

IEEE ELECTRON DEVICES SOCIETY

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TABLE OF CONTENTS

Upcoming Technical Meetings1

- 2003 IEDM • 2003 GaAs IC
- 2003 IRW • 2003 SISC

Spring 2003 EDS AdCom Meeting

Summary2

IEEE Transactions on Device & Materials Reliability Call for Papers (T-DMR)9

Society News10

- EDS Members Named Winners of 2003 IEEE Medals
- Congratulations to the EDS Members Recently Elected to IEEE Senior Member Grade!
- Your Help is Needed - Request for your Assistance in Obtaining Past Proceedings of the International Electron Devices Meeting (IEDM)
- IEEE Election – Did You Vote Yet?
- On-Line Access to IEEE Journals Available to EDS Members
- Important - New Requirements for Submission of Conference Proceedings to IEEE
- EDS Distinguished Lecturers/Chapter Partners Visit Illinois Institute of Technology and the Chicago Chapter
- Annual CD-ROM Packages Available to EDS Members
- EDS Distinguished Lecturer Program – Lecturers Residing in Central, Western & South Western USA and Latin America (Regions 4,5,6 & 9)
- EDS Membership Fee Subsidy Program (MFSP)
- In Memory of Kevin F. Brennan

Regional & Chapter News17

EDS Meetings Calendar23

2003 IEEE INTERNATIONAL ELECTRON DEVICES MEETING (IEDM)



The 49th annual IEEE International Electron Devices Meeting (IEDM) will be held 8-10 December, 2003 at the Hilton Washington and Towers, preceded by a full day of Short Courses on Sunday, 7 Dec. IEDM, the Electron Devices Society's annual technical meeting, is the world's premier conference for the presentation of advances in nano- and microelectronics-related devices and processes.

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

Short Courses

This year's Short Courses are "Silicon+: Augmented CMOS Technology," organized by Tsu-Jae King at University of California, Berkeley; and "Interconnect Scaling: Materials and Systems," organized by Karen Maex of IMEC, Belgium.

The courses provide attendees with the opportunity to learn about emerging new areas and important developments, and to benefit from direct contact with lecturers who are experts in the field. They also include introductory material for general audiences. Advance registration is required.

Technical Program

The areas to be covered in this year's technical program are:

- CMOS Devices
- CMOS and Interconnect Reliability
- Displays, Sensors and MEMs
- Integrated Circuits and Manufacturing

YOUR COMMENTS SOLICITED

Your comments are most welcome. Please write directly to the Editor-in-Chief of the Newsletter at the address given on the back cover page.

continued on page 4

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SPRING 2003 EDS ADCOM MEETING SUMMARY



John K. Lowell

President, Steve Hillenius, called the 2003 Spring meeting of the IEEE Electron Devices Society to order on Sunday, June 1, 2003 at the IEEE Operations Center in Piscataway, NJ.

Executive Reports

The President's report reviewed the EDS Strategic Plan Position statements, which fall broadly into two principal areas:

Broadening the base of technical interests, and ensuring that EDS activities reflect current and future global trends. Within the first area, the main task is to restructure the EDS Technical Committees (TC), adding a position on both AdCom and ExCom for a TC Chair. For the second, EDS plans to promote and develop activities in underdeveloped regions, increase the profile of silicon manufacturing issues, and look at overlap or consolidation within IEEE with an eye to their affect on EDS. Membership development is also on the agenda as EDS looks at a long-term strategy for membership especially within Southeast Asia. Steve also announced that the 2004 Spring EDS AdCom series would be held in Madrid, Spain on May 22-23. Turning to financial matters, Treasurer, Paul Yu, projected a net loss for 2003 of \$119.6K due mostly to IEEE's assessments to EDS. The 2002 assessment was \$1,940K (US), which was comprised of a \$1,047K fee for infrastructure costs and a charge of \$893K to help IEEE cover its investment losses. For 2003, the infrastructure charge should be around \$1,032K, while there may still be an additional charge to help cover investment losses (if any). While sobering, it is a lower net loss than that of 2002. The good news is that

continued on page 7

CONTRIBUTIONS WELCOME

Readers are encouraged to submit news items concerning the Society and its members. Please send your ideas/articles directly to either the Editor-in-Chief or appropriate Editor. All contact information is listed on the back cover 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

EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

2003

I. Adesida (2)
T. Hiramoto (1)
L. Lunardi (1)
A. A. Santos (2)
S. C. Sun (2)
H. S. P. Wong (1)
P. K. L. Yu (2)

2004

M. Estrada del Cueto (1)
K. F. Galloway (2)
S. J. Hillenius (2)
C. Jagadish (2)
J. K. O. Sin (1)
R. Singh (2)
N.D. Stojadinovic (1)

*2005

C.L. Claeys (2)
J.A. Dayton, Jr. (2)
M. Fukuma (2)
F.J. Garcia-Sanchez (1)
K. Lee (2)
J.J. Liou (1)
M. Ostling (2)
D.L. Pulfrey (2)

Number in parenthesis represents term.

* Members elected 12/02

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UPCOMING TECHNICAL MEETINGS

2003 IEEE INTEGRATED RELIABILITY WORKSHOP (IRW)

The 2003 IEEE Integrated Reliability Workshop (IRW), sponsored by the IEEE Reliability Society and the IEEE Electron Devices Society, will be held at the Stanford Sierra Camp on the shore of Fallen Leaf Lake near South Lake Tahoe, CA from October 20th to 23rd, 2003. This workshop provides a unique forum for open and frank discussions of all areas of reliability research and technology for present and future semiconductor applications.

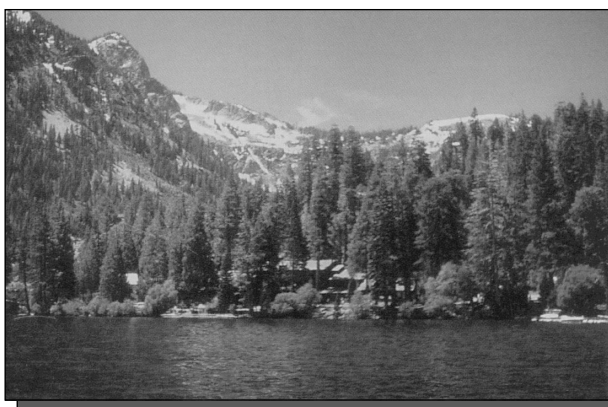
This year's workshop will feature a **keynote address** by Alain Diebold, Senior Fellow of International Sematech. He will be talking on metrology/physical characterization challenges for advanced semiconductor technology.

The technical portion of the 2003 workshop is being organized by Alvin Strong of IBM and will focus on several main areas:

- Wafer Level Reliability Tests and Test Approaches
- Reliability Characterization and Prediction Models
- Novel Reliability Test Structures
- Customer Product Reliability Requirements / Manufacturer Reliability Tasks
- Designing-in-Reliability (Circuits, Processes, Products)

Hot topics include Cu interconnects; reliability of deep sub-micron; high speed, high frequency devices; new dielectric systems; and reliability modeling and simulation.

The IRW is quite a bit different from a typical technical conference. From the moment you arrive, after winding slowly back to the south shore of Fallen Leaf Lake, you realize that you are taking part in something special. Attendees stay in cabins without TVs or phones, dress is casual (suits, ties and high heels are shunned), affiliations are downplayed, and meals are taken at the lodge dining room, family-style.



Attendees of the workshop are expected to participate actively. Most attendees will find themselves drawn into technical discussions from the start. Every aspect of this conference, from the isolated location to the format of the technical program, is designed to get attendees to interact.

Located just a short scenic drive (less than two hours) from Reno, the Stanford Sierra Camp is situated at 6000 ft in the High Sierra on Fallen Leaf Lake. Attendees stay in cabins nestled amid the pines and cedars along the shoreline. All cabins have decks and breathtaking views of the lake and surrounding peaks (don't worry, the cabins also have warm beds and hot showers; phone booths are available in the lodge). This peaceful setting, free from the distractions and annoyances of modern life, presents a terrific opportunity to get to know your colleagues, including internationally renowned experts. This is an opportunity not usually available at bigger, more hectic reliability conferences. Instead of watching TV, participants spend their evenings at poster sessions, discussion groups, and special interest groups (SIGs), all with refreshments provided to stimulate discussions.

One unique aspect of this workshop is the opportunity for attendees to present a poster of their own research, no matter what state it is in. Just arrange for space when you register or bring

last-minute results in your briefcase or backpack. There will even be opportunity to present a short summary description for your poster. This a great way to share that new project you are working on and to get world-class feedback. The poster presentations are even eligible for a two-page write up in the conference proceedings. The **open poster sessions**, organized by Bill Tonti of IBM, are but one example of the opportunities for interaction that sets the IRW apart from other conferences.

Another distinction of the IRW is the moderated **Discussion Groups** that are held in the evenings. Organized this year by Sylvie Bruyere of ST Microelectronics, typical Discussion Groups are likely to include topics such as Single Event Upsets (SEU), WLR Monitoring, Product Qualification / Burn In, Gate Oxide Integrity, Electro migration, and Designing for Reliability. Lively conversation and debate among participants is promised and written summaries will be included in the workshop proceedings.

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

Yet another advantage of attending the IRW is the **Tutorial Program**, presented by world-class experts and included at no additional cost. The tutorials review basic topics as well as the latest developments and are designed to be beneficial

continued on page 4

2003 IEEE INTEGRATED RELIABILITY WORKSHOP (IRW)

(continued from page 3)

both to newcomers and experienced members of the reliability community. Organized this year by Amr Haggag of Motorola, this year's tutorial program will cover reliability tutorials on evolutionary and revolutionary technologies. Tutorials will include the reliability physics and chemistry of thin and high-k gate oxides, fast wafer level reliability monitoring of product wafers, and process monitoring techniques. In addition for the first time, tutorials on revolutionary technologies beyond standard silicon will be presented.

Last, but certainly not least, attendees have Wednesday afternoon off to enjoy activities such as hiking (with the annual trek to the top of Mt. Tallac as a favorite goal), volleyball, canoeing, biking, walking, or just conversing by the lake, all in the fresh clean mountain air. This free afternoon is a great way not only to network, but also to build long-lasting friendships.

Additional information about the workshop is available on the IRW website at www.irps.org/irw, or by contacting SAR Associates at 301 N. Madison Street; Rome, NY 13440,

Phone: 315-339-3968; fax: 315-336-9134. Note: If you want to take part in this event, please register early as space at the Stanford Sierra Camp is limited to roughly 120 attendees and the workshop has sold out in the past.

On behalf of the 2003 Integrated Reliability Workshop Committee, we look forward to meeting you in Lake Tahoe!

Michael Dion
Communications Chair
Intersil Corp.
Melbourne, FL, USA

2003 IEEE INTERNATIONAL ELECTRON DEVICES MEETING (IEDM)

(continued from page 1)

- Modeling and Simulation
- Processing Technology
- Quantum Electronics and Compound Semiconductors
- Solid State Devices

As the central core of IEDM, the **CMOS Devices** sessions will cover breakthroughs and advancements in device physics; novel MOS device structures (such as vertical, multiple-gate, and 3-D integrated FETs); CMOS scaling issues; high-performance, low-power and analog/RF devices; SOI, strained silicon and SiGe devices; noise behavior of MOS structures and device measurement and characterization.

