

IEEE ELECTRON DEVICES SOCIETY

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EDITOR-IN-CHIEF: NINOSLAV D. STOJADINOVIC

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2005 IEEE WORKSHOP ON CHARGE-COUPLED DEVICES AND ADVANCED IMAGE SENSORS (CCD & AIS)



Karuizawa, Nagano, Japan

The 2005 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors, sponsored by the IEEE Electron Devices Society, will be held at the Karuizawa Prince Hotel West in Nagano Prefecture, Japan, June 9-11, 2005.

The purpose of this Workshop is to provide an opportunity for exchanging new results in the area of Solid-State Image Sensors in an informal atmosphere.

The Technical Program will consist of invited and contributed papers, poster sessions, and a discussion session. As in the previous workshops, emphasis will be on high quality technical content. Ample time will be left for paper discussion.

Scope of Workshop

Papers on the following topics are solicited:

Image Sensor Device Physics

- New devices and structures. Advanced materials.
- Improved models. Scaling.

Image Sensor Design and Performance

- CCD image sensors. CMOS image sensors. Active pixel sensors. New architectures.
- Small pixel. Large format. Low voltage and low power. Wide dynamic range.
- High picture quality. Low noise. High sensitivity. High color reproducibility.
- New modes of operation.
- CAD for design and simulation of image sensors.

Advanced Image Sensors

- Application specific image sensors. High frame rate sensors. Low light level imaging.
- Intelligent sensors. Machine vision.
- New functions.
- Single chip camera.
- Sensors with enhanced spectral response (UV, IR).
- High energy photon and particle sensors (X-ray, Radiation).

Fabrication

- New fabrication techniques. Backside thinning. Color filters. Microlens.

YOUR COMMENTS SOLICITED

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

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EDS AdCom Elected Members-at-Large

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

2005	Term	2006	Term	2007	Term
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K. Lee	(2)	A. Wang	(1)	N. D. Stojadinovic	(2)
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CONTRIBUTIONS WELCOME

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

Newsletter Deadlines

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

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REPORT FROM THE EDS VICE-PRESIDENT OF TECHNICAL ACTIVITIES

The Electron Devices Society has set-up technical committees to help make sure the Society is serving the right technical areas. The committees coordinate with meetings and publications to help insure that the technical information IEEE is rightly proud of remains on target and covers all the areas the members of the EDS are interested in.

There are 14 technical committees ranging across a wide spectrum of topics. They range from mainstream silicon technologies (VLSI Technology and Circuits) to more exotic materials (Organic Electronics) and emerging areas (Nanotechnology). The names of the committees and their chairs are listed in the adjacent columns.

The primary reason that committees exist is to make sure the EDS is responsive to new trends. The EDS, as an active technical society, needs to make sure that the technical offerings of the Society are in tune with emerging trends. The Society needs to be nimble enough to make sure it helps get meetings started or expanded to include new topical areas.

Technical committees will begin to review meetings on a regular basis. Technical committees will give advice to the meetings committee chaired by Dr. Ken Galloway. Over 140 conferences currently get either technical or financial sponsorship from the Electron Devices Society. Most of the arrangements have not been reviewed since the initial application. We will now review meetings on a five-year cycle to make sure they are offering value to society members.

Technical co-sponsorship of a meeting will require the meeting to meet several objectives. The meeting should serve a well-defined audience. It should be unique either in time, technical content, or geographically. We really do not want to sponsor meetings that are in competition with one another. This does not preclude regional meetings, serving a particular region is a goal we encourage for smaller workshops and conferences. Clearly, the technical content of the conference should be relevant to the scope of electron devices. Members of the Society should receive a break on the registration fee.

Compact Modeling	Samar Saha, Silicon Storage Technology, Inc.
Compound Semiconductor Devices and Circuits	Supriyo Bandyopadhyay, Virginia Commonwealth University
Device Reliability Physics	Lu Kasprzak, Dade Behring, Inc.
Electronic Materials	Judy Hoyt, MIT
Microelectromechanical Systems	Jack Judy, University of California, Los Angeles
Nanotechnology	Philip Wong, Stanford University
Optoelectronic Devices	Leda Lunardi, North Carolina State University
Organic Electronics	Ananth Dodabalapur, University of Texas, Austin
Photovoltaic Devices	Dennis Flood, NASA Glenn Research Center
Power Devices and ICs	Toshiaki Yachi, Tokyo University of Science
Semiconductor Manufacturing	Bob Doering, Texas Instruments, Inc.
Technology Computer Aided Design	Enrico Sangiorgi, University of Bologna
Vacuum Devices	Dan Goebel, NASA Jet Propulsion Lab
VLSI Technology and Circuits	Bin Zhao, Skyworks Solutions

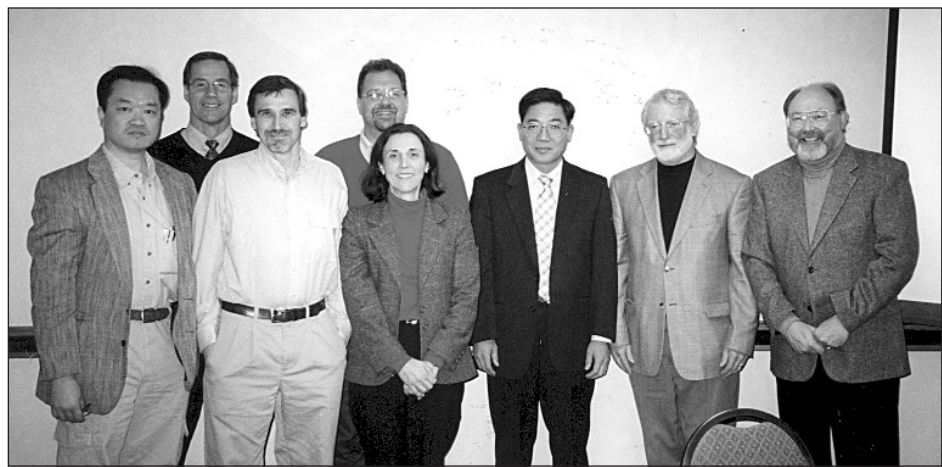
Financial sponsorship or co-sponsorship entails greater risk for the Society; and as a result, meetings should be held to a higher standard. In addition to the criteria for technical co-sponsorship, a financially supported conference should have limited competition from other EDS meetings and should have a flat or growing attendance. It should be financially successful. If the conference has a digest, it should be included in the IEEE Conference Publication Program (formerly called Book Broker Program).

There should be policies that ensure regular turnover in the technical committee so that new people participate in the meeting's success. At the same time, there should be a provision for a

mechanism to provide some long-term stability over the management of the conference. Many successful conferences have a changing technical committee and a more stable steering committee. The steering committee has little influence on paper selection, but can advise on directions, logistics, and budgeting.

Through these reviews, we hope to help conferences get better and to serve the technical community of the EDS better and more efficiently.

*Mark E. Law
EDS Vice-President of
Technical Activities
University of Florida
Gainesville, FL, USA*



Attendees of the Technical Committee Chairs Meeting at the IEDM (left to right) Bin Zhao, Bob Doering, Alan Seabaugh, Mark Law, Leda Lunardi, Toshiaki Yachi, Jim Dayton and Ken Galloway

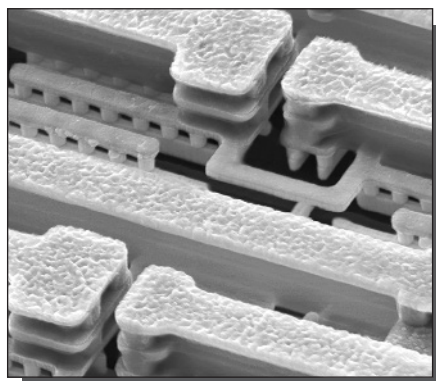
UPCOMING TECHNICAL MEETINGS

2005 IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE (IITC)

The eighth annual IITC (International Interconnect Technology Conference), the premier conference dedicated to advanced interconnect technology, will be held June 6-8, 2005 at the San Francisco Airport Hyatt Regency Hotel, conveniently located 20 minutes from Silicon Valley and downtown San Francisco.

The IITC was established with the support of the IEEE Electron Devices Society to provide an international forum to address interconnect issues from both fundamental materials and system level viewpoints. The ever-increasing demands for more highly integrated circuit density and performance present enormous connectivity challenges, and have focused attention on the design, cost, performance and reliability demands on interconnects. New materials, architectures, communication mechanisms and process technologies are needed, and new approaches are emerging in this rapidly evolving area to meet these challenges. The IITC provides a unique forum for professionals in the semiconductor industry and academia to present and discuss interconnect-related issues and new technologies for the fabrication of advanced interconnects in monolithic ICs, multi-chip modules (MCMs) and state-of-the-art packages.

This conference provides several venues for learning and professional interaction. The popular short course, which addresses advanced interconnect process, design and reliability issues, will once again be offered on the day preceding the conference (June 5), and participation is strongly encouraged by those wishing to benefit from a combination of tutorials on interconnect fundamentals and briefings on the latest interconnect technology advances. Without doubt, the cost and performance of ULSI circuits strongly depend on the capability and productivity of interconnect materials and processing equipment. In recognition of this critical role, supplier exhibits and seminars are included as an integral part of the IITC



technical program and will be held on the first and second days of the conference. These exhibits and seminars offer additional learning and networking opportunities, and provide alternative forums to address specific technological challenges.

Oral presentations and poster papers offered during the conference span a broad range of interconnect technology topics which include:

Dielectrics: Dielectric materials (low k, high k, ARCs, etc.) and deposition processes (vapor deposition, CVD, spin-on, etc.) for interconnect applications.

CMP/Planarization: Dielectric/Metal CMP processes, equipment and metrology issues, and Alternate planarization techniques.

Metallization: Metal deposition processes/equipment (PVD, CVD, ALD, electroplating) and materials characterization, with particular emphasis on advanced aluminum and copper metallization.

Process Integration: Multilevel interconnect processes, clustered processes, novel interconnect structures, contact/via integration, metal barrier and materials interface issues, etc.

Process Control/Modeling: CMP, metal/dielectric deposition and etching processes, PVD, CVD, electroplating, etc.

Reliability: Metal electro migration and stress voiding, dielectric integrity and mechanical stability, thermal effects, passivation issues, interconnect reliability prediction/modeling.

Interconnect Systems: Interconnect performance modeling and high frequency characterization, interconnect system integration and advanced packaging concepts (flip-chip, chip-on-chip, MCM, etc.), novel architectures.

System-on-a-Chip: Interconnect, design and processing of SOC, embedded memory processing, materials and integration, RF and high frequency passive components, noise and cross-talk issues

Dry Processing: Dry etching of vias, trenches and damascene structures, dry etching of metal, dry cleaning processes, plasma induced damage, etc.

Alternative Interconnects: Advanced interconnect concepts, optical and RF interconnect, superconductors, nanotechnology-based interconnect, etc.

Given the rapid acceleration of integrated circuit technology, the last topic provides an important forum for discussion of the interconnect crisis and potential paradigm shifts to novel interconnect schemes.

Professionals involved in interconnect-related activities are strongly encouraged to participate in this exciting new conference. Detailed information can be obtained from the IITC website: <http://www.ieee.org/conference/iitc>. For additional information or inquiries regarding supplier exhibits and seminars, please contact Wendy Walker, IITC Administrator at +1 301-527-0900 Ext. 104, Fax: +1-301-527-0994, or email: iitc@his.com.

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*Dirk Gravesteijn
General Co-Chair
Philips Research,
Leuven, Belgium*

2005 SYMPOSIA ON VLSI TECHNOLOGY AND CIRCUITS (VLSI)

The 2005 Symposia on VLSI Technology and Circuits will be held at the Rihga Royal Hotel Kyoto, Kyoto, Japan, June 14-18, 2005. Professors Shoji Tanaka and Walter Kosonocky, founders of the Symposia, first organized the VLSI Technology Symposium in 1981 with the hope of offering an opportunity for the world's top technologists to engage in an open exchange of ideas on what was quickly becoming a revolution in the world's industrial capability. Since then, the Symposia has been held annually and has grown into an important and valuable event for people working in the VLSI business. The presentation of high-quality papers has made it possible for attendees to learn about new directions in the development of VLSI technology. The friendly atmosphere has made this an enjoyable learning experience.

The Symposium on VLSI Technology has alternated each year between sites in the US and Japan. In 1987, the first Symposium on VLSI Circuits was held in conjunction with the Technology Symposium in recognition of the growing interest to provide the same small



Kinkakuji Temple, Kyoto, Japan

but intense and open forum for discussing circuit and system implementations. Since then, this annual meeting has increased its value over the past 18 years. We are confident that so many new technologies and circuits were introduced in the past Symposia and thus have contributed to the prosperity of the world. Its sponsors continue to be the IEEE Electron Devices Society and Solid-State Circuits Society, and the Japan Society of Applied Physics in cooperation with the Institute of Electronics, Information and Communication Engineers.

For many reasons, these meetings have remained linked for the past years to provide opportunities for technology people and circuit and

system designers to interact with each other. These interactions are augmented with short courses, invited speakers and several evening rump sessions. In recognition of the efforts of organizers, authors and participants to make the Symposia successful, there are ample banquets and entertainment prearranged.

The 2004 meeting was held in Honolulu, Hawaii. This year it will be returning to Rihga Royal Hotel in Kyoto, an ancient capital of Japan. Also the Symposium on VLSI Technology will celebrate its twenty-fifth anniversary in 2005.

Participation of all persons with an interest in this field is welcomed. See you in Kyoto in 2005! Please visit our website for more information at <http://www.vlsisymposium.org>.

*Kenji Maeguchi
Symposium Chair*

2005 Symposium on VLSI Technology

*Tadashi Nishimura
Symposium Chair
2005 Symposium on VLSI Circuits*

2005 CCD & AIS *(continued from page 1)*

- Packaging.
- Testing.
- Reliability. Yield. Cost.
- Defects. Leakage current. Radiation damages.

High quality papers addressing work in progress are also welcome.

The deadline for receipt of abstracts was January 27, 2005. Authors will be notified of the acceptance of their submission by March 25, 2005. Authors of accepted papers will be requested to submit by April 25, 2005 a full-length camera-ready copy of their paper, not exceeding 4 pages (A4 size), for inclusion in the Workshop Program. Black/white printing is planned. Depending on the final Workshop budget, color printing might be possible.

Workshop Location

Karuizawa is a popular summer resort in Nagano Prefecture, 130km northwest of Tokyo. It takes one hour by the Bullet Train from Tokyo. The workshop hotel, adjoining the JR Karuizawa Station is just a couple of minutes drive from the station. More information on the Karuizawa Prince Hotel can be

found at: Japanese <http://www.prince-hotels.co.jp/karuizawa/index.html>

English http://www2.princehotels.co.jp/app_room/epiq0010.asp?hotel=034 (written in English and Japanese.)

Organizing Committee

- Nobukazu Teranishi (Matsushita, Kyoto, Japan) Workshop Chairman
- Junichi Nakamura (Micron Japan, Tokyo, Japan) Technical Program Chairman
- Eric R. Fossum (USC, Pasadena, CA, USA)
- Albert Theuvsen (Dalsa, Eindhoven, The Netherlands)

Registration

The participant should register before the Workshop, because the capacity of the Workshop is limited. The presenters for each paper can get a seat of the Workshop automatically. However, they also need to register. The principle of "first come, first registered" will be used, but if many register from same organization, some limitation will be applied. The registration started on February 1, 2005. The Final Call

for Papers will include the "registration form".

Workshop Program

The Workshop will start on Thursday, June 9, 2005, and will end on Saturday, June 11 at noon. Thursday and Friday lunches, the Workshop Reception Dinner and the Workshop Dinner are included in the Workshop fee.

Details on the Workshop Program will be sent out before May 1, 2005 to those who have registered and been admitted to the Workshop and will also be available at the Workshop Internet site.

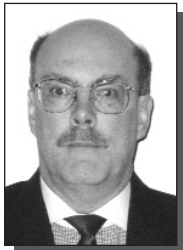
Pre-Workshop Tour

The pre-workshop tour is being planned for June 8, 2005 in Tokyo area. We plan to visit NHK Science and Technology Research Laboratory. When details are ready, an announcement will be sent to the persons registered.

*Nobukazu Teranishi
Workshop Chair
Matsushita Electric Industrial
Kyoto, Japan*

SOCIETY NEWS

DECEMBER 2004 ADCom MEETING SUMMARY



John K. Lowell

The 2004 annual meeting of the IEEE Electron Devices Society was called to order by President Hiroshi Iwai on Sunday, December 12 at the San Francisco Hilton preceding the 2004 IEDM Conference.

