambridge), Claudio Contiero (STMicroelectronics), Taylor R. Efland (Texas Instruments), Allen R. Hefen (National Inst. Of Standard and Tech.), Noriyuki Iwamuro (Fuji Hitachi Power Semiconductor), William R. Bidemann (Advanced Analogic Technologies), Daniel Kinzer (International Rectifier), Oh-Kyong Kwon (Hanyang University), Ashraf Lotofi (Agere Systems), Akio Nakagawa (Toshiba), Mikael L. Ostling (KTH, Royal Institute of Technology), Johnny K. O. Sin (The Hong Kong Univ. of Science & Tech.), Paolo Spirito (University of Napoli), Ninoslav D. Stojadinovic (University of Nis), and Richard K. Williams (Advanced Analogic Technologies).

The main functions of the technical committee are to identify new technical areas, assist and sponsor meetings, assist with publications involvement, among others. In the field of power devices, attention has been given to Power ICs, Superjunction Devices, such as cool-MOS, and Wide Band-gap Power Devices. The International Symposium on Power Devices & ICs, ISPDS, is the main conference covering the field. Five of our committee members have served as the General Chair of previous ISPDSs.

The first ISPDS was held in Tokyo in 1988 and facilitated technical discussion in all aspects of Power Semiconductor Devices, Power ICs and their applications. Since then, ISPDS has provided an annual international forum alternatively hosted in Japan, the USA, and Europe. ISPDS were held sixteen times from 1988 to 2004. The Technical Committee for the ISPDS has three sub-committees concerned with High Power Devices, Low Power Devices, and Power ICs, respectively. Attendance has increased considerably over time, with more than double the number attending the last conference (440 persons) than the first symposium in 1988. ISPDS has presented Awards to encourage researchers in this technical field, such as the “Georges Charitatt Awards” for young researchers, and the best paper Award. ISPDS 2005 was held in Santa Barbara, USA, from May 22-26, 2005. From 162 submitted papers, 35 papers were accepted for oral presentations with another 30 accepted as poster session papers. ISPDS 2006 and ISPDS 2007 will be held in Naples and South Korea, respectively.

Toshiaki Yachi
EDS Power Devices & ICs Technical Committee Chair
Tokyo University of Science
Tokyo, Japan

Congratulations to the EDS Members Recently Elected to IEEE Senior Member Grade!

Farrokh Ayazi
Alexander H. Owens*
Jochem Beintner
Mehmet C. Ozturk
William R. Bidemann
Christos M.A. Papavassiliou
Detlef Bonfort*
Xin-Ping Qu
Richard C. Borgioli
Jae-sung Rieh
Karim S. Boutros
Leonard M. Rubin*
Robert T. Croswell
Andrew M. Sarangan
Veronique Ferlet-Cavrois
William J. Semancik
Jan V. Grahn
George E. Smith*
Lao G. Henry*
Matthew L. Smith
Yi-Hu
Scott F. Smith
Kazumasa Ishimaru*
Emilio A. Sobero
Robert G. Jackson
Thomas G. Swahn
Hamadi Jamali
Dennis W. Tom
George R. Kaelin
Wilman Tsai
Michael G. Khazhinsky
Bill Vassilakis
Lester J. Kozlowski
Han-Olof Vickes
Guoliang Liu
Faa-Ching Wang*
Kaizad Mistry
Tiechang Yan
Eric R. Molto
Paul D. Yoder
M.K. Moravvej-Farshi
Edward T. Yu*
Lamy Akio Nagahara
C. Patrick Yue
Koji Nakamae
Revaz Zaridze
Nanad Novkovski

* = 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/membership/grades_cats.html#SENIOR

To apply for senior member status, fill out an application at http://www.ieee.org/organizations/rab/md/smclev.htm.

Technical Committee in San Francisco on December 4, 2004. From the left, Richard K. Williams (Advanced Analogic Technologies), Daniel Kinzer (International Rectifier), Toshiaki Yachi (Tokyo University of Science), Taylor R. Efland (Texas Instruments), Paolo Spirito (University of Napoli), and Ninoslav D. Stojadinovic (University of Nis).
EDS CHAPTER
SUBSIDIES
FOR 2006

The deadline for EDS chapters to request a subsidy for 2006 is 1 September 2005. For 2005, the EDS AdCom awarded funding to 55 chapters, with most amounts primarily ranging from US$250 to US$1,000. In June, Chapter Chairs were sent an email notifying them of the current funding cycle and providing them with a list of guidelines. In general, activities which are considered fundable include, but are not limited to, membership promotion travel allowances for invited speakers to chapter events, and support for student activities at local institutions. Subsidy requests should be sent via email, fax or mail to the EDS Administrator, Laura J. Riello, IEEE, EDS Executive Office, 445 Hoes Lane, Piscataway, NJ 08854, l.riello@ieee.org or fax 732 235 1626. Prior to the submission of the subsidy request, the Chapter Chair must submit a Chapter Activity Report to its respective SRC Chair and Laura Riello of the EDS Executive Office by July 1. This report should include a general summary of chapter activities (one to two pages) for the prior July 1st - June 30th period. You must also attach a copy of the activity report to your chapter subsidy request. Final decisions concerning subsidies will be made by the EDS SRC Chairs/Vice Chairs in December. Subsidy checks will be issued by late January.

REPORT FROM THE EDS CHAIR
OF THE SEMICONDUCTOR MANUFACTURING TECHNICAL COMMITTEE

At the time of writing (March 4, 2005), the IEEE EDS Semiconductor Manufacturing Technical Committee has 10 members — from industry, academia, government, and consortia in the U.S., Japan, and Korea. During the next year, we will seek to further diversify the membership internationally.

In addition to the relatively routine business of making recommendations on EDS co-sponsorship of several conferences related to semiconductor manufacturing, we have recently completed a project which resulted in recruitment of several new EDS Distinguished Lecturers in the area of semiconductor manufacturing. Currently, the Semiconductor Manufacturing Technical Committee is working toward a special issue of the IEEE Transactions on Semiconductor Manufacturing, which will focus on the metrology challenges that we are facing now and in the near future. It is anticipated that most of the articles will be based on presentations from the 2005 International Conference on Characterization and Metrology for ULSI Technology (ICCM 2005), held at the University of Texas at Dallas in Richardson, Texas on March 15-18, 2005. This conference is organized into 11 sessions covering all aspects of semiconductor metrology and characterization — off-line, in-line, and in-situ. The papers in this conference fit our vision for the potential breadth of the special issue. They address major issues in current manufacturing, challenges anticipated by the International Technology Roadmap for Semiconductors (ITRS) over the next 15 years, and even future frontiers of metrology at the increasingly fuzzy boundaries between semiconductor, biotech, and other nanotechnologies.