CMOS and Interconnect Reliability will cover all areas of IC and device reliability, at both the front- and back-end of the manufacturing process. Specific topics will include hot carriers; gate dielectric wear-out and breakdown; process charging damage; latch-up, ESD and soft errors; bias temperature instabilities; reliability of high- and low-k materials, circuits and packaging; interconnect reliability, electromigration, and the impact of back-end processing on devices; manufacturing technologies for reliability; and reliability issues for memory, SOI and BiCMOS technologies.

Displays, Sensors and MEMS sessions will cover critical devices, structures and integration for imaging, displays, detectors, sensors, and microelectromechanical systems (MEMS). A subset of these key topics includes CMOS imagers; CCDs; TFTs; organic, amorphous and polycrystalline devices; vacuum microelectronics; emissive displays; and sensors for

chemical, molecular and biological applications. MEMS topics include resonators, switches and passives for RF applications; integrated sensors; micro-optical and micro-fluidic devices; and micro-power generators. Paper topics will encompass design, fabrication, reliability, theory and modeling.

Integrated Circuits and Manufacturing focuses on advances in integrated circuits; novel memory cell concepts; and full process integration for memory, logic and mixed-mode applications. Also, process architectures for performance and manufacturability of high-speed logic, advanced memories and multifunction integrated circuits; and integrated passives and low-power, low-noise analog, RF and mixed signal ICs. Topics also include IC manufacturing process control, failure analysis, yield enhancements and modeling.

Modeling and Simulation sessions will discuss analytical, numerical, and statistical approaches to the modeling of electronic and optical devices, their isolation and interconnection; physical and circuit models for devices and interconnects; and the modeling of fabrication processes and equipment, including simulation algorithms, process characterization, and parameter extraction.

Processing Technology sessions will cover front- and back-end process modules for fabrication of CMOS logic, memory, and BiCMOS devices. Front-end topics will include substrate technologies; lithography; etching; isolation; thin dielectrics; high-k materials and metal electrodes for transis-

tors and MIM capacitors; shallow junctions; RTP; silicides; and new materials. Back-end topics will include interconnect systems; low-k materials; contact and via processes; planarization, and multilevel interconnect design considerations.

Quantum Electronics and Compound Semiconductors will cover compound semiconductors (e.g. GaAs, InP, GaN, SiC and related alloys) with electronic and optoelectronic device applications, such as FETs, HBTs, high-power transistors, LEDs, lasers and external modulators. Also, devices with ballistic, quantum, and single-electron effects; spintronics, self-assembly, and nano- and molecular-scale devices; optoelectronic ICs and interconnects; and photonic bandgap structures.

Solid State Devices sessions will focus on discrete and integrated high power/current/voltage devices; Si and SiGe bipolar transistors; novel devices and technology; high-speed Si devices; integrated RF components including inductors, capacitors and switches; and single-electron devices in Si or SiGe materials systems. Research on other novel device and memory structures also will be presented, including nanotubes, nanowires, quantum dots, bioelectronics, and molecular devices on silicon, along with new methods of assessing silicon device and material performance.

Additional highlights

While the heart of IEDM is the technical program, other highlights will include:

continued on page 9

2003 IEEE GALLIUM ARSENIDE INTEGRATED CIRCUITS SYMPOSIUM (GAAS IC)

This year's symposium will be held November 9th to the 12th in sunny San Diego, California at the historic U.S. Grant Hotel. Over the last 25 years, the IEEE GaAs IC Symposium has become the preeminent international forum on developments in integrated circuit technologies using GaAs, InP, SiGe, GaN, SiC and other compound semiconductor devices.

The Symposium will begin on Sunday, November 9th, with a short course taught by five experts on emerging technologies from defense to commercial. Kevin Kobayashi has organized the course with an emphasis in the latest trends in advanced technologies used in both defense and commercial. An overview of DARPA sponsored emerging technologies and their role in meeting defense needs will kick off the short course. Presentation on several of these advanced technologies will follow including focused instruction on RF MEMS, GaN and infrastructure applications, latest advances in SiGe, and InP HBT technology and circuit applications.

On Sunday evening, Stephen Long and Donald Estreich will once again present the Symposium Primer Course, an excellent overview of the basics of GaAs, InP and SiGe RFICs. The course is good as both an introduction to those with little or no experience in the compound semiconductor industry, and as a refresher for those with more experience. Among the topics covered will be III/V materials; fabrication technology; FET and bipolar devices; and digital and analog/RF/microwave circuits. As always, the material will be tailored to fit the context of this year's technical program.

The Symposium Opening Reception will be held Sunday night in the U.S Grant Hotel. Come meet with old friends and make some new ones as you sample light hors d'oeuvres and wine, beer or soft drinks.

On Monday morning, the Technical Program, assembled by Brad Nelson and the Technical Program Committee, will open with our plenary session. This session features six invited papers by world-renowned experts in their fields. First, John Zolper of DARPA will highlight the challenges and future opportunities for compound semiconductor electronics. Next, Richard Eden of Technology Applications will talk about 25 years of digital III-V tech-



nology. Following that, George Bechtel will share his thoughts on GaAs; the wireless device technology of the future and past, Freek Van Straten of Philips Semiconductor will highlight the latest in quad Band cellular power amplifiers, Brandon Pillans of Raytheon will review the current advances in capacitive RF MEMS switches and Phillip Smith of BAE SYSTEMS will discuss the progress of GaAs metamorphic HEMT technology.

Following the Plenary Session, there will be fifteen more sessions featuring both contributed and invited papers, which will run from Monday afternoon to Wednesday afternoon. These sessions will consist of papers that are focused on a particular topic, such as "The Changing Face of High Speed Digital Technology", "Amplifiers from S to W Band Applications", and "HBT Technology". A separate session will also be dedicated to late newspapers featuring particularly outstanding results.

In addition to the paper sessions, we also feature five panel sessions on controversial topics of high interest. The panel moderator will set the tone of the discussion and the five to six expert panelists will each spend up to five minutes staking out a position. Following that, it will be a free-for-all as audience members make their own points and grill the panelists. Panel session topics are: "InP vs SiGe vs CMOS for High Speed Digital Applications: Performance, Reliability, Costs and Market Conditions"; "Why Would I Want to Switch?" "Is First Pass Success for Complex Mixed Signal Design Realizable?"; "Base Station PA Technology - LDMOS Forever?"; "Module to MMIC to Module - PAs Here We Go Again".

Another way to keep abreast of the latest developments in the field will be by attending the GaAs IC Technology Exhibition, which will be held on November 10 and 11 at the U.S. Grant Hotel. The Exhibition is open to all conference registrants, and features a wide variety of companies who offer state-of-the-art compound semiconductor IC's as well as those that products and services to the compound semiconductor IC industry. The exhibitors will host an Exhibition Opening Reception on Monday evening, as well as an Exhibition Luncheon on Tuesday.

Of course, conference attendees will also have an opportunity to relax and learn about life outside of high-speed electronics. Tuesday evening is the Symposium Theme Party at the San Diego's Sea World. We will be departing from the hotel on luxury motor coaches. We will enjoy a private cocktail and hors d'oeuvre reception at the Wild Arctic. This unprecedented attraction features a breathtaking simulated helicopter flight over the frozen North. Next, we will enjoy the Base Station Wild Arctic, a realistic center for polar exploration that features above and underwater viewing of polar bears, beluga whales, walrus, and harbor seals. This attraction captures the beauty and starkness of the Arctic environment. We will also enjoy Sea World's Penguin Encounter the most extensive exhibit of Antarctic birds in the world. We will dine on a wonderful dinner buffet at Nautilus Pavilion. Located alongside Mission Bay. The good food and refreshments will provide an excellent atmosphere to meet with colleagues old and new. The evening finale will feature Shamu's House of Douse Show!

On behalf of the organizing committee and the IEEE EDS, MTT-S, and SSCS, I invite you to be a part of the upcoming 2003 IEEE GaAs IC Symposium. For more information, try our website at <http://www.gaasic.org>. See you in San Diego. You won't want to miss it!

*Chris Bozada,
General Chairman
Air Force Research Laboratory
Wright-Patterson Air Force Base,
Ohio, USA*

2003 IEEE SEMICONDUCTOR INTERFACE SPECIALISTS CONFERENCE (SISC)

The 2003 IEEE Semiconductor Interface Specialists Conference (SISC) will be held December 4-6, 2003 at the Key Bridge Marriott in Arlington, VA immediately prior to the IEDM. The Key Bridge Marriott overlooks the Nation's Capital and Georgetown from the Virginia side of the Francis Scott Key Bridge, and is only minutes from Washington, D.C. The SISC provides a unique forum for device engineers, solid-state physicists, and materials scientists to discuss issues of common interest. Principal topics for discussion at SISC are semiconductor/insulator interfaces; the physics of insulating thin films, and the interaction among materials science, device physics, and state-of-the-art technology.

This year will be the thirty-fourth meeting of SISC. The first meeting was held in 1965 and attendance was by invitation. The conference, now public, alternates between the east and west coasts, and meets just before the IEDM. An important goal of the conference is to provide an environment that encourages interplay between scientific and technological issues. Invited and contributed talks, as well as a lively poster session, are presented in an informal setting designed to encourage discussion, and conference participants enjoy numerous opportunities for social gatherings with renown scientists and engineers.

The conference emphasis is on silicon-based devices, including the SiC and SiGe systems, and topics evolve with the state-of-the-art. The program includes talks from all areas of MOS science and technology, including but not limited to the following:

- alternative and high-k gate dielectric materials,
- physics of thin dielectrics and their interfaces,
- gate-dielectric conduction and breakdown,
- silicon carbide and its interfaces,



- physical and electrical characterization of Si/SiO₂ interfaces,
- micro-roughness measurement, modeling, and device-related effects,
- hot carrier, plasma damage and radiation effects,
- nitrogen-containing oxides and stacked interfaces,
- surface cleaning technology and effects on dielectrics and interfaces,
- novel oxidation, deposition, and etching techniques, and
- theory of oxide and interface defects

Invited and contributed talks are complemented by informal events designed to encourage lively discussion and debate. Invited speakers this year include:

Dr. Suvi Haukka, ASM Microchemistry Ltd., Finland

- *"Novel Dielectric and Electrode Materials by Atomic Layer Deposition"*

Prof. Peter E. Bloechl, Clausthal University of Technology, Germany

- *"First-principles calculations of the formation of the SrTiO₃/Si interfaces"*

Dr. H.-S. Philip Wong, IBM T.J. Watson Research Center, USA

- *"Gate Dielectric Considerations for Non-Classical FETs"*

Prof. Alex Grishin, KTH, Royal Institute of Technology, Sweden

- *"Integration of novel functional oxides with Si"*

Dr. Satoshi Yamasaki, Advanced Semiconductor Research Center (AIST), Japan

- *"Creation mechanism of interface defects at the early stage of Si oxidation processes studied by UHV-ESR"*

Jamie Schaeffer, Motorola, USA

- *"Dual Metal Gate Electrodes on Hi-K Gate Dielectrics"*

Generous hospitality allows attendants to focus on enjoying the conference. Hors d'oeuvres, wine, and cheese encourage interaction among poster authors and other conference participants at Thursday's poster session. Friday afternoon has no scheduled talks, to

allow time to meet informally, relax, or visit local Washington D.C. attractions. On Friday evening the conference hosts a banquet and awards ceremony, complete with the now-famous (and always riotous) limerick contest. The limericks never fail to give the conference presentations, people and events an entirely new perspective!

