

IEEE ELECTRON DEVICES SOCIETY

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2006 IEEE WORLD CONFERENCE ON PHOTOVOLTAIC ENERGY CONVERSION (WCPEC)



©HILTON WAIKOLOA VILLAGE

Aloha to all of you. It is our great pleasure to invite you to participate in the 4th World Conference on Photovoltaic Energy Conversion. This event will be accompanied by an industrial exhibition and will begin with opportunities for educational enhancement through a variety of tutorial topics on Sunday, May 7, 2006. The conference proper will take place from May 8 to May 12, 2006 at the Hilton Waikoloa Village in Waikoloa, Hawaii.

The conference, hosted by the IEEE PVSC, is a joint conference of the 32nd IEEE PVSC, the European PVSEC and the 16th Asia/Pacific PVSEC. We look forward to excellent submissions of papers not only in the traditional areas of photovoltaics: crystalline silicon, amorphous and nano/microcrystalline silicon, CIGS, CdTe and III-V materials, but also in fundamentals and new materials, modules and system development, concentrators, space applications and national programs and policies.

Auxiliary events will be associated with the conference and, of course, wonderful leisure activities exist on the Big Island. It has the world's most active volcano: the east rift zone below Halema'uma'u on Kilauea has been spewing lava intermittently since January 3, 1983. The Kona-Kohala Coast feels desert-like, with uninhabited stretches of lava whereas rainforests exist on the other side of the island near Hilo, the largest town. One expects sunshine on 343 out of 365 days of the year and delightful temperatures in May.

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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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

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EDS REGION 9 CHAPTERS MEETING



*Magali Estrada
Del Cueto*

EDS Region 9, that spans the American Continent from the Rio Bravo to South America, held its biannual meeting on August 12, 2005, in Veracruz, Mexico, one of the oldest cities in the continent. It was diligently host-

ed by the local Universidad Cristóbal Colón and its EDS Student Chapter. The region meeting was presided by Hiroshi Iwai (EDS President), Cor Claeys (EDS Vice-President Regions/Chapters), J. J. Liou (EDS Treasurer) and Magali Estrada, Chair of EDS Subcommittee for Regions/Chapters of Latin America (SRC-LA), and attended by Chapter Chairs, Jacobus W. Swart (South Brazil), Ricardo Cointrin Texeira (Student Chapter, Campinas, Brazil), Rodolfo Quintero (Mexico), Claudia Reyes (Puebla, Mexico), Luis Resendiz (Mexico Student Chapter), Daniel Sanchez (Cristobal Colon Student Chapter, Veracruz, Mexico), Jonathan Espinosa (Student Chapter Univ. del Sol, Cuernavaca, Mexico) and Adelmo Ortiz-Conde (Venezuela). The meeting was also attended by Antonio Cerdeira (Partner of ED Student Chapter Campinas, Brazil), Benjamin Iñiguez (Partner of ED CINVESTAV-IPN Mexico Student Chapter) and Jaime Castillo (Advisor of Univ. Cristobal Colon Student Chapter, Veracruz, Mexico). The following colleagues, who are trying to start new ED chapters in the region, were invited and attended the

meeting: Edval Santos (Recife, Brazil), Jose Camargo, (Brasilia, Brazil), and Julio Tinoco (Lima, Peru).

The meeting was opened by the President of the Electron Devices Society, Hiroshi Iwai, who gave detailed information on the activities of the Society and chapters, encouraging the continuation of the activities in the region as well as the efforts to increase the number of chapters. Cor Claeys presented information concerning the number, activities and evolution of the ED chapters all around the world, followed by Juin Liu's information of the financial status of the Society during the past years and what is expected for this

year. Magali Estrada spoke about the region activities during the last two years, which was followed by each of the chapter chairs, reporting their activities and future plans. The exposition part finished with reports by each of the invited participants on what is being done to start the new chapters. Adelmo Ortiz-Conde chaired the final discussion session.

For additional information contact Professor Magali Estrada at mestrada@cinvestav.mx.

*Magali Estrada Del Cueto
Chair, Region 9 SRC - Latin America
CINVESTAV-IPN
Mexico City, Mexico*



From left to right: Magali Estrada, Jacobus Swart, Benjamin Iñiguez, Rodolfo Quintero, Claudia Reyes, and Ricardo Cotrin

NOMINATE A COLLEAGUE FOR FELLOW

It's never too early to start thinking about nominating a colleague who is a senior member for the 2007 class of IEEE Fellows. Nominating forms are due to the Fellow Committee by 1 March 2006.

The IEEE Fellow grade is conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. The total number of Fellows selected in any one year cannot exceed one-tenth of 1 percent of the total voting IEEE membership.

To obtain the IEEE Fellow Nomination Kit, visit the IEEE Fellow Activities Web site at www.ieee.org/fellows.

UPCOMING TECHNICAL MEETINGS

2006 IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM (IRPS)

As the scaling of electronic components into the nanometer regime continues and the addition of new materials are required to optimize device performance, novel reliability and qualification issues continue to arise. These technically interesting topics are the focus of the IEEE International Reliability Physics Symposium (IRPS) as it heads to Silicon Valley for its 44th annual conference, March 26-30, 2006, at the San Jose McEnery Convention Center. For over 40 years, IRPS has been one of the leading conferences for engineers in the area of electronic component reliability.

Originally started in the early 1960's by the military and aerospace community, IRPS is now co-sponsored by the IEEE Reliability Society and the IEEE Electron Devices Society. This co-sponsored event has drawn participants from the United States, Europe, Asia and all other parts of the world. IRPS 2006 promotes the reliability and performance of integrated circuits and microelectronic assemblies through an improved understanding of failure mechanisms in the user's environment, while demonstrating the latest state-of-the-art developments in electronic reliability.

The focus of the symposium is the 3-day plenary/parallel sessions

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. Specific areas to be addressed during the 2006 IRPS are reliability concerns associated with:

- Product Reliability and Burn-In
- Memories and Microprocessors
- Qualification Strategies
- Circuits and Systems
- Soft Error Effects
- Assembly and Packaging
- Failure Analysis
- Transistors
- High Power Devices
- Devices and Processing
- Interconnects
- Device Dielectrics
- ESD and Latch-Up
- Process Induced Damage
- MEMS

This year, approximately 150 technical papers and posters will be selected for presentation from more than 250 peer-reviewed abstracts received.

Other opportunities at the symposium include:

- A 2-day **Tutorial Program** featuring a set of bound notes from all tutorials. Attendees have 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/package reliability.
- **Reliability Year-In-Review Seminar.** This seminar provides 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.
- **Equipment Demonstrations** held in parallel with tutorials and technical sessions are a unique aspect of this symposium. Manufacturers of state-of-the-art analytical and test and stress equipment are on hand to demonstrate their products and systems to individuals and small groups. Attendees are encouraged to bring samples or questions for on-site analysis and discussion.
- **An Evening Poster Session** has become an important part of the IRPS for authors and attendees to discuss recent research and results in a very interactive environment.

There are lots of opportunities to be involved in increasing your understanding of this technically important field. We look forward to seeing you in San Jose!

For further information, please visit the IRPS web site at www.irps.org or contact Carole D. Graas, the IRPS 2006 General Chair, by phone, (802) 769-1214 or email, graas@us.ibm.com.

*Carole D. Graas
IRPS 2006 General Chair
IBM
Essex Junction, VT, USA*



San Jose McEnery Convention Center

2006 IEEE INTERNATIONAL VACUUM ELECTRONICS CONFERENCE (IVEC)

The Seventh International Vacuum Electronics Conference (IVEC 2006) is returning to the picturesque city of Monterey, California, April 25-27, 2006. This year, IVEC will be combined and co-located with the International Vacuum Electron Sources Conference (IVESC), resulting in a joint conference that provides expanded coverage of the technologies of interest to our participants. The meeting will be held at the Monterey Conference Center at the Portola Plaza Hotel under the sponsorship of the IEEE Electron Devices Society (EDS). This year the conference will feature a banquet and evening for socializing at the famous Monterey Bay Aquarium. Robert Fickett of CPI will serve as the General Chair, and Dr. Baruch Levush of NRL will serve as Technical Program Chair. Oversight of the conference is provided by the EDS Technical Committee on Vacuum Devices; an international committee chaired by Dr. Dan Goebel.

Since its inception in 2000, IVEC has become the premier international venue for presentations in the field of vacuum electronics. IVEC/IVESC 2006 continues the tradition of the U.S. "Power-Tube" Conference in Monterey, which has become the U.S. home of IVEC, in providing a forum for presentation and discussion of topics on vacuum devices, vacuum microelectronics, applications of vacuum devices, and the theory and technological developments of vacuum electron devices. The inclusion of IVESC this year will provide an expanded presence of electron-source device technology and will provide additional depth and scope to the breakthroughs in source technology that are happening every day. For systems developers, IVEC and IVESC should provide 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 frequency. Rapid technological advances in the vacuum electron device area, plus new and improved devices, are mak-

ing possible systems having reliability and capabilities well beyond any fielded today.

IVEC meets in the U.S. every other year and in Europe and Asia alternately every fourth year. 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 conference web site at <http://ivec2006.org>.

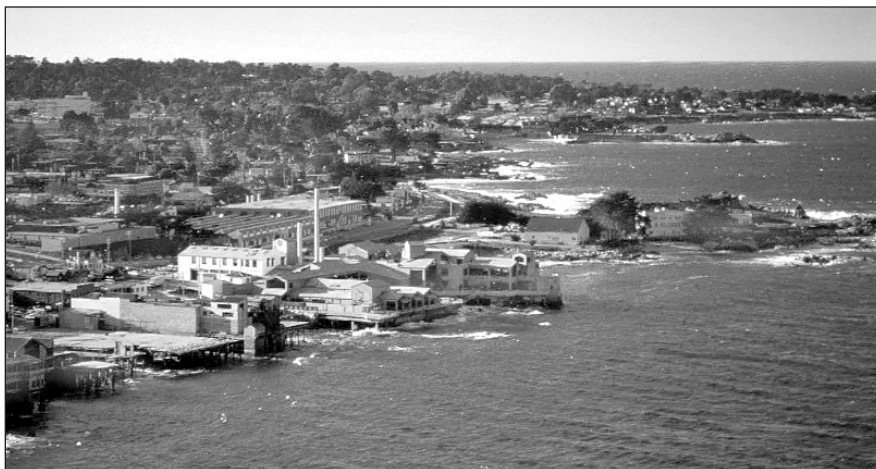
The IVEC 2006 conference will begin with a half-day plenary session followed by two and a half days of oral and poster sessions. Extended abstracts of up to two pages in length for IVEC/IVESC 2006 should be submitted electronically to Mr. Ralph Nadell of Palisades Convention Management at Rnadell@pmc411.com by January 6, 2006. Information on the preparation and submission of the abstracts can be found on the conference web site.

The 2006 joint IVEC-IVESC conference will open the first day with a plenary session featuring invited speakers covering several subjects of broad interest to the joint community. This session will be followed by two and a half days of technical presentations that include both oral and poster sessions. Sessions featuring the

IVESC community papers on electron source and cathode technologies will also be organized during the conference. 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 microwave and millimeter wave devices, displays, sensors, field emitter arrays and microwave devices. Under systems and subsystems, IVEC and IVESC are 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, RF and high voltage break-

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Monterey Convention Center

2006 IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES (ICMTS)



Hyatt Regency Hotel in Austin, Texas

The IEEE Electron Devices Society is sponsoring the 2006 International Conference on Microelectronic Test Structures (ICMTS). The purpose of this conference is to bring together designers and users of test structures to discuss recent developments and future directions for the use of test structures for semiconductor process evaluation. The 19th ICMTS will be held at the Hyatt Regency Hotel in Austin, Texas, USA, on March 6-9, 2006.

Test structures have played a critical role in the rapid advancement of semiconductor technology. These structures, uniquely designed to isolate and emphasize individual artifacts of the technology, have allowed technologists and designers to characterize and control the semiconductor manufacturing process and understand the fundamental properties of the technology. The International Technology Roadmap for Semiconductors identifies many of the challenges that lie ahead as technology continues to progress and test structures will be a major factor in meeting these challenges.

