



IEEE

ELECTRON DEVICES SOCIETY

Newsletter

January 2007 Vol. 14, No. 1 ISSN:1074 1879

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2007 IEEE International Conference on Portable Information Devices



Come to Orlando, Florida, in March 2007. Not for the sun or for the mouse, but to participate in the first IEEE

Portable Information Devices conference. Over the past decade, progress in Portable Information Devices (PIDs) has revolutionized telecommunications, information engineering, and entertainment systems, and become an essential part of everyday life and business. PIDs make possible vastly enhanced lifestyles - from basics such as reading, note taking, or listening to music, to crunching numbers, watching videos, and following news and sports events while on the go. Today's PIDs include cellular phones, personal digital assistants, medical devices, intelligent clothing, and iPods. Some devices provide built-in organizers for shopping lists, scheduling and appointments, phone numbers, address books, customer contacts, even games and video display. Both hardware and software are equally important in the design, use and reliability of these devices, which should be easy to handle and operate, and last a long time. IEEE PORTABLE 2007 will bring together communications, electrical, industrial, manufacturing, materials, mechanical, optical, and reliability engineers and business leaders involved in various types of PIDs. These professionals will gather to address and discuss state-of-the-art challenges, attributes and pitfalls in PID-related areas of engineering and applied science.

The conference is an intersociety event sponsored by: IEEE Technical Activities Board (TAB); New Technology Directions Committee (NTDC); IEEE Components Packaging and Manufacturing Technology Society (CPMT); IEEE Broadcast Technology Society (BTS); IEEE Communications Society (ComSoc); and IEEE Electron Devices Society (EDS). The Technical co-sponsors are: IEEE Engineering in Medicine and Biology Society (EMBS); IEEE Vehicular Technology Society (VTS); University of California at Santa Cruz (UCSC).

IEEE PORTABLE 2007 will take place March 25 - 27 at the Orange County Convention Center in Orlando, Florida, USA. The three-day event offers technical sessions, panels and tutorials for one inclusive registration fee. Featured keynote and plenary addresses will be given by:

(continued on page 27)



Your Comments Solicited

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

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EDS AdCom Elected Members-at-Large

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

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				S. Tyagi	(1)

CONTRIBUTIONS WELCOME

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

Newsletter Deadlines

Issue	Due Date
January	October 1st
April	January 1st
July	April 1st
October	July 1st

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.

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EDS Officers Participate in Opening Ceremony of ED Tsinghua University Student Branch Chapter

The Opening Ceremony for the newly established IEEE Electron Devices Society (EDS) Tsinghua University Student Branch Chapter was held at the Institute of Microelectronics, Tsinghua University (IMETU), Beijing, China, on July 10, 2006. The IMETU Student Chapter is the first IEEE EDS university branch chapter in China. The meeting was organized in conjunction with the Opening of the 2006 US-China Research Experiences for Undergraduate (REU) Program, sponsored by the National Science Foundation of USA. The meeting was attended by an audience of about 50 persons, including students from Tsinghua University and the Illinois Institute of Technology (IIT), Chicago, (the REU students traveling to China), as well as faculty members and officers from Tsinghua University, the Electron Devices Society, IEEE Beijing Section and the ED Beijing Chapter. The meeting was chaired by Prof. Tianling Ren of IMETU, who serves as the Faculty Advisor to the new student chapter, and Mr. Chen Yang, Chair of the new chapter and a Ph. D. candidate at IMETU. Congratulation speeches were given by EDS Junior Past President, Prof. Hiroshi Iwai of Tokyo Institute of Technology; EDS Vice President, Prof. Albert Wang of Illinois Institute of Technology; EDS Beijing Chapter Chair, Prof. Fujiang Liao; Dr. Jinjun Feng of the China Institute of Electronics (CIE); Deputy Dean of the School of Information of Tsinghua University, Prof. Yanhe Li; IEEE Solid-State Circuit Society Beijing Chapter Chair and Deputy Director of IMETU, Prof. Zhihua Wang; and IEEE Communications Society Beijing Chapter Chair, Prof. Zhisheng Niu. The Opening Ceremony was followed by an EDS Distinguished Lecturer Seminar given by Prof. Iwai. The DL Seminar was entitled

"Nano CMOS and Its Manufacturing" was well received by the audience consisting of both faculty members and students, including the US-China REU students from IIT headed by Prof. Albert Wang.

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ED Tsinghua University Student
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Front row: EDS student branch chapter officers — Back row: Prof. Albert Wang, Prof. Yanhe Li, Prof. Zhihua Wang, Prof. Hiroshi Iwai, Prof. Tianling Ren, Prof. Fujiang Liao and Prof. Zhisheng Niu



The audience enjoying Professor Iwai's DL talk

Upcoming Technical Meetings

2007 International Vacuum Electronics Conference (IVEC)

The Eighth International Vacuum Electronics Conference (IVEC 2007) will be held in Kitakyushu City, Fukuoka Prefecture, Japan, May 15-17, 2007. The meeting will be held at the Kitakyushu International Conference Center under the sponsorship of the IEEE Electron Devices Society (EDS). It will be organized by an Asian Organizing Committee, with the technical support of the IEEE EDS Technical Committee on Vacuum Devices. IVEC is held every second year in the US and in Asia and Europe alternatively every fourth year. The first IVEC in Asia was held in Seoul, Korea in 2003. This year, the second conference location in Asia crosses the waters from the Korean Peninsula to the Kyushu Islands in Japan, which are famous for beautiful scenery, volcanoes, and hot springs. Kitakyushu City is located in the northern part of the Kyushu Islands.

IVEC has become the premier international gathering for those involved in the field of Vacuum Electronics, drawing together representatives of academia, research institutes, industry, institutions and

users. For systems developers, IVEC provides a unique snapshot into the state of the art in vacuum electron devices. These devices continue to provide power and performance for advanced electromagnetic systems especially at higher frequencies. Rapid technological advances in the vacuum electron-device area, plus new and improved devices, are making possible systems having reliability and capabilities well beyond any fielded today.

A highlight of the meeting will be the presentation of the IVEC Award for Excellence in Vacuum Electronics presented during the plenary session on the first day, and a Best Student Paper Award given during a technical session the last day of the conference. Complete details about the meeting and these awards can be found on the IVEC2007 web site.

The IVEC 2007 will open the first day with a plenary session featuring invited speakers covering several subjects of broad interest. This session will be followed by two and a half days of technical presentations that include both oral and poster ses-

sions. As in past conferences, the technical meeting and social events will provide a unique opportunity to renew friendships with colleagues and friends, interact with customers, and meet students.

Papers will include presentations on a wide range of classic vacuum devices, including traveling wave tubes, crossed field devices, klystrons, inductive output tubes, fast wave devices, free electron lasers, pulse compression devices, high pulsed power devices, plasma filled amplifiers, triodes, tetrodes, pentodes and switches. In the area of vacuum microelectronics, IVEC is seeking papers on field emitter arrays, microwave and millimeter wave devices, displays, sensors, and terahertz devices. Under systems and subsystems, IVEC is including components such as electron sources, guns, collectors etc., microwave power modules, electronic power conditioners, power supplies, linearizers, amplifier/antenna coupling, device and subsystem integration, reliability and life. Under the heading of theory and technologies, IVEC is seeking papers on computer analysis and modeling, novel materials, electron emission, surface charging, RF and high voltage breakdown, linearity, intermodulation, noise, measurement techniques, miniaturization and thermal control.

Papers on all these topics are sought and two-page abstracts should be submitted electronically in Microsoft Word (.doc format) by January 12, 2007, to <https://www.e-kenkyu.com/ivec2007>.

For further information visit the IVEC 2007 website at <http://www.ivec2007.org/>



Kokura Castle and River Walk Complex in Kitakyushu, Japan

*Takao Kageyama
General Chairman IVEC 2007
Kitakyushu Foundation for the
Advancement of Industry,
Science and Technology
Kitakyushu, Japan*

2007 IEEE International Reliability Physics Symposium (IRPS)

Symposium Returns to Phoenix

The 2007 IEEE International Reliability Physics Symposium (IRPS) will present the latest developments in microelectronics reliability at its 45th annual conference, April 15-19, 2007, at the Phoenix Convention Center/Hyatt Regency Phoenix in Phoenix, Arizona.

The IRPS offers its attendees technical sessions, tutorials, workshops, a year-in-review seminar and a poster session, all covering state-of-the-art developments in electronic and optoelectronic reliability for silicon, non-silicon, and emerging technologies including organic electronics and nanotechnology.

The focus of the symposium is the 3-day Technical Program featuring original work that identifies new microelectronic failure or degradation mechanisms, improves understanding of known failure mechanisms, demonstrates new or innovative analytical techniques, or demonstrates ways to build-in reliability. New this year are emphases on 1) reliability and qualification issues for microelectronics in extreme environments, e.g. automotive/high temperature, avionics, and/or radiation/space environments and 2) reliability and drift phenomenon in organic based electronic devices including Organic Light Emitting Diodes (OLEDs) and Organic Thin Film Transistors (OTFTs).

A Two Day Tutorial Program gives attendees the opportunity to learn a new area in some technical depth from an industry expert or brush up on the fundamentals with introductory tutorials. There are typically 20-25 tutorials that are offered on topics ranging from electromigration to gate dielectric reliability to assembly/packaging reliability.

The Reliability Year-In-Review Seminar provides attendees with a summary of important work published from the previous year in key reliability areas. Industry experts serve as the "tour guide"

and save you time by collecting and summarizing this information to bring you up-to-date in a particular area as efficiently as possible.

Evening Session Workshops enhance the synergy of the symposium by affording the attendees an opportunity to meet in informal groups to discuss key reliability physics topics with the guidance of experienced moderators. Some of the workshop topics are directly coupled to the tutorial program to allow more discussion on a particular topic.

In addition to the IRPS technical program, dozens of companies from the microelectronics industry will be on hand to provide equipment demonstrations during the symposium.

The 2007 IRPS will be utilizing the brand new Phoenix Convention Center West facilities. The new convention center buildings are directly across the street from the Hyatt Regency Hotel and offer exceptionally convenient and modern facilities for the event.

"The number of attendees as well as the quality and quantity of technical submissions has been increasing for the IRPS during the first half decade of the 21st century," reports Dr. Edward I. Cole Jr., General Chair of the 2007 IRPS. "The tutorials, technical presentations, poster reception, and equipment demonstrations, all in the setting of the new Phoenix convention facilities, will make the 2007 event both extremely informative and enjoyable to the attendees."

This year, in addition to the Best Poster, Best & Outstanding Paper awards, the IRPS will be presenting a Best Student Paper Award. To qualify, the IRPS presentation/poster must be given by a student and the first author must be that same student. This award will be determined, in part, by attendee voting.

Immediately after the IRPS, the Advanced Materials/Failure Analysis (AMFA) Workshop, technically co-sponsored by the IEEE Reliability

Society and the ASM Electron Device Failure Analysis Society, will be held in the Hyatt Regency on Friday, April 20th.

About the IRPS

For more than 40 years the IRPS has been one of the leading meetings for engineers and scientists in the areas of electronic component reliability. The IRPS promotes the comprehension of reliability and performance of integrated circuits and microelectronic assemblies through an improved understanding of failure mechanisms in the user's environment. Originally started in the early 1960's by the military and aerospace community, the IRPS is now sponsored by the IEEE Reliability Society and the IEEE Electron Devices Society. All accepted IRPS papers will appear in the symposium's proceedings publication, as well as on the Virtual IRPS DVD-ROM, which is available for the previous 2006 IRPS.

For further information, or to request technical paper abstracts for the 2007 IRPS, please visit the IRPS Website at www.irps.org.

*Edward I. Cole, Jr.
2007 IRPS General Chair
Sandia National Laboratories
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*Phoenix Convention Center/
Hyatt Regency, Phoenix*

2007 IEEE/SEMI Advanced Semiconductor Manufacturing Conference (ASMC)

Stresa, Italy to Host 18th Annual ASMC

The annual IEEE/SEMI Advanced Semiconductor Manufacturing Conference (ASMC 2007), a global manufacturing technology forum, marks its 18th year with a new venue, the Grand Hotel Bristol located on Lago Maggiore in majestic Stresa, Italy. Stresa is located near Milan, a major European manufacturing center.

ASMC, which alternates between the U.S. and Europe to better serve its international audience, will be held June 11-12, 2007. It is sponsored by the IEEE Electron Devices Society (EDS), the IEEE Components, Packaging, and Manufacturing Technology Society (CPMT), and Semiconductor Equipment and Materials International (SEMI). ASMC 2007 is co-chaired by Thomas Beeg, Qimonda and Dave Gross, Advanced Micro Devices.

ASMC 2007 continues a long tradition of unveiling breakthroughs in semiconductor manufacturing—from fab productivity and profitability to advanced process controls and device yield. Peer-reviewed technical papers and expert keynotes attract engineers and managers to advance their semiconductor manufacturing knowledge with real solutions... direct from the fab.

This year's event will cover these timely topics:

- Advanced Processes and Materials
- Advanced Process Control; Analog
- High-Power and High-Voltage
- Contamination-Free Manufacturing (CFM)
- Cost Reduction, Equipment Reliability and Productivity
- Data Management and Data Mining Tools
- Defect Inspection and Reduction
- Design for Manufacturability (DFM);
- Factory Automation and Factory Dynamics
- Industrial Engineering
- Lithography Advances and Challenge
- Time to Market; Yield Enhancement and Modeling
- 300mm Prime Initiative

The agenda features: topic-specific morning and afternoon sessions; a distinguished line-up of keynote speakers; technology-specific round table discussions led by industry experts; and a poster reception that encourages interaction between poster authors and conference attendees. The reception is sponsored by KLA-Tencor.

An ASMC Best Paper, sponsored by Toppan Photomasks, and a Best Student Paper sponsored by Infineon Technologies, will also be awarded.