This year's SISC will continue the tradition of presenting an award memorializing Prof. E. H. Nicollian. The award will be given for the best student presentation. Ed Nicollian was a pioneer in the exploration of metal oxide semiconductor (MOS) systems. His contributions were important to establishing SISC in its early years, and he served as the Technical Chair in 1982. With John Brews, he wrote the definitive book MOS Physics and Technology.

For registration information and general inquiries about SISC, please refer to the web-site: www.ieeesisc.com or contact the Arrangements Chair, Eric Vogel, at the National Institute of Standards and Technology, 100 Bureau Dr., MS 8123, Gaithersburg, MD 20899. Phone: (301) 975-4723, Fax: (301) 975-5668, E-mail: eric.vogel@nist.gov

Eric Vogel
Arrangements Chair
National Institute of Standards and
Technology
Gaithersburg, MD, USA

SPRING 2003 EDS AdCOM MEETING SUMMARY (CONTINUED FROM PAGE 2)

publication and conference revenues have increased. Paul cautioned that while 2003 finances are better than those of 2002, 2004's figures might be down due to the slowing global economy and the influence of SARS, which translates into lower meeting attendance, and membership reduction. As reported in December, EDS has adapted policies for reducing expenses by increasing subscription prices and membership fees, as well as making cost cuts in the Executive Office.

Nevertheless, Bill Van Der Vort and his staff have completed several Adhoc projects since December 2002. Among these are the determination and coordination of 50th Anniversary celebrations, compilation of a list for the EDS National Academy of Engineering committee of EDS Fellows who are not members of NAE and who would be good potential nominees, working with the EDS Fin-Com (Finance Committee) to perform a cost-cutting exercise for the 2002 & 2003 budgets, doing the ground work to establish a new TC Chair position, obtaining TAB approval for the revised EDS Field-of-Interest statement, starting to arrange for the biennial Region 9 chapters meeting, and providing input to the development of an IEEE member survey to be sent to EDS members. Additional tasks included the continued coordination of the scanning and digitization of the pre-1988 issues of EDL, T-ED, and the IEDM proceedings, development of a proposal to produce an archival DVD of all issues of EDL, T-ED, and the IEDM proceedings (or offer them all on-line to members), working with the EIC of T-DMR to implement initiatives to increase readership and paper submissions, coordination of the selection process for the new "George Smith" Best Paper Award, initiating preparation for IEEE TAB's five-year review of the Society's overall operations as well as a separate review of EDL, T-ED, and the EDS Newsletter, and providing infor-

IEDM To Be Advertised as the EDS Annual Meeting

The EDS AdCom has decided to start advertising the International Electron Devices Meeting as its "Annual Meeting". This change is consistent with the format currently in use by many of our IEEE sister societies (e.g., SSC, LEO, MTT, etc.), and should provide a focal point for student attendance, activities, and professional interaction.

mation and coordinating approvals for two meetings requesting EDS support for the first time. From now until December, the Executive office will be working on completing these projects.

Chair Reports

To date, 2003 has been a difficult year membership-wise for EDS. Membership chair, James Kuo, reported that the global economic slowdown (especially in semiconductors), SARS, the Iraq war, and related economic issues in the Pacific Rim have contributed to a drop in EDS membership. As shown the graph, membership is down in mid-2003 compared to its levels in previous years. The percentage translates to a loss of 2,253 members. While the numbers are not encouraging, James pointed out that many other IEEE societies have seen far greater membership terminations, some as great as 31% of their total members. So comparatively, EDS is actually doing well.

Year	Total	Net Gain/Loss
12/31/2001	13,489	+1.4%+
12/31/2002	13,368	-0.9%
4/30/2003	11,385	-6.0%*

EDS Membership Statistics

(+Compared to Y2000: *Calculated
Percentages compared to 4/30/02 counts)

The numbers show that Regions 1, 6, 8 and 10, which correspond directly with the major areas of semiconductor design and production, have been hit the hardest economically, and show the higher member losses. In addition to membership retention, chapter meetings have also been affected. For example, due to the SARS scare in the Far East, member attendance at meet-

ings and conferences has dropped, and speakers have shown reluctance to travel to infected countries. With the SARS epidemic in recession, and global economies slowly improving, the impact of world affairs on EDS will have an affect. It will require some major strategy for EDS to respond to these issues. In fact, President Hillenius has charged the Membership Committee to formulate a strategy on member recruitment and retention for the next several years. The committee has continued its ongoing projects such as recruitment using conference onsite credit vouchers, annual TIP mailing, promotional material to EDS sponsored meetings and lecturers given by DLs. In addition, they have coordinated other activities including the Senior Member Program (SMP), allowing annual chapter subsidies to be used to pay for memberships and subscriptions, distribution of the English, Japanese, and Mandarin versions of the EDS Membership brochure, and offering the Membership Fee Subsidy Program for low-income members. James expressed concern over the impact of EDS budget reductions on member recruitment. Contained in the Executive Office cost cutting recommendations is the discontinuance of such programs as the Japanese, and Mandarin membership brochures, the Senior Member Program, annual TIP mailing, and the sending of promotional materials to technically co-sponsored meetings. EDS will also cancel using an outside person to cover the membership booth at IEDM.

The report of Cor Claeys, Regions/Chapters Chair, referenced two new (joint) EDS chapters in Eastern North Carolina, and Orange County Califor-

nia. Additional chapters in Virginia, Minneapolis, Pennsylvania, California, Belgium, Mexico, Brazil, India, Japan, and Columbia are possible in 2003. There is discussion on forming four chapters in Mainland China as well. At present, EDS has 107 chapters worldwide including eight student branches. In discussion, AdCom members expressed concern on the continuation of chapter subsidies in the light of the current budget situation. It was decided that EDS would change its policy for chapters sponsored by EDS and one or more other IEEE societies to only grant a maximum annual subsidy of US \$500 (instead of US \$1000). Ilesanmi "Ade" Adesida, Education Chair, concentrated mainly on the EDS Short Course, and Young Industry Engineer Award actions in his address. At issue with the Short Course program is the selection of speakers and the relationship between EDS and companies that may wish to host a course at their site. AdCom members were concerned that EDS appears to "endorse" particular speakers with the current format. More suitable is for EDS to take the lead in looking at hot topics for short courses, and then polling the full EDS Distinguished Lecture List for speakers willing to give talks on these hot topics. It would then be up to the companies to select the speaker of their choice. In particular, short courses in nanotechnology are in demand, and EDS should increase efforts in providing education on this topic. AdCom will ask the Nanotechnology TC for assistance in this task. The proposed EDS Young Industry Engineer Award would be aimed at recognizing achievements made by EDS members under 35 years of age, and no more than 12 years past his/her B.Sc. degree. While a committee has been formed, the award proposal will be deferred. IEEE already has a similar award and it was decided to wait to see if they receive a sufficient number of nominations before EDS goes forward with its proposal. Due to budget issues, it is also good for EDS to wait to pursue this award at this time. Ade also mentioned that the number of Distinguished Lectures, and videotape loans are down, and that there were no Region 8 can-

didates for the Graduate Student Fellowship this year.

On the meetings front, last year EDS was involved with 31 sponsored meetings, and 101 technically co-sponsored meetings. It was discussed that conferences that have not closed their books are a continuing problem, and EDS has paid over \$10K in penalty fees since 1999. The good news is that Ken expects a surplus of \$341K from meetings in 2003. The issue was brought before AdCom about starting to advertise the IEDM as the "annual meeting" for EDS. While it has always had this role de facto, neither EDS nor IEDM has ever used this identification. Since similar societies such as SSC, LEO & MTT identify one of their meetings as their "annual meeting", using this description for IEDM has

"For the first time, revenue from Transactions on Electron Devices has reached \$1million (US) dollars."

**-Renuka Jindal,
EDS Publications Chair**

merit. It would also give students a focal point for attending, especially if special student-related activities and recruiting were included. AdCom's decision was to adopt the term "annual meeting" for IEDM in the future.

For the past two years now, EDS has been working on completing the digitization of all past issues of EDL, T-ED and the IEDM Proceedings. This task was driven by the desire to possibly provide all the content for EDL, T-ED & the IEDM to members on an archival DVD and/or online. Publications Chair, Renuka Jindal, reported that scanning and conversion of EDL from 1980-1987 has been completed. Similar processing for all the 1954-1987 issues of T-ED and the IEDM Proceedings from 1955-1987 will be finished by the end of 2003. All pre-1988 digitization work has been budgeted, with

the final payment to be made in 2004. Renuka has discovered that a problem exists for the 1988-1996 issues of EDL & T-ED currently residing on IEEE Xplore. These issues were not scanned as searchable PDFs, therefore to get all of these issues into a "fully searchable" format requires an extra expenditure of \$7K. AdCom felt this would be a worthwhile expense to incur, as we could request IEEE to replace these issues on IEEE Xplore and improve the search capability for our members. Renuka also advised that it still needs to be decided whether we would have Parity Computing create for the post 1987 issues of EDL, T-ED & IEDM all the same metadata it is currently establishing for the pre-1988 issues. To do this job will cost approximately \$88K. If EDS decides to create an archival DVD, completion of this work would be essential. Also, if IEEE could make use of the metadata online via Xplore, it would also be good to have this work done. Thus AdCom continued its past discussion concerning whether we should produce an archival DVD of EDL, T-ED & the IEDM. Discussion on this topic centered on whether or not a DVD would be valuable, and whether or not IEEE Xplore could make use of this additional information. Turning first to the latter issue, Bill Van Der Vort and Renuka were asked to investigate what the plans are for IEEE Xplore. A report will be due in December. As for the DVD, it was commented that producing a DVD was not a solution since most users prefer on-line access, but further discussions will be continued in December after finding out what enhancements IEEE Xplore will support. In short, not spending extra funds to make a DVD saves money, and it is possible that the assimilation of EDL, IEDM and T-ED into IEEE Xplore will be sufficient. In another notable achievement, revenue for T-ED passed the \$1M mark for the first time.

Cary Yang, Nominations and Elections Chair, discussed the need to increase AdCom nominations from Regions 8 & 10. Cary also proposed bringing a suggested amendment (to the society by-laws) to require that we

always have one elected member of AdCom be a Graduate of the Last Decade (GOLD Member). An effort to officially change the title of "Chair" for all EDS Standing Committees (i.e., Meetings, Publications, Education, Membership, Awards, and Regions/Chapters) to "Vice-President" was presented by Renuka Jindal. AdCom discussed the conflict in this title with the current EDS officer title of Vice President. Cary and Renuka were charged with redoing this proposal for December discussion with the inclusion of a

change in the election process to have a President-Elect instead of a Vice President. For the Awards Committee, Chair Al MacRae, suggested that the monetary awards for the Distinguished Service Award be reduced from \$2.5K to \$1K. A vote on this issue was postponed until December. The George E. Smith Award for the best EDL paper has obtained official approval, and will announce its first recipient at the 2003 IEDM. He also encouraged all members to send in nominees for the J.J. Ebers, DSC, and IEEE Field awards.

AdCom also recognized Al for his recent induction into the National Academy of Engineering.

The next meeting of EDS AdCom will be on Sunday December 7, 2003 at the Hilton Washington Towers in Washington, D.C. in conjunction with the IEDM meeting.

*John K. Lowell
Consultant
Dallas, TX, USA*

2003 IEEE INTERNATIONAL ELECTRON DEVICES MEETING (IEDM)

(continued from page 4)

- an Emerging Technologies session on the topic "New Memory Concepts"
- three plenary presentations by prominent experts: "Ambient Intelligence--Key Technologies in the Information Age," by Dr. Werner Weber of Infineon; "Future Chip Technology for Mobile Communications," by Dr. Keiji Tachikawa of NTT DoCoMo; and "Nanotechnology Needs Today," by Dr. Joseph Bordogna of the National Science Foundation
- two evening panel sessions on future challenges to the industry: "Who will solve the power problem?" and "When will CMOS replace SiGe HBT?"