ICMTS began with an inaugural event in 1984 as the IEEE VLSI Workshop on Test Structures and became an IEEE Conference in 1988. ICMTS has provided a forum for the test structure design and user community to meet and discuss these important challenges and report on the most recent developments in this field. To

this end ICMTS focuses on the design, fabrication, and characterization of test structures for process and material evaluation, reliability and process failure analysis, manufacturing process control, device and circuit modeling, sensors and devices as well as associated measurement techniques and data analysis. ICMTS is one of the few international IEEE-sponsored conferences that move between Europe, Asia, and the USA in a three-year cycle.

Original papers presenting new developments in silicon, III-V compounds, and nanotechnology microelectronics test structure research, implementation, and applications as well as test structures aimed at new materials and devices characterization are presented. Papers are selected based upon the merit of the work and to demonstrate the broad spectrum of test structure design and use by a worldwide community. Papers will be presented that discuss test structures and methods for:

- Material and Process Characterization
- Replicated Feature Metrology on Silicon and on Masks
- Technology R&D, Yield Enhancement, Process Integration, and Production Process Control
- Foundry/Fabless Interface Strategies
- Manufacturing of Integrated Circuits

- Nanotechnology, Displays, MEMs, Sensors, and Emerging Devices
- Device & Circuit Modeling
- Measurement Utilization Strategy
- Reliability and Product Failure Analysis

A special session on RF measurement techniques will be introduced at ICMTS 2006. All lecture sessions are held sequentially as one track, with ample time for fruitful discussion among delegates to the conference. The Technical Program Committee will present a Best Paper Award. A one-day Tutorial Short Course on Microelectronic Test Structures will precede the conference on March 6, 2006. There will be an equipment exhibition relating to test structure measurements. A Texas-styled banquet will be held on Wednesday night, and a post-conference excursion exploring Austin will be available.

Austin, known as the Silicon Hills of semiconductor technology, is a center of semiconductor activity. Companies such as SEMATECH, AT&T, Freescale, AMD, Spansion, Samsung, Silicon Labs, Cypress, and Cirrus Logic have facilities here. In addition, the 50,000 students at the University of Texas enjoy an active semiconductor research operation in Austin. But Austin is more than high-tech. Austin is a center for many types of music, holding the South by Southwest Music Conference the week after ICMTS. The Star of Texas Rodeo is also held in March. Austin is an active city, with running trails in city parks, and many lakes and rivers to enjoy. Finally, Austin is the capitol of Texas.

For those with further interest in microelectronic test structures, past ICMTS conference proceedings are available from the IEEE. In addition, more information can be found at <http://www.see.ed.ac.uk/ICMTS/>.

*Bill Verzi
ICMTS 2006 General Chair
Agilent Technologies
Austin, Texas, USA*

(continued from page 5)

down, linearity, intermodulation, noise, measurement techniques, miniaturization and thermal control.

The IVEC 2006 conference is organized by a committee made up of representatives of government, industry and university researchers. Members of the 2006 Conference Organizing Committee are listed in the table to the left:

*Dan M. Goebel
2006 IVEC Int'l Committee Chair
Jet Propulsion Laboratory
Pasadena, CA, USA*

General Chairman: Robert Fickett, CPI Technical Program Chair: Baruch Levush, NRL	
John Beighley, CPI	Carol Kory, Analex / NASA
Monica Blank, CPI	William Menninger, L-3 ETI
George Caryotakis, SLAC	Ralph Nadell, PCM
Dan Goebel, JPL	Armand Staprans, CPI
Yehuda Goren, TET	Richard True, L-3 EDD
Michael Green, Varian	Edwin Wintucky, NASA

2006 IVEC Organizing Committee

2006 IEEE WORLD CONFERENCE ON PHOTOVOLTAIC ENERGY CONVERSION (WCPEC)

(continued from page 1)

Sessions for the 4th World Conference on Photovoltaic Energy Conversion will be organized into nine major areas. Each major area is sub-divided into a number of sub-areas to facilitate the review process and the final organization of oral and poster sessions. Abstracts summarizing original research in all PV technologies are encouraged.

Technical Program Topics

- Novel Materials and Devices
- CIGS, II-VI and Related Thin Film Cells and Technologies
- Concentrator Cells and Systems, III-V Materials and Devices
- Crystalline Silicon Solar Cells and Technologies
- Amorphous, Nano/Microcrystalline, and Film Silicon Materials and Devices
- Space PV Cells and Systems
- PV Modules and System Components
- Terrestrial PV Systems
- PV Programs, Policies and Economics

Conference Awards

In recognition of the special, combined nature of the World Conference on Photovoltaic Energy Conversion, four awards will be presented to recognize

individuals who have made outstanding contributions to the advancement of photovoltaic science and technology. Three of these awards come from the societies combining to host the conference, and the fourth, the WCPEC Award, is a special award recognizing the world nature of the conference. Individuals are encouraged to nominate worthy candidates for these awards. Please check our web site, www.wcpec.org, for the nominating procedure.

The IEEE William R. Cherry Award

This award is presented at each IEEE Photovoltaic Specialists Conference and recognizes those who have made outstanding contributions to the advancement of photovoltaic science and technology. This award is named in honor of William R. Cherry, a founder of the Photovoltaic community.

The PVSEC Award

The PVSEC Award will be presented for outstanding contributions to the development of science and technology of photovoltaic solar energy conversion. The recipient is selected by the PVSEC Award Committee according to nomination from the Asia/Pacific region.

The Alexander Edmond Becquerel Prize

The Commission of the European Communities will award the Becquerel Prize for outstanding merits in photovoltaics on the occasion of the 4th World Conference on Photovoltaic Energy Conversion. This award is named after Edmond Becquerel, discoverer of the photovoltaic effect in 1839. Since it has been first awarded in 1989, the prize has become an integral part of the European PV Conferences. The prize winner is selected by the Becquerel Committee from nominations by an international group of about 60 nominators who are prominent personalities in photovoltaics.

We encourage everyone to join us in making this a memorable worldwide conference.

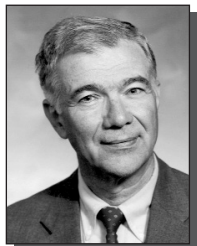
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*Heinz Ossenbrink
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European Commission*

*Makoto Konagai,
WCPEC-4 General Co-chair
Tokyo Institute of Technology*

SOCIETY NEWS

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 (Vice-President), Dennis Buss, Yoshiro Hiramoto, Renuka Jindal, Lou Parrillo, Jay Prasad, S. Sun and Jeff Welser. In addition to e-mail communications, the committee

meets during the IEDM. Fortunately, the EDS awards receive numerous nominations. The prestigious EDS J. J. Ebers Award (Lou Parrillo, Chair), receives extremely good nominations, ensuring the competitiveness and continuing quality of this award. The IEDM, with a large contingent of EDS members present, is the site for the announcement of this award. 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.

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

EDS PUBLICATIONS COMMITTEE REPORT



Renuka P. Jindal

Changes in the publications world continue to occupy center-stage in the Electron Devices Society. Many new exciting ideas are emerging. Since my last communication published in January 2005, we have covered a lot of ground. We released the EDS Archival Collection DVD at the IEDM in December 2004 as an exclusive EDS member benefit. Please see earlier communications "EDS Announces its Archival Collection on DVD (1954-2004), EDS Newsletter, January 2005" for details. This product is being sold at a bargain price of \$30 US dollars with student members paying only \$9.95. To keep this product current, we have upgraded our EDS annual CD-ROM to a DVD. Working together, the Archival Collection and annual DVD bring everything that was ever published by EDS; to you, on-demand anytime, anywhere, at a give-away price. This is in keep-

ing with our promise of continuing to enhance the value of EDS membership. Other exciting news that I would like to share with you is that this material has also been made available to our members on-line free-of-charge through IEEE Xplore. A press release covering this appeared in the October 2005 EDS Newsletter. Another idea that is in the initial investigation phase, is to generate DVDs of short-courses that were presented in the past at the IEDM. If this idea sounds enticing, please let us know.

Our core publications *Transactions on Electron Devices* (T-ED) and *Electron Device Letters* (EDL), continue to do very well with increased circulation and revenue through subscription packages via IEEE Xplore. We continue to tighten up the review process in connection with inadequate referencing of prior art. Both publications are evolving in response to technology changes; a high-priority field is Organic Electronics. By direct email campaign we are exposing researchers in this field to our flagship publications T-ED and

EDL. Hopefully we should see our efforts bear fruit over the next five years. Our goal continues to be to deliver high-quality technical information to the portal of choice either your doorstep or webstep.

The first issue of *Journal of Display Technology* (J-DT) was published in September 2005. The publication is jointly sponsored by EDS and six other IEEE societies (BT, CPMT, IA, IM, LEO and SSC), as well as the Optical Society of America (OSA). The publication covers the theory, material, design, fabrication, manufacturing and application of information displays and aspects of display technology that emphasize the progress in device engineering, design and simulation, materials, electronics, physics, and reliability aspects of displays and application of displays. You can subscribe to J-DT via your IEEE member renewal bill or if you have already renewed it, you can subscribe through the Add Services web-page at www.ieee.org/addservices.

The future of *Circuits & Devices Magazine* (C&D) continues to be uncertain. As you may know we car-

ried out an internal assessment of the magazine. Although the EDS ad-hoc committee gave a thumbs-up the other two societies namely IEEE Circuits and Systems Society and Lasers and Electro-Optics Society, have decided to withdraw financial support. Currently we are working with the C&D stakeholders on how to restructure the magazine to make it financially viable. The Magazine carries a 20 year legacy and it would be unfortunate to lose it.

Another idea that is on the drawing board is "Ask EDS". This would be a

"members-only" service to provide answers to technical questions submitted by EDS members. The structure would be similar to that for any other EDS publication. The submitted question will be forwarded by the Editor-in-Chief to technical experts for a timely response. All Q&As will be archived and made available only to EDS members. If you have any suggestions and would like to get involved, please let me know.

The Publications Committee continues to be very vibrant, executing a multitude of projects 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 that lies ahead of us. Please do not hesitate to contact me at r.jindal@ieee.org.

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

EDS OPTOELECTRONIC DEVICES COMMITTEE REPORT



Leda Lunardi

The Optoelectronic Devices Technical Committee of the EDS was re-activated in 1998 with the reappointment of Chennupati Jagadish, who served two terms as the Chair.

Since January 2003, Leda Lunardi has been the new Chair of the committee.

The OTDC members would like to thank retiring colleagues, Yoshiaki Nakano (U. of Tokyo), Paul Yu (UCSD) and Peter S. Zory (U. of Florida, Gainesville) for their services during the past few years.

The main mission of the OTDC is to ensure that the field of optoelectronics is sufficiently covered by EDS. More specifically the various functions include:

- To identify topics for special issues or review articles of EDS sponsored journals
- To review requests for EDS sponsored or co-sponsored conferences, technical meetings or workshops with enough coverage of the field of optoelectronic devices
- To initiate workshops in the emerging areas of optoelectronic devices
- To participate in EDS sponsored journals and steering committees (like the *Journal of Lightwave Technology*)

- To act as liaison with other technical committees within EDS (e.g. compound semiconductor devices and circuits), within IEEE (LEOS, MTTs) or other societies (OSA) with similar interests

Some topics for workshops suggested during 2005 were as following:

- Nanophotonics
- Photonic circuits integration
- Optoelectronics on Silicon
- Free-Space Laser Communications
- Network Technologies
- Multimode Fiber Optical Links and Transmission Issues
- Photonic architectures and devices for LANs and access networks

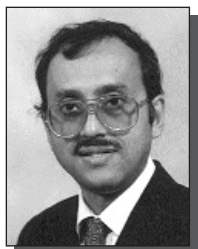
The OTDC meets once a year during the EDS AdCom in December at the IEDM in Washington, D.C. For any comments or suggestions, please contact directly: Leda Lunardi, Department of Electrical and Computer Engineering, North Carolina State University, 234-A MRC 2410 Campus Shore Dr., P.O. Box 7243, Raleigh, NC 27695-7243; Phone: (919) 513-7362; FAX: (919) 515-3027; Email: leda_lunardi@ncsu.edu or leda@ieee.org.