Executive Reports

Recognized outgoing members of AdCom included elected AdCom members, Ken Galloway, Steve Hillenius and Raj Singh as well as Paul Yu (Treasurer), Ilesanmi Adesida (Education V-P.) Yoshio Nishi (Fellows Chair), James Dayton (Vacuum TC Chair), Alan Seabaugh (Nanotechnology TC Chair), and A. Nathan (EDS Newsletter Editor). Also saluted for their contributions to the EDS Archival Collection DVD project were Renuka Jindal, Phyllis Mahoney, Jeff Welser, Bill Van Der Vort, and Stacey Waters. Following approvals of the Spring 2004 meeting minutes, and the 2005 Ex-Officio member appointments, Hiroshi's opening address concerned the results of the 2004 IEEE TAB meetings. Approved by TAB was the IEEE Intelligent Transportation System Council's proposal to become a Society, the creation of an Adhoc Committee to explore the formation of an IEEE Computer Aided Design Council, a new IEEE/OSA Journal of Display Technology, and changes to the All Society Periodicals Package. The TAB Periodicals Review Committee report for EDL, T-ED and the EDS Newsletter received excellent feedback, with the very fast turnaround time for EDL and T-ED specifically being commended. Also acknowledged was past EDS President Steve Hillenius' election to Division I Director starting in 2006.

Reporting for the EDS Executive Office, Bill Van Der Vort, presented a lengthy list of Adhoc projects completed since the Spring AdCom meeting. A few of the items included implementing the change to the December 2004 elec-

tion requiring at least one AdCom member be a Graduate of the Last Decade (GOLD) member, running the selection and award granting of the Region 9 Outstanding Student Paper Award, responding to the TAB draft report prepared by the TAB Periodicals Review Committee for EDL, T-ED, and the EDS Newsletter, participating in the IEEE pilot project for web-based short courses through a new system called XELL (Xplore Enabled Learning Library), expansion of the Distinguished Lecturer program, determining a plan for the remaining stock of EDS videotapes, changing the Membership Fee Subsidy Program currently named MFSP (for the 2005 billing cycle), engaged a consultant to analyze and make recommendations based on results from IEEE Corporate on why members drop their society memberships, worked with the IEDM for inclusion of 'EDS MEMBER' and grade on the badges of all EDS members, collaborated with ESSDERC to have all prior years of ESSDERC Proceedings (1997-2002) digitized and added to Xplore, joined with the Meetings Committee to develop a proposal to establish a Conference Digital Library, continued the changes to the EDS Newsletter giving the publication a new look, coordinated the digitization and scanning of pre-1988 issues of T-ED, EDL, and IEDM, and helped produce an 'IEDM ONLY' DVD, and a DVD to include all issues of EDL & T-ED and the IEDM Proceedings. In 2005, some of the upcoming Adhoc tasks for the Executive Office include: expansion of the Distinguished Lecturer program, participating in the XELL project, digitization of the ESSDERC proceedings, implementing a

cost-savings program aimed at the Senior Member (SM) program which includes the cessation of granting chapters reimbursement for each new SM and using e-mail to encourage SM applicants, and coordination with IEEE Publications Department to have all years of EDL, T-ED, and IEDM available to members via Xplore as part of their membership.

Officer & Vice-President Reports

In the last two years, Treasurer Paul Yu reports that EDS has rebounded well following the assessments made by the IEEE on EDS. Paul reported that since no further reserve reductions have occurred the reserve has grown to just under \$4M [Note: All Financial information reported in \$US]. Nevertheless, overall net income fell in 2004 due to a conference deficit of \$80K back in 2002 which closed this year, reduced income from IEDM due to the support of the DVD project (incl. other conferences revenue shortfall), and less income from publications. This shortfall was off-set by the reduction of the infrastructure charge levied by IEEE. In other financial business, rates for 2006 publication subscriptions, page counts, and membership fees were approved. On the membership side, EDS had 11,455 members in 2004 slightly down from 12,297 in 2003. Of these, 6,586 are regular members, 3,982 are permanent members, 868 are students, and 19 remain affiliate members. The demographics can be seen in the following chart:

Membership V-P, James Kuo, reports that this year also saw an increase in the number of Senior Members to 1389, and Fellows to 1668, and praised the ongo-

EDS Membership Demographics for 2004 (as of 10/04)

IEEE Region	Count	% of Total
1-6 (United states)	6,556	57.2
7 (Canada)	207	1.8
8 (Europe, Middle East, & Africa)	2,075	18.1
9 (Latin America)	156	1.4
10 (Asia Pacific)	2,461	21.5
Total	11,455	100

ing efforts at recruitment such as conference onsite credit vouchers, TIP mailings, promotional material for Senior Membership, and DL promotion. James also reviewed the EDS strategy on recruiting members in under-served regions such as mainland China, proposed changes to the Partial Membership Fee Subsidy Program (PMFSP), and discussed the All Society Research Project (ASRP) on membership retention. In the ASRP review, James indicated that raises in IEEE membership fees strongly influence renewals, and that EDS needs to increase its membership development at the student level. He also explained that the PMFSP in its current form may not meet the needs of some chapters in Eastern Europe, China, and India since raising the matching fees is difficult. Jim proposed a motion to return the program to its original "full funding" membership initiative which was passed by AdCom. In line with EDS globalization, Cor Claeys, Regions/Chapters V-P, announced that the total number of chapters has reached 114 in 2004, with new ones being added in India, Vancouver, North Carolina, Mexico, Brazil and the Ukraine. Active dialogue is underway with the Peoples Republic of China, particularly in Beijing and Shanghai to encourage a chapter growth policy that is compatible with both local and governmental restrictions. AdCom also approved that sub-chapters could be formed in areas qualifying for IEEE minimum income rates under the jurisdiction of an existing EDS chapter and requiring only six signatures for formation, and having all financial assistance capped at \$500. Cor also recognized the Singapore chapter named the winner of the 2004 EDS "Chapter-of-the-Year" Award. In a later report by Mikael Ostling, AdCom learned that the total number of chapters in Europe, Middle East, and Africa reached 40 in 2004.

The Distinguished Lecturer (DL) program continues to appeal worldwide. Both the number of lecturers (134 in 2004) and the number of lectures given (122) are well above their respective 2003 levels according to Ilesanmi Adesida, Education V-P. Also in 2004, the EDS Videotape Lending Library was less active, while the EDS Graduate Student Fellowship Program had a very successful year. Suggested changes such as increased financial remuneration and recognition to the winners are being



Paul Yu, out-going 2004 EDS Treasurer, giving his last Treasurer's Report at the 2004 AdCom Meeting

considered for future discussions. The Short Course program is being evaluated while EDS is working with IEEE EAB on the XELL initiative. The address by Renuka Jindal, Publications V-P, discussed the revitalization of T-DMR. The publication has been approved to receive ASPP funds in 2005 and will be continued for the near future. EDS support for the Circuits & Devices Magazine was also endorsed by a special subcommittee. A lively discussion ensued when Renuka discussed the inadequate referencing by authors of material that is not available electronically. With the onset of electronic publishing, many contributors to both EDL & T-ED are not searching older, non-digitized papers on their subjects neglecting important earlier work. Needless to say, all editors will enforce adequate referencing in their reviews. Both EDL & T-ED continued to be profitable in 2004 with T-ED bringing in \$560K, and EDL around \$224K. On the digitization front, all EDL & T-ED issues from 1954-August 2004, and IEDM from 1955-2004 have been scanned, and are now available on DVD. In closing, the impact on publica-

tions on membership was debated and discussed. The TAB review clearly showed that members view publications as an important factor in becoming an EDS member. Yet now when more material is available on the web to IEEE members, and conferences are open to everyone, the value of being a member of EDS is less clear.

Meetings V-P Ken Galloway got AdCom approval for all EDS repeat meetings in 2006, and gave statistics on those for 2004. This past year EDS was involved with 30 financially sponsored meetings, 113 that were technically co-sponsored, and none were provided cooperation support. Closing meetings continues to be problematic with EDS paying late fees charged from 1999-2004 to the amount of \$17,953.00. In related meeting news, IEDM Chair, Jeff Welser, expected around 1950 attendees at IEDM 2004. 650 signed up for the short courses, and it appears that the meeting will be profitable even with increased expenses. The archival DVD of IEDM (1954-2004) will be distributed to all attendees. Award's V-P, Al MacRae

EDS Recipients of National, IEEE, and EDS Awards for 2004

Award	Recipient/Affiliation
IEEE Jun-ichi Nishizawa Medal	Jerry Woodall (Yale)
IEEE Frederick Philips Award	Hiryoshi Komiya (Tokyo Semitsu)
IEEE Andrew S. Grove Award	Tso -Ping Ma (Yale)
IEEE Cleo Brunetti Award	William Oldham (UC -Berkeley)
EDS J.J. Ebers	Jerry Fossum (Florida)
EDS Distinguished Service Award	Lou Parrillo (Parrillo Consulting)
IEEE EAB Meritorious Achievement Award In Continuing Education	Cary Yang (Santa Clara University)

presented a comprehensive list of EDS members recognized with major IEEE, and EDS awards in 2004, as summarized below:

AI exhorted the assembled AdCom to be pro-active in nominating members for IEEE Awards in 2005. Also, Lou Parrillo announced Jerry Fossum from Florida as this year's Ebers Award selection. On the Fellows side, outgoing chair Yoshio Nishi, stated that from 67 nominations received 22 were promoted to Fellow grade, and an additional 18 were elected by other societies. Steve Hillenius will assume the Fellows chairmanship in 2005. Technical Activities V-P, Mark Law, is working on guidelines for sponsored and technically co-sponsored meetings. The effort plans to align subject areas, dates, audiences, and financial practices among all meetings new and old. It is also part of a plan for getting meetings on new and timely topics organized more quickly and efficiently.

Additional Reports

Division I Director, Lew Terman, was on hand to report on the state of the Division. Highlights of his report focused on the key IEEE issues of publications, membership, conferences, and chapters. The Board of Directors plans to increase its reserves by \$26M or 41% of all yearly IEEE expenses. They reported a surplus in 2004 of \$6.7M through more conservative investments. The IEEE is also seeking better links with industry to increase membership, and is increasingly concerned about open access to its publications especially at universities to non-IEEE members. Steve Hillenius outlined the proposed CAD Council. The proposal will go to TAB in February and is largely concerned with ECAD starting at the circuit and systems level (i.e. TCAD is not included). Supported by other societies (AP, CAS, CS, and SSC) the Council will be funded by the DAC conference and publications. AdCom approved seed money of \$10K for EDS to join in supporting this idea. AdCom wished to know where traditional TCAD (process & device levels) would fit under this new plan but no plans to include these levels are currently under discussion. A link

between this Council and the Compact Modeling TC was endorsed. Friedolf Smits addressed the AdCom on the XELL program. XELL plans to offer numerous courses a year making the latest in IEEE IP available to a wider audience. The Educational Activities Board (EAB) is developing a "best-of-the-best" initial package of 25-30 3-hour tutorials for distribution in 2005. The plan is to take advantage of increasing corporate

"Any (EDS) article, anywhere, anytime, and affordable."

- Renuka Jindal, Publications V-P
- On the completion of the EDS Archival Publications DVD

budgets for web-based learning becoming an important revenue stream for the Society by 2006. AdCom approved \$20K for module development costs, and to recommend one of its short courses for inclusion in the start-up package.

Publication Reports

EDL Editor-in-Chief, Yuan Taur, reported that the 249 papers published this year are significantly higher than last year's number. EDL is maintaining its target turnaround time of four months, and its citation factor has risen from 10 in 2003 to 13 in 2002. EDS Newsletter Editor, Ninoslav Stojadinovic, reported that the IEEE TAB Periodicals had many nice things to say about the Newsletter in general. He also praised editors for improving the amount of regional & chapter news in 2004, and personalizing the AdCom through more photos and bios. Reporting on

T-ED, Editor-in-Chief, Doug Verret, reported a flat 45% acceptance rate. He is also working on guidelines for EIC succession, and adding an Editor for "Molecular & Organic" subject matter. Doug also outlined a dilemma with subscribers demanding added web links, search capability, and general content and caring less about the quality of the journal itself. Also at issue is the problem of multiple submissions between conferences and T-ED. Academics value journal papers more highly than conference papers in general, but how much difference in content is necessary to make the submissions independent?

The motions and their outcomes for the AdCom meeting are listed at the end of this page.

For 2005, EDS officers are: President, Hiroshi Iwai; President-Elect, Ilesanmi Adesida; Treasurer, Juin J. Liou; and Secretary, John Lowell. AdCom members elected for a second term are Magali Estrada Del Cueto and Nino Stojadinovic. Newly elected AdCom members are: Joachim N. Burghartz (Delft Inst., Netherlands); Mansun Chan (Hong Kong Univ. of Sci. & Tech.); Shuji Ikeda (Trecenti Technologies, Inc.); Jeffrey Welser (IBM Almaden Research Center); and GOLD Member, Rebecca Welty (LLNL).

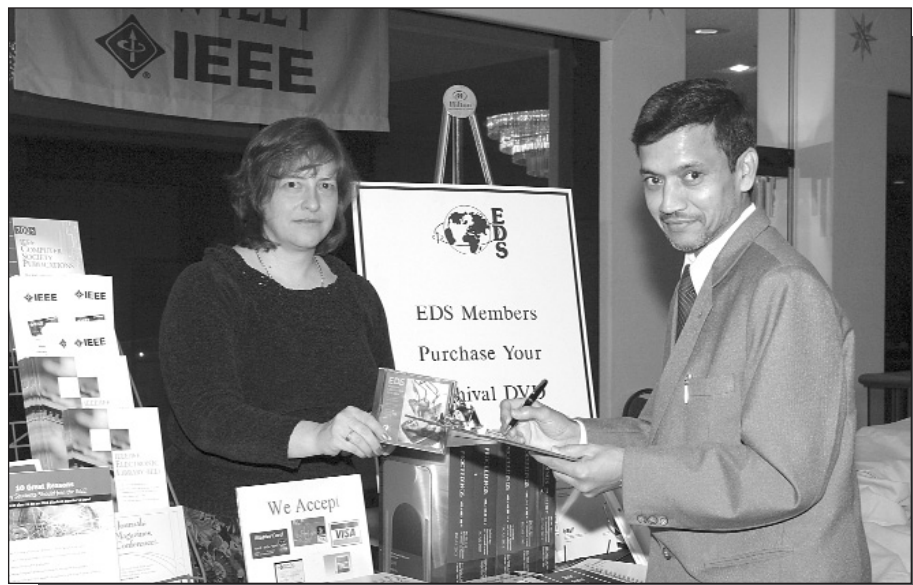
The next meeting of EDS AdCom will be on Sunday June 5, 2005 at the Conventions and Exhibit Center in Seoul, Korea in conjunction with the Transducers - International Conference on Solid-State Sensors, Actuators, and Microsystems.

John K. Lowell
EDS Secretary
Lowell Consulting
Dallas, TX, USA

Summary of EDS AdCom Actions – December 2004

Motion	Outcome
Approval of Minutes from Spring AdCom 2004	Passed
Approval of Ex-Officio Appointments for 2005	Passed
Approval of Publications Page Count & Member Fees for 2006	Passed
Approval of Formation Plan for Sub-Chapters	Passed
Approval of Repeat Meetings List for 2006	Passed
Modify Current PMFSP Plan to Previous MFSP (with modifications)	Passed
Pledge \$20K to IEEE XELL Program Module Development	Passed
Pledge \$10K to Formation of IEEE CAD Council	Passed

EDS ARCHIVAL DVD DEBUTS AT THE IEDM IN SAN FRANCISCO



Renuka P. Jindal, Vice-President of Publications, purchasing the EDS Archival Collection DVD at the IEDM

As announced in the article entitled 'EDS Announces its Archival Collection on DVD (1954-2004)' in the January 2005 issue of the Newsletter, the archival DVD was released for sale to EDS members at the IEDM in San Francisco. With 390 copies sold through advance registration, 300 copies purchased on-site and another 380 through the IEEE Customer Service Department, the initial response to this product has been very positive. We had planned to order enough copies to go around for all interested old and new EDS members. However, in view of the demand, we may be proved wrong. Hence, we suggest that EDS members who are interested in purchasing a copy of the DVD should visit the IEEE Online Store at <http://shop.ieee.org/store/> at the earliest opportunity. Individuals other than current EDS members who wish to purchase this product are welcome to first join the IEEE and the Electron Devices Society by visiting us at <http://www.ieee.org/eds/join>

Please note that this DVD is a benefit provided only to EDS members and as such has been modestly priced at \$30. Also, this DVD is meant for the individual use of the purchasing EDS member. To uphold this concept of individual

ownership, all EDS members including members of various EDS committees, editors and officers will need to purchase their own copy for their individual use. We hope that this will also encourage other technical professionals to become members of the IEEE Electron Devices Society as well. For those EDS members who have already acquired this product, we would like to emphasize that your adherence to this concept of individual ownership will help us in keeping the price low and cost-effective production of future editions of this product. In other words shared usage is a violation of the agreement that is in place governing the purchase of this DVD. By honoring this agreement you are helping us so we can help you.

We hope you find this first-ever EDS Archival Collection DVD useful. Please let me know how we can further enhance the value of this product. Use the keywords "DVD feedback" as the subject of your email

Renuka P. Jindal
EDS Vice-President of Publications
IEEE Electron Devices Society
University of Louisiana at Lafayette
Lafayette, LA 70504
r.jindal@ieee.org

2004 EDS CHAPTER OF THE YEAR AWARD

The EDS Chapter of the Year Award is presented annually to recognize an EDS Chapter for the quality and quantity of the activities and programs implemented during the prior July-June period.