- a luncheon talk by Michael Cima of Massachusetts Institute of Technology on "Implantable Drug Delivery"
- presentation of prestigious IEEE and EDS awards.

The submission date for regular papers has already passed but a limited number of late-news papers will be accepted for presentation until September 12th, 2003. Limited financial assistance is available for students presenting papers.

For registration and other information, visit the IEDM 2003 home page at www.ieee.org/conference/iedm or contact Conference Manager Phyllis Mahoney, 16220 S. Frederick Ave., Gaithersburg, MD 20877, USA; tel. (301) 527-0900, ext. 103; fax (301) 527-0994;

or email: phyllism@widerkehr.com

Washington, D.C. provides many attractions for visitors and we encourage attendees to explore them in the off hours of the conference. The IEDM organizers and committee members look forward to seeing you in December 2003.

*H-S. Philip Wong
Publicity Chair
IBM T.J. Watson Research Center
Yorktown Heights, NY, USA*

*Clifford King
Publicity Vice Chair
Noble Device Technologies
New York, NY, USA*

IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY CALL FOR PAPERS

In an era of rapidly increasing density and integration of devices, IEEE Transactions on Device and Materials Reliability (T-DMR) is dedicated to providing leading information that is critically relevant to the creation of reliable products. This fully peer-reviewed archival publication is available online and via quarterly library subscription. The broad scope of T-DMR includes, but is not limited to:

- The reliability of electronic, optical & magnetic devices, MEMs devices Microsystems & packages
- The reliability of the materials used in these devices, micro-systems and packages
- Properties of the interfaces, surfaces, and microstructure that impact the

reliability of materials

- Fabrication processes that modulate materials and device reliability
- Original work is solicited on the measurement, physical analysis, and fundamental understanding of the reliability of electronic devices and materials from the concept stage through research and development, and during manufacture. Papers to be published in the IEEE Transactions on Device and Materials Reliability are sought in the following areas:
- Mechanisms of failure of electronic devices and materials
 - Influence of fabrication processes on failure mechanisms
 - Theoretical modeling and simulation of failure mechanisms
 - Reliability testing and screening

methodologies for materials and devices

- Reliability impact of device and circuit design, material, and process selection

The intent of the T-DMR is to facilitate rapid dissemination of new research findings. The Editorial Board strives to expedite publication to ensure rapid dissemination of new results. Manuscripts will appear online shortly after acceptance for publication. Current publication statistics for T-DMR indicate that first reviews are complete in less than 2 months while accepted manuscripts are published on-line on average in less than 4 months.

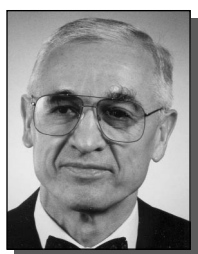
Manuscript submission details and instructions for authors can be obtained at www.ieee.org/tdmr/emanuscript.

SOCIETY NEWS

EDS MEMBERS NAMED WINNERS OF 2003 IEEE MEDALS

Two EDS members won 2003 IEEE medals. Professor Nick Holonyak, Jr. won the IEEE Medal of Honor and Dr. Donald R. Scifres won the IEEE Robert N. Noyce Medal.

IEEE Medal of Honor



Nick Holonyak

"For a career of pioneering contributions to semiconductors, including the growth of semiconductor alloys and heterojunctions, and to visible light-emitting

diodes and injection lasers."

Hailed as the "father of semiconductor light emitter technology in the western world," Nick Holonyak, Jr. is commonly credited with inventing the light-emitting diode (LED) and the first semiconductor laser to operate in the visible spectrum. Light sources based on his work dominate the optical communications and home entertainment industries. He is the first to make III-V alloy devices.

The John Bardeen Chair and professor at the Center for Advanced Study at the University of Illinois at Urbana-Champaign, Dr. Holonyak was Bardeen's first graduate student and enjoyed a 40-year friendship and collaboration with him. Since 1963 Dr. Holonyak and his students have made seminal contributions to semiconductor lasers and LEDs, and since 1977 to quantum well lasers. Virtually all semiconductor lasers today use quantum wells for fiber-optic communications, compact disk and digital videodisk players, medical diagnosis, surgery, ophthalmology and many other applications.

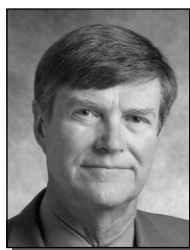
In the early 1980s, Dr. Holonyak's group introduced impurity-induced layer disordering, which converts lower band gap layers of a semiconductor structure into intermixed higher band gap alloy. The discovery of this process solved the low-reliability issues previously plaguing lasers, and

is used also to define semiconductor waveguides. With this technology, lasers exhibit higher performance and durability, making them ideal for DVD players and other optical storage equipment. In 1990 he and his students introduced the III-V oxide technology now used universally to define VCSEL (vertical laser) currents and cavities.

Dr. Holonyak began his career at Bell Telephone Laboratories in 1954. He joined General Electric's Advanced Semiconductor Lab in 1957, where he helped develop thyristors in 1957-60, invented the basic symmetrical switch in household light-dimmer switches, and made the first visible semiconductor laser and visible LED in 1962.

Dr. Holonyak holds 31 patents, has published numerous papers and co-authored two books. A Life Fellow of the IEEE and a Fellow of the American Academy of Arts and Sciences, the American Physical Society, and the Optical Society of America, he is a member of the U.S. National Academy of Engineering and National Academy of Sciences. His honors include the IEEE Jack A. Morton Award, the IEEE Edison Medal, the U.S. National Medal of Science, the Frederic Ives Medal of the Optical Society of America, the National Academy of Sciences Award for the Industrial Application of Science, the John Scott Medal of the City of Philadelphia, and the Japan Prize.

IEEE Robert N. Noyce Medal



Donald Scifres

"For pioneering contributions to the technology and business development of semiconductor lasers."

A laser physics business and technology visionary, Donald Scifres helped launch a revolution in the optical communications industry. His founding contributions to distributed feedback lasers, high

power diode arrays, vertical cavity surface emitting lasers and more have consistently delivered sophisticated devices into the market.

At Xerox PARC, where he worked from 1972 to 1983, he and his coworkers patented the pioneering distributed feedback semiconductor injection laser. It became the preferred light source for high-speed, long distance optical fiber communications.

In 1983, Dr. Scifres founded Spectra Diode Laboratories, Inc., which became a leading supplier of fiber optic communications components and modules. The company's products included high-power semiconductor lasers, erbium doped fiber amplifiers, light modulators, optical performance monitors, planar light wave circuits and high-speed electronics for powering fiber optic communications. SDL merged with JDS Uniphase Corporation in 2001, and Scifres became co-chairman and chief strategy officer until his retirement in January 2003. Scifres is now chairman of SDL Ventures, an investment company.

Dr. Scifres holds more than 130 patents and has published more than 300 articles and book contributions. An active Fellow of the IEEE, he has been president, board member and technical committee chair of the IEEE Lasers and Electro-Optics Society. He has also been a director of the Optical Society of America and president and director of the Lasers and Electro Optics Manufacturers Association.

Dr. Scifres' honors include the IEEE Jack A. Morton Medal, the IEEE Third Millennium Medal and the IEEE LEOS Award for Engineering Achievement. A member of the International Society for Photonics and Optical Engineering, the American Physical Society and the National Academy of Engineering, and Fellow of the OSA, he has also earned the Rank Prize from the Rank Foundation, the OSA's Edwin H. Land Medal and the American Physical Society's George E. Pake Prize.

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

Khaled Z. Ahmed
Salman Akram
Mohamed Arafa
Jeffrey Beck
George A. Brown
Kuei-Shu Chang-Liao*
Ilan Golecki
Yan Kit G. Hau
Donming He
Thorsten Hesjedal
David M. Hiemstra
Perry A. Holman*
Nam Hwang
Walid A. Kamali*
Gennady P. Kulemin*

Shigetaka Kumashiro
Hyeokjae Lee*
Steven M. Leibiger
Yongxiang Li*
Anthony S. Oates*
Ci-Ling Pan
Robert Pearson
Norman J. Rohrer
Edward H. Sargent
Kalluri R. Sarma
Vivek Saxena
Toshio Sunaga
Charles R. Thurber, Jr.*
Willie J. Yarbrough*

* = 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. In addition, 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/md/smelev.htm>.

YOUR HELP IS NEEDED – Request for your assistance in obtaining past proceedings of the International Electron Devices Meeting (IEDM)

Attention All EDS Members:

As you may already be aware EDS is currently working on a project to scan and digitize all the past proceedings of the International Electron Devices Meeting (IEDM) that are not currently accessible via IEEE Xplore (pre 1988) issues. In order for this project to be completed all the proceedings must be located and scanned and we have been able to obtain many of the proceedings already. However, we still need to acquire the IEDM proceedings (abstracts) from 1955-1964.

If you have any of these proceedings and would like to donate them for scanning it would be greatly appreciated. The proceedings will have to be cut to be able to scan them properly but if you would like they can be bound back together and returned to you when the job is completed. If you have any of the past proceedings and are willing to lend them to the Society, please notify Stacey Waters at the EDS Executive Office at your earliest convenience and she will make the arrangements to obtain the proceeding(s). Stacey can be reached via e-mail at s.waters@ieee.org or via telephone at +1 732 981 3448.

IEEE ELECTION – DID YOU VOTE YET?

This is a reminder for EDS members to vote in the 2003 IEEE Election for the following positions and candidates.

Position	Candidates
IEEE – President-Elect, 2004	W. Cleon Anderson Michael R. Lightner
Division I Delegate/Director 2004-2005	Gordon W. Day Lewis M. Terman
Region 1 Delegate-Elect/ Director-Elect 2004-2005	Charles P. Rubenstein Barry L. Shoop
Region 3 Delegate-Elect/ Director-Elect 2004-2005	Donald W. Hill George F. McClure
Region 5 Delegate-Elect/ Director-Elect 2004-2005	Robert W. Leavene, Jr. Robert A. Scollie
Region 7 Delegate-Elect/ Director-Elect 2004-2005	Robert A. Hanna John B. Plant
Region 8 Delegate-Elect/ Director-Elect 2004	Duncan C. Baker Baldomir Zajc
Region 9 Delegate-Elect/ Director-Elect 2004-2005	Enrique E. Alvarez Rodolfo F. MacDonald Luiz Pilotto
Standards Association President-Elect, 2004	Raymond Hapeman Donald N. Heirman
Standards Association Board of Governors Member-at-Large	Profile 1 Laura E. Hitchcock Steven A. Seeker Profile 4 Gerald T. Lane Douglas R. Topping Profile 5 George W. Arnold L. Bruce McClung Profile 6 Roy W. Alexander Paul J. Menchini
Technical Activities Vice President-Elect, 2004	Celia L. Desmond John R. Vig
IEEE-USA President-Elect, 2004	Gerard A. Alphonse Jean M. Eason
IEEE-USA Member-at-Large, 2004-2005	Gary E. Johnson C. Lee Stogner

Election ballots with biographies of the candidates were mailed out September 1 to all IEEE voting members and the deadline for the submission of your ballot is November 1, 2003. For more information concerning the election (including biographies) please visit the IEEE website at www.ieee.org/organizations/corporate/candidates.htm

ON-LINE ACCESS TO IEEE JOURNALS AVAILABLE TO EDS MEMBERS

The Electron Devices Society is committed to providing on-line access to its periodicals. The on-line delivery system, IEEE Xplore, provides IEEE members with the following benefits/capabilities:

- Online access to their IEEE personal subscriptions
- Full-text PDF image files for content, including all original charts, graphics, diagrams, photographs and illustrative material starting from 1988
- Links to references and cross linking between EDS publications and other IEEE publications is available in articles from 1996 through current
- Online available prior to the print equivalent
- Free and unlimited access to abstract/citation records
- Unlimited printing of bibliographic records and full-text documents

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

- *Electron Device Letters*
- *Transactions on Electron Devices*
- *Transactions on Device and Materials Reliability*
- *Journal of Lightwave Technology*

Free on-line access was a new benefit given to EDS members on 1 September 1998.