Leda Lunardi
EDS Optoelectronics Devices
Committee Chair
North Carolina State University
Raleigh, NC, USA

Leda Lunardi, Committee Chair North Carolina State University	
Herbert S. Bennett , National Institute of Standards and Technology, Gaithersburg, MD, USA	Yi-Jen Chiu , National Sun Yat-Sen University Koahsiung, Taiwan, ROC
Jamal Deen , McMaster University Hamilton, Ontario, Canada	'Shaya' Fainman , University of California at San Diego La Jolla, CA, USA
Lorenzo Faraone , University of Western Australia Crawley, Australia	Scott A. Hamilton , MIT Lincoln Laboratory Lexington, MA, USA
Fouad Karouta , Eindhoven University of Technology Eindhoven, The Netherlands	John H. Marsh , Intense Photonics Ltd. High Blantyre, United Kingdom
Stephen E. Ralph , Georgia Institute of Technology Atlanta, GA, USA	Edward 'Ted' Sargent , University of Toronto Toronto, Ontario, Canada
Rengarajan Sudharsanan , Spectrolab Inc., Sylmar, CA, USA	Osamu Wada , Kobe University Kobe, Japan

The 2005 Optoelectronic Devices Technical Committee members

EDS COMPOUND SEMICONDUCTOR DEVICES AND CIRCUITS COMMITTEE REPORT



Supriyo
Bandyopadhyay

The Compound Semiconductor Devices and Circuits Technical Committee (CSDCTC) was formed in early 1998 to provide a global forum on devices and circuits containing compound semiconductors.

EDS members can leverage the CSDCTC to exchange information about recent results and advances. The Committee explores new applications, new markets and new roles for compound semiconductor devices and circuits, identifying whenever possible and appropriate, hot new trends.

The CSDCTC acts as a liaison to sister societies such as LEOS and MTTs, as well as sister councils such as NTC, to identify burgeoning application areas and new technology roadmaps. It also works to ensure that

EDS has appropriate coverage of compound semiconductors in its publications, conferences and workshops.

This year the CSDCTC members discussed trends that offer new opportunities for compound semiconductors. There was considerable focus on microwave circuits in the 10-100 GHz range where compound semiconductors are still expected to dominate over SiGe. Advances in InP HBTs and GaN HFETs were discussed. They will remain important constituents of RF and mixed signal circuits. The workhorse for optics and electro-optics has always been compound semiconductors and this trend will continue in the near future. Areas of significant commercial significance include HBTs, quantum dot lasers, millimeter wave circuits and high temperature/high power devices.

A new area of relevance for compound semiconductors is 'spintronics' which purports to store, process and communicate information by encod-

ing information in the spin degree of freedom of an electron or hole. Major strides were made in this area over the last two years. Important materials for spintronics are dilute magnetic semiconductors such as GaMnAs which have spontaneous spin polarization of charge carriers. These materials are used as spin injectors and detectors. The ability to control the magnetism in these compound semiconductors by an applied electric field has opened up hitherto unknown engineering applications and may revolutionize MRAM technology.

The members of the CSDCTC welcome your suggestions and inputs. Please e-mail them to sbandy@vcu.edu.

Supriyo Bandyopadhyay
EDS Compound Semiconductor
Devices & Circuits Technical
Committee Chair
Virginia Commonwealth University
Richmond, VA, USA

EDS MEMBER, GEORGE HEILMEIER, WINS PRESTIGIOUS KYOTO PRIZE



George Heilmeyer

George Heilmeyer, a long-time member of the Electron Devices Society, received the prestigious **KYOTO PRIZE** in the Advanced Technology Category of Electronics on November 10,

2005, in Kyoto, for his "*pioneering contributions to the realization of flat-panel displays using liquid crystals*". His groundbreaking research in the field of liquid crystals and his direct contributions to the development of the liquid crystal display have led to the formation of a world-wide multi-billion dollar display industry. The Liquid Crystal Displays, or LCDs as they are commonly known, are used widely almost every place where a

display is needed, including TVs, laptop and desktop computers, watches, cellular telephones, hand held consumer electronics and automobiles.

The Kyoto Prize was established by Dr. Kazuo Inamori to support his belief that there is no higher calling than to work for the greater good of all humankind; and second, to recognize those dedicated yet unsung people who improve the world through their research, science, and art. The prize is presented annually in three categories: Advanced Technology, Basic Sciences, and Arts and Philosophy. Consisting of academic honors, a commemorative gold medal and a cash gift of 50 million yen (approximately \$460,000), it is Japan's highest private award for human achievement.

George H. Heilmeyer, received his Ph.D. from Princeton University in 1968. He continued his work at the

RCA Laboratories in Princeton, NJ, where he studied the electro-optic effects in liquid crystals and their application to displays, a field pioneered by Richard Williams, a physical chemist at RCA. A group under Heilmeyer studied numerous materials and eventually found some with a turbulent property they dubbed dynamic scattering. An applied voltage changed their appearance from transparent to a light-scattering milky white. A rudimentary display that could change colors with an applied voltage quickly followed this discovery. The LCD was a dramatic display that consumed almost no power, so it was ideal for applications like hand-held digital watches and calculators. In 1973, Sharp, Corp. released a hand-held calculator with an LCD display and numerous commercial applications quickly followed.

Following his pioneering work at RCA, in 1971 he joined the U.S. Department of Defense, becoming Director of the Advanced Research Projects Agency (DARPA) in 1974. In 1977 he became a Vice President and then Chief Technical Officer at Texas Instruments, Inc. He became the CEO of Bell Communications

Research, Inc. in 1991 and is presently Chairman Emeritus, Telcordia Technologies, Inc.

Heilmeier is a Fellow of the IEEE and the recipient of the IEEE Medal of Honor. He is a member of the National Academy of Engineering and American Academy of Arts and Sciences. Other honors that recog-

nize his contributions to LCDs include the 1991 President's National Medal of Science, U.S.A., and the 1990 C&C Prize from NEC.

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

TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING 2004 BEST PAPER AWARD PRESENTED

At a ceremony held on September 15, 2005, in conjunction with the International Symposium on Semiconductor Manufacturing (ISSM), 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, Dr. Sean Cunningham presented the award and certificates to Professors Michael Orshansky, Linda Milor, and Chenming Hu. The award-winning paper is entitled "Characterization of Spatial Intrafield Gate CD Variability, Its Impact on Circuit Performance, and Spatial Mask-Level Correction." This paper, which appeared in the February issue, was chosen for its development of methods to measure and analyze spatial within-chip variations, to understand the impact that these variations have on circuit speed, and to compensate for these variations. Manufacturing variation in integrated circuits is of clear importance and substantial concern to the industry. Intrafield or within-chip variations arising from global lens aberration and pattern-dependent optical proximity effects are

shown to be of particular importance in degrading circuit performance. The paper also proposes a mask-level spatial gate critical-dimension (CD) correction approach to improve average circuit speed, thus linking characterization, modeling, and design together to improve manufacturability.



Electrical Engineering from the University of California, Berkeley.

He is the Chief Technology Officer of TSMC, Hsinchu, Taiwan, R.O.C. He is on leave from the University of California, Berkeley, where he is the TSMC Distinguished Professor of Electrical Engineering and Computer Sciences. He was an Assistant Professor at the Massachusetts Institute of Technology, Cambridge, for three years. He was the Board Chairman of the East San Francisco Bay Chinese School and is a frequent advisor to industry and educational institutions. He is a Co-founder and Co-chairman of Celestry Design Technologies, Inc. His present research interests include microelectronic devices, thin dielectrics, circuit reliability simulation, and nonvolatile memories. He has authored or co-authored four books and over 600

Chenming Hu
(S'71-M'76-SM'83-F'90) received the B.S. degree from the National Taiwan University, Taiwan, R.O.C., and the M.S. and Ph.D. degrees in

research papers and supervised 60 doctoral students. He leads the development of the MOSFET model BSIM3v3 that has been chosen as the first industry standard model for IC simulation by the Electronics Industry Association Compact Model Council. He is an Adjunct Professor of Peking University.

Dr. Hu is a member of the U.S. National Academy of Engineering and an Honorary Professor of the Chinese Academy of Science. In 1991, he received the Excellence in Design Award from Design News and the inaugural Semiconductor Research Corporation Technical Excellence Award for leading the research of the IC reliability simulator, BERT. He received the SRC Outstanding Inventor Award in 1993 and 1994. In 1997, he received the IEEE Jack A. Morton Award for contributions to the understanding of MOSFET reliability physics. In 1999, he received the DARPA Most Significant Technological Accomplishment Award for co-developing FinFET, a promising MOSFET structure for scaling to 10-nm gate length. He is a member of the U.S. National Academy of Engineering, a Fellow of the Institute of Physics, an Honorary Professor of the Chinese Academy of Science, Beijing, China, and of Chiao Tung University, Taiwan, R.O.C. He has received the University of California at Berkeley's highest honor for teaching, the Distinguished Teaching Award. He was given the Research and Development 100 Award for one of the 100 most technologically significant new products of the year, in 1996.



Linda Milor
(S ' 8 6 - M ' 9 0)
received the Ph.D.
degree in Electrical
Engineering from the University of California,
Berkeley, in 1992.

She is currently an Associate Professor of electrical and computer engineering at the Georgia Institute of Technology, Atlanta. Prior to that, she served as Vice President of Process Technology and Product Engineering at eSilicon Corporation, as Product Engineering Manager at Advanced Micro Devices, Sunnyvale, CA, and was a faculty member at the University of Maryland, College Park. She has authored

over 50 publications and is the holder of three patents on yield and test of semiconductor ICs.



Michael Orshansky
(S ' 9 6 - M ' 0 3)
received the Ph.D.
degree in Electrical
Engineering and Computer
Science from the University of California,
Berkeley, in 2001.

He is currently an Assistant Professor of electrical and computer engineering at the University of Texas, Austin. Prior to that, he was a Research Scientist and Lecturer with the Department of Electrical Engineering and Computer Science at the University of California, Berkeley. His research interests include circuit design and analysis techniques for manufacturability of high-performance digital and mixed-signal circuits, statistical CAD algorithms for design-for-manufacturing and yield improvement, algorithms for low-power IC design, and modeling and simulation of semiconductor devices. He has published more than 20 technical papers in the areas of statistical CAD algorithms, device physics, and modeling.

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

ANNOUNCEMENT OF THE EDS GRADUATE STUDENT FELLOWSHIP WINNERS FOR 2005



Paul K. L. Yu



Steven 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, 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.

EDS proudly announces four 2005 EDS Graduate Student Fellowship winners. Brief biographies of the 2005 recipients appear below. Detailed articles about each Graduate Student Fellowship winner and his work will appear in forthcoming issues of the EDS Newsletter.



Tony, Low Aik Seng
received the B. Eng degree with first class honors from the National University of Singapore (NUS) in 2002, in Electrical

Engineering and is presently working towards a Ph.D. degree. In 2001, he was with Chartered Semiconductor where he developed simulation programs for statistical analysis of plasma-induced damages on gate oxide. Since 2002, he has been with the Silicon Nano-

Device Laboratory at NUS where his research mainly focuses on modeling of semiconductor devices. This involves the study of novel device structures and new channel materials, physics of transport in diffusive and ballistic regimes, bandstructure calculations using effective mass and ab initio methods. He has authored or co-authored more than 11 journal and conference papers in the above areas. He was awarded the Chartered Semiconductor Scholarship for his undergraduate and graduate studies for 2000-2005 and the 2002-2006 Singapore Millennium Graduate Scholarship.

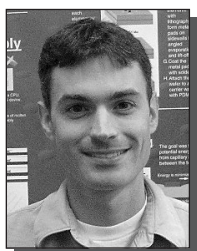


Sun-Jung Kim
was born in Daegu, Korea, in 1973. He received the Bachelor's degree in Electronics Engineering from Kyungpook National University, Daegu, Korea, in 1996 and the M.Eng. degree in Electrical & Computer Engineering from National University of Singapore, in 2001. Cur-

rently, he is pursuing a Ph.D. degree for Electrical & Computer Engineering at the National University of Singapore.

His research experience and interests range from CMOS front-end process to integration of passive devices in Cu back-end interconnects, including development of high-dielectrics for RF/analog MIM capacitors, MOSFET gate stacks, DRAM, and Flash memories. He also possesses strong interests in gate dielectric reliability and radiation effects on non-volatile memories.

He has authored or co-authored 30 internationally referred journals and conference proceedings in the area of semiconductor devices and fabrication. He received the Best Student Paper Award at the 2004 Symposium on VLSI Technology.



Christopher J. Morris

received the B.S. and M.S. degrees in Mechanical Engineering from the University of Washington, Seattle, in 1998

and 2000, respectively. His Master's Thesis was on microfabricated, Tes-

la-valve pumps. From 2001-2002, he worked at Micronics, Inc., where he modeled, built, and tested microfluidic devices for medical diagnostic and life sciences applications. He is currently pursuing a Ph.D. in Electrical Engineering at the University of Washington, studying the use of self-assembly in fluids to integrate micro-sized components from different fabrication processes.