On December 13, 2004, at the IEDM held in San Francisco, CA, the CPMT/ED/R Singapore Chapter received the EDS Chapter of the Year Award, which included a certificate and check for \$1,000. The award was received by the Chapter Chair, Kin Leong Pey, Nanyang Technical University.



The Chapter, formed in 1994, was involved in the organization of flagship conferences; the IEEE International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA), in the field of failure analysis and the Electronic Packaging Technology Conference (EPTC), related to electronic packaging, and also organized the 3rd IEEE Mini-Colloquium on Nanometer CMOS Technology (WIMNACT). These activities are a strong drive towards increased membership. Specific focus was given to stimulate participation of student members and to further elaborate on the organization of joint activities with other Chapters in the region.

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

EDS EDUCATIONAL ACTIVITIES COMMITTEE REPORT

The objectives of the Educational Activities Committee are to provide the forum and opportunities for members to expand their knowledge of our technical fields. The Committee also seeks to provide opportunities for the Society to attract new members and to promote

of California at San Diego, USA). The committee physically met during the Summer AdCom meeting in Madrid, Spain and Fall AdCom meeting in San Francisco. Committee business was conducted mostly by electronic means between the two meetings.

are encouraged to contact Lecturers 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 assist in subsidizing lecturers' travel as needed.

In addition to the individual lectures, there were five mini-colloquia conducted last year. The mini-colloquia concept generally involves sending about 2 or more Distinguished Lecturers to travel to a region/chapter and present the latest developments in a particular field. The chapters/regions would be responsible for handling all the arrangements of the event and only minimal financial support would be required of EDS and could be covered by the DL Program budget upon request. The five were held in Singapore, Spain, Serbia and Montenegro, Hong Kong, and Boise, Idaho, respectively. A mini-colloquium on Nanometer CMOS Technology jointly organized by the Taipei (Taiwan) and Tokyo (Japan) Chapters will be held on January 21st and 22nd, 2005 in Taipei (<http://www.edstaipei.edu.tw/>). Other mini-colloquia are being planned, including one in Korea this June. Reports on the DL Program are presented frequently in this magazine. For more information, please contact Laura Riello of the EDS Executive Office (l.riello@ieee.org). Feedback is actively solicited on the program from chapter chairs, lecturers, and members of the Society.

The Graduate Student Fellowships Program (GSFP) was established five years ago under the auspices of the Committee. For 2004, the Chair of the GSFP sub-committee was Stephen Parke. There were four awards made last year with the winners being presented with their awards at the IEDM in San Francisco. The winners were David DiSanto of Simon Fraser University, Canada; David John of the University of



Ilesanmi Adesida (third from left), EDS Vice-President of Educational Activities, with attendees of the Educational Activities Committee meeting at the IEDM (left to right) Yoshiaki Hagiwara, Jamal Deen, Ade Ilesanmi, Stephen Parke, Juin Liou and Paul Yu

membership and student activities. The Committee's membership strength in 2004 was seventeen, and its members were appointed by the President to reflect the worldwide geographical spread of the Society. The Vice-President for Education who chaired the committee was Ilesanmi Adesida of the University of Illinois at Urbana-Champaign, USA and the other members were: K.S. Chari (Electronics Niketan, India); Jamal Deen (McMaster University, Canada); Magali Estrada Del Cueto (CINVESTAV-IPN, Mexico); Yoshiaki Hagiwara (Sony Corporation, Japan); Agis Illiadis (University of Maryland, USA); Erin Jones (Oregon State University, USA); Kevin T. Korney (Cornell University, USA); Kei-May Lau (Hong Kong University of Science & Technology, Hong Kong); Kwyro Lee (KAIST, Korea); Juin Liou (University of Central Florida, USA); Stephen. A. Parke (Boise State University, USA); Jayasimha S. Prasad (Maxim Corporation, USA); Marcel D. Profirescu (Technical University of Bucharest, Romania); Sunit Tyagi (Intel, USA); and Philip Wong (Stanford University, USA) and Paul Yu (University

An important function of the Committee is to maintain a vibrant Distinguished Lecturer (DL) Program for the Society. The DL Program exists for the purpose of providing EDS chapters with a list of quality lecturers who can give talks at local chapter meetings and other occasions. Over the last few years, the DL program of our Society has been revamped and many lecturers appointed from all Regions of the world in order to provide easy access to high quality technical talks for EDS chapters. The President of EDS, Hiroshi Iwai, was instrumental in proposing an expansion of the DL program. The listing of Distinguished Lecturers along with their topics and travel schedules is maintained on the EDS homepage. The listing is reviewed yearly and to remain on the roster, a Distinguished Lecturer must actively perform lectures. The year, 2004, ended with a roster of 134 lecturers. There were over 122 lectures conducted all over the world from Belarus to Brazil to Singapore to the United States by well over half of our Distinguished Lecturers. To arrange for a lecture, EDS chapters

British Columbia, Canada; Martin von Haartman of the Royal Institute of Technology, Sweden; and Hongyu Yu of the National University of Singapore, The Republic of Singapore. The winners were announced in the January issue of the EDS Newsletter. Advertisement for the next competition with the qualifications required and the remunerations are published in this Newsletter and other EDS publications. We are appealing to all our members to advertise the program among potential candidates and nominators so that students are aware of this opportunity for funding and recognition. With these awards, we hope to assist the very best students in our fields and also to make a positive impact on the future leaders of our Society.

The Committee established a Short Course Program. The Society envisages this program as a service to assist industry to keep their staff at the cutting-edge of technology. A short list of hot topics was developed by Philip Wong (and some committee members) with the aid

of our Technical Committees along with corresponding lecturers (by consent) from the Society. The courses and the lecturers were: Advanced CMOS (Y. Taur, M. Chan, J. Vasi, V. R. Rao, D. Schroder, and S. Cristoloveanu); High-K Dielectrics (J. Lee), RF Devices and Circuits (J. Cressler); and SiSiGe Heterostructure Materials, Devices, and Circuits (H. Schumacher). A flyer on these courses and lecturers was prepared and distributed to industry. The mode of operation of the program is that interested parties would contact the lecturers directly and arrange to sponsor such short courses. Interested chapters can co-sponsor short courses with industry at their expense.

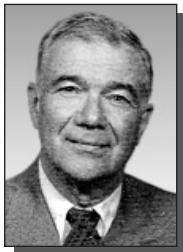
The Committee also worked with the IEEE Educational Activities Board (EAB) on the new Xplore-Based Educational Products Initiative that was launched in 2003. This is a continuing education program which seeks to deliver short courses over the web. This is an experimental program and EDS is one of the societies that is assisting in validating this pro-

gram. Two of our short course lecturers, Y. Taur and J. Cressler, are participating in the Xplore-Enabled Learning Library Program (XELL). Arlene Santos has agreed to be the EDS Liaison to the EAB for the XELL program.

Lastly, the committee is continuously exploring ways and mechanisms of involving student members in conferences and other activities of the Society. If you have any suggestions or information on these or any other activities that you may want us to engage in, please contact the new Vice-President of Education for EDS (Paul Yu) at p.yu@ieee.org. I wish to express my sincere thanks to you all and the Executive Office for support and cooperation over the last four years as I served as the Chair of this committee. I am sure that the same support will be extended to Paul Yu.

*Ilesanmi Adesida
EDS Vice-President of
Educational Activities
University of Illinois
Urbana-Champaign, IL, USA*

INDUSTRY RELATIONS: EDS STRATEGIC PLAN



Alfred U. Mac Rae

The EDS Administrative Committee (AdCom) established a strategic plan with its primary objective to improve EDS service to its members. One aspect of that plan was "Industry Relations" with the overall objective to:

- Increase EDS membership from industry by providing adequate coverage of industrial members' contributions and activities in EDS publications and meetings.

We considered such questions as, should the EDS improve its appeal to the bench-top engineer by providing improved opportunities for these members to publish and give talks at meetings and should the EDS provide more practical material in its publications?

We decided that we needed feedback from EDS members on this subject. Fortunately, the IEEE completed a useful "All Society Research Project" survey in

April, 2004. This survey asked many questions of its Society members about the quality of services that they receive. Fortunately, the EDS specific results were excellent and we need to thank the EDS staff and the members of the Administrative Committees for their exemplary leadership over many years. From the results of this survey, we separated out the responses of EDS members from industry. In summary, their responses were:

- The EDS is already providing many services to its members from industry, including Industry Short courses, web-based access to publications, an archival DVD of publications, a Transactions concerning Semiconductor Manufacturing, talks at numerous meetings and specific manufacturing oriented meetings. It is important to continue and improve these industry oriented services.

There were also recommendations to:

- Ensure continued industry employee access to EDS material, increase web coverage, increase use of DVDs, improve marketing, do not

disassociate industry members from their academic colleagues, increase regional meetings having industrial content, continue industry member participation on the EDS AdCom, improve opportunities for industry employed members to participate on EDS committees, be aggressive in expanding into new technologies and make industry member volunteers feel appreciated.

This feedback from the survey is informative and the EDS AdCom will continue to consider the specific needs of its members who are employed in industry. We want to make sure that EDS serves your needs. This committee is looking forward to more feedback and suggestions from its members on this topic. Please provide your input to me at a.macrae@ieee.org.

*Alfred U. Mac Rae
Chair, EDS Industry
Relations Committee
Mac Rae Technologies
Berkeley Heights, NJ, USA*

IN MEMORY OF AL F. TASCH, JR.

Dr. Al F. Tasch, Jr., truly a giant in our industry, passed away at Seton Medical Center in Austin, Texas on November 30, 2004. He was born on the 12th of May, 1941, the son of Al F. and Dorothy Tasch. To many of us who knew him well, Al was a devoted husband, a loving father, a faithful friend, a staunchly devout man, a great scientist and leader.

Al received his B.S. degree in physics in 1963 from The University of Texas at Austin, and his M.S. and Ph.D. degrees in physics in 1965 and 1969, respectively, from the University of Illinois, Urbana-Champaign. His thesis research in impurities in silicon was the pioneering work that led to the widely known deep-level transient spectroscopy (DLTS) for characterizing impurities in semiconductors that is still used worldwide. In 1969, he joined Texas Instruments, performing research that resulted in the first demonstration of an MIS structure in HgCdTe, and helped lay the foundation for infrared detector development and products throughout the 1970's and 1980's. He and his group did pioneering work in Charge-Coupled-Device Memories, dynamic memory, silicon-on-insulator, and scaled MOS transistors. Today's industry-standard MOS transistor structure with sidewall oxides and self-aligned, silicided gates, sources and drains was patented by Al and his colleagues. They pioneered the Charge-Coupled Dynamic RAM cell, the Hi-C Dynamic RAM cell, the grounded gate Dynamic RAM cell, and leakage current analyses of dynamic memory structures. His patents on the Hi-C MOS dynamic RAM cell and the grounded gate MOS Dynamic RAM cell have been used by most Dynamic RAM manufacturers in the industry. In 1978, Al was honored as a TI fellow for his contributions in charge-coupled devices and MOS dynamic memory technology. He was appointed Associate Director of the VLSI Laboratory in the Central Research Laboratories at Texas Instruments in 1980.

Al joined Motorola in July 1982, leading the start-up of Motorola's most advanced MOS integrated circuit manufacturing facility in Austin,

Texas. In January 1984, he was promoted to Director of the Advanced Products Research and Development Laboratory (APRDL), the R&D laboratory with responsibility for the technology development for Motorola's new MOS memory, microprocessor, and logic products. A major endeavor



in this responsibility was the move of APRDL from Phoenix to Austin and the start-up of a new R&D facility in 1984-1985. During this period, Al recruited me to Motorola to assist in this enormously challenging and complex program. I was drawn to join him in his vision of changing the organization, the technology and the company. Al worked tirelessly to build the new R&D organization in Austin while keeping the Phoenix operations going. He had the highest expectations, continually striving to improve the ways in which we worked. Throughout this daunting project he exhibited the highest integrity and he demanded the most of himself. During the simultaneous operation of the Lab in Arizona and Texas, he was on a plane for 39 of the 52 weeks in 1984, personally supporting both teams. He was appointed to Vice President of the Technical Staff of Motorola in February 1985.

Always being drawn to education, in July 1986 he joined the faculty of the Electrical and Computer Engineer-

ing Department at The University of Texas at Austin, holding one of the Cockrell Family Regents Chairs in Engineering. During 1987 he was in charge of the technical effort to successfully bring SEMATECH to Austin, TX. Al played the major role in building the silicon-based education and research program at the University of Texas at Austin to a level of national and international recognition. He established the silicon device fabrication laboratory in late 1987 with his students and his academic funds. This facility is used by most of the faculty and students in silicon-based materials, fabrication, and device research. He initiated a research program with his students in MOS device modeling and analysis, which is recognized worldwide. Since he began at UT, Al worked with the new faculty as a mentor and collaborator to assist them in developing their graduate education and research programs.

Al made many contributions to EDS. To name a few, he was a leader in the IEDM, the Symposium on VLSI Technology and the Semiconductor Interface Specialists Conference. He served as SISC General Chair in 1979, IEDM General Chair in 1982, and VLSI Symposium Chair in 1984. He was Associate Editor of the *Transactions on Electron Devices* between 1978 and 1991, and a member of EDS ADCOM from 1982 to 1988. His contributions to industry and academia are well recognized with numerous awards. These include election to the National Academy of Engineering, the IEEE Andrew S. Grove Award for outstanding contributions to solid-state devices and technology, the J.J. Ebers Award, IEEE fellow, Texas Instruments Fellow, the SRC Technical Excellence Award, the Billy and Claude Hocott Distinguished Centennial Engineering Research Award, The University Leadership Award from the SIA, the Electrochemical Society Electronics Division Award, the University of Illinois Alumni Award for Distinguished Service and election as one of the Founding Members of the Texas Academy of Medicine, Engineering and Science in 2003. He held 38 US patents.

Al was a respected mentor to many students, had a strong sense of community responsibility, and always had a clear vision for the future. He was a brilliant yet practical man, and, up until the last, his focus was the well being of his family. Al loved the outdoors and enjoyed being a part of the community of the Texas Hill Country. He was a member of the Stonewall Chamber of Commerce, Stonewall Heritage Society, and the Fredericksburg Antique Tractor and Engine Club. He was also an active parishioner both at St. Mary's Cathedral in Austin and St. Francis Xavier

Catholic Church in Stonewall. Throughout his many pioneering efforts, he was fortunate to have the unconditional love and support of his wife and soulmate, Judie. At their farm in Stonewall, they were able to integrate seamlessly into a very different world than that of Al's highly sophisticated and demanding professional life. Many of their rural neighbors honored Al at his funeral and had no idea that he was a man regarded internationally with such high professional respect. He was viewed as a neighbor who always gave of his own time and efforts to

help make things better for his friends and his community.

Al is survived by his wife Judith, his son Edward and wife Anne, his son David and wife Sara and their children, Carsten and Kelsey. He is also survived by his sister Mary Jo Snider.

Professor Al F. Tasch, Jr. will be sorely missed.

*Respectfully,
Louis C. Parrillo
EDS J.J. Ebers Award Chair
Parrillo Consulting, LLC
Austin, TX, USA*

MESSAGE FROM THE NEWSLETTER EDITOR-IN-CHIEF

I am writing this message after a lapse of almost a year. It is sometimes astonishing to see how quickly the year has gone by. As professionals, all of us are very busy in our work. I hope that this issue comes at a very prosperous time in your career.

I would like to take this opportunity to thank two outgoing Regional Editors for outstanding service to the Newsletter and Electron Devices community. They are Murty Polavarapu (Regions 1, 2 & 3) and Arokia Nathan (Regions 4 & 7). Their outstanding voluntary contributions for many years are exemplary to the rest of us. Replacing them on the Newsletter Editorial Staff are Ibrahim Abdel-Motaleb and M. Jamal Deen, respectively, whose biographies follow. Ibrahim and Jamal have a lot of EDS related activities, and it is my pleasure to welcome them as the new Newsletter Editors for Eastern, Northeastern & Southeastern USA and Central USA & Canada, respectively.

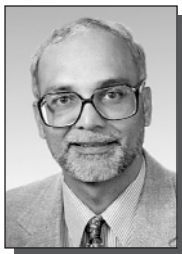
Once again, I thank both outgoing editors for their dedicated service to the Newsletter and welcome the new editors and wish them all success. Please contact your respective Regional Editor directly with news items.

Dr. Ibrahim Abdel-Motaleb received B.Sc in both Electrical Engineering and Physics at the Cairo University, Egypt. He received



Ibrahim Abdel-Motaleb

M.Sc degree in Physics from the University of Manitoba, Canada in 1982, and Ph.D. degree in Electrical Engineering at the University of British Columbia, Canada in 1986. He is a professor of Electrical Engineering at Northern Illinois University. He is a registered Professional Engineer (PE) in the state of Illinois. His areas of research include: growth of electronic materials using MOCVD and PLD; modeling of microelectronic and nano-electronic devices; and fabrication and modeling of nano-scale sensors.