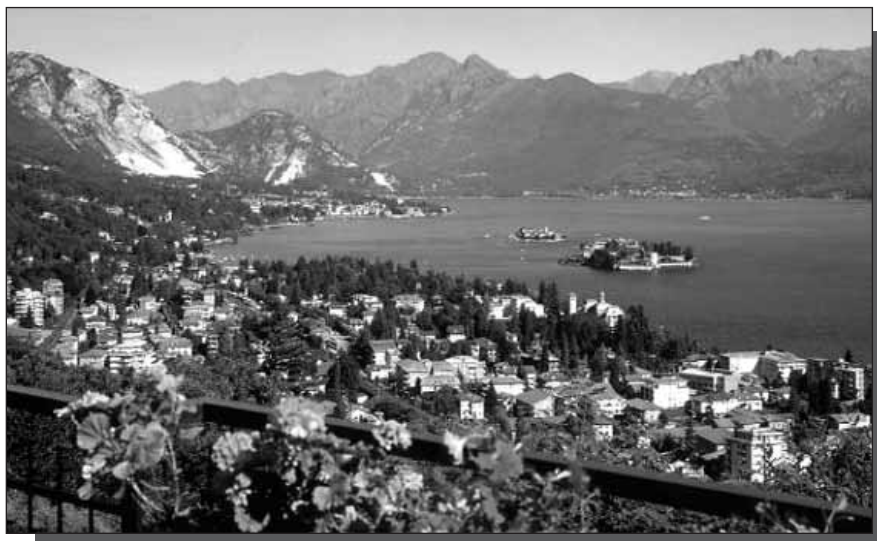
Who should attend ASMC 2007? Semiconductor professionals involved in production control, process control, process transfer, process applications, yield and cycle time improvement, yield methodology, cost reduction, preventive maintenance, line supervision, device characterization, facilities fab operation, product management, project management, strategic marketing, quality, training and education.

Grand Hotel Bristol
Favored by writers, statesmen and royalty, the northern Italian lakes are beautiful and impressive, where mountains descend to meet the lakeshore, and stately grand hotels dominate pretty lakeside towns. The charming resort town of Stresa is located on Lago Maggiore, the second-largest lake in Italy, which stretches between Lombardy and Piemonte into the Alps. The region is a world-class meeting destination and the four-star Grand Hotel Bristol overlooks the lake the Borromean Islands, Isola Bella and Isola Madre. Milan Malpensa International and Linate airports service the region, which is also accessible by train and the Autostrada.

A block of sleeping rooms has been reserved for conference participants at the Grand Hotel Bristol. To make a reservation by phone, please contact the hotel at +39 0323 913990 or complete and fax the hotel registration form located on the ASMC website. Mention "ASMC" or "SEMI" to obtain the special group rate.

For schedule and hotel information and to register on-line, visit <http://www.semi.org/asmc>. Or contact: Ms. Margaret M. Kindling, SEMI Washington, DC (mkindling@semi.org)

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Riviste e Agency

Society News

EDS Publications Committee Report



Renuka P. Jindal

As the hallmark of the Information Age, creation, dissemination and retrieval of information continues to become increasingly electronic. We see this trend unfold across all publications within and outside IEEE. The choice for us is either to ride this tidal wave of change by embracing and capitalizing on this new opportunity or be swept from under our feet. We have chosen the former. We now have a fully electronic archive for all of our flagship publications and conferences, including the *Transactions on Electron Devices* (T-ED), *Electron Device Letters* (EDL) and International Electron Devices Meeting (IEDM), available to all EDS members at a give-away price. This Archival Collection is kept current every year for dissemination among EDS members. If you have not already done so, I encourage you to fully leverage this opportunity. Also, to encourage participation by students in this bonanza, the price for these products has been kept even lower for them. Please visit the web site <http://shop.ieee.org> for details on how to purchase and/or subscribe to these exciting products. Current sales figures show that our members have acquired about 1,600 copies of the archival DVD and 800 copies of the 2005 update DVD. Both DVDs work together seamlessly to provide you a complete access. Further, this material is also available to our members online, free-of-charge through IEEE Xplore. These initiatives are in keeping with our promise of continuing to enhance the value of EDS membership and empowering our members. Plans are underway to extend this concept to cosponsored publications and conferences as well. Other projects on the back-burner include a DVD version of the short-courses that were presented in the past at the IEDM. If you can help

to develop this into a high-quality low-cost product, please contact me.

Our flagship publications T-ED and EDL continue to flourish. While paper subscriptions are declining, the institutional electronic subscriptions (IEL) are increasing. The number of WEB hits on IEEE XPLORE for T-ED reached an all time high of 800,000 placing it 3rd among all IEEE publications. EDL secured the 7th position, which is exceptional for a letter journal. To highlight the timeliness and importance of EDS publications, it should be noted that a recent paper entitled "Half-Terahertz Operation of SiGe HBTs", which was published in the July 2006 issue of EDL was reported on June 20, 2006 in the New York Times.

We have introduced a "special look" for T-ED special issues. Starting May 2006, each special issue has a colored figure on the front cover to emphasize its theme and distinguish it from regular issues. We need your feedback on how you like it? We borrowed this idea going back in history and finding out that the January 1966 issue of T-ED has a special cover illustrating the electric field space and time dynamics for two-valley semiconductors. While nanoelectronics continues to evolve in our publications due to natural technology scaling, we have made special efforts to make sure that Organic Electronics does not get left out. We continue to make progress in this area. There is some concern about the increasing page count for both T-ED and EDL. We need to develop a long-term model and rationale for their growth to make sure that they continue to be vibrant and fiscally viable in the future. Our goal continues to be to deliver high-quality technical information to the portal of choice either your doorstep or webstep.

Although confidentiality of the review process in terms of manuscripts, reviews and the reviewers themselves has been a long-standing practice of the IEEE Electron Devices Society, due to some recent events, it has been articulated again. It is our

intent to sensitize all stakeholders to these practices including editors, authors, reviewers and other technical professionals. [Submission of a manuscript, reviewing or otherwise handling it will be interpreted as an implied consent to the above. Please visit the following URL's for details.](#)

<http://www.ieee.org/portal/pages/society/eds/pubs/edl/index.html>

<http://www.ieee.org/portal/pages/society/eds/pubs/ted/ted.html>

These practices will also be published in the December 2006 issues of T-ED and EDL.

After 20 years of existence, *Circuits & Devices Magazine* (C&D) will discontinue publication by the end of 2006. This was a difficult decision to make. However, the action had to be taken since the magazine was losing money with no hope of recovery in sight. I wish to congratulate the outgoing Editor-in-Chief, Ronald Waynant, for doing an excellent job in steering this publication for this impressively long period of time. We will miss this magazine. On the flip side, with support from member societies, the Nanotechnology Council is moving ahead aggressively with the publication of *Nanotechnology Magazine*. We plan to offer it free to our members for the first two years of its offering. After this period the magazine will be unbundled and will have to support itself. Another publication in the advanced planning stage is IEEE Transactions on Applied Compact Modeling. This publication is targeted to fulfill the needs of the practicing engineer and has cleared the Publication Committee's review and is undergoing fiscal review.

The details of "Ask EDS?" service have taken shape. This is a "members-only" service to provide answers to technical questions submitted by EDS members. The structure is similar to that for any other EDS publication. The submitted question will be forwarded by the Editor-in-Chief, Samar Saha, to technical experts for a timely response. All Q&As will be archived

and during the initial phase-in period, will be made available to the practicing engineer-at-large. However, we intend to restrict this access in the future to EDS members only. If you have any suggestions and would like to get involved, please let me know. We are still looking for possibly another name for this service. Suggestions are welcome. We expect to pilot this service in early 2007.

In closing, we continue to move ahead aggressively in supporting the publication activities of the IEEE Electron Devices Society. I would like to thank the Publications Committee for its continuous involvement in these affairs, providing value to EDS and its members. I encourage you to raise your hand, get counted and get involved. We in the Electron

Devices Society are looking for enthusiastic and dedicated volunteers to carry us into the exciting future. Please do not hesitate to contact me at r.jindal@ieee.org.

*Renuka P. Jindal
EDS Vice-President of Publications
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EDS Awards Committee Report



Alfred U. Mac Rae

The primary responsibility of the EDS Awards Committee is to oversee the awards program of the Society, ensuring the quality of the awards and the awards selection process, stimulation of nominations and the establishment of new awards. This committee is composed of Al Mac Rae (Chair) and M. Bohr, Y. Hirayama, R.P. Jindal, L.A. Kasprzak, L.C. Parrillo, J. Prasad, J.J. Welsler, and C.Y. Yang.

In addition to communicating by e-mail, the committee meets during the IEDM. Fortunately, the EDS

awards receive numerous nominations. The prestigious EDS J.J. Ebers Award (Lou Parrillo, Chair) for electron device advances, receives extremely good nominations, ensuring the competitiveness and continuing quality of this award. We have a new award this year, the EDS Education Award, (Cary Yang, Chair). At the time of this writing, we have received several excellent nominations for this award. The IEDM, with a large contingent of EDS members present, is the site for the announcement of these awards. The continued prestige of all EDS awards is dependent on our members making the effort to produce the numerous nominations that we receive every year – we encourage you to participate in this process.

EDS members are involved in work that is covered by numerous IEEE level awards and typically, EDS members receive many of these awards every year. These recipients and their contributions are reported in this Newsletter and they are honored each year at the IEDM luncheon. The EDS Awards Committee discusses significant advances in electron devices and stimulates the nomination of deserving members for EDS and IEEE awards. We encourage all EDS members to nominate colleagues for these IEEE level awards, which can be found on the IEEE web site, www.ieee.org/awards.

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

EDS Organic Electronics Committee Report



Ananth Dodabalapur

The EDS Organic Electronics Committee continues to make progress towards the goal to improve the visibility of organic and polymer semiconductor devices within the mainstream electron devices community. There was a special session at the 2005 IEDM on organic based devices which was well attended and included highlights from several groups in the area of organic devices. This special session was organized by V. Misra.

At IEDM 2005, a meeting of this

committee was held. A new workshop on organic microelectronics has recently started. It is currently sponsored by the Materials Research Society, The American Chemical Society, and IEEE CMPT. For 2007 and beyond sponsorship from the IEEE EDS and also the American Physical Society will be sought. Co-chairs for this workshop from IEEE include A. Dodabalapur (2006) and T. Someya (2007). In its first two years, this workshop program consisted of only invited oral presentations with posters from contributors. From 2007 onward, steps have been taken to ensure that high quality contributed talks representing the latest research in the area will be permitted as well. The 2007 conference will be in Seattle.

The appointment of J. Kanicki as an editor of *IEEE Transactions on Electron Devices* for the area of molecular and organic devices facilitates the publication of high quality papers in this area in our main journal. The committee continues to work toward increasing participation from the organic device community in other IEEE-sponsored conferences such as the Device Research Conference (DRC) and the annual meeting of the IEEE LEOS.

*Ananth Dodabalapur
EDS Organic Electronics
Committee Chair
The University of Texas
at Austin
Austin, TX, USA*

EDS Vacuum Devices Committee Report



Dan M. Goebel

The Technical Committee on Vacuum Devices was originally formed in 1998 with its first chairman Dr. James Dayton, Jr. The committee had the goal of organizing and sponsoring a yearly international conference that would rotate between Europe, Asia and USA and unify the worldwide communication of research and development results and achievements in this field. The International Vacuum Electronics Conference (IVEC) has been held every year since 2000, with the Technical Committee on Vacuum Devices selecting the venue and assisting in the organization of the meeting. The next meeting, IVEC 2007, will be held May 15-17 in Kitakyushu, Japan and Chaired by Dr. Takao Kageyama. Information on the conference can be found on the web at www.ivec2007.org.

This past year the committee has experienced both the exciting addition of new members representing the international community from universities, industry and national laboratories, and the retirement of several senior members as their terms expired. After leading the technical committee for five years, Dr. Dayton stepped down to accept a position as a member of the EDS AdCom. Likewise, Dr. Guenter Kornfeld of Thales Germany and Mr. Jon Christensen of Boeing retired from the committee. Our new members include Mr. Ernst Bosch of Germany, Dr. Lalit Kumar of India, Prof. Fu Jiang Liao of China, Mr. William McGeary of the USA, and Prof. Manfred Thumm of Germany. In addition, Prof. Konstantin Lukin from the Ukraine will join the committee at the end of this year.

The present committee members are:

John Booske (Univ. Wisconsin),
Ernst Bosch (Thales, Germany),
Richard Carter (Univ. Lancaster, England)
George Caryotakis (SLAC)
Han Ying Chen (Tawian)
Dan Goebel, Chairman (JPL)
Takao Kageyama (Japan)
Carol Kory (NASA GRC)
Lalit Kumar (India)
Baruch Levush (NRL)
Fu Jiang Liao (China)
Shenggang Liu (China)
William McGeary (L-3 Comm.)
Gunsik Park (Seoul Natl. Univ., Korea)
Michael Petelin (Russia)
Cap Spindt (Stanford Res. Center)
Arman Staprans (CPI)
Philippe Thouvenin (Thales, France)
Manfred Thumm (Thales, Germany)
Richard True (L-3 Comm.)
Pierre Waller (ESA, Europe)

A significant task of the Technical committee is the administration and award of the IVEC Award for Excellence in Vacuum Electronics. The nomination and selection process for this award is posted on the conference web site each year. The award is presented at the conference each year to a living person or group in the vacuum electronics community to recognize significant contributions to the field. This past year the award was presented to Dr. James Dayton, Jr., "For pioneering contributions to the development of vacuum electronic devices, and for visionary leadership in the vacuum electronics industry". Nominations for the 2007 IVEC Award will be due in January 2007. In addition, the technical committee oversees the Outstanding Student Paper Award given each year at the IVEC conference.

Student presentations at the conference are attended by members of a sub-committee and the award decided by a vote of the sub-committee and presented at the conference.

The Technical Committee is very active in promoting the vacuum electronics field and bringing members of the community together for discussion and collaborations. This is well illustrated by the 2006 IVEC conference that was co-located and combined with the International Vacuum Electron Sources Conference (IVESC) and held in Monterey, CA, last Spring. The conference was attended by nearly 300 participants, and widely considered a success by the attendees. Future opportunities to co-locate and combine with IVESC and other conferences in the Vacuum Devices field are being actively pursued to provide our members with the maximum benefit of their conference time. In addition, the Technical Committee often organizes adjacent meetings before or after the IVEC conference for program reviews or team meetings on topics in the vacuum devices field.