During our early discussion on potential projects for 2005, other general topics under consideration included: (1) working with the Semiconductor Industry Association (SIA) and its international partners on a special contribution to the ITRS, or (2) with organizations promoting research on “future nanomanufacturing” for electronics. For example, by the time of this newsletter, the SIA’s new Nanoelectronics Research Initiative (NRI) should be officially launched as the program of a new consortium, the NanoElectronics Research Corporation (NERC). The principal goal of the NRI is to identify device concepts which might enable “post-CMOS” technologies. Of course, useful technologies require practical manufacturing, and several organizations around the world are involved in the pursuit of novel techniques for nanomanufacturing. One such example is Semiconductor Equipment and Materials International (SEMI), which is now planning for its second annual NanoForum, to be held in San Jose, California on October 3-5. Thus, the EDS Semiconductor Manufacturing Technical Committee plans to engage in discussions with NERC, SEMI and other organizations with a stake in such research to see if we can identify appropriate future projects which are synergistic with their interests and those of the EDS membership.

Robert R. Doering
EDS Semiconductor Manufacturing Technical Committee Chair
Texas Instruments, Inc.
Dallas, TX, USA
In 2000, the IEEE approved the establishment of the Electron Devices Society Graduate Student Fellowship Program. The Program is designed to promote, recognize, and support graduate level study and research within the Electron Devices Society’s Field of Interest which include: All aspects of the physics, engineering, theory and phenomena of electron and ion devices such as elemental and compound semiconductor devices, organic and other emerging materials based devices, quantum effect devices, optical devices, displays and imaging devices, photovoltaics, solid-state sensors and actuators, solid-state power devices, high frequency devices, micro-mechanics, tubes and other vacuum devices. 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/Mid-East/Africa, and Asia & Pacific.

In July 2004, EDS announced the winners of the 2004 Fellowships. The four winners were: David W. DiSanto of Simon Fraser University, Burnaby, British Columbia, Canada; David L. John of the University of British Columbia, Vancouver, British Columbia, Canada; Martin Von Haartman of the Royal Institute of Technology, Kista, Sweden and Hongyu Yu of the National University of Singapore, Singapore. The winners are pursuing distinctly different research topics for their doctoral degrees. The following are brief progress reports written by the award winners.

DAVID DISANTO was born in 1973 in British Columbia, Canada. He received his bachelor’s degree in engineering physics at Queen’s University, Ontario, Canada. His masters degree was in low temperature physics and astrophysics at the University of British Columbia, Vancouver, BC, Canada. For his Ph.D. he jumped at the chance to join Professor Colombo Bolognesi in the Compound Semiconductor Device Laboratory at Simon Fraser University, Burnaby, BC, Canada. He is investigating fabrication and characterization issues related to AlGaN/GaN HEMTs. His research interests include delay time characterization, novel fabrication techniques, device modeling, and slump characterization.

DAVID JOHN Following his career as a technical director for live theatrical events, David John received the Bachelor of Science degree in Engineering Physics from the University of British Columbia (UBC) in 2002. He is currently pursuing a Ph.D. in modeling carbon nanotube field-effect transistors in Dr. D. L. Pulfrey’s Nano-electronics Group in the Department of Electrical and Computer Engineering at UBC. As a member of the Institute of Applied Mathematics, David’s research employs both numerical and analytical techniques in order to derive his physics-based models. David would like to thank his wife, Kerri, and children, Alicia and Emlyn, for supporting him in the work that has resulted in this award.

MARTIN VON HAARTMAN was born in Södertälje, Sweden, in 1976. He received the M.S. degree in Electrical Engineering from KTH, The Royal Institute of Technology, Stockholm, Sweden in 2001, and was elected as the “best graduate of the year” by the School of Electrical Engineering. During the fall of 2000, he was a visiting student at the University of Florida at Gainesville under guidance of Prof. G. Bosman, researching his master’s thesis. Martin is currently pursuing a Ph.D. degree in solid-state electronics at KTH, Dept. of Microelectronics and Information Technology. His research interests include device physics, characterization and modeling of Si and SiGe based CMOS and bipolar devices with the main focus on low-frequency noise. He has authored or co-authored 12 papers in refereed journals and conference proceedings. Martin is also a popular and frequently used teacher in the undergraduate education at KTH.

HONGYU YU was born in TianJin, China in 1976. He received the B.Eng. degree from Tsinghua University, Beijing, China, in 1999, and the Masters of Science degree from the University of Toronto, Toronto, Canada, in 2001. Since January of 2001, he has been pursuing the Ph.D. degree at the Department of Electrical & Computer Engineering in the National University of Singapore.

His current research centers on the advanced gate stack for future generation Nano CMOS device applications, including the process technology, material and electrical characterization, and reliability study for the metal gate electrode and high-K gate dielectrics. He has authored or co-authored more than 30 papers in refereed technical journals and conference proceedings in the area of semiconductor physics and fabrication.

Hongyu Yu was awarded with the NUS President Graduate Fellowship in 2002. He also received the University of Toronto Graduate Fellowship in 2000 & 2001.

DAVID JOHN

DAVID DISANTO

HONGYU YU
HERZL AHARONI
Tel: +972 8 6461518
E-Mail: herzl@ee.bgu.ac.il
Fax: +972 8 6472949
- Two Terminal and Multiterminal Efficient Planar Silicon Light Emitting Devices (Si-L.E.D’s) Fabricated by Standard IC Technology as Components for All Silicon Monolithic Integrated Optoelectronic Systems
- Low Temperature (400°C) Growth of High Quality, Low Leakage Current, Reliable, Silicon Oxide and Silicon Oxynitride Thin Films, on Silicon Surfaces, by Microwave – Excited, High – Density Plasma Techniques, for Future ULSI Microelectronic Systems Fabrication
- Two Terminal and Multiterminal Efficient Planar Silicon Light Emitting Devices (Si – L.E.D’s) Fabricated by Standard IC Technology Components for All Silicon Monolithic Integrated Optoelectronic Systems

JOACHIM N. BURGHARTZ
Tel: +31 15 278 8612
E-Mail: j.n.burghartz@dimes.tudelft.nl
Fax: +31 15 262 3271
- RF Silicon Technology
- Add-On Process Modules for RF Silicon Technology
- Integrated Passive Components

RICHARD G. CARTER
Tel: +44 1524 593 086
E-Mail: r.carter@lancaster.ac.uk
Fax: +44 1524 381 707
- Microwave Tubes and Related Topics in High Power Microwave and RF Engineering
- Microwave Vacuum Devices
- Modelling and Analysis of Microwave Tubes

COR L. CLAEYS
Tel: +32 16 281328
E-Mail: c.claeys@ieee.org
Fax: +32 16 281844
- Radiation Effects in Semiconductor Materials and Devices for Space Applications
- Future of Silicon-on-Insulator for Cryogenic Applications
- Low Frequency Noise in Advanced Submicron CMOS Technologies

SORIN CRISTOLOVEANU
Tel: +33 476 85 60 40
E-Mail: sorin@enserg.fr
Fax: +33 476 85 60 70
- Scaling of SOI Devices and Innovating Architectures for Ultimate SOI MOSFETs
- Silicon On Insulator Technologies for Low-Power/Low Voltage Integrated Circuits
- Characterization Methods of Thin Film SOI Materials and Transistors
- Reliability of SOI MOSFETs: Radiation and Hot Carrier Effects
- SOI Materials and Devices – Novel Concepts & Dimensional Effects