M. Jamal Deen

Dr. M. Jamal Deen completed a B.Sc. degree in Physics and Mathematics at the University of Guyana (1978), a M.S. degree (1982) and a Ph.D. degree (1985) in Electrical Engineering and Applied Physics at the Case Western Reserve University, Cleveland, Ohio. He is Professor of Electrical and Computer Engineering and Senior Canada Research Chair, McMaster University, Hamilton, Ontario. His current research interests include physics,

modeling, reliability and parameter extraction of semiconductor devices; optical detectors and receivers; polymer and organic semiconductor devices; and low-power, low-noise, high-frequency circuits. Dr. Deen's research record include 15 invited book chapters, 6 awarded patents, more than 300 peer-reviewed articles and 60 invited/keynote/plenary conference presentations.

Dr. Deen was a Fulbright-Laspau Scholar from 1980 to 1982, an American Vacuum Society Scholar from 1983 to 1984, and an NSERC Senior Industrial Fellow in 1993. He is a Distinguished Lecturer of the IEEE Electron Device Society; was awarded the 2002 Thomas D. Callinan Award from the Electrochemical Society; and the Distinguished Researcher Award, Province of Ontario in July 2001. Dr. Deen is currently an Editor of IEEE Transactions on Electron Devices; Executive Editor of Fluctuations and Noise Letters; and Member of the Editorial Board of Interface, an Electrochemical Society publication. He is a Fellow of IEEE, Fellow of EIC (Engineering Institute of Canada) and a Fellow of ECS (Electrochemical Society).

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

2004 EDS J.J. EBERS AWARD



Jerry G. Fossum

The 2004 J.J. Ebers Award, the prestigious Electron Devices Society award for outstanding technical contributions to electron devices, was presented to Dr. Jerry G. Fossum of the University of Florida. He was presented with the award at the International Electron Devices Meeting in San Francisco, CA on 13 December 2004. This award recognizes Dr. Fossum "For outstanding contributions to the advancement of SOI CMOS devices and circuits through modeling."

Jerry Fossum was born in Phoenix, Arizona. He received his B.S., M.S., and Ph.D. degrees in electrical engineering, the latter with a minor in physics, from the University of Arizona, Tucson, in 1966, 1969, and 1971. In 1971, he joined the technical staff of Sandia Laboratories, Albuquerque, New Mexico, where he did silicon-based device modeling and design in support of developments of radiation-hardened CMOS technologies and photovoltaic energy systems. In 1978, he moved to the University of Florida, Gainesville, as an Associate Professor, and in 1980 was promoted to Professor of Electrical Engineering. In 2002, he was selected to be a University of Florida Research Foundation Professor.

Interestingly, Dr. Fossum's work on photovoltaics (for which he was elected a Fellow of the IEEE in 1983), culminated in polysilicon solar cells with efficiencies limited by grain-boundary effects. This work led to his involvement with SOI, which initially was actually large-grain poly on SiO₂. His SOI research began in 1982, and it continues today. His pioneering work on the front-gate-back-gate (substrate) charge-coupling effects in thin Si-film MOSFETs triggered his continual contributions to the advancement of viable SOI CMOS technologies. The contributions include physical device insights, process/physics-based compact models, and Ph.D. students who entered

the SOI industry, all of which helped make SOI CMOS mainstream. His research yielded the first ever compact models (in SOISPACE) for partially depleted (PD) and fully depleted (FD) SOI MOSFETs, and, with their strong process/physics basis, he has evolved them (in UFSOI and UFPDB) as effective aids used by companies and universities throughout the world for device/technology design as well as circuit design, and for teaching SOI principles. Their utility stems from their physical accountings for the unique and complex features of SOI MOSFETs, e.g., the noted charge coupling in FD devices, which renders a threshold voltage (V_t) dependence on the back-gate bias, floating-body effects in PD devices, including transient hysteresis related to dynamic V_t , and the parasitic BJT and its influence on pass-gate transients. In fact, the latter two effects were actually predicted by Dr. Fossum's models before they were experimentally discerned.

Recently, Dr. Fossum began studying the performance potential of non-classical double-gate (DG) and triple-gate CMOS on SOI. Building on his previous SOI work, much of which is applicable to multi-gate devices, he is currently developing a process/physics-based compact model (UFDG) for the generic DG MOSFET with ultra-thin Si body (UTB), which is unified for application to the single-gate FD/SOI UTB MOSFET as well. With good accounting for the carrier-energy quantization in the UTB, UFDG is, in essence, a compact Poisson-Schrödinger solver in a circuit simulator that has already proven useful in projecting and benchmarking performances of future nanoscale nonclassical CMOS devices and circuits, as well as in giving good design insights.

Dr. Fossum is the author or coauthor of approximately 250 papers published in international technical journals and conference proceedings, about half of which concern SOI. He has (closely) directed the research of 30 Ph.D. students, 17 of which worked on SOI. He has been associated with the IEEE International SOI

Conference for 20 years, serving on its Executive Committee from 1994 to 1997 and winning a best-paper award in 1992. He was Guest Editor for the May 1998 Special Issue on SOI Integrated Circuits and Devices of the *IEEE Transactions on Electron Devices*.

Jerry lives with his wife Mary in Gainesville. They follow major-league baseball (especially when

Jerry's nephew is pitching), they work out together regularly, and they plan to play more golf together (when Mary improves her game a bit). Coincidentally, Jerry's daughter Kelly is married to an SOI circuit designer at IBM. (This is one SOI effect that he did not predict).

Louis C. Parrillo
Chair, J.J. Ebers Award
Parrillo Consulting, LLC
Austin, TX, USA

2005 EDS J.J. EBERS AWARD CALL FOR NOMINATIONS

The IEEE Electron Devices Society invites the submission of nominations for the 2005 J.J. Ebers Award. This award is presented annually for outstanding technical contributions to electron devices. The recipient(s) is awarded a certificate and a check for \$5,000, presented in December at the International Electron Devices Meeting (IEDM).

Nomination forms can be requested from the EDS Executive Office (see contact information on page 2) or is available on the web at www.ieee.org/eds/. The deadline for submission of nominations for the 2005 award is 1 July.

2004 EDS DISTINGUISHED SERVICE AWARD



Louis C. Parrillo

The IEEE Electron Devices Society is extremely proud of the services that it provides to its members. Its members generate the premier new developments in the field of electron devices and share these results with their peers and the world at large by publishing their papers in EDS journals and presenting results in its meetings. This is a global activity that is effective because of the efforts of numerous volunteers. Many of these volunteers labor in relative obscurity, with their only reward being the satisfaction that they receive in being an important part of a successful organization, namely of the Electron Devices Society. They should be thanked.

The 2004 EDS Distinguished Service Award was presented to Louis C. Parrillo at the International Electron Devices Meeting in San Francisco, CA on 13 December 2004.

Louis Parrillo was born in Waterbury, Connecticut. He received his BSEE from the University of Connecticut and his MSEE, MA and Ph.D. degrees in Electrical Engineering from Princeton University. In 1972, he joined AT&T Bell Laboratories in Murray Hill, New Jersey. There, he and his colleagues developed and transferred to manufacturing one of the worlds leading all-implanted, high-speed bipolar technologies. Included in this work was the methodology of diagnosing and solving key fabrication issues. Such techniques were widely adopted in the industry. With Dr. Richard Payne and their colleagues, he developed the original "Twin-Tub CMOS"

technology and successfully transferred it to manufacturing. It became an industry-standard approach for more than two decades. Prior to leaving AT&T, he supervised groups in New Jersey and Pennsylvania that were charged with developing AT&T's most advanced IC technologies.

He joined Motorola in 1984 as a staff manager of the Advanced Products Research and Development Laboratory (APRDL) in Austin, Texas. In 1988 he became the Director of APRDL. He built and led the internationally recognized, 600-person team through 1997. In this role, he drove the vision of a modern 200mm-wafer development facility, and in partnership with manufacturing, created Motorola's research, development and manufacturing complex that is known today as the Dan Noble Center. He was appointed a Vice President in 1988 and was elected a Corporate Vice President in 1994. In 1998, he was named General Manager of the Enterprise Computing Systems Division, a P&L with design, test, product engineering, marketing and sales teams. In this role he led the development and sales of a family of ultra-fast SRAM products that were the fastest, most compact and the first in the industry to be manufactured in the then revolutionary copper-interconnect technology. In 2001, he was promoted to Chief Technology Officer of the Semiconductor Products Sector (SPS) and director of the DigitalDNA (Laboratories, SPS' global research and development organization. As CTO, he and his colleagues drove the formation of the alliance among Motorola, ST Microelectronics, Philips Semiconductor and TSMC for the research, development and transfer-to-manufacturing of advanced 300 mm wafer technology in

Crolles, France.

He retired from Motorola in June 2003. In 2004, he established Parrillo Consulting, LLC, a business aimed at providing value to varied clients based on his more than thirty years of experience in technical, managerial and business leadership.

He has 27 patents and more than 40 publications. In 1989, he became an IEEE Fellow. In 1992, he and Dr. Richard Payne were awarded the J.J. Ebers Award for their "contributions to CMOS and bipolar IC technology". In 1995, he was elected President of the Electron Devices Society and he served the 1996 and 1997 terms of office. In 1996, he was elected to the United States National Academy of Engineering.

He resides in Austin, Texas with his wife Kathleen, a former teacher with a Master's in Education. Their son Jeffrey, a graduate of Georgetown University's McDonough School of Business, is following his real passion and is pursuing a Masters of Fine Arts in acting at The Actor's Studio Drama School in the New School University in New York. Their daughter Lisa has traveled extensively having spent four summers studying abroad in Spain and two summers studying abroad in Italy. Lisa is pursuing a degree in International Advertising at the University of Texas. In their spare time Kathleen and Lou enjoy their place in Telluride as well as frequent traveling in the U.S. and abroad. Lou and Jeffrey have become addicted to track driving by participating in the Porsche Club High-Speed Drivers Education events.

*Michael S. Adler
Chair, EDS Distinguished
Service Award
Wilson, WY, USA*

2006 IEEE REYNOLD B. JOHNSON DATA STORAGE DEVICE TECHNOLOGY AWARD

CALL FOR NOMINATIONS

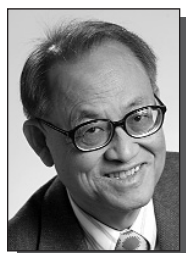
The IEEE Reynold B. Johnson Data Storage Device Technology Award is presented for outstanding contributions to the advancement of information storage with emphasis on technical contributions in computer data storage device technology.

The award may be presented to an individual, team, or multiple recipients up to three in number. The recipient of the award receives a bronze medal, certificate, and cash honorarium. The nomination deadline is 1 July 2005.

For nomination forms, visit the IEEE Awards Web Site, www.ieee.org/portal/pages/about/awards/sums/johnsonsdst.html, or contact IEEE Awards Activities, 445 Hoes Lane, Piscataway, NJ, USA, 08855-1331; tel: +1 732 562 3844; email: awards@ieee.org.

EDS MEMBERS NAMED WINNERS OF THE 2005 IEEE TECHNICAL FIELD AWARDS

Five EDS Members were among the winners of the 2005 IEEE Technical Field Awards. They are:



Leon Chua of University of California, Berkeley won the 2005 IEEE Gustav Robert Kirchhoff Award. His citation states, "For seminal contributions to the foundation

of nonlinear circuit theory, and for inventing Chua's Circuit and Cellular Neural Networks, each spawning a new research area."

A professor of electrical engineering and computer science at the University of California at Berkeley, Dr. Leon O. Chua is widely recognized as the father of nonlinear circuit theory and of cellular neural networks (CNN), which provides a new architectural framework for nanoscale electronics, as well as for bio-inspired electronic and photonic systems.

The CNN universal machine architecture is the only one implemented into a practical, fully-programmable chip capable of solving ultra-high-speed pattern recognition and image-processing problems. The chip has outperformed conventional supercomputers and is being tested for next-generation anti-missile defense systems and as a critical component in detecting instability in a state-of-the-art thermonuclear experimental reactor.

Dr. Chua also invented a five-element circuit for generating chaotic signals. Aptly named the Chua Circuit, it is used by many researchers to design secure communications systems based on chaos.

An IEEE Fellow, he is a past president of the IEEE Circuits and Systems Society and former editor of the IEEE Transactions of Circuits and Systems. He is editor of the International Journal of Bifurcation and Chaos and a book series on nonlinear science.

He has received several IEEE awards including the IEEE Neural Networks Pioneer Award, an IEEE Third Millennium Award, the Golden Jubilee Medal and the Technical Achievement Award of the IEEE Circuits and Systems Society, the IEEE W.R.G. Baker Prize Paper Award and the IEEE Browder J. Thompson Memorial Prize Paper Award.

He has been recognized by the Institute of Scientific Information as one of the 15 most-cited authors in all fields of engineering during 1991-2001. He is also an elected foreign member of the European Academy of Sciences.

He has a master's degree from the Massachusetts Institute of Technology in Cambridge, a doctoral degree from the University of Illinois, at Urbana-Champaign and nine honorary doctorates from major universities in Europe and Japan.



Hiroyoshi Komiya

of Tokyo Seimitsu Co., LTD, won the 2005 IEEE Frederik Philips Award. His citation states, "For leadership in R&D and driving international cooperation leading to the next generation of silicon wafers."

A long-time pioneer in the field of semiconductor research and development, Dr. Hiroyoshi Komiya played a critical role in building the basic technology of the semiconductor industry worldwide.

He has been an international leader in developing ultra-large-scale integration (ULSI) technology and its standards, including 300mm wafer technology, ArF and EB lithography.

As both chairman of the Asia Task Force of the Silicon Wafer Summit and executive vice president and chief operating officer of Semiconductor Leading Edge Technologies, Inc. in Tsukuba, Japan,

Dr. Komiya drove the decision of 300mm as the standard size for next-generation wafers and the global transition strategy.

Earlier in his career, as general manager of ULSI Laboratories at Mitsubishi Electric Corporation in Japan, he managed research and development programs for ULSI technology in memories, micro-processors, DSPs, and other areas. He also led a Mitsubishi project to develop and operate the world's first, fully automated semiconductor plant.

Dr. Komiya also led cooperative activities in Japan for device and circuit technologies for the next-generation, system-on-a-chip LSIs, which are expected to contribute to the progress of semiconductor technology in the sub-100nm range.

An IEEE Fellow, he has served as chairman of the IEEE Electron Devices Society Chapter of the Tokyo Section and on the executive committee of the IEEE Tokyo Section. He was also a member of the executive committee of the Japan Society of Applied Physics.

He has bachelor's and doctoral degrees from Kyushu University in Fukuoka, Japan.



Tso-Ping Ma of

Yale University won the 2005 IEEE Andrew S. Grove Award. His citation states, "For contributions to the development and understanding of CMOS gate dielectrics."

Dr. Tso-Ping (T.P.) Ma's pioneering work in gate dielectrics increased integrated circuit operating speed and reliability, lowered cost per function, and raised density by a significant factor. Gate dielectrics are a critical element in metal oxide semiconductor (MOS) devices, the building blocks of today's silicon chips.

Dr. Ma, the Raymond John Wean Professor of Electrical Engineering

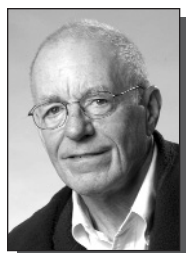
and chair of the Electrical Engineering Department at Yale University in New Haven, Connecticut, recognized early the importance of gate tunneling current in MOS behavior. The semiconductor industry now recognizes this as a major issue in scaling future MOS technology.

While at Yale and as a staff engineer at the IBM Systems Products Division in East Fishkill, New York, Dr. Ma made significant contributions to the effect of stress-strain at the SiO₂/Si interface on defect generation and carrier mobility variation. His work was used by IBM and other semiconductor companies to increase CMOS transistor performance and reliability in silicon integrated circuits.

He is co-author with Paul V. Dressendorfer of "Ionizing Radiation Effects in MOS Devices and Circuits." This has been hailed by colleagues as the most authoritative and comprehensive work on the subject.

A Fellow of the IEEE, Dr. Ma has received the IEEE Electron Devices Society's Paul Rappaport Award and was general chairman of the IEEE Semiconductor Interface Specialists Conference and the International Symposium on VLSI Technology, Systems and Applications. He also is a member of the U.S. National Academy of Engineering (NAE) and a recipient of Yale University's Harding Bliss Prize.

He received his bachelor's degree in science from the National Taiwan University in Taipei, Taiwan, and master's and doctoral degrees in engineering and applied science, both from Yale University.



William G. Oldham of University of California, Berkeley won the 2005 IEEE Cleo Brunetti Award. His citation states, "For pioneering contributions to lithographic engineering and to high-density isolation technology"

During his 40-year tenure as a professor in the Electrical Engineering and Computer Science Department at the University of California at Berkeley, Dr. William Oldham

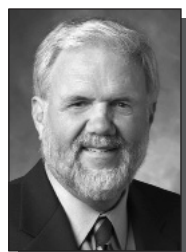
became a recognized leader in the field of integrated circuit (IC) miniaturization technology. His research has allowed IC manufacturers to fabricate ever faster and more complex microchips at a lower cost.

In his isolation work, he analyzed the limitations of various approaches to shrinking the distance between electronic elements and devised new ways to place transistors closer and save space. He was among the first to promote simulation as a process tool and pioneered the definition and development of practical simulators for micropatterning, including deposition, etching and lithography.