In addition to the 2005 EDS Fellowship, he received the Boeing Fellowship in 1998, the Washington NASA Space Grant in 1998-1999, and the U.S. Department of Defense SMART Graduate Fellowship, on tenure for 2005-2006. He is a member of the ASME since 1998, and the IEEE since 2003.



Elena I. Smotrova

was born in Kharkov, Ukraine, in 1980. She received her M.Sc. degree in Applied Mathematics from the Kharkov National University

in 2002. Since November 2002, she has been working towards the Ph.D. degree in Radio Physics at the Department of Computational Elec-

tromagnetics of the Institute of Radio-Physics and Electronics at the National Academy of Sciences of Ukraine in Kharkov. Her research interests are in the accurate electromagnetic modeling of microcavity semiconductor lasers with the aid of integral equations and specifically tailored lasing eigenvalue problems. She has published 20 papers in international technical journals and conference proceedings in the area of semiconductor lasers and optical microresonators. In 2004, she was a recipient of the Young Scientist Prize at the International Kharkov Symposium on Physics and Engineering of Microwaves, Millimeter and Sub-Millimeter Waves (MSMW-04), for the best poster paper.

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

*Steven A. Parke
EDS Chair Graduate
Student Fellowship
Boise State University
Boise, ID, USA*

EDS SENIOR MEMBER PROGRAM



James B. Kuo

The Electron Devices Society established the EDS Senior Member Program to grant IEEE/EDS members the opportunity to elevate their IEEE membership grade to Senior Member. This is

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

New Senior Members receive 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/seniormember>. 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, 445 Hoes Lane, Piscataway, NJ 08854, USA, Fax: +1 732 981 0225.

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.

*James B. Kuo
EDS Vice-President of Membership
National Taiwan University
Taipei, Taiwan*

**Update now
available**

EDS ARCHIVAL COLLECTION On DVD

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

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

Collection also includes abstract pages for the publications listed below:

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

Electron Devices Society 50th Anniversary Commemorative Booklet and EDS Newsletter (1999-2004), also included.

As a member of EDS, you can purchase this amazing collection for just \$30, (student members can purchase for \$9.95) by just visiting the IEEE Online Store at <http://shop.ieee.org/store/>. Be sure to log in as an EDS Member to get the \$30 price break. The IEEE product number for the DVD is JD1554. New members are welcome to join at <http://www.ieee.org/eds/join>.

Additionally, an **update of the archive can be purchased through your 2006 renewal bill** for an additional \$30 (students \$15). The updated EDS DVD Package will be completely compatible with the EDS Archival Collection DVD and will include all the articles of T-ED and EDL from September through December 2004 and all of 2005, as well as the 2005 IEDM.



**CALL FOR NOMINATIONS -
2005 IEEE ELECTRON
DEVICES SOCIETY
REGION 9 BIENNIAL**



OUTSTANDING STUDENT PAPER AWARD

Description: Awarded to promote, recognize, and support meritorious research achievement on the part of Region 9 (Latin America and the Caribbean) students, and their advisors, through the public recognition of their published work, within the Electron Devices Society's field of interest: 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.

Prize: A distinction will be conferred in the form of an Award certificate bestowed upon the most outstanding Student Paper nominated for the two-year period. The prize will be presented at either the International Caribbean Conference on Devices, Circuits and Systems (ICCDCS) or the Symposium on Microelectronics Technology and Devices (SBMicro). In addition to the recognition certificate, the recipient will receive a subsidy of up to \$1,000 to attend either of the conferences above, where the award is to be presented. There will be a formal announcement of the winner in a future issue of the EDS Newsletter.

Eligibility: Nominee must be an IEEE EDS student member at the time of nomination, be enrolled at a higher education institution located in Region 9. In the case of a co-authored paper, only eligible co-authors may be nominated. Papers should be written in English on an electron devices related topic. Papers should have been published, in full-feature form, during 2004-2005 in an internationally recognized IEEE sponsored journal or conference in the field of electron devices related topics. Statements by the student and by the faculty advisor should accompany the nomination. Nominator must be an IEEE EDS member. Previous winners of this award are ineligible.

Basis for Judging: Demonstration of Nominee's significant ability to perform outstanding research and report its results in the field of electron devices. Papers will be judged on: technical content merit, originality, structure, clarity of composition, writing skills, overall presentation. These criteria will be weighted by the assessment of the nominee's personal contribution and the linkage of the nominated work to the nominee's career plans.

Nomination Package:

- Nominating letter by an EDS member (it may be the faculty advisor)
- A brief one-page (maximum) biographical sketch of the student
- 1000 words (maximum) statement by the nominated student describing the significance and repercussion of the nominated work within the wider scope of the nominee's career plans
- 400 words (maximum) statement by the faculty advisor under whose guidance the nominated work was carried out. It should unmistakably state the faculty advisor's support of the nomination, and clearly explain the extent of the nominated student's contribution, as well as its relevance for the overall success of the reported work.
- A copy of the published paper

Timetable:

- Nomination packages are due at the EDS Executive Office no later than February 15, 2006
- Recipients will be notified by March 15, 2006
- Formal presentation of the awards will take place at the ICCDCS in April 2006 or the SBMicro in August 2006
- 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 R9 Outstanding Student Paper Award
445 Hoes Lane, Piscataway, NJ 08854 USA
http://www.ieee.org/society/eds/awards/r9_award.xml

For more information contact:

Laura Riello, EDS Executive Office
l.riello@ieee.org or 732-562-3927



CALL FOR NOMINATIONS - 2006 IEEE ELECTRON DEVICES SOCIETY GRADUATE STUDENT FELLOWSHIP

Description: One year fellowships awarded 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, 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 students in each of the following geographical regions every year: Americas, Europe/Middle East/Africa, and Asia & Pacific.

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 Graduate 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, 2006
- Recipients will be notified by July 15, 2006
- Monetary awards will be given by August 15, 2006
- Formal presentation of the awards will take place at the IEDM Awards Ceremony in December 2006.
- 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 Graduate 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>

EDS DISTINGUISHED LECTURER VISITS IIT, MADRAS

EDS Distinguished Lecturer, Dr. Jayasimha Prasad visited the Department of Electrical Engineering at the Indian Institute of Technology, Madras, during August 22–25, 2005. Dr. Prasad was hosted by Prof. Amitava DasGupta and Prof. S. Srinivasan, who is the Head of the Department. Dr. Prasad gave two seminars. The first talk was on “SiGe Heterojunction Bipolar Technology and Applications” and the second talk on “Microwave Characterization of Transistors”. Both talks were very popular and were well attended by students and faculty.

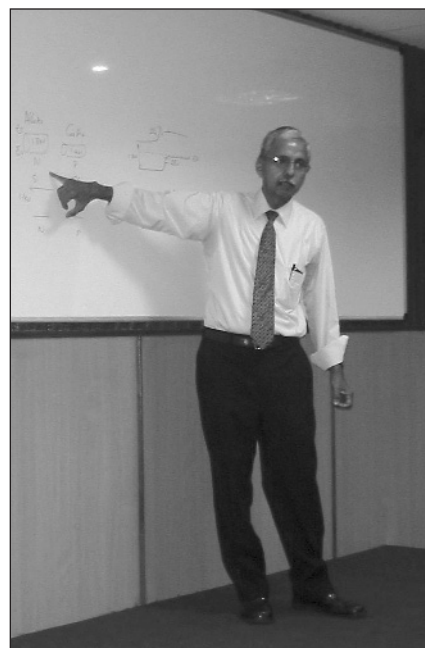
In the first talk, Dr. Prasad described in a historical perspective, how the SiGe HBT technology evolved and how it is competing with III-V technology. Dwelling on device physics, Prasad showed that by incorporating a SiGe base, the current gain, Early voltage, F_t and F_{max} of the transistor is enhanced. He described the various SiGe profiles that can be used in the base and their merits. He also discussed the various process architectures to introduce SiGe base in a regular bipolar process flow. He discussed the latest BiCMOS architectures as well. He showed the impressive 300GHz SiGe transistors with 3.2ps gate delay and compared them with the 450GHz transistors with 1.95ps gate delay in InP HBT technology. Later, he showed the various circuit applications starting from cell phones to 40Gb/s fiber optic communications.

In the second talk, Dr. Prasad discussed the methods of characterizing high-frequency transistors with S-parameters. He described the use of Vector Network Analyzer, calibration methods and the process of de-embedding pad parasitics. He then discussed the problems with extracting F_{max} where there is a need for a simultaneous conjugate match. He talked about stability factor and

defined Maximum Stable Gain (MSG), Maximum Available Gain (MAG) and Mason’s Unilateral Gain (U). He showed some representative data for high-frequency transistors and showed that U is independent of the device configuration. Both the talks were very enjoyable as Dr. Prasad mixed the technical material with his sense of humor and the students and faculty liked it very much. The talks were held in the newly renovated and air-conditioned auditorium, which had modern facilities such as a LCD projector to display slides from the PC. Dr. Prasad gave two additional lectures on III-V HBTs in a classroom to graduate students taking a course on high-speed circuit design.

Dr. Prasad was given a tour of the Microelectronics Lab headed by Prof. K.N. Bhat and VLSI Design Lab headed by Prof. S. Srinivasan. Prasad was impressed by the facilities and the excellent progress made in terms of research by the students and faculty of the department.

*Amitava DasGupta
Associate Professor
Indian Institute of Technology
Madras, India*



Dr. Prasad explaining the band diagram of a Heterojunction Bipolar Transistor.



Students listening to Dr. Prasad's talk on HBTs.

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

Antonio Abramo*	Vladimir K. Makukha
Thomas R. Apel	Neal R. Mielke
Asen Asenov	Faran Nouri*
Kazutami Arimoto	Vittorio Passaro
John S. Atherton	Priyadarsan Patra
Charles T. Black*	Bipul C. Paul*
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Shaestagir Chowdhury	Shanthi Prasad
Thuy B. Dao	Jin-Koo Rhee
Michael C. Gaidis	Mahmoud Shahram
James K. Guenter	Kentaro Shibahara
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Christopher Hobbs*	Moataz B. Soliman*
Byoung Hun Lee	P.R. Suresh
Hideto Iwaoka	Jian Tan*
Sudhakara R. Kolli	Richard L. Waters
Nikolaos Konofaos	John S. Wenstrand
David K. Kwong	Joseph Wiener
Binghui Li	Fan Wu
Jengping Lin	

* = Individual designated EDS as nominating entity

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

For more information on senior member status, visit http://www.ieee.org/membership/grades_cats.html#SENIORMEM. To apply for senior member status, fill out an application at <http://www.ieee.org/organizations/rab/m d/smelev.htm>.

**PROCEEDINGS OF THE
ESSDERC/ESSCIRC
CONFERENCES AVAILABLE
IN XPLORE**

The proceedings of the ESSDERC and ESSCIRC conferences from year 1997 until today have been made available since November 2005 in the XPLORE database for IEEE members. This achievement is the result of a joint effort involving the IEEE Electron Devices Society, the Solid State Circuits Society and the ESSDERC/ESSCIRC steering committee.

The European Solid State Device Research Conference (ESSDERC), founded in 1971 by C. Hilsum, W. Heywang and L.J. Tummars, is a forum for presentation and discussion of recent advances in solid-state devices and technologies. The European Solid State Circuit Conference (ESSCIRC), initiated in 1975 by J. Borel, E. Vittoz and P. Jespers, addresses instead advanced research in solid-state circuits. In an effort to establish a truly international event, the two conferences were united in 2002 and, since then, are jointly organized at the same European location by a unique organizing committee, which takes full financial responsibility for the event. Continuity is ensured by the joint steering committee and the permanent secretary. The joint conference, which is run with the technical sponsorship of IEEE, may be considered as the European counterpart of IEDM and ISSCC.

While the two conferences run in parallel, keynote presentations are presently delivered in plenary form. In order to account for the increasing dependence between device and circuit research, it is planned to introduce joint contributed sessions in the near future. This will represent another step to the merging process of ESSDERC and ESSCIRC.