SIMON DELEONIBUS
Tel: +33 4 38 78 59 73
E-Mail: sdeleonibus@cea.fr
Fax: +33 4 38 78 54 59
- CMOS Logic and Non-Volatile Memories Devices Architectures and Sub 50nm NanoCMOS Transistors Devices Architectures and Advanced Modules Integration: Metal Gate/HiK Gate Stack, Stained SiGeC Channels
- Multigate Devices and Fully Depleted SOI Devices Integration
- Field Isolation for High Density CMOS and Non-Volatile Memories

DANIEL DONOVAL
Tel: +421 2 654 23 486
E-Mail: daniel.donoval@stuba.sk
Fax: +421 2 654 23 480
- Analysis of the Electrical Properties of Schottky Diodes
- Design and Analysis of Power Semiconductor Devices Supported by TCAD Modeling and Simulation

MONOUKO du PLESSIS
Tel: +27 12 4202952
E-Mail: mplessis@postino.up.ac.za
Fax: +27 12 3825115

CLAUDIO FIEGNA
Tel: +0532/293832
E-Mail: cfiegna@ing.unife.it
Fax: +0532/788802
GERARD Ghibaudo
Tel: +33 76 85 6070
E-Mail: ghibaudo@enserg.fr
Fax: +33 76 85 6058
- Low Frequency Noise in Advanced CMOS Devices
- Reliability Issues in Ultra Thin Oxides
- Low Temperature Operation and Reliability of CMOS/SI & SOI Devices
- Parameter Extraction in MOS Capacitance and MOS Transistors

Gady Golan
Tel: +972 544 526 122
E-Mail: gady@atct.co.il
Fax: +972 3 502 6643
- From theory to practice – Integration of Academic Life With High-Tech Start-Ups – Six Years Summary
- Novel Technologies in Polycrystalline Silicon Carbide Mfg.
- Embedded Miniature Displays for Smart Cards Applications

Alexander V. Gridchin
Tel: +7 383 236 9661
E-Mail: ieeensk@yandex.ru
Fax: +7 383 246 0209
- Theory and Principal Construction of Combined Silicon Pressure-Temperature Sensor
- An Application of Conform Mapping Method for Analyzing the Piezotransducer with Special Form of Current Spread Region
- An Analyzing the Sensitivity and Non-Linearity of Four-Terminal Silicon Pressure Piezotransducer
- An Elementary Theory for Three-Terminal Silicon Pressure Piezotransducer
- Mechanical Stresses in Silicon Diaphragm: Comparison of FEM and Ritz Variation Method

Benjamin Iñiguez
Tel: +34 977 558 521
E-Mail: binyigue@etse.urv.es
Fax: +34 977 559 605
- Simulation and Modeling of Nanoscale Multiple-Gate SOI MOSFETs
- Modeling of Thin Film Transistors for Circuit Simulation RF Macro-Modeling of Advanced MOSFETs

Aleksander S. Loggino
Tel: +7095 939 4138
E-Mail: as@osc.phys.msu.ru
Fax: +7095 932 8820
- Modern State and Development Perspectives of Optical Information Systems
- Dynamic Phenomena in Optically Transparent Magnetic Thin Films

Enrico Sangiorgi
Tel: +39 0643 374418
E-Mail: esangiorgi@deis.unibo.it
Fax: +39 0643 374477

Wim Schoenmaker
Tel: +32 16 288028
E-Mail: schoen@imec.be
Fax: not available

Hermann Schumacher
Tel: +49 731 502 6152
E-Mail: hermann.schumacher@e-technik.uni-ulm.de
Fax: +49 731 502 6150
- Si/SiGe Heterojunction Bipolar Transistors for Wireless Communications
- Silicon-Based Front-End Ics for the 24 GHz ISM Band

Siegfried Selberherr
Tel: +43 1 58901 36010
E-Mail: selberherr@tuwien.ac.at
Fax: +43 1 58901 36099
- Process Simulation for Modern Microelectronics Technologies
- Technology CAD
- Current Transport Models for Engineering Applications

Luca Selmi
Tel: +39 0432 558293
E-Mail: luca.selmi@univd.it
Fax: +39 0432 558251
- Carrier Transport in Nano-MOSFETs
- Monte Carlo Methods for the Solution of the BTE in Electron Devices
- CHISEL Injection and Degradation in MOSFETs and NVM Cells
- Statistical Analysis of SILC in FLASH EEPROM

Ninoslav D. Stojadinovic
Tel: +381 18 529 326
E-Mail: nstojadinovic@elfak.ni.ac.yu
Fax: +381 18 588 399
- Effects of Elevated-Temperature Bias Stressing on Radiation Response in Power VDMOSFETs
- Effects of Electrical Stressing and Subsequent Recovery Treatment in Power VDMOSFETs
An IEEE Student Branch gives students the opportunity to meet and learn from fellow students, as well as faculty members and professionals in the field. A good IEEE Student Branch can be one of the most positive elements in an Electrical Engineering, Computer Engineering or Engineering Technology department. IEEE Student Branches are established at over 1,000 universities and colleges throughout the world. Student Branch activities offer numerous educational, technical, and professional advantages of IEEE membership through special projects, activities, meetings, tours and field trips.

Establishing an IEEE Student Branch requires the signatures of 20 IEEE Student members on a petition. The petition must specify the name of the Branch, and the names of the Interim Student Chair and faculty member who will serve as Counselor of the Branch. The petition must also be approved by the Department Chair and two faculty members, who are also IEEE members above student grade. Submit the petition to IEEE Student Services to begin the approval process, which includes verification of the IEEE membership of the students and the faculty members on the petition, review of the programs offered at the educational institution, review and approval by the IEEE Regional Director, the Regional Student Activities Committee Chair and the IEEE Regional Activities Board (RAB). If further information is required, please contact: IEEE Student Services, Phone +1 732 562 5527/5392, Fax +1 732 463 3657 or e-mail: student-services@ieee.org.

Once a university/college has established an IEEE Student Branch, an affiliation can be made with one or more of IEEE's technical societies to form a Student Branch ‘Chapter’. There are currently over 300 IEEE Student Branch Chapters, with the Electron Devices Society having 10 at various institutions in a number of regions. The requirements for the establishment of an IEEE Student Branch Chapter for EDS are as follows:

- A petition by not less than twelve (12) Student Branch members, who are members of the IEEE technical Society, must be submitted to Stacey Waters of the EDS Executive Office at 445 Hoes Lane, Piscataway, NJ 08854 USA or via fax at 732-235-1626.
- The petition must specify the name of the Student Branch, the name of the technical Society with which the Student Branch Chapter will be affiliated, the name of the interim Branch Chapter Chair and the name of the faculty Advisor, who must be a member of IEEE and the technical Society above student grade.
- After the Advisor and the IEEE Student Branch Executive Committee have approved the petition, it should be sent to the EDS Executive Office.
- Upon receipt of the petition, the EDS Office will forward it to IEEE Student Services to verify the IEEE and technical Society membership of individuals who signed the petition. If the petition is in order, Student Services staff will take the necessary action to obtain formal approval of the petition by the Society President, the Regional Director and the Regional Student Activities Committee Chair. Student Services staff will acknowledge receipt of the petition and will keep the faculty advisor informed of the status of the request.