Finally, the Technical Committee facilitates communication about EDS and IEEE activities and programs to members of the Vacuum Devices community. This routinely includes distribution of information about the EDS Graduate Fellowship Program, IEEE and EDS Education and Achievement Awards, and election information and deadlines. Encouraging younger members in the profession and providing an outstanding international conference venue is a continuing goal of the Technical Committee.

Dan M. Goebel
EDS Vacuum Devices
Committee Chair
Jet Propulsion Laboratory
Pasadena, CA USA

Announcement of the 2006 EDS Graduate Student Fellowship Winners



Paul K. L. Yu



Stephen A. Parke

The Electron Devices Society Graduate Student Fellowship Program was designed to promote, recognize, and support graduate level study and research within the Electron Devices Society's field of interest: The field of interest for EDS is 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.

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

EDS proudly announces four 2006 EDS Graduate Student Fellowship winners. Brief biographies of the 2006 recipients appear below. Detailed articles about each Graduate Student Fellowship winner and their work will appear in forthcoming issues of the EDS Newsletter.



Rimoon Agaiby was born in Cairo, Egypt in 1983. He received his BEng in Computer Engineering and Microelectronics from the University of Teesside, UK and was awarded the ICI Science and Engineering award. He completed his MSc degree in Micro-

electronics in 2004 at the University of Newcastle upon Tyne, UK. Shortly after, he began pursuing a PhD degree at the same institution with the strained Si/SiGe group under the guidance of Prof. Anthony G. O'Neill. He spent two months on a SiNANO funded exchange at IMEC, Belgium, working under the guidance of Dr. Eddy Simoen, to investigate noise in locally strained CMOS devices. His research interests include device physics and characterization of strained Si devices, with emphasis on low frequency noise, analogue and RF performance.



Ravi Todi received his B.S. degree in electrical engineering from Mumbai University, India, in 2002 and M.S. degree in electrical and mechanical engineering from University of Central

Florida in 2004 and 2005 respectively, and is currently pursuing his doctoral degree. His current research work is on gate stack engineering, with focus on binary metal alloys as gate electrode and on high mobility Ge channel devices. His research interest includes semiconductor process and device technology, non conventional CMOS scaling and nano and bio devices. He has authored or co-authored over 10 refereed journal publications and over 15 international conference presentations. He is the student representative for IEEE Region 3 and currently the Orlando Section Chapter Chair for the IEEE Electron Devices Society.



Wen Wu received the B.S. degree in Microelectronics from Fudan University, Shanghai, P.R. China, in 2002. She is currently pursuing a Ph.D.

in Electronic and Computer Engineering at the Hong Kong University of Science and Technology (HKUST). Her research at HKUST covered a broad area in silicon devices design

and modeling, ranging from design optimization of traditional devices to compact model development for non-traditional emerging devices for RF/Microwave applications. Since 2005, her work on multi-gate MOSFET modeling has also contributed to the development of next generation modeling framework by a group of international researchers from Japan, China, and Korea under the Japanese NEDO program. In addition to the 2006 EDS Fellowship, she has received the Excellent Student Award in 1999, Guo-Mai fellowship in 2000 and People Scholarship in 1998-2002.



Chi Yung Ng was born in Penang, Malaysia, in 1979. He received his B. Eng degree in Electrical and Electronics from the University Technology of Malaysia,

Johor, Malaysia, in 2002. He is currently pursuing a Ph.D. degree in microelectronics at the Nanyang Technological University (NTU), Singapore.

From July 2002 to February 2003, he was a test product engineer at Advance Semiconductor Engineering (ASE) Malaysia. His research interest includes physical properties and device applications based on semiconductor nanocrystal, single electron devices and nanoscale CMOS devices. He is the author or coauthor of more than 25 international peer-reviewed journal papers and 15 conference papers.

He was the recipient of the NTU Postgraduate Scholarship from 2003 to 2005 and the Singapore Millennium Foundation (SMF) Ph.D. Scholarship from 2005 onwards (up to 3 years).

Paul K. L. Yu
EDS Vice-President of
Educational Activities
University of California
at San Diego
La Jolla, CA, USA

Stephen A. Parke
EDS Graduate Student Fellowship Chair
Tennessee Tech University
Cookeville, TN, USA



CALL FOR NOMINATIONS 2007 IEEE Electron Devices Society PhD Student Fellowship

Description: One year fellowships awarded to promote, recognize, and support PhD level study and research within the Electron Devices Society's field of interest: The field of interest for EDS is all aspects of 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, micromechanics, tubes and other vacuum devices.

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

At least one fellowship will be awarded to a student in each of the following geographical regions every year: Americas, Europe/Middle East/Africa, and Asia & Pacific. Only one candidate can win per educational institution.

Prize: US\$7,000 to the student and a travel subsidy of up to US\$3,000 to each recipient to attend the IEDM for presentation of award plaque. The EDS Newsletter will feature articles about the EDS PhD Fellows and their work over the course of the next year.

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

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

Nomination Package:

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

Timetable:

- Nomination packages are due at the EDS Executive Office no later than May 15, 2007
- Recipients will be notified by July 15, 2007
- Monetary awards will be given by August 15, 2007
- Formal presentation of the awards will take place at the IEDM Awards Ceremony in December 2007.
- Nomination packages can be submitted by mail, fax or e-mail, but a hard copy must be received at the EDS Office.

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

For more information contact:
edsfellowship@ieee.org
or visit:
<http://www.ieee.org/society/eds/education/fellowship.xml>



FINAL CALL FOR NOMINATIONS NEW EDS STUDENT FELLOWSHIP PROGRAM – MASTERS LEVEL!

2007 IEEE EDS MASTERS STUDENT FELLOWSHIP

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

Description: One-year fellowships awarded to promote, recognize, and support graduate Masters level study and research within the Electron Devices Society's field of interest: elemental and compound semiconductor devices, organic and other merging 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, micromechanics, tubes and other vacuum devices. Five fellowships will be awarded, with at least one fellowship being given to students in each of the following geographical regions every year: Americas, Europe/Mid-East/Africa, Asia & Pacific. Only one candidate can win per educational institution.

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

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

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

Nomination Package:

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

Timetable:

- Nomination packages are due at the EDS Executive Office no later than March 15, 2007
- Recipients will be notified by May 1, 2007
- Monetary awards will be presented by the Dean or Department Chair of the recipient's graduate program at the beginning of the next academic term.
- Nomination packages can be submitted by mail, fax or e-mail, but a hard copy must be received at the EDS Office.

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

For more information contact:
edsfellowship@ieee.org
or visit: <http://www.ieee.org/society/eds/education/fellowship.xml>

Transactions on Semiconductor Manufacturing 2005 Best Paper Award Presented

At a ceremony held in Boston on May 22, 2006, in conjunction with the Advanced Semiconductor Manufacturing Conference (ASMC), the winner of the *IEEE Transactions on Semiconductor Manufacturing* Best Paper Award was announced. The award is directed annually to the authors of the paper considered by the Transactions' Editorial Staff and reviewers to be the outstanding paper published during the year. The Award is based on the accuracy, originality, and importance of the technical concepts, as well as the quality and readability of the manuscript. The best paper selection is also based on the immediate or potential impact that this work will have on the overall semiconductor manufacturing industry.

On behalf of the Editorial Board, Editor-in-Chief, Duane Boning, presented the award and certificates to Mason Freed, representing himself and co-authors Michiel V. P. Krüger, Kameshwar Poolla, and Costas J. Spanos. The award-winning paper for 2005 is entitled "Wafer-Grown Heat Flux Sensor Arrays for Plasma Etch Processes." The paper, which appeared in the February issue, was chosen for its investigation of a novel sensing approach for in-situ use in plasma etch processes. The paper considers the design, fabrication, and testing of a wafer-grown thermal flux sensor able to measure and separately resolve the heating due to ion flux from that due to surface chemical reactions. Important applications include aiding the development of plasma process models, improving the ability to diagnose faults in production equipment, and optimization of process and wafer uniformity (e.g., etch rate) in plasma etching.



Mason Freed (S'97) received the B.S. degree in mechanical engineering (summa cum laude), the M.S. degree in mechanical engineering, and the

Ph.D. degree in electrical engineering and computer science, all from the University of California, Berkeley, in 1997, 1999, and 2001, respectively.

During his graduate school career he was awarded the Intel Foundation Graduate Research Fellowship (2000–2001), the Department of Defense Graduate Research Fellowship (1997–2000), and the National Science Foundation Graduate Fellowship (declined). In 1999, he co-founded OnWafer Technologies, Dublin, CA, a startup company focusing on novel sensing methods for the semiconductor industry. He is currently the Vice President of Software Development, OnWafer, focusing on the development of wafer-mounted sensor systems and associated software analysis tools.



Michiel V. P. Krüger (S'80) received the M.S. degree (cum laude) from Delft University of Technology, the Netherlands, and the Ph.D. degree from the University of California, Berkeley, both in mechanical engineering, in 1998 and 2003, respectively.

He is currently working at OnWafer Technologies, Dublin, CA, a startup company focusing on novel sensing methods for the semiconductor industry. His interests include semiconductor manufacturing, MEMS, nanotechnology, sensor design, process control, and system identification. Dr. Krüger was awarded the Highest Honor in Mechanical Engineering for his M.S. research project in 1998.



Kameshwar Poolla (M'98–F'00) received the B.Tech. degree from the Indian Institute of Technology, Bombay, and the Ph.D. degree from the

Center for Mathematical System Theory, University of Florida, Gainesville, both in electrical engineering, in 1980 and 1984, respectively. He served on the faculty of the Department of Electrical and Computer Engineering, University of Illinois, Urbana, from 1984 through 1991. Since then, he has been at the University of California, Berkeley, where he is now serving as a Professor in the Departments of Mechanical Engineering and Electrical Engineering and Computer Sciences. He has also held visiting appointments at Honeywell, McGill University, and M.I.T. and has worked as a Field Engineer with Schlumberger AFR, Paris. He is a Cofounder of OnWafer Technologies, Dublin, CA, where he currently serves as Chief Scientist. His research interests include sensor networks, robust and adaptive control, system identification, semiconductor manufacturing, and mathematical biology. He has been awarded five patents.

Dr. Poolla has been awarded the 1984 Outstanding Dissertation Award from the University of Florida, the 1988 NSF Presidential Young Investigator Award, the 1993 Hugo Schuck Best Paper Prize (jointly with Profs. Khargonekar, Tikku, Nagpal, and Krause), the 1994 Donald P. Eckman Award, a 1997 JSPS Fellowship, and the 1997 Distinguished Teaching Award from the University of California, Berkeley.



Costas J. Spanos (S'77–M'85–SM'95–F'00) was born in Piraeus, Greece, in 1957. He received the Electrical Engineering Diploma with honors from the National Technical University of Athens, Greece, in 1980 and the M.S. and Ph.D. degrees in electrical and computer engineering from Carnegie Mellon University, Pittsburgh, PA, in 1981 and 1985 respectively, working on

the development of statistical technology CAD systems.

From June 1985 to July 1988, he was with the advanced CAD development group of Digital Equipment Corporation, Hudson MA, where he worked on the statistical characterization, simulation, and diagnosis of VLSI processes. In 1988, he joined the faculty of the Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, where he is now a Professor. He was the Director of the Berkeley

Microfabrication Laboratory from 1992 to 2000. He has published more than 100 referred publications, and his research interests include the development of flexible manufacturing systems, the application of statistical analysis in the design and fabrication of integrated circuits, and the development and deployment of novel sensors and computer-aided techniques in semiconductor manufacturing.

Dr. Spanos has served in the technical committees of the IEEE Symposium on VLSI Technology, the

International Semiconductor Manufacturing Sciences Symposium, the Advanced Semiconductor Manufacturing Symposium, and the International Workshop on Statistical Metrology. He was the editor of the *IEEE Transactions on Semiconductor Manufacturing* from 1991 to 1994 and received best paper awards in 1992 and 1997.

*Duane Boning
T-SM Editor-in-Chief
MIT
Cambridge, MA USA*

Dr. Werner Weber Honored at ESSDERC as 2006 EDS Fellow



Hiroshi Iwai, EDS Jr. Past President, presented Dr. Werner Weber with a certificate for his election to IEEE Fellow for 2006. The presentation took place at the 2006 ESSDERC/ESSCIRC Plenary Award Session on September 20, 2006, in Montreux, Switzerland.

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

A.H.M. Zahirul Alam	Krzysztof Gorecki	Abhijit Malik
Sandra J. Bittner	Tao Guoqiao	Sameer Pendharkar
James A. Burns	Scott A. Hamilton	David W. Porterfield
Jon Cheek	John A.J. Herat	Brad Reed
Kevin J. Chen*	Ru Huang	Edgar K. Schmidhammer*
Xu Cheng*	Takashi Ito*	Werner Schroeder
Carlos A. Cima*	Mojtaba Joodaki	Subhajit Sen
Suman Datta	Chang Yong Kang	Jan Stake
Alain C. Diebold	Dirk B. M. Klaassen*	Xiaobing Sun
Gabriel Dima	Ki Won Lee*	Daniel W. Van Der Wiede
Lifeng Dong	Yung-Huei Lee	Jiang Yan
Tahir Ghani	Andreas Leven	Janusz Zarebski

* = Individual designated EDS as nominating entity

If you have been in professional practice for 10 years, you may be eligible for Senior Membership, the highest grade of membership for which an individual can apply. New senior members receive a wood and bronze plaque and a credit certificate for up to US \$25 for a new IEEE society membership. Upon request, a letter will be sent to employers, recognizing this new status.

For more information on senior member status, visit <http://www.ieee.org/web/membership/senior-members/status.html>. To apply for senior member status, fill out an application at <http://www.ieee.org/organizations/rab/md/smelev.htm>.