His pioneering invention of sealed-interface local oxidation significantly reduced the formation of bird's beak in the local oxidation process. This technology was widely accepted by industry as a way to improve device performance. His recent work on maskless lithography promises to open opportunities for improvements in chip development and the customized manufacture of specialized chips in limited quantities.

Dr. Oldham was Robert S. Pepper Distinguished Professor of Electrical Engineering at the university until June of 2003, when he became Professor Emeritus.. An IEEE Fellow, he has served the IEEE on the IEEE Electron Devices Society Administrative Committee. His honors include election to the U.S. National Academy of Engineering, as well as the Semiconductor Research Corporation's Technical Excellence Award.

Dr. Oldham received his bachelor's, master's and doctoral degrees in electrical engineering from Carnegie Mellon University in Pittsburgh, Pennsylvania.



Bruce A. Wooley of Stanford University won the 2005 IEEE Solid-State Circuits Award. His citation states, "For pioneering contributions to integrated electronics for analog-to-digital data conversion in communications systems"

Dr. Bruce A. Wooley, chairman of

the Department of Electrical Engineering at Stanford University in Stanford, California, is a pioneer in the field of integrated voice band coder-decoder (codec) circuits. While at Bell Labs in Holmdel, New Jersey, he helped establish the technique of per-channel coding—a bellwether for the telephone industry at the earliest stage of the integrated circuit industry.

He is most widely recognized for his work on the use of oversampling techniques to improve the performance of analog-to-digital and digital-to-analog converters. Today, this form of conversion is the nearly universal approach to voice and audio encoding for both landline and wireless telephone technology and is used in a wide range of communications, computing, industrial automation and electronic entertainment systems.

Dr. Wooley has also made major contributions to the design of high-speed data conversion circuits and their realization in IC form. His most recent work has focused on increasing the power efficiency of integrated analog-to-digital converters—an improvement crucial to applications in new portable communications systems.

In private industry and at Stanford University, Dr. Wooley has developed a world-renowned research effort in data conversion. He holds five U.S. patents and has published more than eighty papers in this area.

An IEEE Fellow, he has served as the president of the IEEE Solid-State Circuits Society from 2000 to 2001 and as the Editor of the IEEE Journal of Solid-State Circuits. He has also served as chairman of both the International Solid-State Circuits Conference and the IEEE Symposium on VLSI Circuits. His many honors include the University of California University Medal and the IEEE Third Millennium Medal.

He received his bachelor's, master's and doctoral degrees from the University of California at Berkeley, all in electrical engineering.

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

EDS MEMBER NAMED WINNER OF THE 2004 IEEE EDUCATIONAL ACTIVITIES BOARD AWARD

The IEEE EAB Meritorious Achievement Award in Continuing Education recognizes IEEE members for efforts to foster the maintenance and improvement of education through the process of accreditation engineering, engineering technology, computer science programs and applied science programs. The award consists of \$1,000 and a brass and walnut plaque.

The 2004 Award was presented to Cary Y. Yang "for extensive and innovative contributions to the continuing education of working professionals in the field of micro/nanoelectronics". He was presented with a plaque and check at the IEEE November Board Series in San Antonio, TX.



Cary Y. Yang (S'69, M'70, SM'84, F'99) received the B.S., M.S., and Ph.D. degrees in electrical engineering from the University of Pennsylvania in 1970, 1971, and 1975, respectively. After working in various research positions at M.I.T., Stanford, and NASA, he founded Surface Analytic Research, Inc. in Mountain View, California and directed sponsored research in surface and nanostructure science. In 1983 he joined Santa Clara University and is currently Professor of Electrical Engineering, Associate Dean of Engineering, and Director of Center for Nanostructures.

Over the past two decades, Professor Yang has initiated innovative programs to educate and train technical professionals in various stages of their careers. In the eighties, he developed and organized short courses on timely topics in silicon

technology to Silicon Valley professionals. In the mid-nineties, he offered short courses on semiconductor technology for SEMI as part of a retraining program for professionals in other fields. Since the mid-eighties, he has provided opportunities for his students to spend extended periods in companies in Japan, where they collaborated with their hosts on their thesis research. More recently, he founded the Center for Nanostructures at Santa Clara, which offers interdisciplinary research and education opportunities for university students and faculty, high school students and teachers, as well as Silicon Valley technical professionals.

Dr. Yang has been a consultant to industry and government, and a visiting professor at Tokyo Institute of Technology, University of Tsukuba, National University of Singapore, the University of Pennsylvania, and the University of California, Berkeley. He is a Fellow of IEEE and served as Santa Clara Valley Chapter Chair, Regions/Chapters Chair, Vice President, and President of the IEEE Electron Devices Society. From 2002 to 2003, he served as an elected member of the IEEE Board of Directors, representing Division I. He was an editor of the *IEEE Transactions on Electron Devices*, in the area of MOS devices.

Dr. Yang was elected Fellow of the IEEE in 1999 "for contributions to microelectronic education and the understanding of interfacial properties of silicon-based devices".

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

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

Neal G. Anderson*	Karen Weil Markus
Joerg Appenzeller*	Glenn H. Martin
Dmitry O. Batrakov*	Joe McPherson*
Bradley W. Baumeister*	Vitali V. Metlushko*
Jezekiel Ben-Arie*	Mohamed Missous
Albert S. Bergendahl	Arthur S. Morris
Lamarr A. Brown	Tetsuo Nakamura
Seshu B. Desu*	Azad J. Naeemi
Jun Cai	Todd W. Nichols
Johan Catrysse	Kameshwar Poola
Charles L. Cerny	Mahmudur Rahman
Hermann Evi	Ravi P. Rao
Michel Frei*	Francis M. Rotella*
David W. Galipeau	Sitesh K. Roy
Eugenio Garcia-Moreno	Thomas S. Rupp
Yogesh B. Gianchandani	Takeo Shiba
Hans-Joachim Gossmann*	Pritpal Singh
V.S. Rao Gudimetla	Dennis M. Sylvester
Larry Hornbeck*	Marek Syrzycki*
Mark G. Johnson	Brian Thibeault
Kevin S. Jones*	Yi Wei*
Telesphor Kamagaing	Robert B. Welstand
David J. Klotzkin	Burnell G. West
Zachary J. Leminis	Charles K. Williams
Stephen A. Lynch	

* = 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>.

40 EDS MEMBERS ELECTED TO THE IEEE GRADE OF FELLOW - EFFECTIVE 1 JANUARY 2005

Supriyo Bandyopadhyay, Virginia Commonwealth Univ., Richmond, VA, USA

- for contributions to device applications of nanostructures

Henri Marius Baudrand, Ecole Nationale Supérieure d'Electrotechnique, Toulouse, France

- for contributions to the electromagnetic modeling of microwave circuits and antennas

Robert Christopher Baumann, Texas Instruments, Dallas, Texas, USA

- for contributions to the understanding of the reliability impact of terrestrial radiation mechanisms in commercial electronics

Duane S. Boning, MIT, Cambridge, MA, USA

- for contributions to modeling and control in semiconductor manufacturing

William D. Brown, University of Arkansas, Fayetteville, AR, USA - for leadership in furthering education of high density electronics

Jeff D. Bude, Agere Systems, New Providence, NJ, USA

- for contributions to the deep submicron MOSFETs

Robert S. Chau, Intel Corporation, Beaverton, OR, USA

- for contributions to gate dielectric and transistor technology for microprocessors

Clifton G. Fonstad, Massachusetts Inst. of Technology, Cambridge, MA, USA

- for leadership in compound semiconductor heterostructure devices

William Robert Frensley, University of Texas at Dallas, Richardson, TX, USA

- for contributions to nanometer-scale quantum semiconductor devices

Guido V. Groeseneken, IMEC, Leuven, Belgium

- for his contributions to the physical understanding and the modeling of reliability of metal oxide semiconductor field effect transistors

Ken-ya Hashimoto, Chiba University, Chiba, Japan

- for contributions to simulation and design for surface acoustic wave devices

George L. Heiter, Heiter Microwave Consulting, Westford, MA, USA

- for contributions to microwave circuits, including linear amplifiers and space diversity combiners

G. Benjamin Hocker, Honeywell Laboratories (Retired), Minnetonka, MN, USA

- for leadership in microelectromechanical system technology

James Albert Hutchby, Semiconductor Research Corp., Triangle Park, NC, USA

- for contributions to the design of low power static random access memories

Tadao Ishibashi, NTT Electronics Corporation, Kanagawa, Japan

- for contributions to high-speed and optoelectronic semiconductor devices

Noble M. Johnson, Palo Alto Research Center, Palo Alto, CA, USA

- for contributions to the control of impurities in semiconductors

Masaaki Kuzuhara, NEC Corporation, Otsu, Shiga Prefecture, Japan

- for contributions to Group III-V microwave power devices

Joy Laskar, Georgia Institute of Technology, Atlanta, GA, USA

- for contributions to the modeling and development of high frequency communication modules

Kartikeya Mayaram, Oregon State Univ, Corvallis, OR, USA

- for contributions to coupled device and circuit simulation

Deirdre R. Meldrum, University of Washington, Seattle, Washington, USA - for contributions to genome automation

John Melngailis, University of Maryland, College Park, MD, USA - for contributions to focused ion beam applications

Hisayo Sasaki Momose, Toshiba Corporation, Kanagawa, Japan

- for contributions to ultra-thin gate oxide metal oxide semiconductor fields effect transistors

Mehrdad M. Moslehi, Semizone Inc., Palo Alto, CA, USA

- for contributions to single wafer processing technologies

Laurence W. Nagel, Omega Enterprises, Randolph, NJ, USA

- for contributions to the field of integrated circuit simulation

Hidehito Obayashi, Hitachi High-Tech Technologies Corporation, Ibaraki, Japan

- for contributions to critical dimension scanning electron microscopy

Yutaka Ohmori, Osaka University, Osaka, Japan

- for contributions to the development of organic and semiconductor light emitting materials and devices

Shinji Okazaki, Assoc. of Super-Advanced Elec. Technologies, Tokyo, Japan

- for contributions to the resolution enhancement technology in optical and electron-beam lithography

Manijeh Razeghi, Northwestern University, Evanston, IL, USA

- for contributions to the development of compound semiconductor growth technology

Mark Stephen Rodder, Texas Instruments, Dallas, TX, USA

- for contributions to deep sub-micron complementary metal oxide semiconductor technology

Enrico James Sangiorgi, University of Bologna, Cesna, Italy
- for contributions to the modeling and characterization of hot carriers and non stationary transport effects in small silicon devices

Phillip Miles Smith, BAE Sytems, Nashua, NH, USA
- for contributions to microwave high electron mobility transistors

Tangali S. Sudarshan, Univ. of South Carolina, Columbia, SC, USA
- for contributions to surface flashover of dielectric and semiconductor materials

Hidehiko Tanaka, University of Tokyo, Tokyo, Japan
- for contributions to high performance computation models

Juzer M. Vasi, Indian Institute of Technology (IIT) Bombay, Mumbai, India
- for leadership in microelectronics education

Sophie V. Verdonckt-Vandebroek, Xerox Corporation, Webster, NY, USA - for leadership in developing photocopier products

Lois D. Walsh, Air Force Research Lab, Rome, NY, USA
- for leadership in electronic device reliability

Kevin John Webb, Purdue University, West Lafayette, IN, USA
- for contributions to numerical modeling and characterization techniques of passive and active devices

Jason Chik-Shun Woo, UCLA, Los Angeles, CA, USA - for contributions to nanoscale silicon on insulator and bulk metal oxide semiconductor device physics and technology

Donald Coolidge Wunsch, University of Missouri - Rolla, Rolla, MO, USA - for contributions to hardware implementations of reinforcement and unsupervised learning

Kazuo Yano, Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan - for contributions to nanostructured-silicon devices and circuits and advanced CMOS logic

EDS DISTINGUISHED LECTURERS PARTICIPATE IN THE 6TH WIMNACT - TAIWAN

The 6th IEEE EDS Mini-colloquium on NANometer CMOS Technology (WIMNACT) was successfully held January 21-22, 2005, at the National Chiao Tung University (NCTU), in Hsinchu, Taiwan. This 2005 workshop was organized by both the IEEE ED Taipei Chapter and the National Chiao Tung University, financially co-sponsored by the IEEE Electron Devices Society, IEEE ED Taipei Chapter, National Chiao Tung, and Tokyo Institute of Technology and technically co-sponsored by the ED Japan Chapter.

This one and half day meeting covered seven technical sessions, and it included social functions for our EDS members, nonmembers, professors, graduate students, and key engineers from Research unit, NDL, ITRI, as well as from the Science Park. Twenty professors/experts

from NCTU, TIT, ITRI and UMC were invited to give talks on Nanotechnology, Nonvolatile memory technology,

gave talks and with more than 120 attendees from universities and Science Park, the so called Taiwan Silicon Valley.

The guest-of-honor was Professor Peter C.Y. Wu, Dean of EECS College at NCTU, who delivered an opening speech to the invited guests and audience. Following Professor Wu, EDS President, Hiroshi Iwai invited the audience to become members of the IEEE EDS with the benefit of purchasing the

EDS Archival Collection on DVD which covers 50 years of papers from *Transactions on Electron Devices*, *Electron Device Letters* and the technical digests of the International Electron Devices Meeting. The Workshop Chair, Prof. Steve Chung, then gave an outline of the workshop. This was followed by Prof. Iwai who gave the first talk on "New



Invited speakers and key members of NCTU participating in the workshop (From left seated) Steve Chung (1st, Workshop Chair), Peter C. Y. Wu (4th, Dean of EECS college, NCTU), Hiroshi Iwai (5th, President of EDS)

gy, Interconnect, High speed optoelectronic devices/IC, bioelectronics, organic-electronics and quantum scale devices, etc. Out of a total of 20 invited speakers, 9 of them are Distinguished Lecturers (DL) of IEEE EDS. At this time, the total number of DLs in the Asia-Pacific region is 43. This is the largest WIMNACT ever held with the most DLs who

2005 WIMNACT-Taiwan

January 21-22
Eng. Building 4, International Convention Room

6th Workshop and IEEE EDS Mini-colloquia on NANometer CMOS Technology
奈米電子與材料技術研討會

2005 WIMNACT-Taiwan
Nanotechnology
IC Technology
High Speed devices
Organic devices

Session 1: CMOS Technology I
Session 2: CMOS and IC Technology
Session 3: Advanced Semiconductor Characterization Techniques
Session 4: CMOS Technology II
Session 5: Organic Device Technology I
Session 6: Organic Device Technology II
Session 7: High Speed Devices

Organized by
National Chiao Tung University
IEEE ED Taipei Chapter
Sponsored by
IEEE Electron Devices Society
Co-sponsored by
IEEE ED Japan Chapter
Tokyo Institute of Technology

National Chiao Tung University

The poster for 2005 WIMNACT- Taiwan, Hsinchu, NCTU, Taiwan

Technology Study for Future Down-scaling CMOS: High-k and Plasma Doping". The other eight DL talks were as follows: (1) Challenges and Opportunities for Ultra-Thin Gate Oxide Nano-CMOS Device Interface and Reliability Studies (Steve S. Chung, NCTU); (2) Advanced CMOS Technology Development for SOC Foundry (S. W. Sun, UMC); (3) Nanocrystalline Silicon Quantum Dot Devices (S. Oda, TIT); (4) Topics relating to CMOS Circuits: Transmission Line Interconnect and CMOS Reconfigurable Circuit Technology (K. Masu, TIT); (5) Non-volatile Ferroelectric-Gate Field Effect Transistor (E. Tokumitsu, TIT); (6) Organic Monolayer Dielectrics and Its Application to Organic Devices (M. Iwamoto, TIT); (7) InP-Heterojunction Bipolar Transistors with Submicron-Emitter (Y. Miyamoto, TIT) and (8) High IP3 HEMT for Wireless Applications (Ed Y. Chang, NCTU). The other eleven invited talks were given by non-DL's, in which several interesting topics included: High-k Gate Dielectric and Nanocrystal for Semiconductor Device Applications (T.F. Lei, NCTU), Evaluation on the Mechanical

Properties of Micro-Meter Scale Specimens for MEMS Components (Y. Higo, TIT), Nanoelectronics Research at ITRI (M. J. Tsai, ERSO/ITRI), Large-area Semiconductive Materials for Imaging Devices (J. Hanna, TIT), Conjugate Polymers for Light Emitting Diodes (C. S. Hsu, NCTU), Nanostructure Electron Devices for Terahertz Amplification and Oscillation (M. Asada, TIT,) etc. A detailed list of the speakers and their topics as well as the activities, can be obtained from the Chapter web site.

In addition to the invited talks given to the audience, we also arranged three places for our invited guests to visit, including UMC, ITRI Nanotechnology Center, and the National Nano Device Lab (NDL) on the NCTU campus. UMC is one of the well-recognized twin-giants of IC foundry in the world and based in Hsinchu Science Park. The UMC visit included a briefing and the tour of an 8" fab. ITRI provided a very nice presentation and a tour of a nanotechnology center which facilitates similar research activities. Also, NDL is a government-sponsored lab which facilitates the fabrication of

advanced device module and provides facilities for service to universities island-wide.