EDS welcomes the formation of new Student Branch Chapters and we look forward to hearing from you. If you have any further questions, please contact Stacey Waters (s.waters@ieee.org).
NEW!!

EDS ARCHIVAL COLLECTION
On DVD

Archival Collection Includes a comprehensive author, subject, and publications
indexes, abstract pages and all articles in PDF for the following publications:

+ Transactions on Electron Devices        All issues from 1954 through August 2004
+ Electron Device Letters               All issues from 1980 through August 2004
+ International Electron Devices Meeting All technical digests from 1955 through 2004

Collection also includes abstract pages for the publications listed below:

+ Journal of Solid-State Circuits        All issues from 1966 through 2003
+ International Solid-State Circuits Conference All issues from 1955 through 2003
+ VLSI Circuits Symposium                All proceedings from 1988 through 2003

Electron Devices Society 50th Anniversary Commemorative Booklet and EDS
Newsletter (1959-2004), also included.

As a member of EDS, you can purchase this amazing collection for just
$30, by just visiting the IEEE Online Store at
http://shop.ieee.org/store/. Be sure to log in as an EDS Member to get
the $30 price break. The IEEE product number for the DVD is JD1554.
New members are welcome to join at http://www.ieee.org/eds/join
ED Vancouver
The ED Vancouver Chapter, chaired by Prof. K.S. Karim, hosted Dr. Harry Kwok, Dept. of Electrical and Computer Engineering, University of Victoria, who presented a seminar on “Current Transport and Light Emission in Organic Field Effect Transistors (OFETs)” in the faculty of Applied Sciences Bldg, Simon Fraser University, Burnaby.

~ Jamal Deen, Editor

ED South Brazil Makes Use of the IEEE/EDS Distinguished Lecturer Program
- by Jacobus W. Swart and Ricardo Cotrin
In March 2005, two chapter meetings were held using the Distinguished Lecturer Program of EDS: the first one was a Workshop called SEMINATEC and the second one was a seminar. The first one was organized together with the EDS student chapter at UNICAMP.

The SEMINATEC workshop was held on March 4th at the State University of Campinas, UNICAMP. A lecture was delivered by Prof. Hiroshi Iwai, President of EDS and professor at Tokyo Institute of Technology. The title of the lecture was "Challenges for the CMOS roadmap and nanotechnology beyond CMOS". After his lecture, other oral presentations were given, followed by a poster session with about 50 papers and at the end a round table discussion. More than 130 persons attended the workshop. Details about the workshop can be found at http://www.ccs.unicamp.br/seminatec/. At the end of the workshop, 4 posters were selected for best paper awards. The awarded papers were: F.S. Campos et al. (A FPN digital correction method for digital CMOS imagers in time domain); C. Veríssimo et al (Effects of the process parameters in the carbon nanotubes growth by thermal CVD); E.J. Carvalho et al. (Fabrication and replication of periodic submicrometric structures using interferometric lithography) and A. Kostryukov et al (ICP reactor development and plasma characterization).

Before and after participating on the SEMINATEC workshop, Prof. Iwai also visited 4 other universities in the country, located in Brasilia, Recife, Rio de Janeiro and Porto Alegre, where he also delivered lectures.

The second chapter meeting was held on March 22nd at the Federal University of Santa Catarina, UFSC, in Florianópolis, SC. A seminar was given by Prof. Siegfried Selberherr, from the Technical University of Vienna, Austria, and distinguished lecturer of EDS. The seminar was entitled “Current Transport in Upcoming Microelectronic Devices”. A group of about 20 persons attended the seminar, followed by discussions. Also a visit to the microelectronics laboratory was held. This visit was guided by professors Carlos Galup-Montoro and Marcio Schneider, showing the activities going on in the group and discussing results.

Social events were also held together with both chapter meetings. At the SEMINATEC a cocktail get-together was organized for all participants, while in Florianópolis, a nice dinner closed the meeting.

~ Adelmo Ortiz-Conde, Editor

ED Israel
- Gady Golan
Subject of meeting: “Electronic Inspections of Climate Disasters”, Lecturer: Dr. Baruch Ziv, The Open University of Israel.
Chairman of the meeting: Prof. Gady Golan
25 people, students and academic staff, attended the meeting at Hasharon Hotel.

B. On Sunday, April 3, 2005, at HAIT (Holon Academic Institute of Technology), Holon.
Subject of meeting: “Ring Resonators”, Lecturer: Dr. Kobby Schoyer - Caltech, CA, USA.
Chairman of the meeting: Prof. Gady Golan

Abstract:
The transition from the contemporary low scale integration of optical devices to future highly-integrated photonic processors requires new high-quality materials on one hand and inexpensive mass-production fabrication methods on the other. Polymeric materials have interesting optical and mechanical properties, making them an attractive
choice for future photonic systems. In addition to low optical losses and material dispersion, polymer are simple to manipulate and to cast using a wide variety of fabrication methods including soft-lithography techniques. Moreover, the ability to dope polymeric materials with molecules that exhibit a large electro-optic coefficient, nonlinear response or optical gain, paves the way to all-polymer integrated optical circuits that include on-chip sources, processors and detectors.

75 people, students and academic staff, attended the meeting at HAIT.


Subject of meeting: “The discovery of asymmetric loaded waveguides”
Lecturer: Dr. Yosi Shani - Linx, Israel.
Chairman of the meeting: Prof. Gady Golan

Abstract:
The polarization rotation effect in asymmetric loaded optical waveguides was discovered at 1990 during my work at AT&T Bell Labs. The effect enabled, for the 1st time, the fabrication of short passive polarization rotators in integrated optic devices. Since its discovery the effect was investigated thoroughly by many groups around the world and was repeated, simulated and improved.

In the present talk the steps that led to the discovery of the effect are reviewed, and in particular, in addition to the effect itself, some of the adiabatic integrated optic devices that were fabricated are described.

60 people, students and academic staff, attended the meeting at HAIT.

~ Gady Golan, Editor

ED/MTT/AP St. Petersburg
- by Margarita F. Sitnikova

Some important events technically supported by our chapter will be presented below.

The Seminar ‘Day on Diffraction in New Millennium’, an annual international seminar on mathematical methods in the diffraction theory, was held in St. Petersburg June 29 – July 2, 2004. The official organizers of this seminar were the Faculty of Physics of the St. Petersburg State University, St. Petersburg Branch of Steklov Mathematical Institute and Euler International Mathematical Institute. Over 180 participants presented 90 oral papers. The official Seminar Web page is http://mph.phys.spbu.ru/DD.