EDS Senior Member Program



Albert Wang

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

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

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 your request, the IEEE Admission & Advancement Department will send a letter to your employer recognizing this new status as well. As part of the IEEE's Nominate-a-Senior-Member Initiative, the nominating entity designated on the member's application form will receive US\$10 from IEEE. As an EDS member, we would appreciate it if you could indicate on your Senior Member application form that EDS is your nominating entity.

For more information concerning Senior Membership, please visit <http://www.ieee.org/web/membership/senior-members/requirements.html>.

To apply for Senior Member grade, please complete an application form,

which is available at <http://www.ieee.org/organizations/rab/md/smelev.htm>. You can also request a hard copy Senior Member packet via mail or fax by contacting IEEE Admissions and Advancements Department, Attn: Denise Howard, 445 Hoes Lane, Piscataway, NJ 08854, USA, Fax: +1 732 562-6528, Email: d.howard@ieee.org.

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

Thank you for supporting IEEE and EDS.

Albert Wang

*EDS Vice-President of Membership
Illinois Institute of Technology
Chicago, IL, USA*

EDS Treasurer Attends New ED Chapter Inauguration in Hangzhou, China

Dr. Juin J. Liou, the IEEE EDS Treasurer and incoming Vice-President for Regions/Chapters visited the newly established ED Hangzhou Chapter, Hangzhou, China on October 18, 2006. During the visit, he addressed at the chapter inauguration ceremony, met with the Chapter Chair, Prof.

Lingling Sun and Chapter Vice-Chair, Prof. Shurong Dong, and presented the certificate of appreciation to Prof. Sun.

Professor Mengqi Zhou, Deputy Secretary General, Chinese Institute of Electronics was also in attendance and gave a brief talk on IEEE activities in China.



Prof. Zhou, giving his presentation



Juin J. Liou, presenting the Certificate of Appreciation to Prof. Lingling Sun



Attendees of the ED Hangzhou Chapter Inauguration Ceremony

EDS Distinguished Lecturer Visits IIT, Madras

Bipolar noise discussed at IIT, Madras.

Dr. Jayasimha Prasad, EDS Distinguished Lecturer, gave two interesting talks on bipolar noise during his visit to the Department of Electrical Engineering at the Indian Institute of Technology, Madras, August 21–24, 2006. Prasad was hosted by Prof. Amitava DasGupta who heads the Microelectronics Lab. Prasad gave two talks on two consecutive days. The first talk was given on August 22, and was titled “Low-frequency noise in bipolar transistors”, while the second talk was on “High-frequency noise in bipolar transistors”. Both were of great interest to graduate students and were well received by students and faculty.

In the first talk, Prasad reviewed popcorn noise, flicker noise, shot noise, thermal noise and their behavior. He then described the methods of characterizing the low frequency

noise in devices by measuring the input referred noise voltage and current. Prasad explained how the low frequency noise affects performance of oscillators, VCOs and mixers by generating phase noise. He showed a mathematical description of various noise sources. Finally, he touched



*Jay Prasad with the faculty members of Electrical Engineering. Sitting L-R: Jay Prasad, S.Srinivasan (Dept. Head), Nandita DasGupta and Enakshi Bhattacharya
Standing L-R: Shanthi Pawan, Nagendra Krishnapura and Amitava DasGupta*

upon the methods of reducing popcorn and $1/f$ noise.

In his second talk, Prasad explained that noise figure is a better parameter to characterize noise at high frequencies. He defined the four noise parameters, minimum noise figure, noise resistance, optimum source conductance and susceptance. The noise parameter measurement set up was then discussed and he showed typical SiGe transistor results. Prasad showed how to estimate phase noise and jitter from $1/f$ noise data. Both presentations were filled with a lot of information and the students got an overview of the importance of noise in analog and mixed signal circuits. During his stay, Prasad talked to students and faculty to understand their areas of research.

*Amitava DasGupta
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Call For Fellow Nominations

Nominations are being accepted for the IEEE Fellows class of 2008. The rank of IEEE Fellow is the institute's highest member grade, bestowed on senior members who have contributed "to the advancement or application of engineering, science, and technology." The deadline for nominations is 1 March 2007.

Senior members can be nominated in one of four categories: application engineer/practitioner, research engineer/scientist, educator, or technical leader.

To nominate an IEEE senior member or to learn more about the Fellow program, visit <http://www.ieee.org/fellows>.

Regional and Chapter News

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

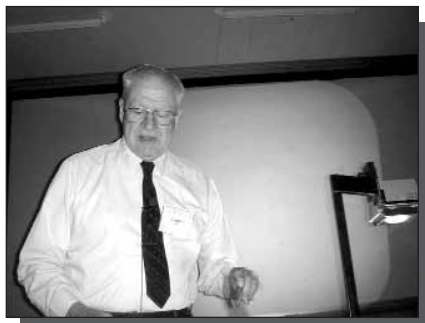
Highlights of the 2006 Lester Eastman Conference on High-Performance Devices

– by James Kolodzey and Robert Sadler

This year, the biennial Lester Eastman Conference (LEC) was held on the Cornell University campus, from Wednesday through Friday, August 2-4, 2006. Originally, the conference was known as the IEEE/Cornell University Conference on High-Performance Devices. In 2002, it was renamed to honor Prof. Lester F. Eastman, a renowned device pioneer and leader, and the conference was held at the University of Delaware for the first time. To expand its geographical reach, the conference was held at Rensselaer Polytechnic Institute (RPI) in 2004.

In 2006, the LEC returned to Cornell, to a venue of spectacular new space. Oral presentations were held in the 101 Phillips Hall Auditorium. Registration, meals, coffee breaks, and the poster session were held in the lofty new atrium between Phillips and Duffield Halls.

The keynote session had four invited speakers: Lester Eastman and Sandip Tiwari of Cornell; Arden Bement, Director of the National Science Foundation; and W. Keith Kennedy, Jr., former CEO



Professor Lester F. Eastman, founder of the original Cornell Conference in the 1970's; presenting the first paper of the conference.

of Watkins Johnson. Attendees were treated to accounts of the evolution of high-frequency device research at Cornell, the nurturing and support of research progress and innovation, and a fascinating history of microwave devices.

The technical program comprised of ten specialized sessions: Terahertz Technology, HBT Technology, GaN HEMTs, a poster session, Multifunctional Materials and Devices, Advanced Concepts, Photonics, Visible and UV LEDs, Thin-Film Transistors, High-K Dielectrics, SiC Devices. Tours of the Cornell's extensive nanofabrication facilities were guided by faculty, staff and students.

Closing remarks announced that the LEC continued to be vital and upbeat, with the next meeting scheduled for August 5-7, 2008, at the University of Delaware. The Web site for the new conference is: <http://www.ece.udel.edu/~kolodzey/LEC2008.htm>.

After the conference, on the afternoon of Friday, August 4, 2006, a terrible tragedy cast a great sadness over the week's events. Mr. Navan

Parthasarathy, a participant and a presenter at the LEC conference, drowned in Fall Creek on Cornell Campus. Mr. Parthasarathy was a graduate student at the University of California, Santa Barbara. In honor of his memory, it is the intent of the Committee to dedicate to him the LEC-06 Proceedings.

– Ibrahim M. Abdel Motaleb,
Editor

ED México

– by Rodolfo Quintero

Professor Siegfried Selberherr, from the Technical University of Vienna, paid a visit to CINVESTAV in Mexico City, on August 25. He gave the lecture, as a Distinguished Lecturer, entitled "About Models and Simulation of Nano-Scale Devices". The lecture was attended by more than 50 students and professors from CINVESTAV and nearby universities. Prof. Selberherr also presided, as a Chapter Partner, a chapter meeting of the IEEE ED Mexico Chapter, where members of the local student chapter were also present. The members of both chapters are grateful to Prof. Selberherr for his visit.



Prof. Siegfried Selberherr, in the first row and fifth from left, with some of the students and professors who attended his conference and chapter meeting organized by the ED Mexico Chapter

SBMicro 2006 and SBMicro 2007

- by *Jacobus W. Swart*

The 21st Symposium on Microelectronics Technology and Devices was held from August 28th to September 1st in Ouro Preto, MG, Brazil. This symposium is organized by two Brazilian scientific societies: SBMicro (Sociedade Brasileira de Microeletrônica) and SBC (Sociedade Brasileira de Computação) and is technically co-sponsored by the IEEE Electron Devices Society and by the Electrochemical Society. The SBMicro symposium is a forum dedicated to fabrication and modeling of microsystems, integrated circuits and devices, held annually in Brazil. The goal of the symposium is to bring together researchers in the fields of processing, materials, characterization, modeling and TCAD of integrated circuits, optoelectronics and MEMS. In conjunction with SBMicro 2006, an additional symposium was held at the same place and time, namely the 19th Symposium on Integrated Circuits and Systems Design. This symposium is also organized by the same two local societies. The two symposia are held together since the year 2000, with a total attendance of more than 300 participants and over 100 presentations of regular papers, in addition to invited and tutorial lectures. The two symposia together are given a fantasy name that changes in accordance to its location. This year it has been named: "Chip on the Mountains". In 2007 it will be "Chip in Rio". Since the year 2002, the proceedings of the SBMicro Symposium are published by The Electrochemical Society.



Antonio Petragliá, general chair of "Chip in Rio", in front of one of Rio de Janeiro's icons, the Sugar Loaf

The SBMicro2006 symposium was honored by the invited talk of Prof. Siegfried Selberherr (Modeling of Advanced Semiconductor Devices), a distinguished lecturer of EDS and one of the chapter partners. Other invited papers were given by Prof. Marc Madou, UC-Irvine, USA (Biomimetic MEMS and NEMS Sensing Platforms – Icarus Revised), Dr. Andres Lagos, Colibrays Ltd, Switzerland (High Performance Silicon MEMS for Niche Market Applications), Prof. Elena Gaura, Coventry University, UK (Wireless Sensor Networks: Realizing the Dream), Prof. Adriano Moelecke, PUC-RS, Brazil (Silicon Solar-cell Technology) and Prof. Ivo Hummelgen, UFPR, Brazil (Hybrid Transistors in Vertical Architecture).

The 2007 symposia will take place in Rio de Janeiro, whose beauties are famous all over the world, fascinating every year, two million foreign tourists and more than five million Brazilian tourists. The 83 km of beautiful beaches, the planet's largest urban forest, with an area of 3,300 hectares, encompassing trees, belvederes, caves and waterfalls, and of course, Carnival, are some of the reasons for this city being unforgettable.

Topics of interest include, but are not limited to: semiconductor processing, IC, optoelectronics and MEMS fabrication; novel materials and devices; reliability; technology CAD; displays; thermal effects and models; nanoelectronics; device char-

acterization and modeling; microsystem networks, sensors and actuators; package and technology roadmaps; packaging; photovoltaic technology, plasma technology and engineering education.

Important deadlines are as follows: Submission March 19th, 2007; Notification of Acceptance May 7th, 2006; Camera-ready May 14th, 2006. For more information see <http://www.sbmicro.org.br/sbmicro> and <http://www.sbc.org.br/sbcc>, and or contact the program co-chairs: Joao Martino (martino@lsi.usp.br) and Cor Claeys (cor.claeys@imec.br) for SBMicro and Volnei Pedroni (pedroni@cefetpr.br) and Gert Cauwenberghs (gert@ucsd.edu) for SBCCI.

- *Jacobus W. Swart, Editor*

EUROPE, MIDDLE EAST & AFRICA (REGION 8)

ED/MTT/SSC/COM
Central Ukraine

- by *Pavel Yermolov and Yuri M. Poplavko*

The annual International Conference CriMiCo-2006, was held September 11-15, in the Ukrainian town of Sevastopol, located on the Black Sea Coast of the Crimea peninsula. More than 300 reports were presented at 4 plenary and 36 technical sessions by specialists from 161 universities and companies of China, Germany, Great



Participants of CriMiCo-2006, Sevastopol, Ukraine

Britain, Ireland, Israel, Spain, Poland, the USA, the Netherlands, the Republic of Belarus, the Republic of Moldova, Russia and Ukraine. Two large volumes of technical digests (1,025 pages in sum) were edited before the conference. Conference proceedings (books and CDs) were sent to leading libraries of the former Soviet Union. The Conference was supported by IEEE and represented a wide spectrum of interests in various directions of modern electronics.

Over 350 scientists, engineers and students visited CriMiCo-2006 and discussed different topics of electronics. Two workshops devoted to training radio engineers and specialists in the field of telecommunications, as well as a round-table discussion, 'Biophysical mechanisms of influence of low-intensive millimeter waves on human's organism', were held simultaneously with the conference.

Conference reports covered various topics: nanoelectronics & nanotechnology, solid state devices, microwave devices technology including micro-vacuum devices, antennas and antenna elements, passive components and materials, super-high power microwave electronics and effects, systems of microwave communication, broadcasting and satellite navigation, microwave measurements, radar application, medical and ecological application, etc.

Among the approximately 80 reports directly related to the field of interest for 'Electron Devices', we would like to mention outstanding reports like: 'Effect of the quantum wire's emitter contact cooling' by I. Obuhov; 'Vacancies in nanotubes and fullerenes' by Griadun; 'Superconductor single-proton detector for

near- and middle IR waves' by K. Smirnov; 'Semi-optical hot electrons bolometer mixers based on thin NBN films for terahertz region' by Y. Vachotomin; 'X-band MMIC low noise amplifiers' by A. Krutov; 'Full-scale family of discrete GaAs steering circuits' by Y. Bogdanov, and many others.

The Organizing Committee established prizes for young scientists and post-graduates for best papers presented at the Conference. Three young students received these prizes and the Organizing Committee gladly welcomes interested scientists and engineers to the next CriMiCo-2007, which is again being held at Sevastopol, on September 10-14, 2007.

ED/MTT/CPMT/COM/SSC Novosibirsk

- by Viatcheslav P. Shuvalov

This year the activities of the Joint Novosibirsk Chapter were developed in many directions.