At the end of the workshop, a panel discussion was held. President C.Y. Chang of NCTU hosted all invited speakers with a wonderful dinner at the Lakeshore Hotel. Several action items were discussed related to EDS. The first one is that the ED Taipei Chapter Chair, Steve Chung, will take action to form a student chapter for graduate students as soon as possible, since the ED Taipei has a sufficient number of student members, and there was a lot of enthusiasm expressed from the attending students. The second one is that during the last IEEE Taipei Section board member meeting, Steve Chung suggested to the Section Chair to take action to visit Science Park top officials in the IC company to promote IEEE membership in every technical field. We are looking forward to seeing this happen. The third one is the promotion of the EDS Senior Member Program as there are many senior professors in the semiconductor area in the universities of Taiwan. The last one is to increase the number of DLs in Taiwan by soliciting the EDS membership especially from the faculty of universities, such as NCTU.

In summary, the 6th WIMNACT-Taiwan has been quite successful and fruitful through this workshop and DL visits, with the largest number of invited speakers and having a sufficient number of participants attending. After the workshop, all the attendees showed a strong interest in the invited talks as well as interest in EDS activities. Several items targeted for membership promotion will be taken immediately.

For more information, please visit <http://www.edsTaipei.edu.tw>

Steve Chung
WIMNACT-Taiwan Chair
ED Taipei Chapter Chair
National Chiao Tung University
Hsinchu, Taiwan

REPORT OF REGIONS 4-6 (CENTRAL, SOUTHWESTERN & WESTERN USA) CHAPTERS MEETING AT IEDM

On Dec. 12, 2004, in conjunction with IEDM'04, the Regions 4-6 Chapters Meeting was held at the Hilton & Towers Hotel, San Francisco. Among the attendees were the representatives of chapters from these Regions, the representatives from the Rel/CPMT/ED Chapter of Singapore, several chapter partners, chairs and vice-chairs of the Subcommittee of Regions and Chapters (SRC), and the Director of IEEE Region 6.

The meeting started with an introduction by Paul Yu, Chair of the North America West (NAW) SRC Subcommittee, who then introduced Cor Claeys, EDS Vice-President of Regions/Chapters. Cor discussed the importance of the chapters and how to promote chapter activities. He announced the winner of the 2004 Chapter of the Year Award – the Singapore Chapter, which was represented by the Chapter Chair, Kin Leong Pey. The chapter, consisting of 165 EDS members, had activities with both academia and industry emphasis. In 2004 the chapter had organized two international conferences and one mini-colloquium, in addition to many short courses and technical meetings.

This meeting was aimed at bringing together the chapter leaders within the NAW SRC, to discuss various issues confronting the chapters and their members. Ten chapters (Austin, Boise, Buenaventura, California Orange County, Dallas, Phoenix, Pikes Peak, Santa Clara, University of California at San Diego, University of Illinois) out of 21 chapters reported their recent activities and their future

plan. Several of these chapters are situated in areas with strong industrial presence (for instance, Austin, Boise, Phoenix, and Santa Clara) and their technical meetings were

elected to use the web-based resource center to serve the members. Some chapters commented that, while excellent technical presentations were important, social and outreach activities organized by the chapter were helpful in “gluing” the membership. Professional short courses were found by some chapters to be very helpful to members for updating them on emerging technologies (several chapters noted the recent shift of focus of local semiconductor industry has become a main concern to members). Many chapters noted that nanotechnology,

such nano-CMOS, became a hot topic for their meetings. Videos of short courses at past IEDMs were frequently used by some chapters. We were informed that the taping of the IEDM short courses would be discontinued.

Following the chapter reports, we held an open discussion. Some chapters inquired on how to set-up the DL visits, as well as how to get the IEEE Section to publicize the chapter meetings in the local communities. Every year, EDS provides up to a \$1,000 chapter subsidy to each ED chapter, and up to \$500 to each joint chapter. An additional resource is available from EDS for funding mini-colloquia. Evelyn Hirt, IEEE Region 6 Director, explained that the IEEE Section can also be a resource for financial sponsorship of DL visits. She mentioned other chapter resources, such as email alias list, that are available at the IEEE website.

In regard to attracting more attendance to chapter seminars, opinions were expressed on semi-



Attendees of the EDS Regions 4-6 Chapters Meeting at the Hilton in San Francisco

not short of current topics related to semiconductor manufacture. In particular, the Santa Clara Chapter had held monthly seminars with great attendance. We were very delighted to learn that several chapters emerged from the dormant mode and have been organizing chapter meetings and other activities.

The nomination of the EDS Distinguished Lecturers (DLs) from chapters and SRC was sought; and the supporting roles played by the chapter partners and SRC were discussed. The mini-colloquium organized by chapters was regarded as a very effective means to gather local members on common interest areas. Two of the chapters in NAW (Boise and Phoenix) have much experience in organizing one-day workshops on microelectronic devices and component manufacture and packaging; they provided their insights on mini-colloquium to other chapters.

Some chapters with diverse interests among the members had

nar location and time, the opening up of the seminars to all the IEEE societies as well as to non-IEEE members, and the importance of

Paul Yu
Chair, NAW SRC
University of California at San Diego
La Jolla, CA, USA

Yuhua Cheng
Vice-Chair, NAW SRC
Skyworks Solutions, Inc
Irvine, CA, USA

informing the attendees the benefits of the IEEE membership. The Dallas Chapter has received positive feedbacks for placing a copy of the tech-

Sunit Tyagi
Vice-Chair NAW SRC
Intel
Hillsboro, OR, USA

Albert Wang
Vice-Chair, NAW SRC
Illinois Institute of Technology
Chicago, IL, USA

nical presentations on the web.

The meeting was adjourned and the participants continued their discussion into the AdCom dinner!

Rebecca Welty
Vice-Chair NAW SRC
Lawrence Livermore
National Laboratory
Livermore, CA, USA

FINAL CALL FOR NOMINATIONS

2005 ELECTRON DEVICES SOCIETY GRADUATE STUDENT FELLOWSHIP

Description: One year fellowships awarded to promote, recognize, and support graduate level study and research within the Electron Devices Society's field of interest: The field of interest for EDS is all aspects of the physics, engineering, theory and phenomena of electron and ion devices such as elemental and compound semiconductor devices, organic and other emerging materials based devices, quantum effect devices, optical devices, displays and imaging devices, photovoltaics, solid-state sensors and actuators, solid-state power devices, high frequency devices, micromechanics, tubes and other vacuum devices.

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

At least one fellowship will be awarded to students in each of the following geographical regions every year: Americas, Europe/Middle East/Africa, Asia & Pacific.

Prize: US\$5,000 to the student, US\$1,000 grant to the student's department, US\$1,000 grant to the student's

faculty advisor in support of the student's project, travel subsidy of up to US\$3,000 to each recipient to attend the IEDM for presentation of award plaque. The EDS Newsletter will feature articles about the EDS Graduate Fellows and their work over the course of the next year.

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

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

Nomination Package:

- Nominating letter by an EDS member
- Two-page (maximum) statement by the student describing his or her education and research interests and accomplishments
- One-page biographical sketch of the student
- One copy of the student's under-

graduate and graduate transcripts/grades. Please provide an explanation of the grading system if different from the A-F format

- Two letters of recommendation from individuals familiar with the student's research and educational credentials

Timetable:

- Nomination packages will be due at the EDS Executive Office no later than May 16, 2005
- Recipients will be notified by July 15, 2005
- Monetary awards will be given by August 15, 2005
- Formal presentation of the awards will take place at the IEDM Awards Ceremony in December 2005.
- Nominations packages can be submitted by mail, fax or e-mail, but a hard copy must be received at the EDS Office.

Send completed package to:

IEEE Operations Center
EDS Executive Office
EDS Graduate Student Fellowship Program
445 Hoes Lane, Piscataway, NJ 08854 USA
<http://www.ieee.org/eds/fellowship>

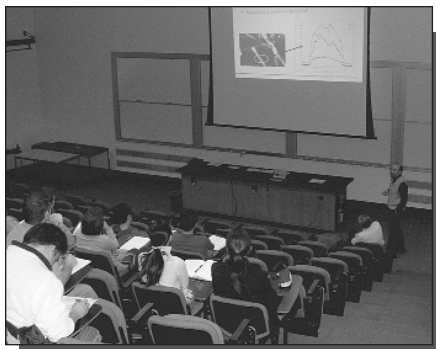
For more information contact:
edsfellowship@ieee.org

REGIONAL AND CHAPTER NEWS

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

A Report on DL Lecture at IIT by Cary Yang

- by Albert Wang



Prof. Cary Yang, delivering lecture to IIT students and faculty members

On December 8, 2004, Prof. Cary Yang of Santa Clara University, visited the IEEE Student Branch at the Illinois Institute of Technology (IIT) in Chicago, hosted by Prof. Albert Wang of IIT. His visit consisted of several activities which included meetings and discussions with students, discussions on various topics with ECE Faculty members at the Dept. of Electrical and Computer Engineering and tours of the IIT research facilities. Cary also delivered a distinguished lecture entitled "Carbon Nanotubes as On-chip Interconnects", which was well received by an audience of about 40 students and faculty members.

~ Ibrahim Abdel-Motaleb, Editor

ED/MTT Orange County

- by Yuhua Cheng

The Orange County ED/MTT joint chapter held a seminar on Nov. 17, 2004 at the Double Tree Hotel Orange County Airport. Ali Niknejad, Professor of Electrical Engineering and Computer Sciences in University of California at Berkeley, was invited to deliver a lecture on "60GHz CMOS: Opportunities and Challenges". Dr. Yuhua Cheng of Siliconlinc, hosted the seminar. In this seminar, Prof. Niknejad reviewed the status of commercial CMOS chips routinely operate up to 5 GHz and explored exciting new opportunities in higher frequency bands such as 3-10 GHz, 17 GHz, 24 GHz, and 60 GHz. According to Prof. Niknejad, the Berkeley Wireless Research Center has demonstrated that standard 130nm CMOS technology is capable of operation up to 60 GHz, enabling a host of new mm-wave applications such as Gb/s WLAN and compact radar imaging. Prof. Niknejad's presentation highlighted the design and modeling challenges in moving up to these higher frequencies and predicted that a merger of RF and microwave design perspectives will be used to offer insight into the problems.

The lecture took about 60 minutes and 20 minutes for questions and answers. Prof. Niknejad's talk was well received by the audience. About 35 attendees from universities and companies attended the seminar.

~ Sunit Tyagi, Editor

Region 9 Outstanding Student Paper Award



Adeilton Cavalcante de Oliveira, Jr. and Miguel Angel Aleman-Arce, recipients of the first EDS Region 9 Outstanding Student Paper Award

- by Francisco J. García-Sánchez

The first EDS Region 9 Biennial Outstanding Student Paper Award was conferred for the first time during the inaugural session of the Fifth International Caracas Conference on Devices, Circuits and Systems (ICCD-CS 2004) on 3 November 2004, at Barceló Bávaro Convention Center, Punta Cana, Dominican Republic. The award aims to promote, recognize, and support meritorious research achievement on the part of Region 9 (Latin America and the Caribbean) students, and their advisors, through the public recognition of their published work, within the Electron Devices Society's field of interest.

The award was presented by EDS President Prof. Hiroshi Iwai to two co-recipients: Adeilton Cavalcante de Oliveira Jr., of the Universidade Estadual de Campinas, Brazil, for the paper entitled "Modeling and Simulation of Static Characteristics of a PMOS Compatible Hot Wire Principle-Based Flow Micro Sensor" and to Miguel Angel Aleman-Arce, of Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico, for the paper entitled "The Integral Function Method: A New Method to Determine Nonlinear Harmonic Distortion".

Both papers were published in the proceedings of the 18th International Symposium on Microelectronics



Prof. Ali Niknejad (the third from left on the first row) visits the ED/MTT Orange County chapter

Technology and Devices (SBMicro) held September 8-11, 2003 in Sao Paulo, Brazil.

Nomination information for the next edition of this award may be found in the Awards Section of the EDS web page.

ICCDCS 2004

- by Francisco J. García-Sánchez

The fifth edition of the International Caracas Conference on Devices, Circuits and Systems (ICCDCS 2004) was held 3-5 November 2004, at the Barceló Bávaro Convention Center, in Punta Cana, Dominican Republic.

The conference is organized by Venezuela's ED/CAS/PEL Joint Chapter with the technical co-sponsorship support from the Electron Devices and Circuits and Systems societies, and the support of Simón Bolívar University, Venezuela, University of Central Florida, USA, Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico, National Institute of Astrophysics, Optics and Electronics, Mexico, Intel Corporation, and Freescale Semiconductor.

ICCDCS is a biannual international technical conference that has been held periodically since 1995 at different locations in the Caribbean basin. It aims to provide a forum for sharing information, know-how and technical experiences about electronic devices and their circuits and systems applications, and at the same time fostering personal and professional relations among engineers, scientists and academicians from Latin America and the rest of the World.

This fifth edition continued to advance this goal with the presentation of over seventy invited and contributed papers by authors from Austria, Bangladesh, Brazil, Belgium, Canada, China, Colombia, France, Germany, Hong Kong, Iran, Ireland,

Japan, Korea, Mexico, Norway, Poland, Puerto Rico, South Africa, Spain, United Kingdom, USA, and Venezuela. In addition to the regular technical paper sessions, the conference featured two special Plenary Keynote presentations: The first one, by Dr. Ricardo E. Suárez-Gartner, Director of the Platform Technologies Laboratory, Corporate Technology Group of Intel Corporation, analyzed future challenges for microprocessor-based systems. The other keynote talk, by Edgar Sánchez-Sinencio, TI J. Kilby Chair Professor of Electrical Engineering, of Texas A&M University, dealt with the implementation of RF wireless systems.

The Convention Center where the conference was held is located within the Barceló Bávaro Beach Resort in Punta Cana, on the east coast of the Dominican Republic. Special lodging accommodations were made at five resort hotels for the participants. The beautiful tropical surroundings and recreational facilities provided an ideal setting for many informal but fruitful meetings and discussions among the participants.

The name of this conference has been changed slightly from its original to better reflect its geographical location. Hereafter it will be known as the International Caribbean Conference on Devices, Circuits and Systems. Its next edition, its sixth, will be held during the first quarter of 2006 in the Mayan Riviera on the Mexican Caribbean. For information visit the web site at <http://pancho.labc.usb.ve/ICCDCS2004>.

~ **Adelmo Ortiz-Conde, Editor**

EUROPE, MIDDLE EAST & AFRICA (REGION 8)

AP/ED/MTT/COM/EMC Tomsk

- by Oleg V. Stoukach

Our joint chapter organized several successful events during 2004. These included the Tomsk seminar on Modeling, Design and Control, recruiting of new IEEE members and participating in the Russia Siberia Section Meetings. There were five meetings in 2004. Every meeting consisted of two parts: a luncheon at a different Novosibirsk restaurant and a business talk in the Section office related to current chapter issues. In 2004,



Officers of Russian Siberia Section, Section Executive Committee meeting, Novosibirsk, SibSUTI, 12/22/04

our members took part in several International Microwave and Electronics conferences in Germany, the Netherlands, Ukraine and Russia. The Chapter has also hosted a number of activities, organized in collaboration with the GOLD Affinity Group. The Chapter has actively promoted international conferences, national seminars, conference awards, EDS Distinguished Lecturer talks, GOLD activities and a new membership drive.

We would like to thank Dr. Evgeniy Golovin for his great contribution to our Chapter and welcome the new 2005 officers. The chair and secretary of the Tomsk Chapter elected for 2005 is Oleg Stoukach, Senior Member. Our main event for 2005 is the IEEE-Siberian Conference on Control and Communications, which will be held in October. Please find the Call for Papers on the Web at the address given below:

http://ieee.tusur.ru/files/activities/sibcon2005_call_en.pdf.

Since 1995, this conference has been organized biannually. It focuses on advances in microwave devices for control and communications and technology innovations from different points of view, in order to improve the understanding in the field. We will also establish and promote an Award for the best serving of our membership to the ED Society and Joint Tomsk Chapter.

ED Novosibirsk State Technical University (NSTU) Student Branch

- by Alexander V. Gridchin

In accordance with IEEE Bylaw, at the end of 2004 the period of authority of ED NSTU Student Branch Counselor Mr. Vladimir A. Kolchuzhin is exhausted. At the same time, the ED NSTU Student Branch Chair, Mr. Oleg V. Lobach,



ICCDCS 2004

has finished his period of education and cannot continue his work as Student Branch Chair. The election of a new Student Branch Chair will be held in the Spring of 2005. To avoid stopping the activity of Student Branch, the NSTU Administration has asked Assoc. Prof. Alexander V. Gridchin to serve as the ED NSTU Student Branch Counselor in 2005 until the election of a new Student Branch Counselor.

The information about changes in the ED NSTU Student Branch Executive Committee will be provided as soon as possible to the IEEE Russian Siberia Section Chair, Prof. Viatcheslav P. Shuvalov, which will provide it to IEEE Region 8 and the IEEE Societies.

For official contacts with the ED NSTU Student Branch, please use the address: Novosibirsk State Technical University, Dept. of Applied and Theoretical Physics, Karl Marx Prospect, 20, 630092, Novosibirsk, Russia, e-mail ieeensk@yandex.ru. For avoiding the spam problem please DO NOT send several copies of each e-mail message to this e-mail address. Since most Student Branch members do not have e-mail boxes and limited access to computers, the information about IEEE activity is sent to Student Branch via personal contacts.