In order to increase the attractiveness of the joint conference, the acceptance rate has been limited to 40% to enhance the overall quality. A selection of the best papers present-

ed in ESSCIRC is then published in a special issue of the *IEEE Journal of Solid-State Circuits*; likewise, a selection of the best papers presented in ESSDERC will be published in a special issue of *Solid-State Electronics*. These changes already start to pay. Both the number of submissions (presently about 600) and the attendance (about 700) have substantially increased in the last years, reflecting the growing significance of the conference. This is particularly true for contributions from outside Europe, which are now approaching the ratio of 50% with respect to the total number of submitted papers, indicating that the conference attracts increasing attention from America and the Far East.

The availability of the ESSDERC/ESSCIRC Proceedings on the IEEE Xplore database makes the conference papers easily traceable, and represents a warranty for the perspective authors that their contributions will become fully available to the scientific community. We acknowledge the collaboration of IEEE to make this outcome possible.

The next ESSDERC/ESSCIRC conference will take place in Montreux, Switzerland, on September 18-22, 2006, organized by EPFL, Lausanne. Deadline for submission of papers will be April 7, 2006.

Werner Weber
Jr. Past Chair ESSDERC/ESSCIRC
Steering Committee

Giorgio Baccarani
Chair ESSDERC/ESSCIRC
Steering Committee

Cor Claeys
Permanent Secretary
ESSDERC/ESSCIRC
Steering Committee

EDS DISTINGUISHED LECTURERS PARTICIPATE IN THE 9TH WIMNACT - JAPAN



Participants of WIMNACT-9 workshop. (From left seated) H. Iwai (3rd, President of EDS), C.-F. Yeh (4th, Director, Taipei Economic and Cultural Representative Office in Japan), M. Aizawa (5th, President of Tokyo Institute of Technology), Steve Chung (6th, ED Taipei Chapter Chair/AdCom Member), H. Ishiwara (7th, ED Japan Chapter Chair).

For the first time, the 9th IEEE EDS Mini-colloquium on Nanometer CMOS Technology (WIMNACT) was held in Japan, at the Tokyo Institute of Technology, Yokohama, on October 25th. The Workshop was sponsored by IEEE EDS, and co-sponsored by IEEE ED Taipei Chapter, IEEE ED Japan Chapter, National Chiao Tung University, Tokyo Institute of Technology, and the 21st COE Program of Tokyo Institute of Technology namely Photonic Nanodevice Integration Engineering.

The workshop covered five technical sessions, including "High-speed devices and technology", "Display and phononics", "Advanced CMOS and memory technology", "Terahertz, spin, bio and MEMS devices", and "Nano devices". Seventeen professors/experts from the National Chiao Tung University, ERSO/ITRI, Taiwan, and the Tokyo Institute of Technology were invited to deliver the outstanding talks including 8 EDS Distinguished Lecturers. Over 120 professors, students, research staffs, and engineers from companies and organizations, participated in the workshop.

The workshop was opened by Professor Hiroshi Ishiwara from the Tokyo Institute of Technology, General Chair of the 9th WIMNACT and the ED Japan Chapter Chair; followed by Professor Steve S. Chung from the National Chiao Tung University, the ED Taipei Chapter Chair. After that, Professor Shigehisa Arai from the Tokyo Institute of Technology, Leader of the 21st COE Program, introduced the activity of the program to support the research in nano-electronics and the support to this workshop. Professor Hiroshi Iwai from the Tokyo Institute of Technology, President of IEEE EDS, talked about the purpose and history of WIMNACT promoted by IEEE EDS. The guests-of-honor were Dr. Masuo Aizawa, President of the Tokyo Institute of Technology, and Dr. Ching-Fa Yeh, Director of the Science and Technology Division, Taipei Economic and Cultural Representative Office in Japan, who delivered speeches to thank the IEEE EDS for excellent distinguished lectures and opportunities to exchange ideas on leading edge nano-electronic technologies and research.

Invited talks in the technical sessions were as follows: (1) Growth of III-V Epitaxial Material Growth on Silicon Substrates for High Speed Electronic Applications (Ed. Y. Chang, NCTU), (2) Prediction and Evaluation of LSI Performance Based on Interconnect Wire Length Distribution (K. Masu, T.I.T.), (3) Current and Voltage Gains of InP Hot electron Transistors without Base Layer (Y. Miyamoto, TIT), (4) Wafer Bonding for Optoelectronic Devices (Y. C. Wu, NCTU), (5) Large-area Semiconductive Materials for Imaging Devices (J. Hanna, TIT), (6) Photonic Crystal Devices Research in National Chiao Tung University (Y. T. Huang, NCTU), (7) The Pursuit of Various Mobility Enhancing Schemes for High Performance Nanoscale CMOS Devices (Steve Chung, NCTU), (8) CMOS Scaling and its Future towards Downsizing Limit (H. Iwai, TIT), (9) Recent Progress in FET-type Ferroelectric Memories (H. Ishiwara, TIT), (10) MRAM Technology for Low Power and High Density Applications (M.-J. Kao, ERSO/ITRI), (11) Room Temperature Terahertz Oscillation of Resonant Tunneling Diodes (M. Asada, TIT), (12) Optical Manipulation of Spins in Magnetic and Non-magnetic Semiconductors - A Path to Spin-optoelectronics (H. Munekata, TIT), (13) From Bioelectronics to e-Health (Y. S. Yang, NCTU), (14) Mechanical Properties Measurement of Microscale Materials for MEMS Application (Y. Higo, TIT), (15) Detection of Channel Formation Process of Pentacene Field Effect Transistors by DC-SHG measurement (M. Iwamoto), (16) A Novel Thin-Film Transistor with Si Nanowire Channels (H. -C. Lin, NCTU), (17) Nanocrystalline Silicon Quantum Dot Devices (S. Oda, TIT).

The day after the Workshop, October 26th, the workshop host and ED Japan officers arranged a lab tour of TIT for the invited speakers from Taiwan and had a meeting with both Chapter officers attending to discuss further exchanges through similar workshops in Asian chapters.

*Hiroshi Ishiwara
General Chair of 9th WIMNACT
Chair of ED Japan Chapter
Tokyo Institute of Technology
Tokyo, Japan*

REGIONAL AND CHAPTER NEWS

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

2006 IEEE International Power Modulator Conference

The 2006 IEEE International Power Modulator Conference, combining the best features of the IEEE Power Modulator Symposium and High Voltage Workshop, will be held in Washington D.C., May 14-18, 2006. Technically co-sponsored by IEEE EDS and IEEE NPSS and financially sponsored by IEEE DEIS, the 2006 IEEE International Power Modulator Conference, is the second of the IEEE sponsored Power Modulator Conferences. Recent technical, scientific, and industrial developments in the power modulator and devices, repetitive pulsed power, and high voltage fields will be addressed at this conference. Engineers and scientists involved in the design, fabrication, specification, or utilization of various types of high voltage and repetitive pulsed power equipment in government, industry, and university environments are encouraged to attend this informative meeting. Conference proceedings will be published archiving the presentations made at the conference in technical paper format.

The conference will be held at the Hyatt Regency Crystal City, 2799 Jeffer-

son Davis Highway. The Hyatt Regency is centrally located in the Washington, D.C. area, adjacent to Washington's Reagan National Airport and minutes away from Alexandria and Georgetown. There are over 20 restaurants in the surrounding area. There is also a nearby metro station for access to the Washington, D.C. area and the Smithsonian and other museums. Visit the conference website for more information on the hotel and Washington, D.C.

One page abstracts may be submitted electronically on the conference website. All abstracts should be submitted by February 3, 2006. To submit a hard-copy abstract, contact the General Conference Chair, Dr. Ryan Umstattd. You are encouraged to visit the conference website for a complete listing of Topic areas: <http://www.eng.auburn.edu/pmc2006>. Contact us at:

*Dr. Ryan J. Umstattd
Chair, 2006-PMC*

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Third International SiGe Technology and Device Meeting - ISTDM 2006

- by James Sturm and James Kolodzey

The third International SiGe Technology and Device Meeting (ISTDM 2006) will be held on the campus of Princeton University in Princeton, New Jersey, on May 15-17, 2006. This meeting will provide a forum for device-related discussions including SiGe and other group-IV materials, processing, devices, and circuits.

One focus will address issues that are critical for commercial applications including strained silicon technology for MOSFETs and HBTs. The other focus will address innovative concepts and phenomena leading to new devices and structures, including opto-electronic/terahertz devices and strained germanium on-insulators.

The town of Princeton is the home of many leading academic, cultural, and corporate organizations. The historic downtown has restaurants, hotels, and theaters all minutes from campus by foot. Newark Airport and Philadelphia Airport are one hour away.

The proceedings will be published in the journal, *Semiconductor Science and Technology*. Abstracts are due January 15, 2006. Financial assistance is available to students who are presenting papers, and should be requested when the abstract is submitted. The conference is technically co-sponsored by: the Electron Devices Society (EDS) of the IEEE, and the American Vacuum Society. See the conference web site (www.istdm2006.org) for information on invited speakers, abstract submission, registration, travel, and other conference details.

~ Ibrahim Abdel-Motaleb, Editor

ED South Brazil

- by Jacobus W. Swart and
Ricardo Cotrin

The 21st Symposium on Microelectronics Technology and Devices will be held from August 28 to September 1, 2006, in Ouro Preto, MG, Brazil. This Symposium is organized by two Brazilian scientific societies: SBMicro (Sociedade



PHOTO CREDIT: RYAN UMSTATTD

2006 PMC will be held in Washington, D.C.



2006 ISTDM on the campus of Princeton University, Princeton, NJ

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 modelling of microsystems, integrated circuits and devices, and held annually in Brazil. The goal of the symposium is to bring together researchers in the fields of processing, materials, characterization, modelling and TCAD of integrated circuits, optoelectronics and MEMS. In conjunction with SBMicro 2006, an additional symposium will be 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 have been 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 Island" (Florianópolis, 2005). In 2006 it will be "Chip on the Mountains". Since the year 2002, the proceedings of the SBMicro Symposium are published by The Electrochemical Society.

The 2006 symposia will take place in Ouro Preto, which means black gold, and was settled in the 17th century by the "bandeirantes", explorers searching for gold. The city prospered and became the state capital in the early 19th century. Surrounded by mountains and nature, the city is located in the central part of the state of Minas Gerais and 150km from Belo Horizonte, the current state capital. Ouro Preto is a UNESCO World Heritage Center featuring steep streets and well preserved Portuguese colonial houses. Among the traditional buildings with distinct architecture, the town has thirteen large Baroque churches and numerous public monuments. Cultural, popular and religious events are yet another reason to visit Ouro Preto. The handicrafts fair and the

broad diversity of local restaurants offer the opportunity to get a glimpse of the rich regional culinary and artistic traditions, which reflect their blend of Brazilian, European and African roots.

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 characterization 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 5, 2006; Notification of Acceptance: May 7, 2006; Camera-ready: May 16, 2006. For more information see <http://www.sbmicro.org.br/sbmicro> and <http://www.sbc.org.br/sbcc>, or contact the program Co-Chairs: José Alexandre Diniz (diniz@led.unicamp.br) and Patrick J. French (p.j.french@ewi.tudelft.nl) for SBMicro and Ricardo Jacobi (rjacobi@cic.unb.br) or Juergen Backer (juergen.backer@itw.uni-karlsruhe.de) for SBCCI.

ED UNICAMP Student Branch

- by J. W. Swart and Ricardo Cotrin

The ED South Brazil Chapter and the ED Student Chapter at UNICAMP held a series of DL's between

August and September. On August 21, 2005, two distinguished lectures were delivered at the School of Electrical and Computer Engineering at UNICAMP, Campinas, Brazil. Professor Magali Estrada del Cueto, talked about "Amorphous and polycrystalline SiC TFT" and Professor Antonio Cerdeira Altuzarra talked about "Non-Linear Harmonic Distortion". Both DLs are from the Department of Electrical Engineering, CINVESTAV, Mexico D.F., and they are partners of the South Brazil and Student Chapter, respectively.

Professor Cor Claeys from IMEC, Belgium, and partner of ED South Brazil, also took part in the DL program delivering two presentations. On August 29th, at UNICAMP he talked about "Low Frequency Noise Characterization of Advanced Semiconductor Materials and Devices", and on September 5th he presented "Defect Engineering in High Mobility Substrates for Advanced CMOS Technologies", as an invited talk during the Symposium on Microelectronics Technology and Devices - SBMicro 2005, in Florianópolis, Brazil.

More than 30 persons attended the lectures held at UNICAMP and over 50 people attended the one at the SBMicro meeting. The lectures were followed by visits to the laboratories at UNICAMP and discussions with researchers and students.