The first was helping various scientific groups to become new chapters. As a result, two new chapters were established, the Novosibirsk EMBS Chapter and the Novosibirsk IA/IE/PEL Joint Chapter. Both chapters held elections for their Executive Committees. Elected as Chair of the Novosibirsk EMBS Chapter is Prof. Vladimir Makukha, IEEE Senior Member, Novosibirsk State Technical University (NSTU), Head of the Department of Electron Devices. The Novosibirsk IA/IE/PEL Chapter elected

Prof. Sergey Kharitonov, IEEE Member, NSTU, Head of the Department of Industrial Electronics, General Director of Power Electronics of Siberia Corporation, as their Chapter Chair. Now we have the real possibility to organize an IEEE Computer Society Chapter, since we have 12 potential members, but with some organizing efforts still necessary.

Our second initiative was to support international scientific workshops, tutorials and conferences. This year our Chapter supported the 7th Annual International Workshop and Tutorials on Electron Devices and Materials, EDM 2006, which was successfully held at Novosibirsk State Technical University, July 1-5, 2006. This workshop and tutorials are joined annually by many young specialists involved in R&D activities at various universities and research institutes in Russia. The interest in EDM workshops and the popularity of these scientific events is increasing annually. Seven years earlier, the EDM was a small workshop with participation of not more than 50 graduate and postgraduate students. Now it is a strong scientific forum of young specialists and invited lecturers from various countries and universities. Over 90 scientific reports from Russia, Germany, Italy, China and South Africa were included in the volume of Proceedings. Three new sessions, related to the IEEE's main interests, were represented at EDM



Workshop in session at CriMiCo 2006



Region 8 N&A Committee Members and Chapter representatives in the yard of Russian St. Alexander Nevsky Cathedral, Novosibirsk (from left to right: Mr. Artem Yakovlev, Prof. Anthony Davies, Prof. Marian Kazmierkowski, Prof. Baldomir Zajc, Prof. Andrey Fionov, Assoc. Prof. Alexander Gridchin, Prof. Jean-Gabriel Remy).

2006. They are: 'Instrumentation and Measurement in Electronics', 'Modern Educational Technologies in Radio, Electronics and Telecommunications', and 'Ultrasonic Devices: Physics, Technology, Applications'. The traditional session, 'Tutorials' was added by 'Reviews', where students represented reviews written on the base of scientific papers from various sources. Due to these efforts, the volume of the Proceedings exceeded 360 pages for the first time in the history of the EDM. Next year we are planning to extend this volume up to 500 pages.

We are especially thankful to IEEE Distinguished Lecturer, Prof. Monuko du Plessis from the University of Pretoria, South Africa, for his brilliant lecture and for his long trip to the heart of Siberia. We hope that Siberia will attract more scientists, not only due to the beautiful nature and mineral resources, but also due to the quickly developing potential of its scientific youth.

Our Chapter also supported the 8th International Conference on Actual Problems of Electron Instrument Engineering (APEIE 2006), which was successfully held at Novosibirsk State Technical University, September 26-28, 2006. This forum is one of the greatest in Siberia, with over 1,000 scientists, scholars and young specialists participating. Seven volumes of Proceedings were published, including one volume of selected papers written in English.

A representative of our Chapter, Associate Prof. Alexander Gridchin, attended the EDS AdCom Meeting and Region 8 Chapters Meeting (June 2-4, Naples, Italy), together with Mr. Artem Yakovlev, the Student Branch Counselor for the IEEE NSTU Student Branch Chapter. A report on the annual activities of our Chapter was sent to EDS for publishing in the meeting minutes.

This year was a year of intensive contacts with Region 8. The Region 8 Nominations and Appointment Committee Members organized and successfully held a meeting on August 6, 2006, at Hotel 'Siberia', Novosibirsk, Russia, and they gave many lectures at various universities and research institutes in Novosibirsk during the

period of August 3-10, 2006. We are very thankful to the following committee members for their help with this initiative: Region 8 Director, Prof. Baldomir Zajc, Region 8 Past Director and Chair of N&A Committee, Prof. Anthony Davies as well as N&A Committee members, Prof. Jean-Gabriel Remy and Prof. Marian Kazmierkowski. During one week in Siberia, the Executive Committees of various Chapters and Student Branches, as well as the Russia Siberia Section Executive Committee, had a fine opportunity to discuss many 'problematic' questions arising from the activities of the Sections, Chapters and Student Branches. We hope these successful meetings will attract the attention of other IEEE organizations to support further IEEE activity in the Siberian region.

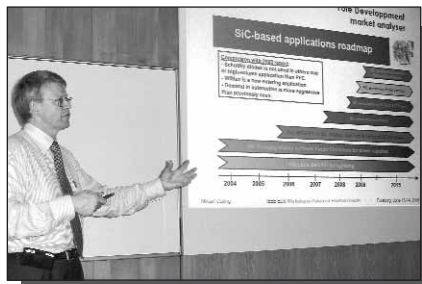
~ Alexander V. Gridchin, Editor

ED Germany

-by Holger Vogt

The ED Germany Chapter organized its first workshop on 'Advanced electron devices', which was held June 13-14 at Fraunhofer IMS in Duisburg.

Four invited papers were given, heading the four workshop sessions: G. Burbach, AMD, Dresden, reported, on new methods to improve performance of advanced CMOS; G. Bachner, University Duisburg-Essen, discussed spin control in semiconductors; G. Wachutka, Technical University Munich, reported on virtual prototyping of MEMS; and Distinguished Lecturer M. Ostling, KTH, Sweden, presented recent trends in SiC technology. Thirty-six contributed papers and posters covered new research results on advanced CMOS, nano devices, MEMS and power devices.



Distinguished lecturer M. Ostling during his presentation

The 60 workshop participants engaged in vivid discussions after the presentations, during breaks and during the poster session.

ICICDT 2006 Meets in Padova, Italy

-by Terrence Hook

In late May 2006, industry and academic researchers gathered at this 13th century university to discuss a very 21st century topic – furthering the interaction of semiconductor technology on the one hand and chip design and architecture on the other. Held for the first time in Europe, the 3rd International Conference on Integrated Circuit Design and Technology attracted many participants from the United States and the Far East, as well as Europe. The conference comprised some 60 papers, and was preceded by a day of parallel tutorial tracks on "Technology Scaling, Multi-Gate Devices and Reliability" and "Sub-65nm Design Challenges," presented by authors from Intel, Infineon, IMEC, IBM, and the University of Minnesota. The primary purpose of the conference is to bring together designers and technologists in a single forum. This theme may be exemplified by citing a few of the papers presented: "Statistical Optimization for Total Power under Timing, Yield Constraints" by M. Orshansky of the University of Texas; "Leakage Reduction at the Architectural Level," by P. Christian of CSEM in Switzerland; "Planar Double Gate Technology," from T. Dao of Freescale; "From oxide breakdown to device failure: an overview of post-breakdown phenomena in ultrathin gate oxides," by J. Sune of the University of Barcelona and "Application of Global Loops on USLI Routing for DFY," by P. Panitz of the University of Hannover in conjunction with IBM Boeblingen. It is becoming ever more widely accepted that "technology-aware design" and "design-aware technology" is the correct path to successful semiconductors from the customer's perspective, and this forum provides a unique path to enable this interaction.

ISPSD 2006

-by Paolo Spirito

The 18th International Symposium on Power Semiconductor Devices and IC's (ISPSD '06) was held in Naples, Italy, June 4-8, 2006, returning to Europe for the fifth time, with an attendance of about 350 people. This conference is the major international forum in the areas of power semiconductor devices, from low voltage to high voltage discrete power devices, from modules to integrated power, from silicon to new materials like SiC. One hundred papers were selected from the 173 submitted; of these 18% from USA, 30% from Asia, 50% from Europe. The conference was preceded by a short course on Sunday, June 4th, dedicated to "Electro-thermal management in Power Devices and IC's".

The three invited talks featured on Monday, June 5, were dedicated to different aspects of power applications, respectively on "Trend and Challenges in Automotive Electronics", "Power Drive Circuits for Diagnostic Medical Ultrasound", and "Future Trend of Flat Panel Displays and Comparison of its Driving Methods". The award for best student paper was given to "A Digitally Controlled DC-DC Converter Module with a Segmented Output Stage for Optimized Efficiency" by O. Trescases, W.T. Ng, H. Nishio, M. Edo and T. Kawashima, of the University of Toronto, Canada and the Fuji Electric Advanced Technology Co., Japan.

More information can be found on the official web site of the conference: www.ISPSD2006.it.



Impression of the ISPSD in Naples

ED Central/South Italy

-by Salvatore Bellone and Heinz-Christoph Neitzert

During the last year our chapter continued the tradition of inviting international lecturers to hold seminars focused on the microelectronic and optoelectronic field. The cycle started with a two-day course held by Prof. C. Boit from Berlin Technical University (Germany) at Salerno University regarding "New generation Silicon & Diagnosis of ICs with physical Techniques through Chip Back surface", by attracting more than 30 graduated and post-graduated students. Dr. J. Bruns from Berlin Technical University (Germany) held a lecture on integrated optical technology, and Dr. Y. Ma from the Fernuniversitaet Hagen (Germany) gave a seminar on solar cell technology. The cycle of seminars concluded with a lecture from M.K. Jayaraj from Cochin University (India) regarding material science aspects of optoelectronic devices. All of these seminars were addressing a mixed audience consisting of students and researchers from inside and outside the university.

To increase the attraction of undergraduate students towards the microelectronics field, in conjunction with the Student Branch of Salerno, during April 2006, the ED Chapter supported and organized the participation of ten undergraduate students to the two-week course, organized by

the "Micron D-RAM & CMOS Sensors Imager Fab" (Italy). The course was attended by selections of ten students from five universities in Central & South Italy (Cassino, L'Aquila, Napoli, Perugia, and Salerno). It was intended to bring the students near the more sophisticated semiconductor manufacturing facilities, in strict contact with the Micron staff. The opportunity for a longer period of job training has been offered by Micron to those students who drew major benefits from the course. The relevance of this event was that it received good resonance in local and national newspapers and has also been seen in the background of the current changes to the Electrical Engineering curriculum. It follows the reform of studies introduced in Italy in 2002, which substituted the traditional five-year course with a three-year, first level degree (bachelor), followed eventually by the two-year Masters degree. To guarantee a successful application of the reform, increased interaction between industry and university is required, which promotes the entry of first level students into the labor market and the application of the culture of "Life-Long-Learning", suggested by the reform. It should also be noted that the number of student members within the chapter and the student branch increased considerably due to the strong demand of participants for the course.



Participants to the two week course at MICRON

IWCE-11

-by Hans Kosina

The eleventh International Workshop on Computational Electronics (IWCE-11) was held on May 25-27 2006, at the TU Wien, Austria. Over the years, the workshop has become the main international forum for discussions on current trends and future directions for computational electronics. This year, 220 researchers from 27 countries participated, which is a record for this meeting, held periodically since 1992. The scientific program of IWCE-11 covered traditional topics of Technology CAD, Monte Carlo and molecular dynamics methods, optical processes, quantum transport as well as emerging areas of molecular and organic electronics and nano-bio electronics. Eight invited lectures, 43 contributed talks, and 135 poster presentations were given. The first invited presentation given by Dr. Thomas Skotnicki from STMicroelectronics, focused on the perspective from industry. The future of CMOS technology and where industry needs academia was discussed. One of the founders of IWCE, Prof. Karl Hess from the University of Illinois at Urbana, summarized the state-of-the-art of biological ion channel simulation using computational electronics methods. A companion workshop on Modeling of Reliability Issues was held the day before IWCE-11. Special focus has been put on bias temperature instability (NBTI and PBTI). Eleven invited speakers summarized their findings. More information is available on www.iwce.org.

WoDiM2006

-by Salvatore Lombardo

The 14th Workshop on Dielectrics in Microelectronics (WoDiM 2006) was held June 26-28, in Santa Tecla (Catania), Italy, hosted by Consiglio Nazionale delle Ricerche (CNR), with the support of STMicroelectronics, Consorzio Catania Ricerche, University of Catania, and of the Catania Regional County. The meeting (see http://www.imm.cnr.it/wodim_2006/index.htm), organized by Salvatore Lombardo of the Istituto per la Microelettronica e Microsistemi (IMM) and an international committee with members of CNR, CNRS, Fraunhofer, IHP, Infineon, NMRC, NIST, Philips, ST, and the Universities of Barcelona and Padova, has been attended by about 150 scientists coming from Europe, USA, and Far East, 21 countries in total.

During the three days duration of the workshop, about 100 papers focused on the theme of dielectrics in microelectronics were presented. Subjects particularly discussed were in the field of high-k dielectrics for CMOS and non volatile memories, ultra-thin oxynitrides, novel memory concepts, insulators for BEOL processes and novel substrates, and new applications.

The next WoDiM will be organized by IHP in Germany, and held in the Berlin area in 2008.

WOLTE-7

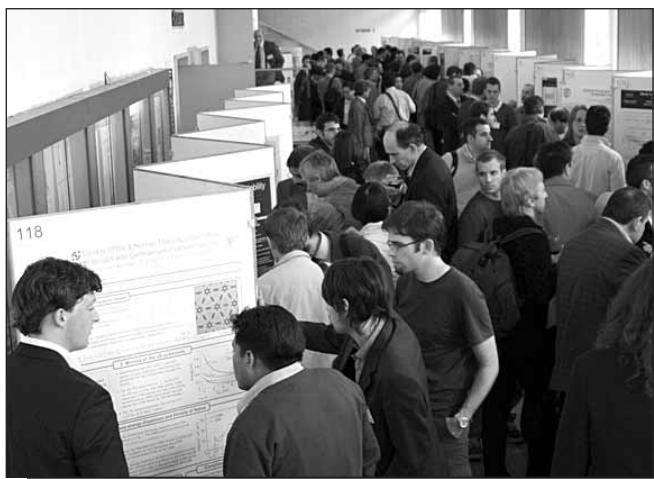
-by Bruno Leone

The Seventh Workshop on Low Temperature Electronics (WOLTE-7) was held on June 21-24, 2006, at the European Space Research and Technology Centre of the European Space Agency (ESA-ESTEC) in Noordwijk, the Netherlands. WOLTE celebrates its first year as the International Workshop on Low Temperature Electronics, replacing the former European Workshop on Low Temperature Electronics which was founded in 1994. Participants and organizers from more than 16 countries and several more nationalities from around the world, were represented this year.