In addition to the on-line access to periodicals included with EDS membership, *Transactions on Semiconductor Manufacturing and the Journal of Microelectromechanical Systems* are available on-line to their respective member subscribers of the print version.

To use the Xplore system, you must establish an IEEE Web Account. This account is also used for renewing your IEEE membership online. If you need to establish an IEEE Web Account, please visit www.ieee.org/web/accounts/

IEEE members can go to the Xplore site through the URL www.ieeeexplore.ieee.org. We encourage all members of the Society to use this dynamic system.

Renuka P. Jindal
EDS Publications Chair
University of Louisiana at Lafayette
Lafayette, LA, USA

IMPORTANT -NEW REQUIREMENTS FOR SUBMISSION OF CONFERENCE PROCEEDINGS TO IEEE

PDF SPECIFICATIONS FOR SUBMISSION TO IEEE XPLORE(R) - All conference proceedings that are distributed by the IEEE are made available online through IEEE Xplore(R), the premier delivery system that is used by global customers at leading academic, corporate and government libraries, who download an average of 1.6 million documents per month. Conference content is an essential part of the IEEE Xplore(R) success story.

The IEEE has adopted new requirements for the submission of conference proceedings to IEEE Xplore(R). The current collection of online conference proceedings is largely composed of bitmapped Portable Document Format (PDF) files created from scanned print volumes. IEEE staff and volunteers have long planned to upgrade the display quality of new conference content in IEEE Xplore(R) by migrating to full-text PDF files. The use of full-text PDFs will markedly improve the display quality and value of conference documents. Full-text PDFs will also present the opportunity for increased circulation of content in the future, with reference linking and enhanced search capabilities.

In 2000, IEEE volunteer leadership approved an initiative to require that specifications be drafted for the submission of full-text conference documents to IEEE Xplore(R). Those specifications were circulated in draft form to a focus group of IEEE conference organizers, who offered comment and support for their adoption. The documents have since been issued and can be downloaded at <http://www.ieee.org/confstandards>

These specifications are provided for use by all conferences acquired for inclusion in the IEEE Conference Publications Program (formerly known as "Book Broker") in 2003 and thereafter. The IEEE Conference Publications Program coordinates the submission of conference material to IEEE Xplore(R). Conference organizers are urged to share these specifications with their vendors, as they define the parameters for distilling PDFs from authors' source files.

The IEEE volunteer leadership - the IEEE Technical Activities Board (TAB), the IEEE Publication Services and Products Board (PSPB), and the PSPB/TAB Electronic Services and Products Committee (ESPC) - voted in February 2002 to approve the new requirements, effective with conferences held in 2003. In June 2002, the volunteer boards passed motions defining the following compliance schedule:

- During 2003, conference proceedings that are submitted in print format only, or as non-compliant electronic files, will be scanned from print to bitmapped image-file PDFs, following the current process.
- Beginning with conferences held in 2004, proceedings that are not provided as full-text PDF files will be scanned from print as high-quality PDFs, with search ability and display equivalent to full-text PDF. The cost of this conversion is to be borne by the IEEE organization(s) involved in the conference.
- Beginning with conferences held in 2005, any conference that is financially sponsored by the IEEE or one of its organizations must provide a full-text PDF record, without exception.

There are three documents on the Web site <http://www.ieee.org/confstandards>:

- IEEE Requirements for PDF Documents Intended for IEEE Xplore(R) describes requirements for converting application files or PostScript files to full-text PDF for inclusion in IEEE Xplore(R).
- IEEE Packing List Specification for Conference Proceedings includes instructions for preparing the packing list that will specify the sequence for the PDF files prepared for IEEE Xplore(R). This list must accompany full-text PDF conference files submitted to IEEE Xplore(R).
- IEEE Publication Types for Conference Proceedings is a comprehensive list of elements found in a conference record. It is essential to use this categorized list for the completion of a packing list or conversion of PDF files.

EDS DISTINGUISHED LECTURERS/ CHAPTER PARTNERS VISIT ILLINOIS INSTITUTE OF TECHNOLOGY AND THE CHICAGO CHAPTER

We report two EDS Distinguished Lecturer seminars recently held in Chicago jointly organized by the Illinois Institute of Technology (IIT) and the Chicago Chapter. On April 18th, Prof. Hiroshi Iwai of the Tokyo Institute of Technology visited the ED/SSC/CAS Chicago Chapter and delivered a DL seminar at IIT. In his talk entitled "CMOS Downsizing Toward Sub-10nm", Prof. Iwai outlined the current status and future directions in sub-10nm CMOS research. Following the seminar, Prof. Iwai had discussions with the Officers of the Chicago Chapter regarding various EDS-related issues. On May 2nd, Prof. Ilesanmi Adesida of the University of Illinois at

Urbana-Champaign delivered a DL seminar at IIT, jointly hosted by IIT and the Chicago Chapter. Prof. Adesida's presentation, entitled "Processing and Device Issues in GaN and Related Compounds", provide detailed results and general information of the recent advances in the field of GaN research, which is of promising future semiconductor for wireless applications. Both seminars were well received by the local EDS community, including students, faculties and working professionals.

*Albert Wang
Illinois Institute of Technology
Chicago, IL, USA*



Prof. H. Iwai visited IIT and Chicago Chapter hosted by Prof. A. Wang. From left to right are, Prof. J. Stine (IIT), Prof. Albert Wang (IIT), R. Schenke (Chicago Chapter), Prof. Hiroshi Iwai (TIT), N. Phoenix (Chair, Chicago Chapter) and R. Rollman (Chicago Chapter).



Prof. I. Adesida visited the Integrated Electronics Laboratory at IIT hosted by Prof. Albert Wang. Prof. Ilesanmi Adesida (Left) and Prof. Albert Wang (Right).

ANNUAL CD ROM PACKAGES AVAILABLE TO EDS MEMBERS

The EDS CD ROM Package includes all issues for a given year of Electron Device Letters (EDL) and Transactions on Electron Devices (T-ED), as well as the proceedings of the given year of the International Electron Devices Meeting (IEDM). The CDs have an easy to use interface and are searchable by author, title and key word. All materials were published using Adobe Acrobat Technology. Included on the CD ROM are versions of Acrobat Reader for Microsoft Windows, Apple Macintosh and UNIX.

Currently, EDS has six CD ROM Packages available to its members, i.e., 1997, through 2002. Each is available for US \$25.00 (US \$19.00 for students). If you would like to receive an order form for any of these products, please visit the EDS web site at: www.ieee.org/organizations/society/eds/pubs.html and click on the order form.

For the 2003 CD ROM Package, you can request it in advance as a subscription via your 2004 IEEE Membership Renewal Bill when you receive it this Fall. The 2003 EDS CD ROM Package will be available in June 2004. Once you sign-up to receive the 2003 package via your Member Renewal Bill, you will automatically be billed each year for subsequent versions of the package.

*Renuka P. Jindal
EDS Publications Chair
University of Louisiana at Lafayette
Lafayette, LA, USA*

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

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

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- High Speed Optoelectronic Integrated Receivers for Fiber Optical Communications

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

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- Ultra-Shallow Junctions Using Very Low Energy Ion Implantation
- Mos Device Modeling

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- Micromachined Uncooled Infrared Sensors
- Electronic Transport and Optical Properties in Semiconducting, Nanocrystalline Y-Ba-Cu-O

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ZEYNEP CELIK-BUTLER

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

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- The Harmonic Distortion in SOI MOSFET

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- Low Power for Internet Data Centers
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EDS MEMBERSHIP FEE SUBSIDY PROGRAM (MFSP)

IEEE policy currently allows a 50% discount on IEEE dues and one society membership for any individual whose annual salary is less than US\$11,300. This offering is referred to as the Minimum Income Special Circumstances Option. The Electron Devices Society has a program for its chapters called the Membership Fee Subsidy Program (MFSP), which will both complement the IEEE Minimum Income offering and provide a significant additional benefit for qualified individuals.

With the EDS Membership Fee Subsidy Program, EDS will pay the other 50% of the IEEE and EDS dues that are not covered by IEEE for individuals qualifying for the Minimum Income option for a maximum of 10 individuals per chapter. These individuals can be either prospective new students/members or existing students/ members. This program is also available to all unemployed members. Although the IEEE Minimum Income option allows individuals to purchase publication subscriptions for one soci-

ety at a 50% reduced rate, the EDS MFSP does not cover the payment of publication subscriptions.

If a chapter has individuals who qualify for the reduced IEEE Minimum Income offering and the EDS MFSP, all the Chapter Chair needs to do is coordinate the obtaining and submission of the IEEE/EDS membership application forms (for prospective new members) and/or IEEE membership renewal bills (for existing members) for the individuals he/she is proposing to be covered by EDS. The Chapter Chair should also contact the EDS Executive Office to advise of their participation in the program. All application forms and renewal bills should be mailed to the EDS Executive Office. Once received, the application forms and bills will be coded by the Executive Office with a special account number and submitted to the pertinent IEEE department for processing.

For a given year of participation in the EDS MFSP, a chapter must replace a

minimum of six of the ten members who were paid for by EDS in the previous year. Also, a given member will only be allowed to have his/her memberships paid for by EDS a maximum of two times. These two policies will avoid having the same members receive the benefit each year and encourage new membership. These EDS members receiving the MFSP benefits are encouraged to participate in chapter activities and promote its growth.

Aside from being a program for existing EDS chapters, the EDS Membership Fee Subsidy Program is also an extremely good means to help facilitate the launching of new chapters in low income geographical areas. For any questions concerning the program, please contact Laura Riello (l.riello@ieee.org) of the EDS Executive Office.

*James B. Kuo
EDS Membership Chair
National Taiwan University
Taipei, Taiwan*

IN MEMORY OF DR. KEVIN FRANCIS BRENNAN

Dr. Kevin Francis Brennan of Atlanta, GA died Aug. 2, 2003 after a three-year battle with a rare form of pancreatic cancer.

He is survived by his wife of 5 _ years, Lea A. McLees; their pets, Casper and Jack; his mother, Rita C. Brennan of Ocala, FL; brother, Gregory J. Brennan of Brick, NJ; mother-in-law, Norma J. McLees of Auburn, GA; brother- and sister-in-law, David W. and Davida D. McLees of Greenville, NC; and extended family, friends, students and colleagues. He was preceded in death by his father, Frank J. Brennan.