The idea of organizing annual seminars on diffraction theory and wave propagation started in 1988, and the first seminar was held in June. The day after the Seminar was the relaxation day. All participants, who were young at that time, went to the bank of the Gulf of Finland, played volleyball, football on the beach, and drank tea. Since this time, all the sessions are always finishing with friendly picnic parties with a campfire and traditional Russian games. Year by year the Soviet scientists from other cities began to participate and the “Day on Diffraction” became an All Union Seminar. Since 1986 until the last decade, the Seminar had been held for two days: the first day was organized in Leningrad, the second day was at the Faculty of Physics in Peterhoff. Within the last decade the Seminar became international and is now held for four days with the number of participants exceeding one hundred.

The Seminar on Modern Problems of Computational Electrodynamics was held at St. Petersburg Electrotechnical University “LETI” July 1 – 2, 2004. The Seminar is intended for presenting the latest results and achievements in the field of computational electrodynamics and for discussing the modern problems existing in this field. Main topics for the Seminar were modern numerical methods for the solution of Maxwell’s equations, new results in solving huge systems of linear algebraic equations, new methods of solving eigenvalue problems, modern optimization techniques, new computer codes for analysis and optimization of microwave devices and systems. The Workshop on QWED3D computer code will be held during the Seminar.

An invited lecture was presented by Prof. Wojciech Gwarek from the Warszawska Politechnika, Institute of Radio Electronics. His topic of presentation was ‘Design of microwave passive structures without hardware prototyping – how close it comes with state-of-art electromagnetic simulation’.

The 8th All-Russia student conference in Radiophysics was organized in Peterhoff, December 7-8, 2004. Among the official organizers were St. Petersburg State University, St. Petersburg State Technical University and others. About 60 participants, including 44 students representing 10 universities and research institutes from 8 cities of Russia attended. Five IEEE Members and Student Members participated in the Conference. Three best paper awards were awarded. The abstracts for these papers are published in the IEEE Microwave Magazine. Abstracts of all presented papers are published on the web at http://radio.stu.neva.ru/studconf.htm.

AP/ED/MTT/COM/EMC Tomsk
- by Oleg V. Stukach

The 10th International Symposium on Advances of Measurement Science was held June 30 to July 2, 2004 in the Hotel ‘Saint-Petersburg, St.-Petersburg, Russia. The symposium was organized
by the AP/ED/MTT/COM/EMC Tomsk Chapter upon request of the International Measurement Confederation.

In three halls of the Hotel ‘Saint-Petersburg’, parallel sessions were organized in the following fields: Foundations of Measurement Science and Metrology; Uncertainty of Measurement; Measurement Signals and Data Processing; Intelligent Measurement Systems; Methods and Algorithms for Measurement, Testing, Diagnostics, and Recognition; Quality and Reliability.

Before the symposium, the Proceedings and CD-ROM were published. Papers were selected by the International Program Committee based on the reviewing of the extended thesis. Only papers consisting of new original ideas and important practical results were selected. The reports were only oral, and there was no poster section. In addition to sessions, the symposium program included two discussion panels.

The Symposium has concluded that it is necessary to supply an opportunity to create a knowledge base on the measurement systems. It is important to promote more active participation of the IEEE members in their own IEEE units, as well as to extend cooperation to new young researchers and other IEEE Societies.

~ Alexander V. Gridchin, Editor

2006 International Conference on Microelectronics (MIEL 2006) - by Tatjana Pesic

The 25th International Conference on Microelectronics (MIEL 2006) will be held May 14-17, 2006, at the Faculty of Electronic Engineering, University of Nis, Serbia & Montenegro. The MIEL 2006 Conference will be organized by the IEEE Yugoslavia Section - ED/SSC Chapter, in cooperation with the Faculty of Electronic Engineering, University of Nis, EI-Holding Co.-Nis, and Society for ETRAN, under the co-sponsorship of the IEEE EDS, with the cooperation of IEEE SSCS, and under the auspices of Ministry of Science and Environmental Protection, Serbian Academy of Science and Arts, Academy of Engineering Sciences of Serbia and Montenegro, and City Assembly of Nis.

MIEL is an outstanding European conference providing an international forum for the presentation and discussion of the recent developments and future trends in the field of microelectronics. Since 1984, there is an aura of internationalization around the MIEL conferences, providing an opportunity for specialists from both academic and industrial environments from the West and East, as well as from the countries of the Third World, to meet in an informal and friendly atmosphere and exchange their theoretical and practical experiences. Since 1995, MIEL has been organized under the technical co-sponsorship of IEEE EDS, while the conference received IEEE EDS co-sponsorship for the first time in 2000.

The topics to be covered by the technical program of the MIEL 2006 Conference include all important aspects of microelectronic devices, circuits and systems, ranging from materials and processes, technologies and devices, device physics and modeling, process and device simulation, circuit design and testing, system design and packaging, and characterization and reliability. Based on the past decade history, the technical program is expected to consist of about 150 contributed papers by the authors from more than 30 countries all around the world, which will be structured into oral and poster sessions. These papers, together with 13 invited papers, which are to be presented by the world leading authorities in the field of microelectronics, will form the solid foundation of the conference. The workshop, “Power Devices and ICs”, containing five additional invited papers, will round off the technical program.


For registration and other information, visit the MIEL 2006 Home Page at http://europa.elfak.ni.ac.yu/miel, or contact the MIEL Conference Secretariat, Department of Microelectronics, Faculty of Electronic Engineering, University of Nis, Aleksandra Medvedeva 14, 18000 Nis, Serbia & Montenegro; Tel.: +381 18 529 325; Fax: +381 18 588 399; E-mail: miel@elfak.ni.ac.yu

ED Poland - by Andrzej Napieralski

On 7 December 2005, a joint meeting of the IEEE ED Chapter and the Section of Microelectronics of the Committee of Electronics and Telecommunication of the Polish Academy of Sciences took place. During the meeting Stefan Simrock (DESY, Hamburg, GERMANY) presented a topic entitled, “The European X-FEL: RF Control Challenges”. The meeting was organized in Lodz, POLAND.

From June 22nd to 25th, 2005 the 12th MIXDES Conference “Mixed Design of Integrated Circuits and Systems” tech-
ED Benelux
- by Hans Wallinga
Thursday, 27 January 2005, the ED Benelux Chapter organized a colloquium by Prof. Dr. Gijs Bosman of the department of Electrical and Computer Engineering of the University of Florida in Gainesville. His tutorial entitled “Low Frequency Excess Noise and Charge Transport in Carbon Nanotubes”, was attended by 42 persons of which approximately 50% were IEEE members.

Professor Bosman started his presentation by explaining the favorable electrical, mechanical, and growth properties of carbon nanotubes. These are the reason that carbon nanotubes moved to the forefront of the research community as serious contenders for leading roles in future nano-scale device technology and circuitry. An important figure of merit for determining their usefulness for electronic applications, especially at the nanoscale, is noise characteristics. After a general introduction to charge transport in these structures the talk focused on their noise characteristics. The shot noise of carbon nanotubes was reported to be suppressed. However, the 1/f noise of carbon nanotubes was found to be unexpectedly high. To delineate the physical mechanisms that contribute to these, potentially show stopping, high noise levels, we measured the noise spectral density at frequencies between 10Hz and 100 kHz over a temperature range from 77K to 300K. The noise observed is a combination of low frequency excess noise and thermal noise. The excess noise spectra showed the presence of Lorentzian noise components superimposed on 1/f noise and were found to be a function of temperature. Using this temperature dependence, the noise producing trap energies, both discrete and distributed, were calculated and interpreted in terms of the carbon nanotube bandstructures.