WOLTE continues to attract specialists from very disparate fields within "low-temperature electronics" as its main aim is to encourage interdisciplinary discussions. This year the workshop hosted about 50 participants and featured 33 talks, 4 of which were invited, and 13 posters. Among the topics presented were: low-temperature electronics using both Si and other technologies such as, for instance, SiGe; cryogenic performance of optoelectronics components; superconducting electronics; detectors, including instruments; MEMs; and applications, including many space applications, no doubt thanks to the fact that the workshop was hosted by the European Space Agency.

The next International WOLTE workshop is expected to take place in 2008. The venue will be confirmed at a later date.

~ Cora Salm, Editor



"IWCE-11: The two poster sessions attracted many participants"



Participants of the WOLTE workshop in Noordwijk

ASIA & PACIFIC (REGION 10)

ED Japan

- by *Atsushi Kurobe*

On Sept. 6, 2006, a DL meeting was held at Tokyo Institute of Technology, Yokohama. Two DLs gave lectures on recent interesting technologies. Prof. Hei Wong, who is from City University of Hong Kong, China, talked about the theoretical analysis of new High-K MOS gate dielectric films. The title of his lecture was "Band structure, barrier heights, carrier effective masses and current conduction in hafnium and zirconium oxide films." Prof. Cary Yang, who is from Santa Clara University, USA, talked about the physics and future applications of

carbon nanofibers, in a lecture entitled "Carbon nanofibers as on-chip interconnect and thermal interface materials." Both presentations offered the attendees the opportunity to get to grips with up-to-date, interesting and useful research. The meeting, with 20 participants, was very successful.

In addition, the ED Japan Chapter organized a symposium entitled, "Challenges and problems in Nano-CMOS technology toward the next 15 years", on Sept. 11, 2006, at Waseda University in Tokyo. Seventeen speakers gave talks on technology trends, device, processes, material analysis, circuits and so on, which were all focused on the coming nanoelectronics era. The symposium concluded with a panel discussion. Six

panelists, who were Prof. H. Iwai (Tokyo Institute of Tech.), Prof. K. Natori (Tsukuba Univ.) and Prof. M. Koyanagi (Tohoku Univ.), Prof. K. Yamada (Waseda Univ), Prof. T. Hiramoto (Univ. of Tokyo) and Dr. T. Chikyo (National Institute for Materials Science), engaged in fruitful discussion on technologies 15 years from now. Topics were "What will be the main nanoelectronics devices?", "Will emerging devices replace CMOS devices?" and "What should we do from now on to achieve nanoelectronics?" The symposium was very successful with more than 80 participants.

ED Kansai

- by *Michinori Nishihara*

The ED Kansai Chapter held a Distinguished Lecture on July 11, 2006, on the Toyonaka Campus of Osaka University, by inviting Dr. Yoshiaki Hagiwara, an IEEE Fellow and SONY Fellow. Dr. Hagiwara has been a key contributor to CCD image sensor technology as well as SONY video products, which utilize these devices.

His talk began with basic semiconductor physics and he explained it without using equations, but with intuitive descriptions of electrons and holes. He showed potential of imager applications, such as for use as eyes for robots. He also spoke about how fundamental device technology research and development can impact our society and our own career as engineers. His talk attracted much attention from the young students of Osaka University, who made up the majority of the 62 attendees. It was another successful and stimulating DL meeting in ED Kansai.



The DL meeting on Sept. 6, 2006. From the second person from the left at the back: Prof. Hei Wong, City Univ. of Hong Kong; Prof. Hiroshi Iwai, Partner and EDS Jr. Past President; Prof. Cary Yang, Santa Clara Univ.; Dr. Atsushi Kurobe, ED Japan Chapter Chair



The panel discussion in the symposium on "Challenges and Problems in Nano-CMOS Technology toward the next 15 years." From the left: Prof. H. Iwai, Tokyo Institute of Tech.; Prof. K. Yamada, Waseda Univ.; Prof. T. Hiramoto, Univ. of Tokyo; Dr. T. Chikyo, National Institute for Materials Science; Prof. K. Natori, Tsukuba Univ.; Prof. M. Koyanagi, Tohoku University

ED Korea

- by *Hyungcheol Shin*

For the ED Korea Chapter, there have been several activities including the following activity for this year. It awarded the best poster award at the Korean Conference on Semiconductors. The activity is specifically described below.

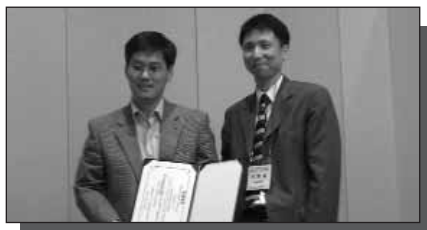
Invited seminar of
Prof. Donhee Ham

The IEEE ED Korea Chapter invited Professor Donhee Ham from Harvard University, in order to have a seminar. Professor Ham received his Ph.D. at Caltech in 2002 and is currently an Associated Professor at Harvard University. His seminar was held at the Seoul National University on July 26, 2006, and titled, "The Developments of Soliton Electronics and Wave-adaptive Resonator Tapering". He not only reviewed some of the developments, especially, soliton electronics, wave-adaptive resonator tapering, and biolab on an IC, but also discussed his current work on quantum effect nano devices for GHz-THz circuits.

Best Poster Paper Award

The IEEE ED Korea Chapter has awarded 'Best Poster Award' to Jongsik Kim of Kwangwoon National University on the 6th RF Workshop, which was held in Jeju, Korea, September 21-22, 2006. The paper, "A 2.4-GHz CMOS Driver Amplifier Based on Multiple-Gated Transistor and Resistive Source Degeneration for Mobile WiMAX" written by Jongsik Kim, Tae Wook Kim, Minsu Jeong, Boeun Kim, and Hyunchol Shin, has been chosen as a Best Poster among the total of 24 papers submitted because of its creativity and practicality. The paper's first author could not attend the award ceremony, so his adviser Prof. Hyunchol Shin, received the award instead for the first author Jongsik Kim.

~ *Kazuo Tsutsui, Editor*



Prof. Hyunchol Shin of Kwangwoon National University received Best Poster Award from the ED Korea Chapter Chairman

ED Bangladesh

- by *A. Haque*

The ED Bangladesh Chapter was officially launched July 28, 2006, with 18 members. Professor Anisul Haque of East West University, Dhaka, will act as the Chapter Chair for the remainder of 2006. One of the priorities of the Chapter is to increase the number of student members and to motivate the students towards the activities of EDS.

AP/ED Bombay

- by *Mahesh Patil*

Below is the quarterly report for the AP/ED Bombay Chapter for the period of July – September 2006:

- 1) Prof. K. Shenai, Utah State University, and EDS Distinguished Lecturer delivered a lecture on "Advanced Electronic Systems Engineering", on July 18, 2006.
- 2) Dr. Arnab Bhattacharya, Tata Institute of Fundamental Research, Mumbai, gave a talk on "GaN based optoelectronic materials and devices", on August 2, 2006.
- 3) Dr. Ritu Sodhi, International Rectifier, USA gave a lecture on "Power Semiconductor Device Technology – An Overview", on August 3, 2006.
- 4) Dr. K.P. Vijayamohan, National Chemical Laboratory (NCL), Pune gave a lecture on "What can Self-assembled Monolayers (SAMs) do for MEMS/NEMS?", on August 15, 2006.
- 5) Prof. S.A. Gangal, University of Pune, gave a lecture on "Inertial MEMS sensors", on August 23, 2006.

ED/MTT India

- by *Dr. K. S. Chari*

The Chapter has undertaken the following activities for the period of April – August 2006:

- The Chapter Chair delivered an address titled, "Semiconductor IPs and Perspectives in Chip Protection" at Electronics Niketan, Delhi, on May 12, 2006, to a select group of Women Scientists from the Department of Science and Technology. The talk covered various issues on IPs and over 30 specialists attended these interactions.

- Chapter hosted a two day National Workshop on "Intellectual Property Protection in Semiconductor Chips" at SASTRA, Thanjavur, Tamil Nadu, in association with TIFAC - CORE during July 12-13, 2006. Ten lectures were featured with Prof. T. Ramakrishna, NLS Bangalore, on "Status and trends in IPs"; Dr. S. Karthik, Analog Devices India, on "IPR in Semiconductors- an Industry Perspective"; Dr. Young Yu, MYCAD Korea, on "Korean IPR Status and IP Distribution"; Dr. K. S. Vijaya Raghavan, SASTRA, on "IP Management and Licensing"; Dr. K. S. Chari, SICLDR, on "Semiconductor Chip Protection"; and a panel discussion on "How industry and research community could make use of chip IP protection", chaired by the ED/MTT Chapter Chair.

- The second day covered talks on "Introduction to IC Design Flow - Tools for Design", by Mr. Arun Gaikwad, ICON Design Automation Systems, Bangalore; "IC Design Education and Korean Experiences", by Dr. Young Yu, Korea; "IC Design Education Initiative from India EDS Chapter", by the Chapter Chair, an open house discussion on "How to boost IC Design Education". The event concluded with a valedictory address by Dr. Young Yu, on "Needs and path for IC Design Education". Over 150 participants and 40 faculty attended the event from engineering colleges. From SASTRA, Prof. Usha Devi, Dean R&D, coordinated the event with Mr. Sarvanan leading the faculty assisting team. The event was featured prominently in major regional newspapers.

- The Chapter co-sponsored a National Conference on "RF ID" held on July 28, 2006, at Leela Palace, Bangalore, by MAIT. A total of 12 lectures and a panel discussion were held. Major lectures were: "RF ID Developments and where the future is heading in India", by Mr. Raghunandan, IBM; "RF ID Business Overview and Global Opportunities", by Mr.

Amit Phadnis; Symbol Technologies India; "Fundamentals of RF ID Implementation", by Mr. Prasenjit Bhadra, IBM India; "Virgin Atlantic Airways- a case study", by Mr. T.S. Rangarajan, TCS; "Technology Dynamics and Product Innovations", by Mr. Louis Kirk, Symbol Technologies; "Enhancing Business through RF ID Innovation", by Mr. Merlin Leo, Gemini Traze RF ID Ltd.; "RF ID in Manufacturing", by Mr. Srikumar Narayan, Winfoware Tech Ltd.; "RF ID-Cost vs Benefit" by Mr. Sreenath Venkappiah, WIPRO; "Consumer Privacy issues" by Mr. Stephen Mathias, Kochhar and Company; "RD ID Dynamics - Cost, Standards, Adoption etc", by Mr. Puneet Gupta, Infosys Technologies. Panel discussion "RF ID Prospects and Opportunities in India" with panelists Mr. Pradhyumna Venkat, Mr. Puneet Gupta, Mr. Prasenjit Bhadra and Dr. K.S. Chari, ED/MTT Chapter Chair, concluded the event which attracted over 125 participants. Mr. D. Seetharam, IBM India Ltd., Mr. Nanda Kumar and Mr. Premjit from MAIT Bangalore, coordinated the event. The Conference's principal sponsor was IBM India, with co-sponsors TRAZE, WINOFARE, Symbol and supported by the Department of IT, Karnataka.

International Conferences on "Emerging Technologies in Mobile Communications" and "Trends in RFID Technology and Applications" on September 6 and 7-8, 2006, respectively, at Pragati Maidan, New Delhi. Co-located with the Conferences, "India Mobile Forum" and "RFID India and Smart Card", were held with 200 exhibitors from about 25 countries participating and exhibiting their products and services. The exhibitions attracted thousands of visitors. These events were organized by Electronics Today and co-sponsored by over 30 associations.

- Michael Lightner, IEEE President 2006, delivered a lecture on "Cognitive Assistive Technology: An Emerging Discipline", at IIT Delhi on May 1, 2006. The talk covered the aspects of cognitive disabilities, the assistive technologies, factors influencing the demand vis-à-vis technological options, smart home and caring family concepts, contest aware frameworks, etc. IEEE Delhi Section and the Center for Biomedical Engineering, IIT, sponsored the talk. The ED/MTT Chapter Chair met with IEEE President, Michael Lightner, and apprised him of the



STAR students at NFRC, Pedavegi

- Chapter co-sponsored a Technical Workshop on RFID Technology held in Pragati Maidan, New Delhi, on September 5, 2006. The event featured two half-day sessions - RFID for Smart Card Applications delivered by Dr. J.P. Benhammou, Atmel Corp., USA and RFID Technology for Inventory Control and Warehouse Management delivered by Mr. Rainer Lutz and Mr. Dhananjay Dixit from Philips Semiconductors Austria and India. The talks presented the respective technologies, product solutions, standards and demonstrations. Over 120 participants attended the lectures. The event was organized by Electronics Today, India, with many co-sponsorships and coordinated by the Editor-in-Chief, Mr. S. Swaran.
- The Chapter co-sponsored two



Attendees of the IPR workshop at SASTRA

Chapter activities. Mr. Lightner, showed keen interest in the chapter STAR program.

- The Chapter conducted two events on June 24 and 26, 2006, for the STAR students at KBM-CGH School. The first was as a mid-year lecture-cum-facility event with talks by educationists and distribution of scientific instruments to female students. Mr. G.A.V. Prasad, State Sarvodaya Secretary, Sri Prasad Raju, former DEO, and Chapter Chair, spoke to the students. Over 100 students from classes 8-10th were distributed geometric boxes and implements for use in their science classes. In the second event on June 26, the STAR students along with faculty, visited the National Farm Research Center, Pedavegi, to practically see issues related to cultivation of Palm crop, seeding and pest controls, mulching and oil extraction. The students also saw a full video demo. These events were coordinated by Head Master, KBMCGH, Mr. Bhaskar Naidu and teachers, Mr. Ratnakumar, Ms. Leeladharani, Ms. Kameswari and Ms. B. Subbalakshmi, with help from the Director of NFRC and staff Mr. V.S.V. Prasad.