~ **Adelmo Ortiz-Conde, Editor**



From the right: Professor Jacobus Swart (ED South Brazil Chair) and the DL's Professors Antonio Cerdeira and Magali Estrada with members of the Student Chapter of ED at Unicamp.

EUROPE, MIDDLE EAST & AFRICA (REGION 8)

ED/MTT/CPMT/COM/SSC Novosibirsk Chapter

- by Viatcheslav P. Shuvalov

This year the activities of the Novosibirsk Joint Chapter were developed in various directions. First priority was to increase the number of members. The most intensive growth happened in the ED and COM groups of the chapter.

Another important aim is to increase the number of IEEE Senior Members.

All necessary papers of Prof. Vladimir K. Makukha were submitted to the IEEE A&A Committee and the papers of Assoc. Prof. Alexander V. Gridchin will be submitted at the end of this year.

The chapter provides great support for activities in the IEEE Siberia Section. Due to efforts of its chapter members, three new chapters (Education, Power and Industrial Electronics and Engineering in Medicine and Biology) are now being established in the Novosibirsk region. Three new chapters are being established in Tumen, Ekaterinburg and Omsk.

Organizing workshops and conferences, providing technical and financial support for workshops and conferences organized by other Siberian chapters and Student Branches, is the standard practice for the chapter. The 2005 International Conference 'Microwave Electronics: Measurement, Identification, Application' (MEMIA 2005) is now under preparation. Tech-

nical and financial support was provided to the 6th International Workshop and Tutorials EDM 2005 and the A.S. Popov Russian Society of Radio Engineering Annual Conference.

This year Assoc. Prof. Alexander Gridchin was re-appointed as the EDS Newsletter Editor for Eastern Europe and the former Soviet Union. He was also included in the Program Committee of the International Conference EUROCON 2005, 'Computer as a Tool' and invited to make his DL presentation at the University of Nis, after this conference.

Five ExCom meetings were organized and held in conjunction with the IEEE Siberia Section meetings. We can observe the increased interest for the chapter activities among newly recruited members and those who joined IEEE for the year 2006.

~ **Alexander V. Gridchin, Editor**

ED Novosibirsk State Technical University (NSTU) Student Branch

- by Artem S. Jakovlev

The 6th Siberian Russian Workshop and Tutorials EDM'2005 was organized and successfully held July 1-5, 2005, in the NSTU Conference Center 'Erlagol', in the Altay Mountains. Seventy-five papers were accepted from a total of 140 authors.

The ED NSTU Student Branch provided technical support for preparing the volume of proceedings. This volume is a hardcover book of 260 pages with illustrations.

The Web-site of EDM'2005 was renewed with new designs and placed here: <http://www.nstu.ru/edm>.

An online application form and payment process was established for the first time and uses both the English and Russian languages. This positive experience will be continued.

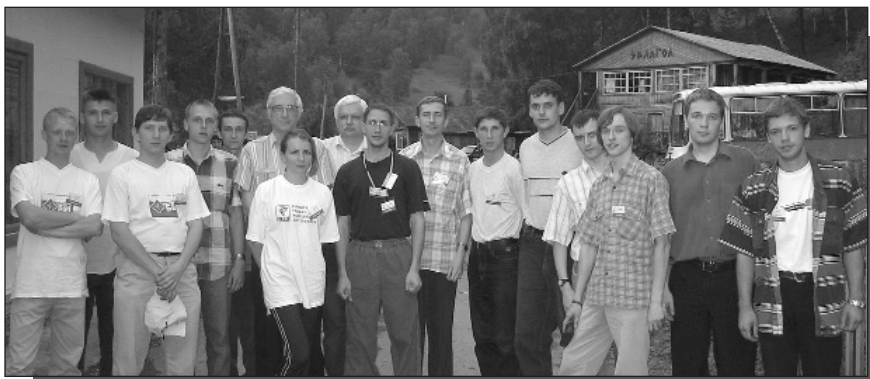
The main topics of EDM 2005 were: simulation of microsystems and physical phenomena in semiconductor materials, power industrial electronics, medical and digital electronics, and modern technologies in telecommunications. Some interesting tutorials were included in the program of EDM 2005 as well. New sessions devoted to information safety of computer networks was held for the first time.

A great help was provided by the Student Branch for organizing the successful scientific sessions. Five IEEE Senior Members participated in the EDM'2005 Program Committee. We are especially thankful to the EDS Newsletter Editor-in-Chief, Prof. Ninoslav Stojadinovic, from the University of Nis, Serbia & Montenegro; Prof. Magali Estrada del Cueto from the Instituto Polytechnica de Nacional, Mexico; and Prof. C.H. Zhang from Kumamoto University, Japan, for their agreement to work as members of our Program Committee. As a result of this Workshop, some Best Student Paper Awards were created and given to winners during the Celebration Ceremony. The final banquet concluded with colorful fireworks.

All Student Branches of the IEEE Siberia Section sent delegates to the EDM'2005. Thus, the slogan 'Bringing Branches Together' becomes real for the next EDM Workshops. The 7th International Workshop and Tutorials EDM'2006 will be held July 1-5, 2006,



MEMIA 2005 Vice-Chair, Associate Professor, Vassily R. Snournitsin, reports on the preparation for the conference at the annual Chapter ExCom Meeting.



'Bringing Branches Together': members of four IEEE Siberian Student Branches from Novosibirsk, Tomsk and Byisk with Chairs of EDM'2005 sessions (in the center, from left to right: Prof. Albert Jakovlev, Prof. Vladimir Makukha, Assoc. Prof. Oleg Stukach, SM'00)

at Novosibirsk State Technical University. The Web-site of EDM will be transformed to a portal, that will include information about all the past EDM Workshops and Tutorials as well as information about the IEEE NSTU Student Branch. New sessions devoted to educational standards in electronics is planned for the first time next year. We hope our efforts will produce their fruits next year.

~ **Alexander V. Gridchin, Editor**

ESSDERC/ESSCIRC 2005

- by *Sorin Cristoloveanu*

The 35th European Solid-State Device Research Conference (ESSDERC 2005) and the 31st European Solid-State Circuits Conference (ESSCIRC 2005) were held 12–16 September 2005, in Grenoble, France.

ESSDERC-ESSCIRC'05 was a success in terms of technical quality and participation: 756 participants for the main conference, 163 for the 4 Short Courses, and 471 for the 6 satellite workshops. All together, 984 specialists from all continents attended the conference during this exciting week; this stands as an all-time record.

On the scientific side, memorable invited talks were delivered by distinguished speakers, including: H. Stormer (Columbia Univ.), E. Yablonovitch (UCLA), M. Shur (RPI), R. Cavin (SRC), M. Thompson (STMicro), C. Joachim (CNRS), C. Mazuré, (SOITEC), L. Risch (Infineon), H-S. P. Wong (Stanford Univ.), B. Nauta (Univ. of Twente), L. Larson (UCSD), S. Rüping (Infineon). The overall technical level of contributed papers was remarkable, as a consequence of the drastic selection process (230 presentations out of 600 submitted contributions).

The Best Paper Award of ESSDERC was awarded to A. Dixit et al (IMEC, Philips, TI, Intel) for their paper on "Minimization of the MuGFET Contact Resistance by Integration of NiSi Contacts on Epitaxially Raised Source/Drain Regions". The ESSCIRC best paper was won by K. Jenkins et al (IBM, Columbia) for their contribution, "An on-chip Jitter Measurement Circuit with Sub-picosecond Resolution."

Additionally two Best Young Scientist Paper Awards were presented to F. Andrieu et al (LETI, ST, Soitec,

IMEP), "In-Depth Study of Strained SGOI nMOSFETs down to 30nm Gate Length," for ESSDERC and F. Heer (ETH), "CMOS Microelectrode Array for Bidirectional Interaction with Neuronal Networks" for ESSCIRC.

An unforgettable event was the Rump session "Where will the revolutionary solutions come from: technology or design?" – a splendid fratricidal fight between 8 technologists and designers.

The delegates also appreciated the warm atmosphere, the exhibit and technical tours, the attractive social program and the organizational details. The rain accepted to stop precisely from Monday 7 a.m. to Friday 10 p.m, as it was stipulated in the contract.

Thank you to our sponsors: STMicroelectronics, CNRS, Ville de Grenoble, La Metro, CG38, Region Rhône Alpes, SOITEC, Infineon, Freescale, ATMEL, Texas Instruments, INTEL, NanoCmos, Philips, Mentor Graphics, Samsung, Leti, Minatec, INPG, Ministère Recherche, DGA, UJF, AEPI, Office de Tourisme, Chartreuse. Contact: Sorin Cristoloveanu, Chair, sorin@enserg.fr.

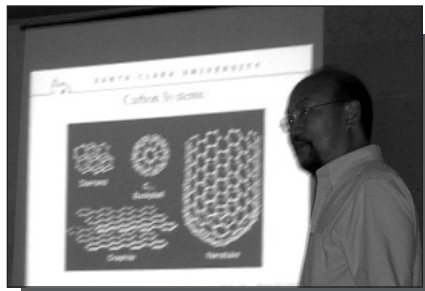
~ **Cora Salm, Editor**

ASIA & PACIFIC (REGION 10)

ED Kansai

- by *Toshimasa Matsuoka*

The ED Kansai Chapter held a Distinguished Lecturer Meeting as well as a technical meeting on July 15, 2005, at Kyoto Campus Plaza, Kyoto, Japan. Professor Cary Yang, Santa Clara University, was invited as a Distinguished Lecturer. The title of his talk



Prof. Cary Yang giving a Distinguished Lecture on July 15, 2005 at Kyoto Campus Plaza, Kyoto, Japan.

was "Carbon Nanofiber On-chip Interconnects." Starting from the basic physics of carbon nano-structures, he described their application for on-chip interconnects. Following the Distinguished Lecturer meeting, Mr. Shuichi Ueno, Renesas Technology, presented a talk on MRAM technology. He described basic and recent trend of MRAM technology. The meeting was chaired by Dr. Masami Tatsumi, Sumitomo Electric Industries, and the number of participants was 26 including students and researchers from industries. We had a good opportunity to learn about the future of device technologies.

ED Japan

- by *Hiroshi Ishiware*

The ED Japan Chapter organized three Distinguished Lecturer Meetings:

- June 21st - Professor Ananth Dodabalapur (The University of Texas at Austin, USA) delivered the lecture entitled, "Finding Applications for Organic Transistors" at the University of Tokyo.
- July 19th - Professor V. Ramgopal Rao (Indian Institute of Technology, Bombay) delivered two lectures entitled "Sub 100 nm CMOS Device Design and Optimization for SoC Applications" and "Bio-sensors for Cardiac Diagnostics" at the Tokyo Institute of Technology.
- August 31st - two DLs delivered lectures; "Hierarchical Device Simulation-From DD to Quantum Simulation" by Professor Marcel D. Profirescu (Univ. Politehnica of Bucharest) and "Physical Models for Smart-power Devices/ New Emerging Devices for the Post-CMOS Era" by Professor Massimo Rudan (University of Bologna, Italy), at the Tokyo Institute of Technology.

~ **Hisayo S. Momose, Editor**



Professors V. R. Rao, M. Rudan and M. D. Profirescu (from left to right) delivered their DL lectures at the Tokyo Institute of Technology.

ED Taipei

- by Steve Chung

The ED Taipei Chapter organized several events in the second and third quarter. On April 27th, an invited talk, entitled "Advanced Si Nanotechnology and Emerging Non-Si Nanoelectronic Devices for High-Performance and Low-Power Logic Applications" was given by Dr. Robert Chau at the National Chiao Tung University, Hsinchu. This talk was attended by 150 participants including engineers from Science Park and graduate students from universities. On August 18th, Prof. Milton Feng gave an invited talk on "The Invention of Transistor Laser" which is a breakthrough invention by combining a laser diode with a fast transistor. More than 50 graduate students attended this talk.