- Cora Salm, Editor

ED Japan
- by Hiroshi Ishiwara
On January 17th, the third Japan Chapter Student Award was given to Hiroyuki Ito (Tokyo Institute of Technology), Hiroshi Irie (University of Tokyo), Taka-fumi Kamimura (Osaka University), Takeshi Kawano (Toyoohashi University of Technology) and Masumi Saitoh (University of Tokyo). This award was established in 2002 to encourage student members who actively contribute to the research of electron devices. The Japan Chapter selected these five students who have shown outstanding activities in the last year. They received metallic certificate plaques and premium from the Chapter Chair at the Japan Chapter annual meeting held in Tokyo on January 17th.

After the annual meeting, the briefing session for the 2004 IEDM was held to provide a summary discussion on the highlights of the 2004 IEDM. The five invited speakers delivered topics covering Integrated Circuits, CMOS Devices, CMOS Interconnects/Process, Modeling/Simulation, and Compound/Quantum Devices. This session has won popularity with a lot of the Japanese engineers who did not have a chance to attend the last IEDM to discuss the most advanced information of electron device technology. The session was very successful with 100 participants.

The Distinguished Lecturers Meeting was held on February 9th by the Japan Chapter, at Tokyo Institute of Technology in Yokohama, Japan. Two prestigious speakers from EDS gave presentations on: “On the Scaling Issues and High-k Replacement of Ultrathin Gate Dielectrics for Nanoscale MOS Transistors” by Prof. Hei Wong (City University of Hong Kong, China), and “The new generation of the photoelectric measurement methods of the MOS structure parameters” by Prof. Henryk M. Przewlocki (Institute of Electron Technology, Poland).

ED Kansai
- by Toshimasa Matsuoka
The ED Kansai Chapter held a Technical Meeting at Osaka University, Osaka,
Japan, on February 18, 2005. Three prestigious lecturers gave presentations on device technology trends reviewing papers presented in the 2004 International Electron Devices Meeting. The first talk on CMOS technology was delivered by Dr. Takahisa Eimori (Renesas Technology). His talk focused on advanced technologies related to gate stack, shallow junction, and strained silicon. The second talk on memory technologies was given by Dr. MasaHiro Hikita (Matsushita). His talk stressed the importance of their applications in research and development. The last speaker, Dr. Masahiro Hikita (Matsushita), reviewed high power and high frequency devices realized by advanced compound semiconductor technologies. Dr. Yoji Mashiko (Renesas Technology), chaired the meeting and the number of participants was 29 including students and researchers from industries.

- Hisayo S. Momose, Editor

ED/SSC Bangalore
- by Dr. P.R. Suresh
The IEEE EDS/SSCS joint chapter organized several technical events during the first quarter of 2005 that received an excellent response from the technical community.

The first event was a seminar by Prof. H. Wong, on “Analog Design for the Information Age”. In this talk, Dr. John reviewed the 100-year history of electronics and the challenges for the analog designer. He also presented his views on the future prospects for new processes and circuit techniques, within an applications context. About 50 people from both industry and academia attended this seminar and it received positive comments from the audience.

An IEEE distinguished lecture was given by Prof. V. Ramgopal Rao, IIT Bombay, on “Novel Device Architectures and Processes for the 65 nm CMOS Technology Node and Beyond”. About 100 people attended this talk. Prof. Rao reviewed the challenges that one encounters when the conventional CMOS technology is scaled below the 65 nm technology node. He also discussed technology, circuit and system level approaches in tackling the power dissipation issues for future CMOS technologies.

Another IEEE distinguished lecture was given by Dr. Kiyoo Itoh of Hitachi. This DL topic was “Leakage reduction in low-voltage embedded RAMs”. In this talk, Dr. Itoh reviewed state-of-the-art subthreshold-old-current reduction circuits for RAM cells & periphery. He also gave prospects of RAM cells and periphery with emphasis on further needs for new devices & circuits to reduce leakage in active mode and speed variations.

Ashish Dixit, Vice President of Hardware Engineering, Tensilica, gave a talk on “Breaking the I/O bottleneck for high compute processors on SoCs”, on February 15. Ashish described the technology that makes it possible to extend embedded processors for compute intensive applications requiring very large data bandwidth.

Dr. Mouli Vaidyanathan of Texas Instruments, Dallas, gave a seminar on “Another approach to yield improvement” on March 21. Dr. Vaidyanathan discussed several components of failure analysis such as Data analysis, Fail pareto analysis and Constructional analysis (comparisons of some critical layers between foundries).

A technical talk on “Energy Aware Algorithm Design via Probabilistic Computing: From Algorithms and Models to Moore’s Law and Novel (Semiconductor) Devices”, was given by Prof. Krishna V. Palem of Georgia Institute of Technology, USA. Prof. Palem outlined an entirely new approach to energy-aware computing, trading the probability of the BIT being correct for savings in the energy consumed, yielding a probabilistic bit or PBIT (instead of a conventional BIT which is guaranteed to be correct). About 30 people attended this talk.

The Chapter along with IEEE Circuits and Systems Society and VLSI Society of India, co-sponsored a two-day workshop on Low Power Design Techniques. About 100 people from industry and academia attended this workshop.

AP/ED Bombay
- by Dr. Mahesh Patil
The IEEE AP/ED Bombay Chapter organized the following events.

1. Dr. Abhijit Bhattacharyya, Department of Applied Science, University of Arkansas, gave a talk on “Morphing aircraft, micromirrors and shape memory alloys” on January 3.
2. On January 17, Dr. Amol Joshi, Spansion LLC, Sunnyvale, talked on “High performance of CMOS for 3D ICs with metal induced crystallization of amorphous silicon”.
3. On January 25, Prof. D. Mukhopadhyay, Jadavpur University, presented a seminar on “Monte-Carlo simulation of electron transport in elemental and compound semiconductors”.
4. On February 3, Mr. Aatish Kumar, Philips, Eindhoven, discussed “A New Cell-Based Per
Prof Vikram Dalal discussing the role of thin-film Si in photovoltaics at IIT Bombay.

formance Metric for Novel CMOS Device Architectures”.

5. Prof. Vikram Dalal, Iowa State University, IEEE EDS Distinguished Lecturer, presented a seminar on “The photovoltaics challenge: role of thin film Si”, on February 14.

6. On February 15, Prof. Yong Cho, Konkuk University, Korea, gave a talk on “SoC Applications: HW/SW Co-Design of MPEG-4 Video Decoder”.