Brennan was a Westfield, N.J., native. He earned a B.S. in physics from the Massachusetts Institute of Technology in Cambridge; and an M.S. physics and a Ph.D. in electrical engineering from the University of Illinois at Urbana-Champaign. A professor in Georgia Tech's School of Electrical and Computer Engineering since 1984, Brennan taught, performed research and did service work for the university, as well as graduating 11 Ph.D. students who work at leading U.S. companies and universities. A National Science Foundation Presidential Young Investigator, he authored almost 150 refereed journal papers and more than 100 conference articles. Brennan held five U.S. patents and consulted for industry and government.

Brennan specialized in the in-depth theoretical analysis of semiconductor devices and materials at the submicron level. He also developed super-



Dr. Kevin Francis Brennan

lattice devices for electroluminescent displays -- such as those that glow on your car dashboard at night -- and infrared detectors -- such as those used in night vision goggles.

Brennan created computer simulations of high-speed, high frequency transistors, as well as of quantum mechanical effects in semiconductors. His specialty was modeling wide-band-gap semiconductors for future high-power, high-frequency, high-thermal-resistance applications such as automobile and jet engines and power amplifiers for wireless communication systems.

Nationally, Brennan was a Distinguished Lecturer for the Institute of Electrical and Electronics Engineers (IEEE). He was invited around the country to discuss future approaches

to computing hardware, and the impact of wide-band-gap semiconductors on wireless communications. He served on the board of the Journal of Light-wave Technology, as well as several national technology advisory boards. Brennan was a member of IEEE, the American Physical Society and Sigma Xi.

Brennan authored "The Physics of Semiconductors with Applications to Electronic Devices" (Cambridge University Press), "Theory and Modern Electronic Semiconductor Devices" (John Wiley and Sons Textbook Division); and co-edited "Topics in High Field Transport in Semiconductors" (World Scientific). An additional book will be published posthumously.

At Georgia Tech, Brennan was an Institute Fellow and a Byers Professor in Optical Networking. He was instrumental in organizing Georgia Tech's first internal sabbatical program on "The Future of Computing Technology," which explored new areas of collaboration on campus.

In 2003 Brennan won Georgia Tech's highest award, Distinguished Professor of the Year. He received a special recognition award for graduate education and research scholarship presented in 2002.

In his free time Brennan enjoyed grilling, reading American and scientific history books, running, backcountry hiking, sailing, model railroading, wine, good food and travel. He was known for his stunning blue eyes, handsome physique, great one-liners and a ready, booming and infectious laugh.

REGIONAL AND CHAPTER NEWS

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

ED Washington/ Northern Virginia

- by Michael Hurt

The Washington/Northern Virginia EDS Chapter held two meetings during the months of April and May at George Mason University. The April meeting was a talk on Spin Based Quantum Computers by Dr. Supriyo Bandyopadhyay an EDS Distinguished Lecturer, of Virginia Commonwealth University. Quantum computers promise vastly enhanced computational prowess and an uncanny ability to solve intractable problems. More importantly, a quantum computer can solve problems much more efficiently than a classical computer.

Dr. Bandyopadhyay presented a stimulating lecture with a focus on the solid state aspects of the world of quantum computers, including example images and lab results of quantum devices.

In May, Dr. Dimitris E. Ioannou of George Mason University presented an overview of Fully Depleted SOI MOSFETs. Because of the inherent electrostatic coupling of the front and back channel, the Fully Depleted (FD) SOI MOSFET was thought to be superior to both Partially Depleted (PD) SOI and bulk MOSFETs. But a closer look at the device physics revealed that this superiority was diminished in the deep submicron range. Hence, there is currently a renewed interest on FD-SOI, because of its potential for continued scalability beyond this limit. Dr. Ioannou reviewed the latest results from the literature, concerning the performance and reliability of extremely scaled FD transistors, and offered predictions on where future work should be directed.

This chapter is planning a series of lectures on nanotechnology for the Fall term.



Dr. S. Bandyopadhyay at the Chapter meeting.

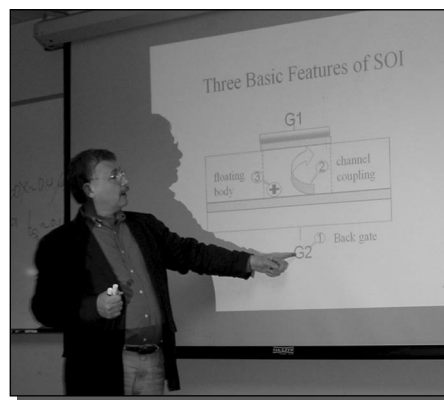
ED/CPMT Orlando

- by Anwar Sadat

The Electron Devices/Component Packaging & Manufacturing Society Orlando Chapter held a meeting on June 18, 2003 at the University of Central Florida campus. Dr. Huikai Xie from the University of Florida delivered a talk on "CMOS-MEMS: Process, Design and Applications". In his talk, Dr. Xie first introduced a bulk silicon based CMOS-MEMS process and then he focused on two applications: inertial sensors and micro mirrors. Based on the CMOS-MEMS process, he introduced a unique technique that they have developed to realize three-dimensional motion sensing and actuation that is essential to realize integrated inertial measurement units (IMUs) for navigation, guidance and control of vehicles, spacecrafts and missiles. He then briefly introduced a few example devices including an accelerometer and a gyroscope. He also talked about the micro mirrors, which use the same technique, and their applications in optical coherence tomographic (OCT) imaging. His group assembled the first ever-micro mirror-based endoscopic OCT imaging system for in vivo imaging of biological tissue. Preliminary experiments show very promising resolution and scanning speed. This work opens the possibility to make compact, high-performance and low-cost OCT catheters and endoscopes for future clinical applications by using MEMS technology. Compatibility of MEMS fabrication with mainstream CMOS technologies not only provides high

sensitivity, on-chip "smart" conditioning circuitry and low cost, but also has such advantages as scalability, multi-vendor accessibility and short design cycles. The lecture took about an hour and another 15 minutes for questions and answers. There were around 30 attendees in the meeting, mostly students and faculty from electrical & computer engineering departments and School of Optics (CREOL). For additional information, contact Anwar Sadat at anwarsadat@ieee.org.

— Murty Polavarapu, Editor



Dr. Dimitris Ioannou at the Chapter meeting

EUROPE, MIDDLE EAST & AFRICA (REGION 8)

Message from the Past Novosibirsk State Technical University Student Branch Counselor

- by Alexander V. Gridchin



Alexander V. Gridchin

I have been involved in IEEE EDS activities since 1998 as one of the organizers of the IEEE Novosibirsk State Technical University Student Branch. Since the date of establishing the student branch I was serving as a Counselor. It was a time of good practice for me. I was studying to organize

the meeting, to invite lecturers, to serve members via e-mail, to plan the Student Branch activities, to write reports, to renew IEEE memberships, to subscribe to IEEE journals. One of most difficult problems for me as Counselor was forming the team and preparing the person who can replace me in the future. Now, four years later, I can tell you that this problem is successfully solved. I'm very appreciative to all of my colleagues who have made me an unprecedented assistance during the period of last four years like Mr. William F. Van Der Vort, Prof. Cary Yang, Prof. Hiroshi Iwai, Prof. Rolf Remshardt, Prof. Jan Van Der Spiegel and many other people. Now I want to introduce you to our new Student Branch Counselor, Mr. Vladimir A. Kolchuzhin. During the last two years he was successfully serving the IEEE Novosibirsk State Technical University (NSTU) Student Branch as a Branch Chair.

ED Novosibirsk State Technical University Student Branch

- by Vladimir A. Kolchuzhin

Our IEEE EDS Student Branch Chapter in the NSTU was founded in 1999, and now is a good time to summarize our working activity. As one of first IEEE EDS Student Branch Chapters in Russia, we were faced with a lot of a financial and organization problems during the process of establishing our branch. However, due to support from the Dean of Faculty of Radio Engineering, Electronics and Physics, Dr. Victor A. Gridchin, and to the outstanding enthusiasm from the students we solved most of these problems.

Now that our EDS Student branch chapter is firmly established, all of our



Vladimir A. Kolchuzhin



Team of EDS NSTU Student Branch Chapter, from left to right: Mr. Nicolay M. Shmakov, Mr. Vladimir A. Kolchuzhin, Mr. Alexey V. Shaporin, Mr. Dmitry V. Brunev and others (Collage by Mr. Alexey V. Shaporin)

students can benefit from EDS membership. They read EDS publications, like *IEEE Electron Device Letters*, *IEEE Transactions on Electron Devices*, and *IEEE Transactions on Electronics Packaging Manufacturing*, which are an indispensable source of knowledge in this field. Most of our students take part in EDS sponsored/co-sponsored international conferences, like IEEE Sensors, Euro sensors, APEIE and KORUS. As a result, an unprecedented increase of student scientific publications takes place. Now our student members send their papers to 3-5 international conferences and take part in these meetings each year. There is a good trend among our student members. After finishing their education most of our IEEE student members are continuing their research activity at the University as research assistants or Ph.D. students and keeping or upgrading their IEEE membership.

At the beginning of the development of our Student Branch, we decided to establish our own workshop in order to give our students a possibility to publish their results in English in IEEE-related proceedings. So we established an annual "Electron Devices and Materials" meeting. This meeting is not only a workshop, which participants from all ex-USSR territory and other countries attend, but also includes tutorials where well known scientists from Germany, USA and South Korea report about the most interesting trends in the field of electron devices.

Among our activities, the most important one is the student scientific

research. Due to support given by IEEE EDS, we started some projects in the field of simulation and characterization of microsystem devices. All of our EDS members are involved in realizing this project as members of research teams, whose efforts are concentrated on simulation and development of the technological process for the microsystem devices.

Now, with the help of the newly established Siberian section, we plan to increase our efforts for involving new members and creating new student scientific teams in the EDS field of interests.

— Alexander V. Gridchin, Editor

ED Poland

- by Andrzej Napieralski

The ED Poland Chapter sponsored two International Conferences. The first one, "The 6th Symposium Diagnostics and Yield: Advanced Silicon Devices and Technologies for ULSI Era," was held June 22-25, 2003 in Warsaw, Poland. A number of invited speakers (including such leading scientists as Siegfried Selberherr – author of MINIMOS) from Austria, Belgium, France, Germany, Japan, Norway, United Kingdom, U.S.A., Ukraine and Poland presented papers on the most important issues concerning semiconductor technology, device performance, modeling and characterization. A lot of attention was paid to the future of device scaling and the resulting technological difficulties. Advantages of new materials, such as SOI, SiGe, SiGeC and strained silicon, as well as the difficulties associated with the use of these materials, were another

important topic. Several papers were devoted to modeling issues encountered in SiGe-based devices, power devices, short-channel MOSFETs and devices fabricated in very thin semiconductor layers. The subject of ultra thin SiO₂ and high-k dielectrics was also covered. Three special sessions sponsored by NEXUS were devoted to MEMS. A special IEEE meeting was devoted to the discussion of future directions of the NEXUS program.

The Symposium retained its traditional character of an extensive tutorial, which included the presentation of 25 invited papers and 20 posters. A considerable number of graduate and Ph.D. students participated in the Symposium. Conference materials will be published in the *Journal of Telecommunications and Information Technology*.

The second one: "The 10th Jubilee International Conference: "MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS" - MIXDES'2003" was held June 26-28, 2003 in Lodz, Poland. During the last 10 years, MIXDES has been growing to become one of the largest microelectronics conferences in Central and Eastern Europe. More than 150 submitted articles were reviewed by the Program Committee to put together a high quality technical program of 131 papers from 28 countries organized in oral and poster presentations. During the conference, five invited papers were presented by internationally recognized distinguished speakers: Daniel Foty from Gilgamesh Associates, USA, Krzysztof Iniewski from PMC Sierra Inc., Canada, Andreas Wild (replaced by Wladyslaw Grabinski) and Charles Cordonnier from Motorola, and Hisayo Sasaki Momose from Toshiba Corp., Japan. Two special sessions were organized:



Invited speaker Hisayo Sasaki Momose receiving the flowers from the MIXDES Session Chairman, Prof. Andrzej Jakubowski.