The ED NSTU Student Branch is planning to increase its activities in 2005. We're planning three main events. The first event is the 6th International Workshop and Tutorial EDM'2005 which will be held 1-5 July 2005 at the NSTU Conference Center 'Erlagol'. The scientific program of EDM '2005 is expanded;

new topics like 'Information safety of computer networks', 'Application of digital electronics to modern technologies' as well as, 'Worldwide educational and research programs in electronics and physics for students and young specialists' were added. We are seeking the academic exchange between our Student Branch and Student Branches of foreign Universities. The second event is the 1st Workshop and Tutorial 'IEEE Electron Resources Application for Science, Industry and Business (ERASIB-2005)'. We feel the necessity to demonstrate the possibilities of IEEE Xplore™, IEEE Standards Association, and the IEEE Member Digital Library. The official messages requesting technical and information support will be sent to IEEE Region 8 and the IEEE Societies. The third event is the Technical Writers Contest. Technical writing is becoming a popular profession, with many companies needing to have good writers for writing manuals, technical descriptions, press releases, etc. Each IEEE Student Branch should provide such possibilities worldwide. Our Student Branch is suggesting to announce this action as international. We are asking IEEE and its Societies to support this action.

The contact address is: Assoc. Prof. Alexander V. Gridchin, ED NSTU Student Branch Counselor, ieeensk@yandex.ru

- **Alexander V. Gridchin, Editor**

SAFE-2004 Workshop

- by Helga Varwijk

The annual workshop on "Semiconductor Advances for Future Electronics and Sensors" was held on 25 and 26 November 2004 in Veldhoven, The Netherlands. This year about 90 researchers from Belgium, Germany, The Netherlands and Switzerland participated in the Workshop. The main topics were Processing & RF, Devices, Materials & Modelling en Sensors and Actuators.

During a combined session of the SAFE Workshop and the ProRisk Workshop the Else Kooi Award was granted to Nebojsa Nenadovic from the DIMES Research Institute for his research on electro-thermal effects in high frequent silicon-on-glass-transistors. Dr. Nenadovic received



Nebojsa Nenadovic receiving Else Kooi Award

his Ph.D. degree with honor on November 1st 2004. His Ph.D. work was done under the supervision of Prof. Liz Nanver.

The Else Kooi Award, named after the Dutch inventor of the LOCOS principle, is awarded each year to a young scientist for innovating research in the field of semiconductor devices.

More information is available at www.stw.nl/programmas/safe or www.ekp.nl

- **Cora Salm, Editor**

ED Israel

- by Gady Golan

A. On Sunday, November 7, 2004, at the Holon Inst. of Technology (HAIT) – Holon, Israel

Subject of meeting: "Disk On Key Technical Introduction - 2004"

Lecturer: Eyal Bichkov, CTO of M-Systems Israel.

Abstract:

Introduction to the technology behind the product, NAND flash, security on the fly, USB interface. Disk On Key has become a known consumer product, allowing transfer of high rate data from computer to computer. The lecture will describe the key element within the product. The Disk On Key is a combination of Flash, algorithm, System On a Chip ASIC and a USB functionality. Subjects covered: NAND Flash; SOC ASIC (basic architecture); Security (basic element); USB (basic architecture).

B. On Wednesday, January 5, 2005, at the Holon Inst. of Technology (HAIT) - Holon, Israel.

Subject of meeting: "Creative Problem Solving",

Lecturer: Dr. Danni Wolfman,



EDM'2004 3rd prize winner Nataliya Khainovskaya makes her presentation on simulation of the selective etching procedure of Al^{III}B^V semiconductors.

Abstract:

An organization's relative advantage stems, among other things, from the capacity of its personnel to come up with creative solutions to technological and organizational problems. Such solutions:

- Bring about a step improvement in performance
- Evolve from the system's inner world
- Surprising (once you invent them)
- Simple
- Few and far between

These solutions were demonstrated. Chairman of the meeting: Prof. Gady Golan - 90 people, students and academic staff, attended the meeting at HAIT.

C. On Sunday, January 16, 2005, at the Holon Inst. of Technology (HAIT) - Holon, Israel.

Subject of meeting:

1. Entrepreneurial Skills Seminar - IEEE EDS - Landing Library - Videos.
2. "Laser-Based Spectroscopy of Minerals - Techniques and Applications", Lecturer: Dr. Michael Gaft,

Abstract:

In any practical application the main task is composition analyses. There is no single detection technique that can by itself provide a 100% probability of different minerals detection combined with a low false alarm rate. We suggest system approach, which combines different laser-based technologies having orthogonal detection and identification capabilities. In such a way the strength of one technique may compensate for the weaknesses of the others, and the vulnerability of one detection device could be compensated for by another detection device. Chairman of the meeting: Prof. Gady Golan - 70 people, students and academic staff, attended the meeting at HAIT.

- Gady Golan, Editor

ASIA & PACIFIC (REGION 10)

ED/MTT India

- by Dr. K. S. Chari

During the Oct-Dec 2004 quarter, our Chapter activities centered on the following events:

In association with the Department of Speech Language Sciences



Inaugural of NWSP-2004.

and Department of Electronics of All India Institute of Speech and Hearing, Mysore, the chapter organized a 2-day National Workshop on Speech Processing at the AIISH campus in Mysore during 4th-5th November. The event featured several technical presentations in the areas of speech signal processing, signal processing in hearing aids, speech and speaker recognition. A panel discussion on Digital Hearing Aids for hearing challenged and a demo of voice and speech systems brought out perspectives in the respective fields. Various presentations were delivered by: Dr. S.R. Savitri, Dr. K.S. Prema, Mr. Ajish Abraham, Mr. U. Ajith Kumar and Mr. V.V.S. Sai Ram from AIISH, Mysore; Mr. Biju C. Oommen, CDAC Trivendrum; Mr. N. Mohan Swamy, Siemens Pvt. Ltd, Bangalore; Dr. Hema Murty, Dept. of Computer Science and Engineering, IIT Chennai; and Dr. T.V. Ananthapadmanabha, MS Ramaiah School of Advanced Studies, Bangalore. Chapter Chair, Dr. K.S. Chari inaugurated the Workshop and delivered the keynote address titled "Speech Systems - Unfolding Scenario". The event brought under one forum researchers, users and industry to review the role of speech systems and the electronic aids playing various roles in the area. The Workshop was held under the guidance of Prof. M. Jayaram, Director AIISH Mysore and the team lead by Dr. Savitri. About 100 participants across the country attended the event. A section of the attendees can be seen in the picture.

The Chapter co-sponsored the Asia Pacific Microwave Conference (APMC) 2004 held 15-18 December 2004 in Delhi. The conference featured the following workshops prior to the conference 13-14 December: (i) modeling simulation and evolu-

tion of small geometric structures of sub-micron devices, (ii) applications of artificial neural networks to RF and Microwave design and phased array antenna and adaptive beam forming arrays for radar and communication. The main conference featured several technical sessions and poster sessions. The technical sessions started out with an inaugural on communication exposure and challenges to microwave engineers by Prof. Raj Mittra, Penn State University, USA. The sessions included solid-state devices and circuits, passive design and circuits, microwave and millimeter wave systems, phased and active array techniques, microwave education and technology, computer aided design, EMC and EMI, Microwave Antennas, photonics and optics, ferrite and Saw components, MICs, Medical and biological applications, MEMs Wireless RF components and systems, EBG and Meta material and high speed digital circuits. Participants from different countries in addition to the poster session featured a total of 150 presentations. The conference attracted about 600 participants, with about 250 from overseas. The conference was organized by the Dept. of Electronic Science, Univ. of Delhi with Prof. R.S. Gupta as Conference Chair, Prof. Anurag Sharma, Vice-Chair and Dr. Mridula Gupta as Secretary. The technical program committee had Prof. E. K. Sharma, and Prof. A.K. Verma as chairpersons. The chapter assisted the conference by inviting MTTs DLs to the event.

Meeting with IEEE MTTs President-Elect and Region 10 Committee Chair, Prof. Tatsuo Itoh: Utilizing the occasion of APMC, Chapter Chair had discussions on the 17th of December with Prof. Itoh and Prof. Gupta wherein various matters of accelerating the chapter activities, options for attracting higher financial support from MTTs including the option of separating the MTT chapter from a joint chapter, complementing the India Chapter efforts with seeding their regional chapters in Delhi, accessing DL services and speaker bureau for technical activities, initiating a specialist conference in India, starting an MTT STAR activity, having the Chapter play a global role etc., was touched upon.

From these deliberations, it was in principle agreed that to enable a more directional growth of MTT activities in the country, the issue of starting a dedicated India chapter by separating it from the joint ED/MTT arrangement and also seeding a regional chapter in Delhi would be pursued as first step efforts. It was also decided after discussion with Dr H P Vyas, Director, SSPL, Delhi that he would take initiatives to form the MTT Delhi Chapter soon. Prof Gupta and Prof Itosh appreciated the activities of the chapter.

REL/CPMT/ED Singapore

-by Kin Leong Pey

The Chapter organized the following technical talks/seminars during Oct-Dec 2004:

- October 11, Dr. Professor Arun N. Chandorkar of the Indian Institute of Technology, Bombay, India gave a talk on "Technology Scaling and its Influence on Architecture Designs".
- December 15, Dr. Natarajan Mahadeva Iyer of IMEC, Belgium gave a talk on "Silicon Technology Scaling and ESD Reliability".
- A one-day short course on "Integration of Copper with Low-k Dielectrics" by Dr. Jeffrey Gambino, IBM, USA was held on 25 October 2004 at the Sheraton Towers, Singapore.
- A one-day short course on "Failure Mechanisms and Reliability in Integrated Circuits" by Dr. M.K. Radhakrishnan, NanoRel Consultants, 10 December 2004 at the Sheraton Towers Singapore.

The 6th EPTC was held from 8 to 10 December 2004. The response towards the conference was overwhelming with more than 300 registered participants. More than 160 papers were presented. An executive forum on the trend and directions in key packaging thrusts targeted at technology leaders in the region was conducted for the first time.

The 2005 International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA'05), organized by the IEEE Rel/CPMT/ED Singapore Chapter, and technically co-sponsored by the IEEE EDS and RLS will be held at Shangri-La's Rasa Sentosa Resort, Singapore, 27-30 June 2005. The

second call for papers has been announced. For more information, please visit the IPFA'05 website at <http://www.ewh.ieee.org/reg/10/ipfa/html/2005/>.

Dr. Xing Zhou, Chapter committee member, was appointed Vice Chair for the Subcommittee for Regions/Chapters (SRC-AP) for a two-year renewable term. The Chapter donated \$500 to the Student Chapter of the Nanyang Technological University branch for a "Back to the Future" competition for post-graduate students.

ED/SSC Bangalore

- by P.R. Suresh

The ED/SSC Bangalore Chapter held a number of events in the period October – December, 2004. The chapter screened a set of videotapes on MEMS Performance and Reliability on October 6th. This short course was presented by researchers at the Sandia National Labs in the IEDM conference. This was attended by both the industry and academia community.

Prof. P.R. Mukund of Rochester Institute of Technology, USA, gave a talk on Chip-Package Co-Design of RF Microsystems, on December 22. In this talk, he described the challenges in integrating both RF circuitry and digital circuitry in a single integrated circuit or a single package that are difficult to overcome with traditional design tools. He also presented a chip package co-design methodology and a resultant software tool that would help in concurrent design. About 40 people from industry and academia attended this workshop.

ED Calcutta

- by Banani Sen

The ED Calcutta Chapter arranged a one-day tutorial on "Embedded Systems and Their Applications In Mobile Communication" jointly with the IEEE Calcutta Section and Centre for Mobile Computing and Communication, Jadavpur University on the 1st of October 2004. The venue of the tutorial was the Park Hotel, Kolkata. The speakers were invited from different parts of the country. The goal of this tutorial was to develop a comprehensive understanding of the technologies



Opening Session of the Tutorial on "Embedded Systems and Their Applications in Mobile Communications"

behind the embedded systems. Applications of embedded systems in mobile communications were also highlighted in the tutorial. The course was intended for students, researchers, faculty, practicing engineers related to the field of Electrical, Electronics, Instrumentation, Communication and Computer Engineering. The topics taken up by the invited speakers were:

Overview of Embedded Systems, Prof. A Sinha, Principal, Techno India Kolkata; Processors and Memories for Embedded Systems, Prof. A Basu, Computer Sc, & Engg, Dept. IIT. Kharagpur; Real Time Operating Systems (RTOSs) and Related Issues; Prof. P.K. Biswas, Electronics & Electrical Comm, Engg, Dept. IIT. Kharagpu; Role of VLSI in Embedded System Design, Prof. S. Banerjee, Electronics & Electrical Comm, Engg, Dept. IIT. Kharagpur; Applications of Embedded Systems in Mobile Communications, Prof. R.V. Raja Kumar. Electronics & Electrical Comm, Engg, Dept, IIT. Kharagpur; Power Supply - Unsung Hero of Embedded Systems, Prof. K. Ray, Instrumentation & Electronics Engg. Dept. Jadavpur University.

ED Malaysia

- by Burhanuddin Yeop Majlis

The 2004 IEEE International Conference on Semiconductor Electronics (ICSE 2004) was organized and successfully held at the Mines Beach Resort & Spa, Kuala Lumpur 7-9 December, 2004. This was the sixth ICSE organized by the Chapter, technically co-sponsored by EDS and in-cooperation with the Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia. The confer-



The 2004 IEEE International Conference on Semiconductor Electronics (ICSE 2004).

ence was financially sponsored by SiITerra Malaysia Sdn. Bhd., Telekom R&D Sdn. Bhd. and MBE Tech Sdn. Bhd. The conference was officiated by YB Dato' Seri Rafidah Aziz, the Minister of International Trade and Industry.

ICSE 2004 provides an ideal platform to present the latest findings in semiconductor related issues and has become the preeminent international forum on semiconductor electronics over the last 12 years. It covers all aspects of the semiconductor technology, from materials issues and device fabrication, MEMS and micro sensors, IC design and testing, manufacturing and system applications. The proceedings of ICSE 2004 consist of seven invited papers and 150 contributed papers from all over the world. The conference attendees this year numbered more than 200 from Japan, Korea, Thailand, Italy, UK, USA, Iran, Singapore, Indonesia and Malaysia. Seven prominent speakers were invited. The titles of the talks were as follows: "Colloidal Self-organization for Nanoelectronics" by Dr. Joydeep Dutta from the Asian Institute of Technology (AIT); "InP/InGaAs Heterojunction Phototransistor for Optoelectronic Receivers" by Dr. Peter Houston from the University of Sheffield; "Modeling and Simulation for ESD Protection Circuit Design and Optimization" by Dr. Natarajan Mahadeva Iyer from IMEC, Belgium; "Commercialization of MEMS Technology" by Mr. B.L. Ooi from Mems Technology Berhad; "Perspectives of Low Power Electronics" by Dr. Takayasu Sakurai from the University of Tokyo, Japan; "Low Temperature Bonding Process for Wafer-level MEMS Packaging" by Dr. Wei Jun from the Singapore Institute of Manufacturing Technology and "Online Water Quality Monitoring on Brantas

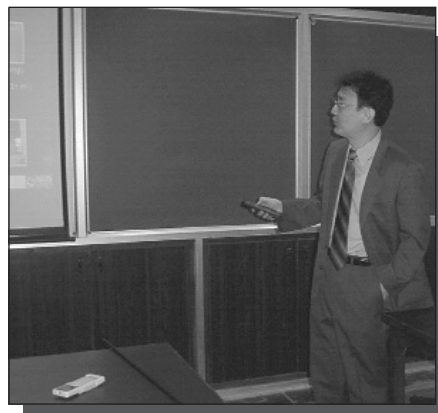
River East Java Indonesia" by Dr. Masbah R.T. Siregar from the Indonesian Institute of Sciences, Lembaga Ilmu Pengetahuan Indonesia.

In conjunction with the conference, three tutorials were held on December 6, 2004 at the same venue. The first tutorial titled "Flip Chip CSP Technology" was given by Dr. Ing. Elke Zakel from PacTech GmbH, Germany. The second tutorial titled "Device Reliability" was given by Dr. M.K. Radhakrishnan from IMEC, Belgium. The third tutorial titled "Static Charge – ESD Control System in Clean Rooms and How to Develop an ESD Control Program based on ANSI/ESD Standard S20.20" by Mr. Ishar Omar from Motorola Malaysia. About 25 participants attended the tutorials.

For more information, please contact Prof. Burhanuddin Yeop Majlis, Institute of Microengineering and Nanoelectronics (IMEN), Universiti Kebangsaan Malaysia. Tel: 603-89265861, FAX: 603-89259080, Email: burhan@vlsi.eng.ukm.my.

AP/ED Bombay

- by M.B. Patil



Prof. B. J. Cho delivering a talk at IIT Bombay.

On October 20, two IEEE EDS video films on MEMS reliability were shown at IIT Bombay. A large number of faculty members and students participated.