Two one-day workshops, "Flexible Electronics Workshop" and "Nonvolatile Memory Technology Workshop", were held concurrently on April 27th at the National Chiao Tung University. Most of the speakers were invited from overseas and introduced new concepts of flexible electronics and non-volatile memories. Both workshops attracted more than 160 participants. The topics of the Flexible Electronics Workshop included: (1) Soluble inorganic semiconductors: properties and applications (by David Mitzi, IBM); (2) Contributions to flexible electronic system integration (by Karlheinz Bock, Fraunhofer-IZM); (3) Is

printer electronics compatible with low power? (by Paul Heremans, IMEC); and (4) TFT technology for flexible display application (by C.C. Lee, ITRI). The topics of the Non-volatile Memory Workshop covered: (1) Development of MRAM Technology at IBM, from First Bit to 16 Mbits (by W.J. Gallagher, IBM); (2) Non-Volatile Memory Technology: A View of The Future (by Stefan K Lai, Intel); (3) The Prospect and the Issues of MRAM (by M. Motoyoshi, ZyCube); and (4) New concepts and materials for non-volatile memory (by Roberto Bez, ST Microelectronics).

Here is an important update for members in the area of VLSI technology. The EDS sponsored conference: International Symposium on VLSI Technology, Systems, and Applications (VLSI-TSA), has been changed to an annual event. The next meeting will be held in Hsinchu, Taiwan, April 24-26, 2006. People may take this opportunity to visit the world's densest semiconductor manufacturing and IC design center: Hsinchu Science-Based Industrial Park. Further details about the 2006 VLSI-TSA can be found at our conference web-site: <http://vlsitsa.itri.org.tw/2006>.

~ Hei Wong, Editor

ED/SSC Bangalore

- by P. R. Suresh

The following are the chapter events held during the third quarter period of July – September 2005:

The IEEE EDS/SSCS joint chapter conducted a one-day workshop on "Reliability of Nanodevices and circuits," 20 August. The speakers at the workshop were Dr. M. K. Rad-

hakrishnan, IEEE Distinguished Lecturer, CTO, Nanrel and Professor Souvik Mahapatra, the Indian Institute of Technology, Mumbai. Dr. Radhakrishnan provided an insight into various types of reliability issues in sub-micron devices, related to gate dielectric integrity, interconnects and those related to electrostatic discharge. He also discussed the corresponding failure mechanisms and causes and the relation to the process stages. Professor Souvik Mahapatra's lecture mainly covered the emerging area of Negative Bias Temperature Instability (NBTI). He discussed the Physics behind the NBTI, the various degradation mechanisms due to NBTI and its impact on device parameters. The workshop received an excellent response from the technical community and was attended by about 60 professionals.

The chapter co-sponsored the VLSI Education and Test Workshop (VDAT), 10–13 August. This workshop was attended by about 250 people. Several chapter members contributed to this event as technical program committee members, local chairs and session chairs.

The chapter has been selected for the IEEE Electron Devices Society Chapter of the Year Award. Our congratulations and thanks to all chapter members and the technical community in Bangalore for their active participation in the events conducted by the chapter and for guiding chapter activities.

AP/ED Bombay

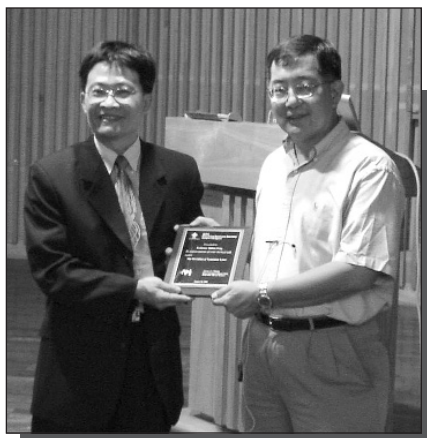
- by Mahesh Patil

During the months of July – October 2005, the Chapter held the following activities:

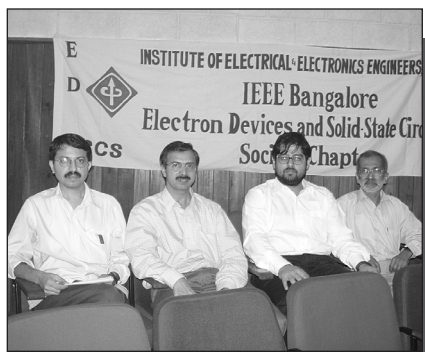
Members of the Chapter presented invited lectures during a two-day workshop on July 7-8, 2005, on "VLSI Technology" held at the Thakur College of Engineering and Technology, Mumbai.

Professor Niraj Jha, Princeton University, gave a talk on "Nano CAD: Computer Aided Design algorithms and tools for nanotechnologies," on July 12, 2005.

Professor B. N. Das, Emeritus Professor, IIT Kharagpur, talked on "An Overview of the Problems of



ED Taipei held a seminar on August 18th. Professor. seminar.- the seminar host: Prof. H. C. Lin (left) presenting a souvenir to the invited and the speaker -Professor. Milton Feng (UIUC-ECE) (right)).



Attendees at the EDS STAR meeting held at the District Information Centre, Eluru, Andhra Pradesh.

Radiation from Antennas with Emphasis on Microwave Frequencies," on July 14, 2005.

Professor S. G. Mhaisalkar, of the School of Materials Science & Engineering, NTU, Singapore, gave a talk on "Understanding the impact of surface engineering, structure, and design on electromigration through Monte Carlo simulation and in-situ SEM studies," on September 30, 2005.

The Chapter organized a screening of the EDS DVD "50 years in 50 minutes," on October 19, 2005.

ED/MTT India

- by K. S. Chari

During the last quarter, the Chapter pursued the following efforts during the period July thru September 2005:

Consequent to the completion of previous years' efforts under the EDS STAR program at Polancha, the Chapter Chair interacted during July-August 2005 with the Heads of Senior Higher Secondary Girl Schools in a few locations of Andhra Pradesh for the next phase and finally narrowed down the choice to 5 schools located in West Godavari. The chosen ones are: KPDT High School (KPDTHS), Kasturba Municipal Girls High School (KMGHS), Govt Girls High School (GGHS), St. Theresa's Girls High School (STGHS) and the Municipal High School (MHS). A total of 90 female students and 10 teaching faculty have become participants under the program for the next 2 years. An inaugural event under the activity was held in the District Information Office, Eluru, 27 August 2005. The Chairman addressed this meeting, outlining the aims, program content and the interfaces between the researcher and teacher-student communities. Ms. Aslesha, a teacher from the Govt High School, addressed the students on the Hardware component of IT via the ubiquitous PC, the platform elements and the practical usage's in the learning and evaluation phases of the schooling. A demo of typical applications in science and engineering problem solving was also given to the participants. This event concluded with positive feedback

and appreciative inputs from the students and their pressing for continued focus on bringing diverse exposures under this effort. STAR coordinator teachers Ms. Aslesha from KMGHS, Ms. Srilakshmi, Ms. Padma Latadevi from GGHS, Ms. K. Sasikala from KPDTHS and Ms. Anuradha from STGHS have liaised in holding the event. Sri Sai Baba, the Information Technology Officer and Head NIC Centre Eluru, actively helped in STAR interactions.

The Chapter has considered the requests received for co-sponsoring of the Seminars, Workshops, Science Exhibitions and decided to sponsor the following events to be slated soon: National Workshop on VLSI Design and Embedded Systems to be held during 24 - 26 February 2006, at the Birla Institute of Technology and Science, Pilani, Rajasthan; National Workshop on RFIDs, SASTRA, Thanjavur, Tamil Nadu, December 2005 - January 2006; International Conference on Sensors, Kurukshetra, Haryana and a National Symposium on Electronics and Technology (NASET 2K6) at Kurukshetra University, April - May 2006.

Reorganizing the Chapter efforts are being continued. As reported earlier, to ease the financial and administrative supports and give better focus to the technical activities of different fields, the current India ED/MTT joint Chapter composite activities are slated to move to two separate activities via India ED Chapter and India MTT Chapter starting in January 2006. The respective chapters will focus on their areas and retain the all India reach as in the past. Such arrangement emerged and was welcomed at MTT-S President's interactions with the chapter last year. The chapter has been looking for active volunteers with commitment for seeding various technical events at different locations; and those interested in contributing may contact the Chapter Chair. The chapter is also actively pursuing attraction of ED and MTT student members through dedicated activities to these fields. Members are welcome to send their comments, if any.

REL/CPMT/ED Singapore

- by K.L. Pey

During the July - October period, the Chapter had the following activities:

Technical talks:

- 21 July 2005, Dr. Ernest Y. Wu, IBM System and Technology Group, Essex Junction, VT, USA, gave a talk on "From TDDB Reliability to Circuit Reliability".
- 5 September 2005, Prof. Gehan Amaratunga, Engineering Department, Cambridge University, UK, gave a talk on "Nanotube and Nanowire Transistors".
- 12 Oct 2005, Dr. John Lau, Agilent Technologies, USA, gave a talk on "Reliability of RoHS (e.g. Pb-Free) products with Emphasis on Solder Joints".
- 12 September 2005, Prof Souvik Mahapatra, IIT Bombay, gave a talk on "Negative bias temperature instability in CMOS devices".

Conferences:

- 13th IPFA (IPFA'06) will be held 3-7 July 2006, at Meritus Mandarin, Singapore. Dr. Alastair Trigg of the Institute of Microelectronics has been invited to be the General Chair. The conference is organized by the IEEE Singapore Rel/CPMT/ED Chapter and is in corporation with the Center for Failure Analysis & Reliability, National University of Singapore. IPFA'06 is technically co-sponsored by IEEE EDS and IEEE Reliability Society. The first Call for Papers has been announced.
- 6th Electronics Packaging Technology Conference (EPTC 2005) was held 7 - 9 December 2005, Grand Copthorne Waterfront, Singapore.

Short Courses:

- The Chapter organized a short course on "Negative Bias Temperature Instability in p-MOSFET Devices" by Prof Souvik Mahapatra, IIT Bombay, India, on 7 November 2005, at the Hotel Rendezvous, Singapore.

~ Zhou Xing, Editor

EDS MEETINGS CALENDAR

(AS OF NOVEMBER 28, 2005)

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

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

January 30 - February 1, 2006, @ **International Workshop on Nano CMOS**, Location: Toray Center, Mishima, Japan, Contact: Parhat Ahmet, E-Mail: parhat@ep.fitech.ac.jp, Deadline: 1/24/06, www: <http://www.iwailab.ep.fitech.ac.jp/IWNC2006/>

February 4 - 8, 2006, T **IEEE International Solid-State Circuits Conference**, Location: San Francisco Marriott Hotel, San Francisco, CA, USA, Contact: Diane Melton, E-Mail: isscc@courtesyassoc.com, Deadline: 9/19/05, www: <http://www.isscc.org/isscc/>

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

February 28 - March 4, 2006 T **"Modern Problems of Radio Engineering Telecommunications and Computer Science"**, Location: Lviv Polytechnic National University, Lviv, Ukraine, Contact: Oxana Lazko, E-Mail: tcset2006@polynet.lviv.ua, Deadline: 12/15/05, www: www.lp.edu.ua/TCSET2006

March 6 - 9, 2006, @ **IEEE International Conference on Microelectronic Test Structures**, Location: Hyatt Regency on Town Lake, Austin, TX, USA, Contact: Wendy Walker, E-Mail: wendyw@widerkehr.com, Deadline: 9/15/05, www: [http://www.see.ed.ac.uk.icmts](http://www.see.ed.ac.uk/icmts)

March 26 - 30, 2006, * **IEEE International Reliability Physics Symposium**, Location: San Jose Marriott, San Jose, CA, USA, Contact: Carole Graas, E-Mail: grass@us.ibm.com, Deadline: 10/7/05, www: <http://www.irps.org/>

March 27 - 28, 2006, 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: 10/17/05, www: www.sarnoffsymposium.org

March 27 - 29, 2006 T **IEEE International Symposium on Quality Electronic Design**, Location: DoubleTree Hotel, San Jose, CA, USA, Contact: Ali Iranmanesh, E-Mail: alii@svtii.com, Deadline: 10/17/05, www: www.isqed@isqed.org

April 25 - 27, 2006, @ **International Vacuum Electronics Conference**, Location: Portola Plaza Hotel, Monterey, CA, USA, Contact: Ralph Nadell, E-Mail: rnadell@pcm411.com, Deadline: 1/6/06, www: www.ivec2006.org

April 25 - 27, 2006, @ **International Vacuum Electron Sources Conference**, Location: Portola Plaza Hotel, Monterey, CA, USA, Contact: Ralph Nadell, E-Mail: rnadell@pcm411.com, Deadline: 1/6/06, www: www.ivec2006.org

April 26 - 28, 2006, T **International Symposium on VLSI Design, Automation & Test**, Location: Ambassador Hotel, Hsinchu, Taiwan, Contact: Jyuo-Min Shyu, E-Mail: shyu@itri.org.tw, Deadline: 10/15/05, www: <http://vlsitsa.itri.org.tw/2006/>