REL/CPMT/ED Singapore

- by Wilson Tan

1) DL Talks

- July 3, 2006, "Role of Relaxation Time in Dielectric Theory", Prof Gorur Govinda Raju, University of Windsor, Canada.
- August 2, 2006, "Post-breakdown Conduction in Ultra-thin Gate Oxides: From Physical Models to Circuit Applications", Prof. Enrique Miranda, Electronics Engineering from the Universitat Autònoma de Barcelona (UAB), Spain.

2) Technical Talks

- August 28, 2006, "Advanced Gate Stack for Nano Silicon Devices", Dr. Yu Hong Yu, IMEC, Belgium.

3) Conferences

IPFA 2006 - The 13th International Symposium on Physical and Failure Analysis of Integrated Circuits (IPFA) was held July 3-7, 2006, at the Meritus Mandarin Hotel on Orchard Road, in the heart of Singapore's commercial center. This year, IPFA celebrated its 20th Anniversary with a special lunch held on the first day of the symposium at which its' founding members and past committee members were invited guests.

IPFA began with two days of tutorials followed by the three day technical symposium in parallel with an exhibition of FA and characterization equipment.

The six half-day tutorials, four on Monday, in two parallel sessions, and two on Tuesday were:

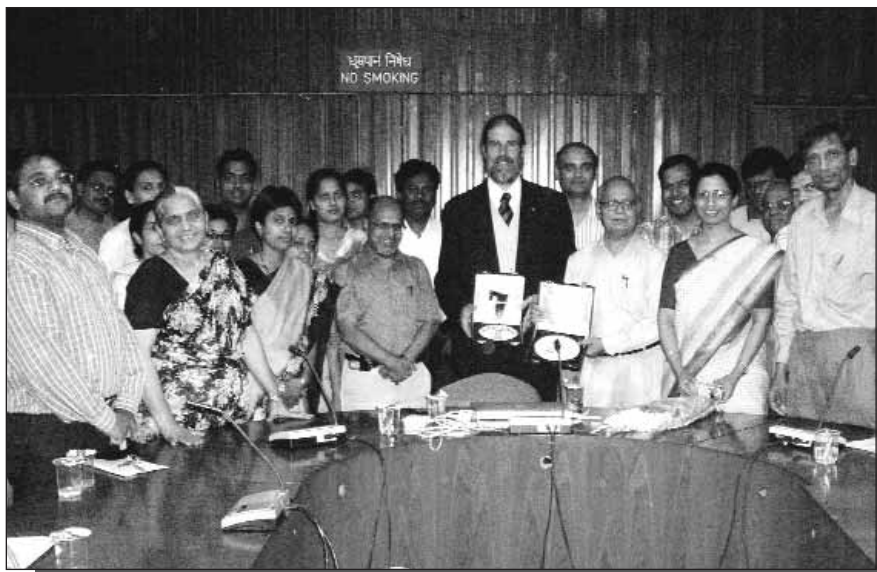
- Ultra High Resolution in Scanning Electron Microscopy, by Nestor Zaluzec (Argonne National Labs)
- Electromigration in Cu Interconnect Reliability, by Eckhard Langer (AMD)
- Transmission Electron Microscopy in Failure Analysis of ICs, by S. Subramaniam (Freescale)
- Reliability of Lead-Free Solder Joints for Semiconductor Packaging, by John Lau (Agilent)
- Test & Failure Analysis, by Burnell West (Credence)
- Atomic Force Microscopy Principles and Role in Failure Analysis, by Terence Kane (IBM)

This year IPFA was exceptionally fortunate to open the technical symposium with two outstanding keynote speakers: Dr. Hiroshi Iwai of Frontier Collaborative Research Center, Tokyo Institute of Technology, and Jr. Past President of EDS, spoke on the "Future of Nano-CMOS Technology and its Production" and Dr. Chih-Yuan Lu, Sr. Vice-President of Microelectronics & Memory Solution Group, Macronix Int. Co., gave a presentation on "Non-volatile Semiconductor Memory Technology - Today and Tomorrow".

This year the Best paper exchanges from ESREF and ISTFA were presented on the second day of the Technical Symposium. From ESREF, L. Bechou presented, "Electroluminescence Spectroscopy for Reliability Investigations of 1.55 μm Bulk Semiconductor Optical Amplifier". From ISTFA, F. Zachariasse presented, "Diffractive lenses for High Resolution Laser Based Failure Analysis".

During the rest of the symposium there were 6 invited papers and another 44 contributed papers presented orally. The poster session, with 18 papers, was organized around an extended buffet lunch which proved to be very successful and provided plenty of time and opportunity for participants to view and discuss the posters. The Conference banquet was an al fresco barbecue at the side of the Singapore River.

The IPFA exhibition ran for three days and provided an opportunity



Meeting with IEEE President, Michael Lightner

for 26 companies to show their products and services. There was also an FIB user group meeting held on Wednesday evening. During the conference the call for papers for IPFA 2007, to be held in Bangalore, India, was announced.

A total of 146 registrations for the Symposium & 120 registrations for the 2-day Tutorial, complemented the 28 Exhibition booths that showcased the latest products from 26 participating companies.

The 2 best papers chosen are as follow:

Best Reliability Paper:

- 7.1-3 *Analysis of Failure Mechanism on Gate-Silicided and Gate-Non-Silicided, Drain/Source Silicide-blocked*



Keynote speech by Professor Hiroshi Iwai

ESD NMOSFETs in a 65nm Bulk CMOS Technology

J.J. Li¹, D. Alvarez², K. Chaty¹, M.J. Abou-Khalil¹, R. Gauthier¹, C. Russ³, C. Seguin¹ and R. Halbach¹ / 1IBM Semiconductor Research and Development Center, USA 2Infineon Technologies, USA and 3Infineon Technologies, Germany — Will be presented at ESREF in October

Best Failure Analysis Paper:

- 7.3-4 *Distinction of Photo-Electric and Thermal Effects in a MOSFET by 1064 nm Laser Stimulation*

S.K. Brahma, J. Heinig, A. Glowacki, R. Leihkauf and C. Boit / Berlin University of Technology, Germany — Will be presented at ISTFA in November

EPTC 2006

The 8th Electronics Packaging Technology Conference (EPTC 2006) was held on December 6-8, 2006, at the Pan Pacific Hotel Singapore. It is an international conference event organized by the IEEE Reliability/CPMT/ED Singa-

pore Chapter and sponsored by IEEE CPMT Society. EPTC 2006 featured technical sessions, short courses and exhibitions. The conference received a total of 194 abstract submissions coming from 22 countries. Further details can be found at the conference website (<http://www.eptc-ieee.net>).

~Xing Zhou, Editor



Keynote Speaker, Dr. Chih-Yuan Lu, receiving his token of appreciation from General Chair, Alastair Trig

2007 IEEE International Conference on Portable Information Devices

(continued from page 1)



- Amy A. Kruse, Director, Defense Advanced Research Projects Agency (DARPA), USA
Topic: Military Applications of PID's
- Iwona Turlik, Corporate Vice President, Physical Realization Research, Motorola, Inc., USA
Topic: Overview of PID's
- Steve Kang, Dean of Engineering, University of California - Santa Cruz, USA
Topic: Nanotechnologies and PIDS
- Andrew Lippman, Senior Research Scientist, Director, Digital Life, MIT Media Lab, USA
Topic: Viral Communications/Wearable Computers/ Digital TV

Additional invited speakers and panelists include: Joe C. Barrett, Director, Intel Corporation, USA; Achintya Bhowan, Manager, Intel Corporation, USA; Phil C H Chan, Chair Professor and Dean of Engineering, The Hong Kong University of Science and Technology, Hong Kong.; Mario El-Khoury, Vice-President, Systems Engineering, Swiss Center for Electronic and Microtechnology, Switzerland; Michael S. Leiby, President and CEO, Optoelectronics Industry Development Association, USA; Meyya Meyyappan, Director, Center for Nanotechnology, Ames

Research Center, USA; and John Reagan, Professor Emeritus, The University of Arizona, USA.

IEEE PORTABLE 2007 joins IEEE Mobile WiMax Symposium, sponsored by the IEEE Communications Society and the IEEE Broadcast Technology Society's IEEE International Symposium on Broadband Multimedia Systems & Broadcasting 2007 as a component of IEEE @ CTIA WIRELESS 2007, an interdisciplinary event co-located with CTIA WIRELESS 2007.

For complete program information, registration and hotel reservations visit www.ieee-portable.org.

Debora Kingston
Senior Meetings Manager
IEEE Communications Society
New York, NY, USA

EDS DISTINGUISHED LECTURER PROGRAM - LECTURERS RESIDING IN CENTRAL, WESTERN & SOUTH WESTERN USA AND LATIN AMERICA

The EDS Distinguished Lecturer Program exists for the purpose of providing EDS Chapters with a list of quality lecturers who can potentially give talks at local chapter meetings. To arrange for a lecture, the EDS chapters should contact the Distinguished Lecturer directly. A general guideline for the visit, but not the absolute rule, is that the lecturer should be able to include the meeting site with an already planned travel schedule at a small incremental cost to the travel plan. Alternatively, a prior coincident travel plan would not be required if the lecturer is already located within an approximate fifty mile radius of a meeting site. Although the concept of the program is to have the lecturers minimize travel costs by combining their visits with planned business trips, EDS will help subsidize lecturer travel in cases where few/no lecturers will be visiting an area and/or a chapter cannot pay for all the expenses for a lecturer trip. For a full listing of EDS Distinguished Lecturers and travel plans please contact Laura Riello of the EDS Executive Office (Tel: 1-732-562-3927, Fax: 1-732-235-1626, E-Mail: l.riello@ieee.org).

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- GaN Processing and Devices
- Advanced Fabrication Techniques for Heterostructure FETs
- High Speed Optoelectronic Integrated Receivers for Fiber Optical Communications

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- Application of Computational Fluid Dynamics Based Technology to Computational Electromagnetics
- Application of CFD Based Technology to Computational Electromagnetics and Semiconductor Device Simulations
- Numerical Simulation of Partial Differential Equations (PDEs) off Computational Physics on Parallel Computers

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- Reliability Physics: How, when, and why transistors break
- Nanocomposites for Macroelectronic Applications: A Novel material for large area in electronics (e.g. displays, radars, etc.)

- Theory of Nanobiosensors for inexpensive (differential) genome sequencing

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- Radiation effects on devices
- General device reliability

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- Scalable, Compact Noise Models for Advanced and Bipolar Devices
- Infrared Sensors on Flexible Substrates (Smart Skin)
- Noise and Reliability in Advanced Microelectronic and Nanoelectronic Devices

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- Device Modeling and Extraction Procedures
- The Non-linear harmonic Distortion in devices and circuits

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- Device Modeling for Mixed-Signal/RF Circuit Design
- The Influence and Modeling of Process Variation and Device Mismatch for Analog/RF Circuit Design
- Characterization and Modeling of MOSFET Flicker Noise for RF IC Design

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- Alternative Dielectrics for Ultra-thin MOS Devices
- Modeling Fabrication and Characterization of Amorphous and Polycrystalline TFTs
- Dielectrics for Submicrometric Devices
- Modeling of Amorphous and Polycrystalline TFTs

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- MOSFET Evolution and Trends
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- Approaching Fundamental Limits on Signal Detection: Devices and Principles
- Nano-FET Fluctuation Physics

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- Limitations to scaling of transistors
- Growth of semiconductor technology driven by the needs of the information technology
- BiCMOS Technology

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- Si NarrowWire CMOS devices & their applications to BioSensors
- High Speed Interconnect Using CMOS Photonics
- High-K/Metal Gate CMOS Technology Challenges
- Pushing CMOS Scaling via Novel Materials Added to Si

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- Alternative Channel Materials

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- Sustaining the Si Revolution
- Challenges and Opportunities

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- Nanoscale Transistors: UltimateSilicon and Beyond
- Nanowire/Nanotube Transistors: Physics, Status, and Prospects
- Nanotechnology: Now or Never?

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- Modeling and Analysis of Substrate Noise Coupling in Mixed-Signal ICs

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- Simulation of Multi-Technology Micro and Nano Systems

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- Fabrication of Silicon Oxynitride Thin Films to be Applied in the Microelectronics Industry
- Polycrystalline and Amorphous Thin Films for Photovoltaic Devices

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- Evolution and Trends of SOI MOSFET

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EDS MEETINGS CALENDAR

(As of November 15, 2006)

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

January 6 - 10, 2007, T **International Conference on VLSI Design**, Location: NIMHANS Convention Center, Bangalore, India, Contact: S Uma Mahesh, E-Mail: sum_mahesh@yahoo.co.in, Deadline: 7/14/06, www: <http://www.vlsiconference.com/>

January 31 - February 2, 2007, T **Spanish Conference on Electron Devices**, Location: San Lorenzo de El Escorial, Madrid, Spain, Contact: Carlos Algora, E-Mail: algora@ies-def.upm.es, Deadline: 10/31/06, www: Not Available

February 19 - 24, 2007, T **IEEE International Conference on the Experience of Designing and Application of CAD Systems in Microelectronics**, Location: Lviv Polytechnic National University, Lviv, Ukraine, Contact: Vasyl Teslyuk, E-Mail: cadsm@polynet.lviv.ua, Deadline: 10/30/06, www: <http://www.lp.edu.ua/CADSM>

March 13 - 15, 2007, T **National Radio Science Conference**, Location: Ain Shams University, Cairo, Egypt, Contact: Said E. El-Khamy, E-Mail: elkhamy@ieee.org, Deadline: 10/30/06, www: Not Available

March 19 - 22, 2007, @ **International Conference on Microelectronic Test Structures**, Location: Takeda Hall, University of Tokyo, Bunkyo-ku, Japan, Contact: Yoichi Tamaki, E-Mail: yoichi.tamaki.ga@hitachi.com, Deadline: 9/15/06, www: <http://www.ee.ed.ac.uk/ICMST>

March 25 - 27, 2007, * **IEEE International Conference on Portable Information Devices**, Location: Orange County Convention Center, Orlando, FL, USA, Contact: Debora Kingston, E-Mail: d.kingston@comsoc.org, Deadline: 7/15/06, www: <http://www.ieee-portable.org/2007/>