7. On February 24, Prof. Raj Mittra, Life Fellow, IEEE, Pennsylvania State University, presented a seminar on “Some Techniques for Performance Enhancement of Microstrip Patch Antennas using Metamaterials as Substrates and Superstrates”.

8. On March 3, Dr. Rustom Bhiladvala, Pennsylvania State University, gave a talk on “Nonlinear and fluid results for experiments with nano-oscillators”.


11. On March 23, Prof. Rajendra Singh, Fellow IEEE Clemson University, gave a talk on “Manufacturing of nanosystems and microsystems: challenges and opportunities”.

REL/CPMT/EDED Singapore

- by Dr. K.L. Pey

The REL/CPMT/ED Singapore Chapter reports the following activities.

1. Technical talks and short courses:

   - On 12 January, Assoc. Prof. K.S. Narayan, Jawaharlal Nehru, Centre for Advanced Scientific Research, Jakkur, Bangalore, India, gave an EDS DL talk on “Optically induced features in polymer based field effect transistors”.
   - On 5 January, Professor Vijay K. Arora, Wilkes University, USA, gave a talk on “Ohm’s law failure: new insights into the charge transport in the multivalley band structure of GaAs”.
   - On 27 January, Mr. Chuan Seng Tan, of Massachusetts Institute of Technology, gave a talk on “Sky is the Limit: Multi-layer Three-Dimensional Integration Achieved by Wafer Bonding”.
   - On 14 March, Professor Arokia Nathan of the University of Waterloo, Canada, an EDS DL, gave an EDS DL talk on “Nanoscale Elastic Circuits”.
   - On 28 March, Mr. Chen Jinghao of the National University of Singapore, gave a talk on “Novel Nano-crystals and SONOS-type Nano-dots Flash”.

2. Conferences:

   - 6th EPTC (EPTC 2004)

     With the 6th conference in the series, the Electronics Packaging Technology Conference (EPTC), has truly achieved the status of a major packaging conference and is now the premier event for the Asian region. 264 participants from 22 countries attended the 3-day event. Besides participation by all the major electronics manufacturers and design houses in the island republic, there were strong contingents from USA, Malaysia, Taiwan, Germany and Japan. The delegates represent a total of 91 organizations, about two-thirds from the commercial sector and one-third comprising universities and research institutes.

   - 12th IPFA (IPFA 2005)

     The 12th International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA 2005), Asia’s leading IC Failure Analysis conference, will be held 27 June - 1 July 2005 at Shangri-La’s Rasa Senosa Resort, Singapore. The Symposium is devoted to the fundamental understanding of the physical mechanisms of device failures, and issues related to device reliability, especially in advanced process technologies. In conjunction with the three day technical symposium, two days of tutorials will be held on the 27 and 28 June 2005. The technical sessions are: Advanced FA, Die Level FA, Package FA, Sample Preparation Metrology and Material Characterization, Novel Device Reliability, Novel Gate Stack/Dielectrics, Advanced Interconnects and BEOL Reliability, ESD/EOS and CMOS Latch-up. As a departure from tradition, there will also be a poster session on the second day. The Keynote Speaker will be Dr. Shi-Chung Sun, Senior Vice President of Technology Development at Chartered Semiconductor Manufacturing, Singapore. The invited Speakers include Dr. Michael Bruce (AMD), Dr. Camelia Hora/Dr. Stefan Eichenberger (Philips Semiconductors), Dr. Mahadeva Iyer Natarajan (IMEC), Prof. Jacob Phang (NUS, Singapore), Dr. James Stathis (IBM), Dr. Luc Tielemans (Qttest), and Dr. Ehrenfried Zschech (AMD). As part of best paper exchange program with ISTFA, the Best Paper from ISTFA 2004 will be presented at IPFA 2005 while the best paper in failure analysis at IPFA 2005 will be presented at ISTFA 2005. For further information, please visit the IPFA website at http://www.ieee.org/ipfa.

3. The Chapter donated a sum of US$800 to two activities organized by the Student Chapter of the Nanyang Technological University branch. These are the IEEE Science Symposium (2005) and IEEE - Student Professional Awareness Conference.

4. The Chapter is planning a one-day Workshop and IEEE EDS Mini-colloquium on NAnometer CMOS Technology workshop 1 (WIMN-ACT8-Singapore) on 2 July, 2005.

~ Xing Zhou, Editor
EDS MEETINGS CALENDAR
(As of May 10, 2005)

The complete EDS Calendar can be found at our web site:
http://www.ieee.org/society/eds/meetings/meetings_calendar.xml Please visit!


July 10 - 14, 2005, @ International Vacuum Nanoelectronics Conference, Location: St. Catherine’s College, Oxford, United Kingdom, Contact: Priscilla Frost, E-Mail: info@oxconf.co.uk, Deadline: 4/1/05, www: http://www.ivnc2005.org


September 1 - 3, 2005, @ International Conference on Simulation of Semiconductor Processes and Devices, Location: Komaba Eminece, Tokyo, Japan, Contact: Nobuyuki Sano, E-Mail: sano@eys.tsukuba.ac.jp, Deadline: 3/7/05, www: http://www6.eie.eng.osaka-u.ac.jp/sispad

September 4 - 7, 2005, T Symposium on Microelectronics Technology & Devices, Location: Universidade Federal de Santa Catarina-UFSC, Florianopolis, Brazil, Contact: Jacobus Swart, E-Mail: jacobus@led.unicamp.br, Deadline: 3/12/05 www: http://www.sbmicro.org.br/sbmicro

September 7 - 9, 2005, T International Conference on Electrical and Electronics Engineering, Location: Installations of CINVESTAV-IPN, Mexico City, Mexico, Contact: Felipe Gomez-Castaneda, E-Mail: iceee@mail.cinvestav.mx, Deadline: 5/8/05, www: http://www.icsee.ie.cinvestav.mx

September 7 - 9, 2005, T Conference on Electrical Engineering, Location: Installations of CINVESTAV-IPN, Mexico City, Mexico, Contact: Felipe Gomez-Castaneda, E-Mail: iceee@mail.cinvestav.mx, Deadline: 5/8/05, www: http://www.icsee.ie.cinvestav.mx


September 12 - 16, 2005, T International Conference on Electromagnetics in Advanced Applications, Location: Centro Congressi Torino Incontro, Torino, Italy, Contact: Roberto Graglia, E-Mail: graglia@polito.it, Deadline: 2/25/05 www: http://www.iceaa.polito.it


September 12 - 16, 2005, T International Crimean Microwave Conference “Microwave & Telecommunication Technology”, Location: Sevastopol National Technical University, Sevastopol, Ukraine, Contact: Pavel Yermolov, E-Mail: yermolov@sinfo.net.us OR crimeco2005@mail.com, Deadline: 5/11/05, www: http://ieee.orbita.ru/aps/crim05e.htm

September 12 - 16, 2005, @ IEEE International Symposium on Semiconductor Manufacturing, Location: Fairmont Hotel, San Jose, CA, USA, Contact: Drue Hulmer, E-Mail: drue.hulmer@marritz.com, Deadline: 5/20/05, www: www.issm.com