"Compact Modeling and its Standardization", by Dr. Wladyslaw Grabinski from Motorola Modeling Centre in Geneva and "Optoelectronics and Photonics" organized by Dr. Marek Turowski from CFD Research Corporation in Huntsville USA.

In addition to the regular program, one course and three tutorials were organized as follows: Tutorial - "IC Design for Manufacturability" by Prof. Wieslaw Kuzmicz from IMiO Warsaw University of Technology; Tutorial - "Design and Modeling of MEMS Sensor and Actuators"; Course - "Advanced Thermal Measurement Techniques" by Department of Microelectronics and Computer Science Technical University of Lodz (DMCS TUL); and Tutorial - "Half Day on Thermal Measurement Techniques" by DMCS TUL, Lviv Politechnic, Ukraine and Budapest University of Technology. All these events were organized in the frame of FP5 European project REASON: "Research and Training Action for System on Chip Design". During MIXDES, the plenary meeting of FP5 European project SEWING: "System for European Water Monitoring" coordinated by Prof. Andrzej Filipkowski from ISE Warsaw University of Technology in Poland was organized. Two new members joined the International Program Committee: Dr. H. Wang from Southern Illinois University and Dr. Mariusz Zubert from Technical University of Łódź. Information about next year's conference is posted online at <http://www.mixdes.org>.

ED/SSC Yugoslavia

- by *Tatjana Pesic*

The ED/SSC Yugoslavia Chapter organized a session on Microelectronics and Optoelectronics at the 47th Conference on Electronics, Telecommunications, Computers, Automation and Nuclear Engineering (ETRAN 2003), held 8-13 June in Herceg Novi, Montenegro. A total of 48 papers were presented at this session, including invited papers entitled "Bipolar Transistor Compact Modeling" (by Dr. Slobodan Mijalkovic, DELFT University of Technology, Netherlands) and "Silicon Photonics Circuits" (by Prof. Graham Reed, University of Surrey, UK). Two Best Student Paper awards were presented to Ms. Elva Jovanovic, University of Nis, for the contribution entitled

"Simulation of Vertical Hall Device in High-Voltage CMOS Technology", and to Ms. Ivana Jokic, IHTM Belgrade, for the contribution entitled "Determination of the Desorption Energy that Characterizes the Adsorption-Desorption Process in MEMS and NEMS Sensors". The session was attended by more than 60 participants, most of them being members of IEEE EDS and SSCS.

— *Andrzej Napieralski, Editor*

MTT/ED/AP/LEO UK&RI

- by *Terry Oxley*

The three major annual events established/sponsored by the Chapter and planned for 2003 are summarized below (the first two events fall within the times of writing this report and newsletter publication).

The 4th IEEE/IEE European MIDAS (Mm-wave, microwave and rf Integrated circuit Design And Simulation) Workshop titled "Photonic ICs for Cost Efficient Optical Networks and Military Systems" is planned for the 7th and 8th of July 2003 at The University of Surrey, Guildford. The focus on microwave, millimetre-wave and RF integrated circuits combined in systems together with opto-electronics circuits, best described as 'Photonic Solutions' to commercial and military systems and applications, is aimed to facilitate the design of photonic integrated circuits by increasing the understanding and cross fertilization between the two traditional expertise areas of microwave and opto-electronic circuit design. The technical program combining four sessions covers the topics of Optical Communications, Microwave Design, Advanced Techniques for Optical Networks and Photonic ICs for Military Applications, with all speakers being invited acknowledged leaders in the field. The schedule for the workshop dinner in the evening of the first day includes an invited lecture on Silicon-Based Optoelectronics.

The 8th IEEE High Frequency Postgraduate Student Colloquium, aimed to provide an opportunity for student researchers to present their work and gain experience in the art of professional presentation, is planned for the 8th and 9th of September 2003 at Queens University, Belfast. The technical program included six oral sessions plus poster presentations, with

the oral sessions covering the topics of Wave Propagation, Dielectric Characterisation, Non-linear Devices, Guided Propagation, Passive Devices and Antennas. The evening dinner on the first day is followed by an Invited Talk. Prize presentations for best oral and poster papers are included in the closing session.

The 11th IEEE International EDMO (Electron Devices for Microwave and Optoelectronic Applications) Symposium, aimed at providing a forum for microwave and optoelectronic device designers, technologists and end-users, to discuss advances in device performance and system requirements, is planned for the first time in the USA. The EDMO Symposium, in its eleventh consecutive year, will take place 17-18 November 2003 at Central University of Florida, USA. For more details, please see the EDMO website www.edmo-symposium.org, or for the local organizer <http://www.ucf.edu>. Congratulations to David Rhodes of Filtronics Ltd UK, the 2003 recipient of the MTT-S Microwave Career Award.

For further information on Chapter news, please contact the Chapter Chairman: Ali A Rezazadeh, Professor of Microwave Engineering, Dept. of Electrical Engineering and Electronics, University of Manchester Institute of Science and Technology (UMIST), P.O. Box 88, Manchester M60 1QD, UK. Tel: +44 (0) 161 200 4708 (Sec.4801). E-Mail: a.rezazadeh@umist.ac.uk.

— Gady Golan, Editor

ASIA & PACIFIC (REGION 10)

AP/ED Bombay

—by Prof. M.B. Patil

Prof Nicholas Shuley, University of Queensland gave a talk on "Fast approximation of Green's functions in MPIE formulations for large antennas and scatterers," on April 8, 2003. The talk led to questions from the audience and technical discussion.

The IEEE AP/ED Bombay Chapter co-sponsored a two-day workshop on VLSI for faculty members in engineering colleges at the PICT School of Information Technology and Management, Pune on May 6 and 7, 2003. The objective of the workshop was to create awareness among faculty mem-

bers about VLSI design and technology, future prospects of VLSI, and the manpower needs of industry in the VLSI area. Twenty faculty members attended the program and benefited enormously from the lectures and the laboratory sessions organized as a part of the program.

On May 12, 2003, Prof. K. N. Bhat, Indian Institute of Technology, Madras, talked on "Polysilicon piezoresistive pressure sensors." He described the challenges involved in the fabrication of the sensors, innovative ways to address the problems, and characterization of the fabricated devices.

For more information, please contact Prof. MB Patil, Electrical Engineering Department, IIT Bombay, Powai, Mumbai 400076, India, Email: mbpatil@ee.iitb.ac.in.

ED/MTT India

—by Dr. K.S. Chari

The Chapter Chair addressed a gathering of under- and postgraduate students at the Department of Information Technology Delhi on "Simulation and Characterization Issues" on 15 April. Matters related to evolution of simulation as a contemporary tool for device design, structure of simulator, model validation, benchmarking and testing issues were touched upon. The second talk by Dr S. Ahmed on "Numerical Techniques for Simulation, Optimization and Modeling of Devices". This talk covered the



Dr. Rajendra Datar, Cirrus Logic, Pune, speaking at the VLSI Workshop organized in Pune on May 6-7, 2003

aspects of popular numerical approaches for simulation, role of optimizers in simulation, algorithms for optimization, correlation of simulator data with experimental data etc. The Chapter Chair gave a talk on "Intellectual Property issues in Semiconductor Lay out Design and Indian efforts" on 12th June at a meeting of Semiconductor Industry at Bangalore. The meeting was held in association with the Manufacturers Association of Information Technology. Several issues related to the Semiconductor Topography, Registrations of the IPR as enablers of innovation, enforcement issues, infringement matters, approaches for detection of IC layout duplication, etc., were discussed. The fourth talk was delivered by the Chapter Chair at Delhi to a gathering of LINUX user and developer groups at the Department of Information Technology on 22nd June. The fifth talk held on 25th



Section of Attendees of NASET'2003

June was an invited lecture on "Advanced Diagnostic Techniques for Nondestructive Characterization and Failure Analysis of IC" delivered by Mr Tan Ah Young from NPTest Technologies Pte Ltd. (Singapore). Topics covered included analysis of problematic parts of IC, case studies on 0.18 and 0.13 micron, evolution of probing methods, role of detectors in the resolution and analysis capabilities, design debug experiences with CMOS devices technology issues and results of failure analysis using optical technologies. These meetings were attended by about 30-40 participants from industry, academia and students.

The Chapter, in association with the Electronics Science Department of Kurukshetra University, organized a two day National Level Symposium on Electronics Technology (NASET 2003) during March, 2003. Details of the events were reported in the last Newsletter. A group photograph of a section of the attendees to the event is attached.

For more information, please contact Dr. K.S. Chari, Director, Microelectronics & Photonics Division, Department of Electronics, C.G.O. Complex, New Delhi, India, Tel: 91-11-4361464; Fax: 91-11-4363082; email: chari@mit.gov.in.

ED/SSC Bangalore

-by Prof. Navakanta Bhat

A technical seminar was held on 24 April in collaboration with the National Semiconductor (Bangalore). Dr. Nikhil Balaram, CTO Displays group, National Semiconductor, USA delivered the seminar on "Display Electronics for Digital Television". He presented the typical system level architecture of digital TV/monitor and elaborated on the design issues of individual building blocks. The seminar was attended by about 150 people, mostly from industry.

A three day workshop on VLSI & MEMS was organized in Mysore 1-3 May with the IEEE student branch of the Sri Jayachamarajendra College of Engineering (SJCE), Mysore. The audience for the workshop included postgraduate students and faculty from different engineering colleges. Dr. C.P. Ravikumar from Texas Instruments, India delivered a seminar on Introduction to VLSI, CAD tools, VLSI Architectures and applications. Dr. P.R. Suresh from Texas



The inauguration of 3 day workshop on VLSI and MEMS at SJCE, Mysore

Instruments, India delivered a seminar on Layout Verification. Dr. Navakanta Bhat from Indian Institute of Science delivered seminars on Subthreshold MOS circuit design and RF circuit design and MEMS. Dr. D.V. Poornaiah from Indian Telephone Industries delivered seminar on VLSI for wireless communication.

Dr. Chandu Visweswaraiah from IBM T.J. Watson research lab presented a technical talk titled "Death, Taxes and Failing chips" on 18th June at the Indian Institute of Science, Bangalore. The theme of his talk was the fact that the need to deal with variability in state-of-the-art chip design is as inevitable as death and taxes. He pro-

posed the need for "probabilistic circuit design" as a new paradigm and presented the top 10 items which form the wish list for such a paradigm. The talk was very well received with an audience of 140 people.

For more information, please contact Prof. Dr. Navakanta Bhat, email: navakant@ece.iisc.ernet.in.

— Wee Kiong Choi, Editor

ED Kansai

- by Hiroyuki Sakai

The executive committee meeting for the "2003 International Meeting for Future Electron Devices, Kansai (2003 IMFEDK)" was held at the Hotel Granvia Kyoto, Kyoto, Japan on March 31,



The executive committee meeting for 2003 IMFEDK



Japan Chapter Officers and executive members in Japan Council

2003. Professor Yoshio Nishi, General Chair of the Conference, came across the ocean to participate in this meeting from Stanford University. Detailed issues including the paper selection, presentation manners, conference operations, advertisements, etc., are discussed and decided. The conference will be held at Osaka University Convention Center, Osaka, Japan July 16-18, 2003.