March 26 - 28, 2007, T **IEEE International Symposium on Quality Electronic Design**, Location: Double Tree Hotel, San Jose, CA, USA, Contact: Ali Iranmanesh, E-Mail: alii@isqed.org, Deadline: 10/23/06, www: www.isqed.org

March 28 - 29, 2007, T **IEEE International Conference on RFID**, Location: Gaylord Texan Resort & Convention Center, Grapevine, TX,

USA, Contact: Bichlien Hoang, E-Mail: b.hoang@ieee.org, Deadline: 11/17/06, www: <http://www.ieee-rfid.org/2007/>

April 15 - 19, 2007, * **IEEE International Reliability Physics Symposium**, Location: Hyatt Regency Phoenix at Civic Plaza, Phoenix, AZ, USA, Contact: Edward Cole, Jr., E-Mail: coleei@sandia.gov, Deadline: Not Available, www: www.irps.org

April 20 - 21, 2007, T **International Siberian Conference on Control and Communication**, Location: Tomsk Polytechnic University, Tomsk, Russia, Contact: Oleg Stukach, E-Mail: tomsk@ieee.org, Deadline: 1/23/07, www: <http://www.comsoc.org/tomsk>

April 23 - 25, 2007, T **International Symposium on VLSI Technology, Systems and Applications**, Location: Ambassador Hotel Hsinchu, Hsinchu, Taiwan, Contact: Stacey Hsieh, E-Mail: stacey@itri.org.tw, Deadline: 10/15/06, www: <http://vlsitsa.itri.org.tw>

April 25 - 27, 2007, T **International Symposium on VLSI Design, Automation and Test**, Location: Ambassador Hotel Hsinchu, Hsinchu, Taiwan, Contact: Elodie Ho, E-Mail: elodieho@itri.org.tw, Deadline: 10/15/06, www: <http://vlsidat.itri.org.tw>

April 30 - May 2, 2007, T **IEEE Sarnoff Symposium on Advances in Wired and Wireless Communications**, Location: Nassau Inn, Princeton, NJ, USA, Contact: Gerhard Franz, E-Mail: sarnoff2005@agfranz.com, Deadline: 12/4/06, www: <http://www.sarnoffsymposium.org>

May 7 - 10, 2007, T **International Conference on Memory Technology and Design**, Location: Village Vacances Familles (VVF) "La Badine", Hyeres Les Palmiers, France, Contact: Liesbet Massant, E-Mail: massant@imec.be, Deadline: Not Available, www: <http://www.icmtd.com>

May 14 - 18, 2007, @ **International Conference on Indium Phosphide and Related Materials**, Location: Kunibiki Messe, Matsue, Japan, Contact: Shigehisa Arai, E-Mail: arai@pe.itech.ac.jp, Deadline: Not Available,

www: <http://www.iprm.jp/index.html>

May 14 - 17, 2007, T **International Electrostatic Discharge Workshop**, Location: Stanford Sierra Conference Center, South Lake Tahoe, CA, USA, Contact: Lisa Pimpinella, E-Mail: info@esda.org, Deadline: 11/17/06, www: www.esda.org/iew.htm

May 15 - 17, 2007, @ **IEEE International Vacuum Electronics Conference**, Location: Kitakyushu International Conference Center, Kitakyushu, Japan, Contact: Yoshie Moriguchi, E-Mail: ivec2007@ics-inc.co.jp, Deadline: 1/12/07, www: <http://www.ivec2007.org>

May 15 - 20, 2007, T **IEEE Semiconducting and Insulating Materials Conference**, Location: University of Arkansas, Fayetteville, AK, USA, Contact: Zhiming Wang, E-Mail: zmwang@uark.edu, Deadline: Not Available, www: <http://www.ibiblio.org/simc>

May 23 - 26, 2007, T **International Conference on Perspective Technologies and Methods in MEMS Design**, Location: Lviv Polytechnic National University, Lviv, Ukraine, Contact: Mykola Pereyma, E-Mail: memstech@polynet.lviv.ua, Deadline: 2/1/07, www: <http://www.lp.edu.ua/Institute/IKN/CAD/MEMSTECH>

May 27 - 31, 2007, @ **IEEE International Symposium on Power Semiconductor Devices & Integrated Circuits**, Location: Ramada Plaza Jeju Hotel, Jeju, South Korea, Contact: Min-Koo Han, E-Mail: mkh@snu.ac.kr, Deadline: Not Available, www: <http://www.ispsd07.org>

May 29 - June 1, 2007, T **International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication**, Location: Adam's Mark Hotel, Denver, Colorado, Contact: Gregory M. Wallraff, E-Mail: gmwall@almaden.ibm.com, Deadline: 1/12/07, www: <http://www.eipbn.org>

June 3 - 5, 2007, T **IEEE Radio Frequency Integrated Circuits Symposium**, Location: Hawaii Convention Center, Honolulu, HI, USA, Contact: Luciano Boglione, E-Mail:

l.boglione@ieee.org, Deadline: 1/8/07, www: <http://www.rfic2007.org>

June 5 - 7, 2007, * **IEEE International Interconnect Technology Conference**, Location: Hyatt Regency at San Francisco Airport, Burlingame, CA, USA, Contact: Wendy Walker, E-Mail: wendyw@widerkehr.com, Deadline: 1/19/07, www: <http://www.his.com/~iitc/>

June 7 - 10, 2007, T **IEEE Workshop on Charge-Coupled Devices & Advanced Image Sensors**, Location: The Cliff House Resort & Spa, Ogunquit, ME, USA, Contact: Bedabrata Pain, E-Mail: bpain@jpl.nasa.gov, Deadline: Not Available, www: Not Available

June 8 - 9, 2007, T **International Workshop on Junction Technology**, Location: Kyoto University Clock Tower Centennial Hall, Kyoto, Japan, Contact: Kazuo Tsutsui, E-Mail: ktsutsui@ai.titech.ac.jp, Deadline: 3/2/07, www: <http://www.iwailab.ep.titech.ac.jp/IWJT/>

June 10 - 14, 2007, @ **TRANSDUCERS - International Conference on Solid-State Sensors, Actuators and Microsystems**, Location: Cite Centre Des Congres, Lyon, France, Contact: Thomas Garmier, E-Mail: info@transducers07.org, Deadline: 12/1/06, www: www.transducers07.org

June 11 - 12, 2007, * **IEEE/SEMI Advanced Semiconductor Manufacturing**, Conference Location: Grand Hotel Bristol, Stresa, Italy, Contact: Margaret Kindling, E-Mail: mkindling@semi.org, Deadline: 10/19/06, www: <http://www.semi.org/asmc>

June 12 - 15, 2007, @ **IEEE Symposium on VLSI Technology**, Location: Rihga Royal Hotel, Kyoto, Japan, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: <http://www.vlssymposium.org>

June 20 - 23, 2007, T **Conference on Insulating Films on Semiconductors**, Location: Glyfada, Athens, Greece, Contact: Athanasios Dimoulas, E-Mail: dimoulas@ims.demokritos.gr, Deadline: Not Available, www: <http://www.infos2007.gr>

June 21 - 23, 2007, T **International MIXDES Conference**, Location: Targon Palace, Ciechocinek, Poland, Contact: Andrzej Napieralski, E-Mail: napier@DMCS.p.lodz.pl, Deadline: 2/28/07, www: <http://www.mixdes.org>

June 26 - 29, 2007, T **International Symposium on Physics & Engineering of Millimeter & Sub-Millimeter Waves**, Location: Kharkiv

National University, Sharkiv, Ukraine, Contact: Alexander Nosich, E-Mail: alex@emt.kharkov.ua, Deadline: Not Available, www: <http://www.ire.kharkov.ua/MSMW07>

July 1 - 5, 2007, T **International Siberian Workshop and Tutorial on Electron Devices and Materials**, Location: Novosibirsk State Technical University, Novosibirsk, Russia, Contact: Alexander Gridchin, E-Mail: ieeensk@yandex.ru, Deadline: 3/15/07, www: www.nstu.ru/edm

July 8 - 12, 2007, @ **International Vacuum Nanoelectronics Conference**, Location: Holiday Inn Chicago Mart Plaza, Chicago, IL, USA, Contact: Heinz Busta, E-Mail: heinz_busta@cabotcmp.com, Deadline: Not Available, www: Not Available

July 11 - 13, 2007, T **IEEE International Symposium on the Physical and Failure Analysis of Integrated Circuits**, Location: Bangalore, India, Contact: M. Radhakrishnan, E-Mail: radhakrishnan@nanorel.net, Deadline: 1/15/07, www: <http://www.ieee.org/ipfa>

August 21 - 24, 2007, T **Topical Workshop on Heterostructure Microelectronics**, Location: Kazusa Arc, Kisarazu-shi, Chiba, Japan, Contact: Takatomo Enoki, E-Mail: tenoki@aecl.ntt.co.jp, Deadline: Not Available, www: <http://www.twhm.net/>

August 26 - 30, 2007, @ **IEEE Non-Volatile Semiconductor Memory Workshop**, Location: Hyatt Regency Monterey, Monterey, CA, USA, Contact: Stephen Keeney, E-Mail: stephen.n.keeney@intel.com, Deadline: 5/25/07, www: <http://www.ewh.ieee.org/soc/eds/nvsmw/>

September 9 - 14, 2007, T **International Conference on Noise in Physical Systems and 1/F Fluctuations**, Location: National Institute for Youth Education, Shibuya-ku, Tokyo, Japan, Contact: Munecazu Tacano, E-Mail: tacano@ee.meisei-u.ac.jp, Deadline: Not Available, www: <http://icnf.meisei-u.ac.jp/>

September 10 - 14, 2007, T **European Solid-State Device Research Conference**, Location: TU Muenchen Arcisstrasse, Munich, Germany, Contact: Philip Teichmann, E-Mail: teichmann@tum.de, Deadline: Not Available, www: <http://www.essderc.org/>

September 16 - 19, 2007, T **IEEE Custom Integrated Circuits Conference**, Location: Double Tree Hotel, San Jose, CA, USA, Contact: Melissa Widerkehr, E-Mail: melissaw@widerkehr.com, Deadline: Not Available, www: <http://www.ieee-cicc.org>

September 17 - 21, 2007, T **International Conference on Electromagnetics in Advanced Applications**, Location: Torino Incontra Congress Center, Torino, Italy, Contact: Guido Lombardi, E-Mail: info@iceaa.polito.it, Deadline: Not Available, www: www.iceaa.polito.it

September 25 - 27, 2007, @ **IEEE International Conference on Simulation of Semiconductor Processes and Devices**, Location: TU Vienna, Vienna, Austria, Contact: Tibor Grasser, E-Mail: Grasser@iue.tuwien.ac.at, Deadline: 3/1/07, www: <http://www.sispad.org>

September 30 - October 3, 2007, T **IEEE Conference on Intelligent Transportation Systems**, Location: Hilton Hotel, Bellevue, WA, USA, Contact: Paul Kostek, E-Mail: p.kostek@ieee.org, Deadline: 3/1/07, www: <http://www.ewh.ieee.org/tc/its/>

September 30 - October 2, 2007, @ **IEEE Bipolar/BiCMOS Circuits and Technology Meeting**, Location: Boston Marriott Long Wharf, Boston, MA, USA, Contact: Janice Jopke, E-Mail: ccs@mn.rr.com, Deadline: 3/1/07, www: www.ieee-bctm.org

October 7 - 12, 2007, T **Symposium on ULSI Process Integration**, Location: Washington, DC, USA, Contact: Cor Claeys, E-Mail: c.claeys@ieee.org, Deadline: 5/26/07, www: Not Available

October 14 - 17, 2007, * **IEEE Compound Semiconductor IC Symposium**, Location: Hilton Portland & Executive Tower, Portland, OR, USA, Contact: Mohammad Madihian, E-Mail: madihian@nec-labs.com, Deadline: 5/7/07, www: <http://www.csics.org/>

November 4 - 8, 2007, T **IEEE International Conference on Computer Aided Design**, Location: DoubleTree Hotel San Jose, San Jose, CA, USA, Contact: Kathy MacLennan, E-Mail: kathy@mpassociates.com, Deadline: Not Available, www: <http://www.iccad.com>

November 2007, T **IEEE Electron Devices Activities in Western New York Conference**, Location: University of Rochester, Rochester, NY, USA, Contact: Karl Hirschmank, E-Mail: kdhemc@rit.edu, Deadline: Not Available, www: Not Available

December 3 - 7, 2007, T **International Photovoltaic Science & Engineering Conference**, Location: Fukuoka International Congress Center, Fukuoka, Japan, Contact: Yoshio Ohsita, E-Mail: pvsec17@toyota-ti-ac.jp, Deadline: 7/15/07, www: <http://www.pvsec17.jp>

EDS Distinguished Lecturer Visits Universities in Brazil

On August 21-25, 2006, the ED South Brazil Chapter and EDS Student Chapter at UNICAMP (State University of Campinas), together with undergraduate students, organized the X Electrical Engineering Week 2006 at the School of Electrical and Computer Engineering, in Campinas. About 400 participants attended the

meeting. Several lectures were given by invited professors, industry members and personalities. In addition to the industrial exposition, visits to local industries and research centers and a poster session were part of the program, as can be seen at <http://www.see.fee.unicamp.br>.

A key lecture was presented by

Prof. Adelmo Ortiz Conde, from Simon Bolivar University of Venezuela, as an IEEE EDS Distinguished Lecturer. His lecture was entitled, "Evolution of MOSFETs toward nanoelectronics" and was attended by more than 100 participants.

The same lecture was also delivered by Prof. Ortiz during the same week at the School of Electrical Engineering of the UNESP (University of the State of São Paulo) in the city of Bauru.

Prof. Ortiz also gave a second lecture to a group of graduated students working in the field of microelectronics, at the Center for Semiconductor Components at UNICAMP, Campinas, focusing on modeling of MOS devices.



IEEE EDS Distinguished Lecturer, Professor Adelmo Ortiz Conde, from Simon Bolivar University of Venezuela, presenting his talk at the University of the State of São Paulo

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