September 12 - 15, 2005, T International Conference on Solid-State Devices and Materials, Location: International Conference Center Kobe, Kobe, Japan, Contact: Emi Yamaguchi, E-Mail: ssdm@intergroup.co.jp, Deadline: 5/12/05, www: www.ssdm.jp


September 19 - 23, 2005, T International Conference on Noise in Physical Systems and 1/F Fluctuations, Location: Historical Building of Salamanca University, Salamanca, Spain, Contact: Javier Mateos, E-Mail: javierm@usal.es, Deadline: 12/17/04, www: http://www.usal.es/icnf
October 2 - 5, 2005, @ IEEE International Conference on Computer Design, Location: San Jose Doubletree Hotel, San Jose, CA, USA, Contact: Edward Grochowski, E-Mail: edward.grochowski@intel.com, Deadline: 5/6/05, www: www.iccdconference.org


October 3 - 6, 2005, @ IEEE International SOI Conference, Location: Hyatt Regency Waikiki Resort & Spa, Honolulu, Hawaii, USA, Contact: Bobbi Armbruster, E-Mail: bobbi@baccominc.com, Deadline: 5/6/05, www: www.soiconference.org


October 5 - 7, 2005, T International Conference on Advanced Thermal Processing of Semiconductors, Location: Fess Parker's DoubleTree Resort, Santa Barbara, CA, USA, Contact: Bo Lojek, E-Mail: blojek@atmel.com, Deadline: 5/31/05, www: www.ieee-rtf.org

October 9 - 11, 2005, @ Bipolar/BiCMOS Circuits and Technology Meeting, Location: Fess Parker Doubletree Resort, Santa Barbara, CA, USA, Contact: Janice Jopke, E-Mail: ccs@mr.rr.com, Deadline: 3/15/05, www: www.ieee-bctm.org

October 12, 2005, T Workshop on Compact Modeling for RF/Microwave Applications, Location: Fess Parker’s Double Tree Resort Hotel, Santa Barbara, CA, USA, Contact: Slobadan Mijalkovic, E-Mail: s.mijalkovic@its.tudelft.nl, Deadline: 3/31/05, www: http://elec.ewi.tudelft.nl/cmf05


November 6 - 10, 2005, T IEEE International Conference on Computer Aided Design, Location: Doubletree Hotel, San Jose, CA, USA, Contact: Kathy MacLennan, E-Mail: kathy@mpasociates.com, Deadline: 4/20/05, www: http://www.icipcad.com


December 13 - 17, 2005, T International Workshop on the Physics of Semiconductor Devices, Location: National Physical Laboratory, New Delhi, India, Contact: Vikram Kumar, E-Mail: vikram_kumar@sspl@ssplnet.org, iwpsd@naf.vsnl.net.in, Deadline: Not Available, www: www.iwpsd.net


January 10 - 13, 2006, @ IEEE Emerging Technologies – Nanoelectronics, Location: Meritus Mandarin Hotel, Singapore, Singapore, Contact: Cher Tan, E-Mail: ecmtan@ntu.edu.sg, Deadline: 6/30/05, www: www.ieeeet.org

February 13 - 15, 2006, @ IEEE Non-Volatile Semiconductor Memory Workshop, Location: Hyatt Regency, Monterey, CA, USA, Contact: Richard Eguchi, E-Mail: richard.eguchi@freescale.com, Deadline: 10/14/05, www: www.ehw.ieee.org/soc/eds/nvsmw

March 6 - 9, 2006, @ International Conference on Microelectronic Test Structures, Location: Hyatt Regency on Town Lake, Austin, TX, USA, Contact: Wendy Walker, E-Mail: wendyw@widerkehr.com, Deadline: 9/14/05, www: www.ed.ed.ac.uk/iCMTS

May 8 - 11, 2006, @ IEEE International Conference on Indium Phosphide and Related Materials, Location: Princeton University, Princeton, NJ, USA, Contact: Gregory Olsen, E-Mail: golsen@sensorsinc.com, Deadline: Not Available, www: Not Available

May 8 - 12, 2006, @ World Conference on Photovoltaic Energy Conversion, Location: Hilton Waikoloa Village, Waikoloa, HI, USA, Contact: Americo Forestieri, E-Mail: moeforestieri@at.net, Deadline: Not Available, www: www.ieeepvsc.org

May 14 - 17, 2006, * International Conference on Microelectronics, Location: University of Nis, Nis, Yugoslavia, Contact: Ninoslav Stojadinovic, E-Mail: nstojad@elekfni.ac.yu, Deadline: 9/30/05, www: http://europa.eifikni.ac.yu/miel


May 22 - 24, 2006, @ IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop, Location: Boston, MA, Contact: Margaret Kindling, E-Mail: mkindling@semi.org, Deadline: 9/22/05, www: Not Available

* = Sponsorship or Co-Sponsorship Support
T = Technical Co-Sponsorship Support
® = Alternates support between ‘Sponsorship/Co-Sponsorship’ and ‘Technical Co-Sponsorship’
February 2-4, 2005, the Electronic Engineering Department of the Rovira i Virgili University, Tarragona, Spain, organized the 5th Spanish Conference on Electron Devices, technically co-sponsored by the IEEE EDS. The total number of accepted papers was 148, and the total number of attendees was 195. The Conference was divided in thematic sessions composed of plenary invited talks and poster scientific communications presented by the authors.

Two invited talks were given by EDS Distinguished Lecturers. Firstly, Prof. Jamal Deen from the ECE Dept. at McMaster University in Hamilton, Canada, dealt with the state of the art and the recent advances in Plastic Microelectronics. In addition, Prof. Michael S. Shur from the Rensselaer Polytechnic Institute, Troy, New York, USA, presented the recent progress in developing deep UV LEDs and the potential applications of GaN-based devices in the terahertz range of frequencies. The other invited talks were given by Spanish researchers: Dr. Pardo, Univ. Salamanca, explained their results in ultra fast nanometer scale devices based on ballistic transport; Dr. Puigdollers, UPC, Barcelona, presented an interesting overview on organic electron devices and the future trends on this issue; Dr. Fontanilles, Lear Automotive EEDS, Valls, showed the work of the activity of their European tech. center in the automotive industry related with devices and micro-systems; Dr. Pau, UPM, Madrid, dealt with UV and visible photo-detectors based on GaN and their applications; and Dr. Urbina, UPC, Cartagena, explained the fundamentals of carbon nanotubes and their application to molecular electronics.

The posters accepted were presented in three sessions, showing the recent advances in fabrication, characterization, modeling and simulation of semiconductor devices, power, RF and microwave devices, photovoltaic, optoelectronic and photonic devices, micro and nanotechnologies, micro-systems and MEMS, sensors and actuators.

Finally, the scientific committee decided that the next Spanish Conference on Electron Devices will be held in El Escorial, Madrid, during 2007, organized by Dr. Algora from the Solar Energy Institute, Politecnical University of Madrid.

Josep Pallares
2005 CDE Organizing Committee
University Rovira i Virgili
Tarragona, Spain