ED Japan

- by Naoki Yokoyama

On January 20 2003, a Japan Chapter officer's meeting was held in Tokyo. The activities and budget for 2002 and 2003 were discussed with members of the IEEE Japan Council. The Japan Chapter, technically supported more than 40 workshops in 2002 with other societies, including the Institute of Electronics, Information and Communication Engineering Japan, Japan Applied Physics Society, and the Institute of Electrical Engineering of Japan. The chapter established a Japan Chapter Student Award selecting 5 student winners in 2002. The Chapter Operating Committee of the Japan Council financially supported this award. The number of EDS members in the Japan Chapter is more than 1,000, with 53 Fellows and 77 senior members. The number of senior

members is slightly increasing. The plans for the 2003 Japan Chapter Student Award and the renewal of Japan Chapter web page were approved. The Chair proposed to have a DL meeting in the Tokyo area in July at the Tokyo Institute of Technology.

ED/SSC Chapter, Seoul

- by Taegeun Park

As a part of the annual support of the conferences, the ED/SSC Seoul Chapter sponsored the VLSI and

CAD Conference, held at Ewha Women's University, Suwon, Korea on May 10, 2003. The number of attendees was about 150. The Chapter sponsored \$300 for the best paper awards. The Seoul Chapter annually presents a "Best Student Paper Award" to recognize outstanding student authors from the local area (Seoul, Korea), who published high quality papers in the IEEE EDS and SSCS journals. For articles included in the 2003 journals, two student authors (one of each from EDS and SSCS) will be selected for the prize. A \$200 cash prize will be awarded with the prize being presented at the SOC Design conference being held in October 2003. The IEEE Seoul Chapter has held a chapter meeting on a bimonthly basis. In 2003, the Seoul Chapter plans to invite two IEEE Distinguished Lecturers from EDS and SSCS and sponsor several local technical conferences (IEEK CAD and VLSI Conference, IEEK Circuits and Systems Conference, and SOC Design conference). We also made an effort on the membership promotion by opening the membership development desk at local meetings.

— Hisayo S. Momose, Editor



ED/SSC Seoul Chapter meeting

EDS MEETINGS CALENDAR

(AS OF 26 AUGUST 2003)

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

[HTTP://WWW.IEEE.ORG/ORGANIZATIONS/SOCIETY/EDS/MEETINGS_CALEDAR.HTML](http://www.ieee.org/organizations/society/eds/meetings_calendar.html) PLEASE VISIT!

October 5 - 9, 2003, **T International Conference on Miniaturized Chemical and Biochemical Analysis Systems** Location: The Resort at Squaw Creek, Squaw Valley, CA, USA Contact: Shirley Galloway, 2320 6th Ave, San Diego, CA, USA 92101-1643 Tel: +1 619 232 9499 Fax: +1 619 232 0799 E-Mail: info@microtas2003.org Deadline: 4/1/03 www: <http://www.microtas2003.org>

October 6 - 7, 2003, **T European Gallium Arsenide and Other Semiconductor Applications Symposium** Location: ICM Convention Centre, Munich, Germany Contact: Ing. Schiechtweg, Fraunhofer-Institute IAF, Tullaster 72 79108, Freiburg, Germany Tel: +49 761 5159 534 Fax: +49 761 5759 565 E-Mail: michael.schiechtweg@iaf.fraunhofer.de Deadline: 7/12/03 www: <http://www.eumw2003.com/gaasconf.html>

October 6 - 10, 2003, **T European Symposium on Reliability of Electron Devices, Failure Physics and Analysis** Location: Palatium-Arcachon, Arcachon, France Contact: Nathalie Labat, Universite Bordeaux 1 - Laboratoire IXL, 351, cours de la Liberation, Talence, France 33405 Tel: +33 556 84 6551 Fax: +33 556 37 1545 E-Mail: labat@ixl.u-bordeaux.fr Deadline: 4/6/03 www: <http://www.esref.org>

October 12 - 15, 2003, **T IEEE Conference on Intelligent Transportation Systems** Location: Regal International East Asia Hotel, Shanghai, China Contact: Fei Wang, University of Arizona, PO Box 210020, Tucson, AZ, USA 85721 Tel: +1 520 621 6558 Fax: +1 520 621 6555 E-Mail: feiyue@sie.arizona.edu Deadline: 3/1/03 www: <http://www.ewh.ieee.org/tc/its/conf.html>

October 15, 2003, **T Workshop and IEEE EDS Mini-Colloquium on NA nometer CMOS Technology** Location: Nanyang Technological University, Singapore Contact: Zhou Xing, Nanyang Technological University, Division of Microelectronics, Singapore Tel: +65 6790 4532 Fax: Not Available E-Mail: exzhou@ntu.edu.sg Deadline: Not Available www: Not Available

October 20 - 23, 2003, *** IEEE International Integrated Reliability Workshop** Location: Stanford Sierra Camp, South Lake Tahoe, CA, USA Contact: Roy and Becky Walker, 301 North Madison, Rome, NY, USA 13440 Tel: +1 315 339 3968 Fax: +1 315 336 9134 E-Mail: roy@sar101.com Deadline: 7/6/03 www: <http://www.irps.org/irw/>

October 21 - 24, 2003, **T IEEE International Conference on Sensors** Location: Canada Sheraton Centre Hotel, Toronto, Canada Contact: Mark

Goldfarb, Palisades CMS, 411 Lafayette Street, Suite 201, New York, NY, USA 10003 Tel: +1 212 460 8090 Fax: +1 212 460 5460 E-Mail: mgoldfarb@pcm411.com Deadline: 4/14/03 www: <http://www.ewh.ieee.org/tc/sensors>

October 28 - 31, 2003, **T International Microprocesses and Nanotechnology Conference** Location: Tokyo Fashion Town, Tokyo, Japan Contact: Hiroaki Masuko, Business Center for Academic Societies Japan, 5-16-9 Honkomagome, Bunkyo-ku, Tokyo, Japan 113-8622 Tel: +81 3 5814 5800 Fax: +81 3 5814 5823 E-Mail: mnc@bcasj.or.jp Deadline: 7/10/03 www: <http://www.nano.ee.es.osaka-u.ac.jp/mnc>

November 6 - 7, 2003, **T International Workshop on Gate Insulators** Location: National Museum of Emerging Science & Innovation, Tokyo, Japan Contact: Fumio Ootsuka, 16-1 Onogawa, Tsukuba-shi, Ibaraki-ken, Japan 305-8569 Tel: +81 298 49 1260 Fax: +81 298 49 1185 E-Mail: oh-tsuka3@selete.co.jp Deadline: 8/20/03 www: <http://www.semiconductorportal.com/iwgi/index.cfm>

November 9, 2003, **T Gallium Arsenide Reliability Workshop** Location: US Grant Hotel, San Diego, CA, USA Contact: Anthony Immorlica, BAE Systems, 65 Spit Brook Road, Nashua, NH, USA 03061-0868 Tel: +1 603 885 1100 Fax: +1 603 885 6061 E-Mail: anthony.a.immorlica@baesystems.com Deadline: Not Available www: Not Available

November 9 - 12, 2003, *** IEEE Gallium Arsenide Integrated Circuits Symposium** Location: U.S. Grant Hotel, San Diego, CA, USA Contact: William Peatman, 141 Mt. Bethel Road, Warren, NJ, USA 07059 Tel: +1 908 668 5842 Fax: +1 908 412 5989 E-Mail: wpeatman@anadig-ics.com Deadline: 5/5/03 www: <http://www.gaa-sic.org>

November 9 - 13, 2003, **# IEEE International Conference on Computer Aided Design** Location: San Jose Doubletree Hotel, San Jose, CA, USA Contact: Kathy MacLennan, MP Associates, Inc, 5305 Spine Road Suite A, Boulder, CO, USA 80301 Tel: +1 303 530 4562 Fax: +1 303 5304-4334 E-Mail: kathy@mpassociates.com Deadline: 4/16/03 www: <http://www.iccad.com>

November 17 - 18, 2003, **T International Symposium on Electron Devices for Microwave and Optoelectronic Applications** Location: Radisson Barcelo Hotel, Orlando, FL, USA Contact: Jun Liou, ECE Department, University of Central Florida, Orlando, Florida, USA 32816-2450 Tel: +1 407 823 5339 Fax: +1 407 407 823 5835 E-

Mail: liou@pegasus.cc.ucf.edu Deadline: 9/8/03 www: <http://www.edmo-symposium.org>

December 3 - 6, 2003, *** IEEE Semiconductor Interface Specialists Conference** Location: Marriott Key Bridge, Arlington, VA, USA Contact: Eric Vogel, National Institute of Standards and Technology, 100 Bureau Drive, Stop 8123, Gaithersburg, MD, USA 20899 Tel: +1 301 975 4723 Fax: +1 301 975 5668 E-Mail: eric.vogel@nist.gov Deadline: 7/14/03 www: <http://www.ieeesisc.com>

December 7 - 10, 2003, *** IEEE International Electron Devices Meeting** Location: Hilton Washington Towers Hotel, Washington, DC, USA Contact: Phyllis Mahoney, Widerkehr & Associates, 16220 South Frederick Avenue, Suite 312, Gaithersburg, MD, USA 20877-4020 Tel: +1 301 527 0900 ext. 103 Fax: +1 301 527 0994 E-Mail: phyl-lism@widerkehr.com Deadline: Not Available www: <http://www.ieee.org/conference/iedm>

December 9 - 11, 2003, **T International Conference on Microelectronics** Location: Nile Hilton, Cairo, Egypt Contact: Mohamed Elmasry, University of Waterloo, VLSI Research Group, ECE Department, Waterloo, Ontario, Canada N2L 3G1 Tel: +1 519 888 4567 ext. 3753 Fax: +1 519 746 5195 E-Mail: elmasry@vlsi.uwaterloo.ca Deadline: 8/15/03 www: www.icm03.org

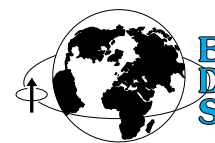
December 10 - 12, 2003, **T International Semiconductor Device Research Symposium** Location: Holiday Inn Georgetown, Washington, DC, USA Contact: Tom Murphy, 2363 A.V. Williams Bldg, College Park, MD, USA 20742 Tel: +1 301 405 3602 Fax: +1 301 314 9281 E-Mail: tem@umd.edu Deadline: 9/8/02 www: <http://www.ece.umd.edu/isdrs2003/>

December 15 - 20, 2003, **T International Workshop on the Physics of Semiconductor Devices** Location: Indian Institute of Technology Madras, Chennai, India Contact: S. Agarwai, IWPSD Secretary, Dept of Electrical Engineering, IIT Madras, Chennai, India 600 036 Tel: +91 44 2578383/2578362 Fax: +91 44 2570545/2578383 E-Mail: iwpsd@ee.iitm.ernet.in Deadline: 5/31/03 www: <http://www.iwpsd.net>

December 16 - 18, 2003, **T IEEE Conference on Electron Devices and Solid State Circuits** Location: New World Renaissance Hotel, Hong Kong, China Contact: Hei Wong, City University, 83 Tat Chee Avenue, Kowloon, Hong Kong Tel: +852 2788 7722 Fax: +852 2788 7791 E-Mail: eehwong@cityu.edu.hk Deadline: 8/15/03 www: http://www.ee.ust.hk/ieee_eds/edssc.htm



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