April 26-28, 2006, T **International Symposium on VLSI Technology, Systems and Applications**, Location: Ambassador Hotel, Hsinchu, Taiwan, Contact: Wu, Amy, Email: amywu@itri.org.tw, Deadline: 10/15/05, www: <http://vlsitsa.itri.org.tw/2006/>

April 26 - 28, 2006, @ **International Caribbean Conference on Devices, Circuits and Systems**, Location: Park Royal Hotel, Cozumel, Mexico, Contact: Roberto Murphy Arteaga, E-Mail: rmurphy@ieee.org, Deadline: 11/18/05, www: <http://iccdcs.uib.es>

May 7 - 12, 2006, T **International Symposium on Dielectrics for Nanosystems: Materials Science, Processing Reliability & Manufacturing**, Location: Adams Mark Denver Hotel, Denver, CO, USA, Contact: Durga Misra, E-Mail: dmisra@njit.edu, Deadline: 1/1/06, www: <http://www.electrochem.org/meetings/future/2009/meeting.htm>

May 8 - 13, 2006, @ **World Conference on Photovoltaic Energy Conversion**, Location: Hilton Waikoloa Village, Waikoloa, HI, USA, Contact: Americo Forestieri, E-Mail: moeforestieri@att.net, Deadline: 12/15/05, www: www.wcpec.org

May 8 - 11, 2006, @ **IEEE International Conference on Indium Phosphide and Related Materials**, Location: Princeton University, Princeton, NJ, USA, Contact: Gregory Olsen, E-Mail: golsen@sensorsinc.com, Deadline: 12/14/05, www: www.i-leos.org

May 14 - 17, 2006, * **International Conference on Microelectronics**, Location: University of Nis, Nis, Yugoslavia, Contact: Ninoslav Stojadinovic, E-Mail: nstojadinovic@elfak.ni.ac.yu, Deadline: 10/10/05, www: <http://europa.elfak.ni.ac.yu/miel/>

May 14 - 17, 2006, T **International Workshop on Expert Evaluation & Control of Compound Semiconductor Materials & Technologies**, Location: Hotel Atlantico, Cadiz, Spain, Contact: Daniel Araujo, E-Mail: daniel.araujo@insa-lyon.fr, Deadline: Not Available, www: Not Available

May 14 - 17, 2006, T **International SiGe Technology and Devices Meeting**, Location: Princeton University, Princeton, NJ, USA, Contact: James Kolodzey, E-Mail: kolodzey@ee.udel.edu, Deadline: 1/15/06, www: <http://www.istdm2006.org>

May 14 - 17, 2006, T **International Power Modulator Symposium**, Location: Hyatt Regency Crystal City, Washington, DC, USA, Contact: Ryan Umstattd, E-Mail: rjumattd@mailaps.org, Deadline: 2/3/06, www: <http://www.eng.auburn.edu/pmc2006>

May 15 - 16, 2006, T **International Workshop on Junction Technology**, Location: Hotel Equatorial, Shanghai, China, Contact: Xin-Ping Qu, E-Mail: xpqu@fudan.edu.cn, Deadline: 1/15/06, www: <http://www.iwjt2006.com>

May 15 - 18, 2006, T **International High Temperature Electronics Conference**, Location: Hilton of Santa Fe, Santa Fe, NM, USA, Contact: R Johnson, E-Mail: johnson@eng.auburn.edu, Deadline: 12/5/05, www: www.imps.org/hitec/

May 22 - 24, 2006, * **IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop**, Location: The Sheraton Hotel, Boston, MA, USA, Contact: Margaret Kindling, E-Mail: mkindling@semi.org, Deadline: 9/22/05, www: www.semi.org/asmc

May 22 - 24, 2006, T **International Conference on Microwaves, Radar and Wireless Communication**, Location: Sympozjum Hotel, Krakow, Poland, Contact: Elzbieta Godlewska-Sedek, E-Mail: godlewska@pit.edu.pl, Deadline: 1/15/06, www: www.mikon-2006.pl

May 24 - 27, 2006, @ **International Conference on Perspective Technologies and Methods in MEMS Design**, Location: Transkarpathian spa Polyana, Lviv-Polyana, Ukraine, Contact: Mykhalyo Andriychuk, E-Mail: andr@iapmm.lviv.ua, Deadline: 3/1/06, www: <http://www.lp.edu.ua/Institute/IKN/CAD/MEMSTECH>

May 25 - 27, 2006, T **International Workshop on Computational Electronics**, Location: Vienna University of Technology, Vienna, Austria, Contact: Hans Kosina, E-Mail: kosina@iue.tuwien.ac.at, Deadline: 1/15/06, www: <http://www.iwce.org>

June 4 - 8, 2006, @ **IEEE International Symposium on Power Semiconductor Devices & Integrated Circuits**, Location: University of Naples "Federico II", Naples, Italy, Contact: Paolo Spirito, E-Mail: paolo.spirito@unina.it, Deadline: 10/24/05, www: www.ispsd2006.it

June 5 - 7, 2006, * **IEEE International Interconnect Technology Conference**, Location: Hyatt Regency at San Francisco Airport, Burlingame, CA, USA, Contact: Wendy Walker, E-Mail: wendyw@widerkehr.com, Deadline: Not Available, www: Not Available

June 11 - 12, 2006, @ **IEEE Silicon Nanoelectronics Workshop**, Location: Hilton Hawaiian Village, Honolulu, HI, USA, Contact: Wolfgang Porod, E-Mail: porod@nd.edu, Deadline: 2/1/06, www: <http://nano-nd.edu/silicon/SNW06>

June 11 - 13, 2006, T **IEEE Radio Frequency Integrated Circuits Symposium**, Location: Moscone Center, San Francisco, CA, USA, Contact: John Barr, E-Mail: j.barr@ieee.org, Deadline: 12/2/05, www: <http://www.ims2006.org>

June 13 - 17, 2006, @ **IEEE Symposium on VLSI Technology**, Location: Hilton Hawaiian Village, Honolulu, HI, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: <http://www.vlssymposium.org>

June 15 - 17, 2006, T **IEEE Symposium on VLSI Circuits**, Location: Hilton Hawaiian Village, Honolulu, HI, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: <http://www.vlssymposium.org>

June 21 - 23, 2006, T **International Workshop on Low Temperature Electronics**, Location: European Space & Technology Center, Noordwijk, The Netherlands, Contact: Bruno Leone, E-Mail: bruno.leone@esa.int, Deadline: 12/15/05, www: <http://www.congrex.nl/06c01>

June 22 - 24, 2006, @ **International Conference on Mixed Design of Integrated Circuits and Systems**, Location: Orbis Hotel Gdynia, Gdynia, Poland, Contact: Andrzej Napieralski, E-Mail: napier@DMCS.p.lodz.pl, Deadline: 2/28/06, www: <http://www.mixdes.org>

June 27 - 29, 2006, T **University/Government/Industry Microelectronics Symposium**, Location: San Jose State University, San Jose, CA, USA, Contact: David Parent, E-Mail: dparent@email.sjsu.edu, Deadline: 2/17/06, www: www.engr.sjsu.edu/dparent/ugim2006

July 1 - 5, 2006, @ **Siberian Russian Workshop and Tutorial on Electron Devices and Materials**, Location: Novosibirsk State Technical University, Novosibirsk, Russia, Contact: Alexander Gridchin, E-Mail: ieeensk@yandex.ru, Deadline: Not Available, www: Not Available

July 3 - 7, 2006, @ **IEEE International Symposium on the Physical and Failure Analysis of Integrated Circuits**, Location: Meritus Mandarin, Singapore, Contact: Jasmine Leong, E-Mail: ipfa@pacific.net.sg, Deadline: 1/16/06, www: <http://www.ieee.org/ipfa>

July 11 - 20, 2006, T **IEEE Conference on Nanotechnology**, Location: Westin Cincinnati, Cincinnati, OH, USA, Contact: Clifford Lau, E-Mail: lauc@onr.navy.mil, Deadline: 2/28/06, www: <http://ewh.ieee.org/tc/nanotech/>

September 6 - 8, 2006, @ **IEEE International Conference on Simulation of Semiconductor Processes and Devices**, Location: Monterey Plaza Hotel, Monterey, CA, USA, Contact: Fely Barrera, E-Mail: sispad06@gloworm.stanford.edu, Deadline: 2/24/06, www: www_tcad.stanford.edu/sispad06

September 10 - 13, 2006, 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 - 20, 2006, T **IEEE Conference on Intelligent Transportation Systems**, Location: Toronto Marriott Downtown Eaton Centre, Toronto, Canada, Contact: Baher Abdulhai, E-Mail: baher.abdulhai@utoronto.ca, Deadline: 3/1/06, www: www.itsc2006.org

September 18 - 22, 2006, T **European Solid-State Device Research Conference**, Location: Montreux Convention Center, Montreux, Switzerland, Contact: Yusuf Leblebici, E-Mail: yusuf.leblebici@epfl.ch, Deadline: 4/7/06, www: <http://www.essdrc2006.com>

October 22 - 25, 2006, T **IEEE International Conference on Sensors**, Location: Daegu Exhibition & Convention Center, Daegu, Korea, Contact: Sukhan Lee, E-Mail: lsh@ece.skku.ac.kr, Deadline: 4/7/06, www: www.ieee-sensors2006.org

October 23 - 26, 2006, @ **International Conference on Solid-State & Integrated Circuits Technology**, Location: Hotel Equator Shanghai, Shanghai, China, Contact: Mengqi Zhou, E-Mail: mqzhou@public3.bta.net.cn, Deadline: 5/31/06, www: <http://www.ICSICT2006.com>

November 8 - 10, 2006, T **International Workshop on Dielectric Thin Films for Future ULSI Devices: Science and Technology**, Location: Kawasaki City Industrial Promotion Hall, Kanagawa, Japan, Contact: Akira Toriumi, E-Mail: toriumi@materials.t.u-tokyo.ac.jp, Deadline: 7/24/06, www: <http://home.hiroshima-u.ac.jp/iwdtf/>

November 12 - 15, 2006, * **IEEE Compound Semiconductor IC Symposium**, Location: Marriott Riverwalk Hotel, San Antonio, TX, USA, Contact: Mitchell Shifrin, E-Mail: mitchs@hittite.com, Deadline: Not Available, www: <http://www.csics.org>

December 11 - 13, 2006, * **IEEE International Electron Devices Meeting**, Location: San Francisco Hilton and Towers, San Francisco, CA, USA, Contact: Phyllis Mahoney, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: www.ieee.org/conference/iedm

REPORT ON THE IEEE EDS LA MINI-COLLOQUIUM - VERACRUZ, MEXICO



Representatives from the Universidad Cristobal Colon and ED Region 9 at the opening of the Colloquium. From left to right: Héctor Jalil Huergo, Jaime Martínez Castillo, Carlos Arturo Vega Lebrún, Magali Estrada, Hugo Martín Fernández Hernández and Carlos Alberto Rojas Kramer

- by *Rodolfo Quintero*

The IEEE Region 9 Colloquium was successfully held at the Universidad Cristóbal Colón, in Veracruz, Mexico, on August 11, 2005. Total attendance reached near 100 participants from Region 9 which spans the American Continent from the Rio Bravo to South America. Five Distinguished Lecturers from EDS presented invited seminars at the Colloquium. Hiroshi Iwai, from Frontier Collaborative Research Center and the Tokyo Institute of Technol-

ogy, Japan, presented "Future of CMOS Technology and Manufacturing". Cor Claeys, from IMEC, Belgium, exposed "Impact of Substrate and Processing Parameters on Electrical Performance of Devices Fabricated in Thin Strain-Relaxed Buffer Strained Silicon". Juin J. Liou, from the Department of Electrical and Computer Engineering at the University of Central Florida, U.S.A., talked about "Characterization and Simulation of Reliability of MOS Devices and ICs". Benjamin

Iñiguez, from the Universidad Rovira i Virgili, Spain, presented "Analytical modeling of cylindrical undoped Surrounding Gate MOSFETs", and Adelmo Ortiz-Conde, from the Universidad Simón Bolívar, Caracas, Venezuela, exposed "A review of recent compact models of Double-Gate MOSFETs".

For additional information contact Professor Rodolfo Quintero at rquintero@cinvestav.mx.

~ **Adelmo Ortiz-Conde, Editor**