Prof. B.J. Cho, National University of Singapore (NUS), gave a talk on "Advanced gate stack technologies for nanoscale CMOS devices" on December 14. Prof. Cho discussed high-K gate dielectric materials for CMOS technology and a novel material system being studied at NUS, Singapore.

- **Xing Zhou, Editor**

ED Kansai

- by Hiroyuki Sakai



Dr. Ueda giving a Distinguished Lecture on November 19, 2004 at Osaka University, Osaka, Japan

The ED Kansai Chapter held a Distinguished Lecturer meeting jointly with the CAS Kansai Chapter on November 19, 2004, at Osaka University, Osaka, Japan. Dr. Daisuke Ueda, Director of Semiconductor Device Research Center, Matsushita Electric Industrial Co. Ltd., as well as the Chair of the ED Kansai Chapter at the time, was invited as a Distinguished Lecturer. Dr. Ueda is one of the leaders in the semiconductor devices field, especially well known for his prominent contributions to the R&D and industrialization of compound semiconductor devices. The title of his talk was "Leading Edge Technologies of Recent Semiconductor Devices." The main theme of his talk was "High Frequency Semiconductor Devices," but the contents of the lecture covered wide fields related to III-V compound semiconductor based devices. Starting from the basics of the GaAs HFETs and HBTs, he described basic physics, design issues, process technologies, application systems and markets of those devices. He disclosed his very expertise not only in the design guidelines of GaAs based devices but also in the emerging field of GaN devices. The meeting was hosted by Prof. Sugino, Osaka University and the number of participants was more than 50 including students and researchers from industries. We truly appreciate Dr. Ueda's dedicated effort.

- **Hisayo Sasaki Momose, Editor**

EDS MEETINGS CALENDAR

(AS OF FEBRUARY 7, 2005)

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

April 4 - 7, 2005, @ **International Conference on Microelectronic Test Structures**, Location: Katholieke Universiteit Leuven, Leuven, Belgium, Contact: Danielle Vermetten, Katholieke Universiteit Leuven, E-Mail: icmts2005@esat.kuleuven.ac.be, Deadline: 9/14/04, www: <http://www.see.ed.ac.uk/ICMTS>

April 7 - 8, 2005, T **IEEE Wireless and Microwave Technology Conference**, Location: Marriott Suites Clearwater Beach on Sand Key, Clearwater Beach, FL, USA, Contact: Kenneth O'Connor, E-Mail: kenoconnor@ieee.org, Deadline: 12/15/04, www: <http://www.wamicon.org>

April 7 - 8, 2005, T **Workshop on Ultimate Integration of Silicon Devices**, Location: Oratorio San Filippo, Bologna, Italy, Contact: Nicola Barin, University of Ferrara Via Saragat, E-Mail: nbarin@ing.unife.it, Deadline: 1/31/05, www: www.arces.unibo.it/ulis2005/

April 11 - 12, 2005, * **IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop**, Location: International Congress Center (ICM), Munich, Germany, Contact: Margaret Kindling, SEMI, E-Mail: mkindling@semi.org, Deadline: Not Available, www: <http://www.semi.org/asmc>

April 17 - 21, 2005, * **IEEE International Reliability Physics Symposium**, Location: San Jose Marriott/San Jose Convention Center, Contact: Timothy Rost, Texas Instruments, E-Mail: trost@ti.com, Deadline: 10/8/04, www: <http://www.irps.org>

April 18 - 19, 2005, T **IEEE Sarnoff Symposium on Advances in Wired and Wireless Communications**, Location: Nassau Inn, Princeton, NJ, USA, Contact: Gerhard Franz, E-Mail: sarnoff2005@agfranz.com, Deadline: 10/29/04, www: <http://www.sarnoffsymposium.org>

April 20 - 22, 2005, @ **International Vacuum Electronics Conference**, Location: Hotel Huis Ter Duin, Noordwijk aan Zee, The Netherlands, Contact: Gonnie Elfering, E-Mail: ESA.Conference.Bureau@esa.int, Deadline: Not Available, www: www.congrex.nl/05a01

April 25 - 27, 2005, T **VLSI-TSA International Symposium on VLSI Technology**, Location: Ambassador Hotel Hsinchu, Hsinchu, Taiwan, Contact: Lewis Terman, IBM T.J. Watson Research Center, E-Mail: terman@us.ibm.com, Deadline: 10/15/04, www: <http://vlsitsa.itri.org.tw/>

April 27 - 29, 2005, T **VLSI-TSA International Symposium on VLSI Design, Automation & Test**, Location: Ambassador Hotel Hsinchu, Hsinchu, Taiwan, Contact: Lewis Terman, IBM T.J. Watson Research Center, E-Mail: terman@us.ibm.com, Deadline: 10/15/04, www: <http://vlsitsa.itri.org.tw/>

May 3 - 3, 2005, T **Workshop on Photonics & Its Applications**, Location: National Institute of Laser Enhanced Sciences, Cairo, Egypt, Contact: Ibrahim Salem, Academy of Scientific Res & Tech, E-Mail: ia.saleh@ieee.org, Deadline: Not Available, www: Not Available

May 8 - 12, 2005, T **International Conference on Modeling and Simulation of Microsystems**, Location: Anaheim Marriott Convention Center, Anaheim, CA, USA, Contact: Sarah Wenning, Applied Computational Research Society, E-Mail: wenning@dnai.com, Deadline: 11/19/04, www: <http://www.nsti.org>

May 8 - 12, 2005, T **Nanotechnology Conference and Trade Show**, Location: Anaheim Marriott Convention Center, Anaheim, CA, USA, Contact: Sarah Wenning, Applied Computational Research Society, E-Mail: wenning@dnai.com, Deadline: 11/19/04, www: <http://www.nanotech2005.com>

May 8 - 12, 2005, @ **IEEE International Conference on Indium Phosphide and Related Materials**, Location: Thistle Hotel, Glasgow, Scotland, Contact: Conf Mgt Group LEOS, IEEE, E-Mail: leosconferences@ieee.org, Deadline: 11/26/04, www: <http://www.iprm05.org>

May 15 - 20, 2005, T **Symposium on ULSI Process Integration**, Location: Convention Center of Quebec City, Quebec City, Canada, Contact: Cor Claeys, IMEC, E-Mail: c.claeys@ieee.org, Deadline: 1/3/05, www: <http://www.electrochem.org/meetings/future/207/meeting.htm>

May 22 - 26, 2005, @ **IEEE International Symposium on Power Semiconductor Devices & Integrated Circuits**, Location: Fess Parker's DoubleTree Resort, Santa Barbara, CA, USA, Contact: Paul Chow, Rensselaer Polytechnic Institute, E-Mail: chowt@rpi.edu, Deadline: 11/1/04, www: <http://www.ecse.rpi.edu/conf/ISPSD2005>

June 5 - 9, 2005, @ **TRANSDUCERS - International Conference on Solid-State Sensors, Actuators and Microsystems**, Location: Convention & Exhibition Center (COEX), Seoul, Korea, Contact: Hyangmi Kim, E-Mail: info@transducers05.org, Deadline: 12/3/04, www: <http://www.transducers05.org>

June 6 - 8, 2005, * **IEEE International Interconnect Technology Conference**, Location: Hyatt Regency at San Francisco Airport, Burlingame, CA, USA, Contact: Wendy Walker, Widerkehr & Associates, Gaithersburg, E-Mail: wendyww@widerkehr.com, Deadline: 1/12/05, www: <http://www.ieee.org/conference/iitc>

June 6 - 9, 2005, T **International Conference on Unsolved Problems of Noise**, Location: Hotel Costa Brada, Gallipoli (Lecce), Italy, Contact: Lino Reggiani, Dipartimento di Ingegneria dell' Innovazione, E-Mail: lino.reggiani@unile.it, Deadline: 12/15/04, www: <http://upon4.unile.it>

June 8 - 11, 2005, * **IEEE Workshop on Charge-Coupled Devices & Advanced Image Sensors**, Location: Karuizawa Prince Hotel, Karuizawa-cho, Nagano, Japan, Contact: Nobukazu Teranishi, Matsushita Electric Industrial Co., Ltd., E-Mail: teranishi.nobukazu@jp.panasonic.com, Deadline: Not Available, www: Not Available

June 12 - 13, 2005, @ **IEEE Silicon Nanoelectronics Workshop**, Location: Rihga Royal Hotel, Kyoto, Japan, Contact: Michiharu Tabe, Research Institute of Electronics, Shizuoka University, E-Mail: romtabe@rie.shizuoka.ac.jp, Deadline: Not Available, www: <http://www.vlsi.iis.u-tokyo.ac.jp/si-nano>

June 14 - 16, 2005, @ **Symposium on VLSI Technology**, Location: Rihga Royal Hotel, Kyoto, Japan, Contact: Phyllis Mahoney, Widerkehr & Associates, E-Mail: phyllism@widerkehr.com, Deadline: 1/7/05, www: <http://www.vlssymposium.org>

June 16 - 18, 2005, T **Symposium on VLSI Circuits**, Location: Rihga Royal Hotel, Kyoto, Japan, Contact: Phyllis Mahoney, Widerkehr & Associates, E-Mail: phyllism@widerkehr.com, Deadline: 1/7/05, www: <http://www.vlssymposium.org>

June 20 - 22, 2005, T **Device Research Conference**, Location: University of California, Santa Barbara, CA, USA, Contact: Alan Seabaugh, University of Notre Dame, E-Mail: seabaugh.1@nd.edu, Deadline: Not Available, www: <http://www.deviceresearchconference.org>

June 22 - 25, 2005, T **International Conference on Mixed Design of Integrated Circuits and Systems**, Location: Hotel Pegaz, Krakow, Poland, Contact: Mariusz Orlikowski, University of Lodz, E-Mail: mixdes2005@dmcs.p.lodz.pl, Deadline: 2/28/05, www: <http://www.mixdes.org>

June 22 - 24, 2005, T **Conference on Insulating Films on Semiconductors**, Location: Provinciehuis, Leuven, Belgium, Contact: Guido Groeseneken, IMEC, E-Mail: guido.groeseneken@imec.be, Deadline: 1/21/05, www: <http://www.imec.be/infos>

June 27 - July 1, 2005, T **IEEE International Symposium on the Physical and Failure Analysis of Integrated Circuits**, Location: Shangri-La's Rasa Sentosa Resort, Singapore, Contact: Jasmine Leong, E-Mail: ipfa@pacific.net.sg, Deadline: 2/9/05, www: www.ieee.org/ipfa

July 11 - 15, 2005, T **IEEE Conference on Nanotechnology**, Location: Nagoya Congress Center, Nagoya, Japan, Contact: Fumihiro Arai, Nagoya University, E-Mail: arai@mein.nagoya-u.ac.jp, Deadline: 2/28/05, www: <http://www.mein.nagoya-u.ac.jp/IEEE-NANO/IEEE-NANO-2005>

August 8 - 12, 2005, T **IEEE International Symposium on Microwave, Antenna, Propagation and EMC Technologies for Wireless Communications**, Location: Chinese Institute of Electronics, Beijing, China, Contact: Mengqi Zhou, Chinese Institute of Electronics, E-Mail: mqzhou@public.bta.net.cn, Deadline: 3/31/05, www: <http://www.cie-china.org/ieee2005>

August 19 - 23, 2005, T **International Conference on Noise in Physical Systems and 1/F Fluctuations**, Location: Historical Building of Salamanca University, Salamanca, Spain, Contact: Javier Mateos, Universidad de Salamanca, E-Mail: javierm@usal.es, Deadline: 12/17/04, www: <http://www.usal.es/icnf>

August 28 - September 2, 2005, T **International Conference on Nitride Semiconductors**, Location: Congress Center Bremen, Bremen, Germany, Contact: Carsten Kruse, E-Mail: secretary@icns6.org, Deadline: 3/11/05, www: <http://www.ifp.uni-bremen.de/icns6/index.php>

September 1 - 3, 2005, @ **International Conference on Simulation of Semiconductor Processes and Devices**, Location: Komaba Eminece, Tokyo, Japan, Contact: Nobuyuki Sano, E-Mail: sano@esys.tsukuba.ac.jp, Deadline: 3/1/05, www: <http://www.6.eie.eng.osaka-u.ac.jp/sispad>

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

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

September 12 - 15, 2005, T **IEEE International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory**, Location: Pidstryhach IAPMM, NASU, Lviv, Ukraine, Contact: Mykhalyo Andriychuk, Inst. of Applied Problems of Mech. & Math. Of NASU, E-Mail: andr@iapmm.lviv.ua, Deadline: 7/1/05, www: www.ehw.ieee.org/soc/cpmt/ukraine/

September 12 - 16, 2005, T **European Solid-State Device Research Conference**, Location: Alps Congress-Alpexpo, Grenoble, France, Contact: Iris Espejo, c/o TIMA-CMP, E-Mail: esscirc-essderc@imag.fr, Deadline: 4/9/05, www: www.essderc2005.com

September 18 - 21, 2005, T **IEEE Custom Integrated Circuits Conference**, Location: DoubleTree Hotel, San Jose, CA, USA, Contact: Melissa Widerkehr, Widerkehr & Associates, E-Mail: melissaw@widerkehr.com, Deadline: 4/5/05, www: <http://www.ieee-cicc.org>

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

October 5 - 7, 2005, T **International Conference on Advanced Thermal Processing of Semiconductors**, Location: Fess Parker's Double-Tree Resort, Santa Barbara, CA, USA, Contact: Bo Lojek, E-Mail: blojek@atmel.com, Deadline: Not Available, www: www.ieee-rtip.org

October 12 - 12, 2005, T **Workshop on Compact Modeling for RF/Microwave Applications**, Location: Fess Parker's Double Tree Resort Hotel, Santa Barbara, CA, USA, Contact: Slobodan Mijalkovic, Delft University of Technology, E-Mail: s.mijalkovic@its.tudelft.nl, Deadline: Not Available, www: <http://hitec.ewi.tudelft.nl/cmr05>

October 17 - 20, 2005, * **IEEE International Integrated Reliability Workshop**, Location: Stanford Sierra Conference Centers, South Lake Tahoe, CA, USA, Contact: Roy and Becky Walker, E-Mail: roy@sar101.com, Deadline: 7/1/05, www: www.iirw.org

October 30 - November 2, 2005, * **IEEE Compound Semiconductor IC Symposium**, Location: Hyatt Grand Champions Resort, Indian Wells, CA, Contact: Kevin Kobayashi, Sirenza Microdevices, E-Mail: kkobayashi@sirenza.com, Deadline: Not Available, www: www.csics.org

November 6 - 10, 2005, T **IEEE International Conference on Computer Aided Design**, Location: DoubleTree Hotel, San Jose, CA, USA, Contact: Kathy MacLennan, MP Associates, Inc, E-Mail: kathy@mpassociates.com, Deadline: Not Available, www: <http://www.iccad.com>

December 13 - 15, 2005, T **International Conference on Microelectronics**, Location: Sarena Hotel, Islamabad, Pakistan, Contact: Muid Mufti, Univerity of Engineering & Technology, E-Mail: muid@uettaxila.edu.pk, Deadline: Not Available, www: <http://vlsi.uwaterloo.ca/~icm>

December 13 - 17, 2005, T **International High Power Microwave Electronics: Measurement, Identification, Application Conference**, Location: Novosibirsk State Technical Univ Conference Center, Novosibirsk, Russia, Contact: Alexander Gridchin, Novosibirsk State Technical University, E-Mail: ieeensk@yandex.ru, Deadline: Not Available, www: <http://ieee.sibsutis.ru>

December 5 - 7, 2005, * **IEEE International Electron Devices Meeting**, Location: Hilton Washington Towers Hotel, Washington, DC, Contact: Phyllis Mahoney, Widerkehr & Associates, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: www.ieee.org/conferences/iedm

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EDS DISTINGUISHED LECTURERS PARTICIPATE IN THE 5TH WIMNACT - HONG KONG



Attendees of the 5th WIMNACT - Hong Kong

The 5th Workshop and IEEE EDS Mini-colloquia on Nanometer CMOS Technology (WIMNACT - Hong Kong) was held on September 18, 2004 in Hong Kong, being organized and sponsored by the Hong Kong IEEE ED/SSC Joint Chapter and the EDS Distinguished Lecturer Program. The one-day event was hosted by the City University of Hong Kong, which served as the concluding forum for the Nano-technology Festival started in July 2004. Before this workshop, two other DL Talks were given by Prof. Cary Yang of Santa Clara University on "Carbon Nanotubes as On-chip Interconnects" and Prof. H.-S. Philip Wong of Stanford University on "Nanoelectronics: Nanotubes, Nanowires, Molecules, and Novel Concepts" as part of the Nano-technology Festival to arouse local interest on the current

development of nano-technology in electronic applications.

The workshop included talks from four Distinguished Lecturers (DLs) from the United States (Dr. Wilman Tsai/Dr. Robert Chau of Intel Corporation, Prof. Jack Lee of University of Texas at Austin, and Prof. Jason Woo of University of California at Los Angeles), one DL from Singapore (Prof. Xing Zhou of Nanyang Technology University), one local DL (Prof. Hei Wong of City University of Hong Kong) and one Chapter committee member (Prof. Aaron H.P. Ho of the Chinese University of Hong Kong). The workshop covered a wide range of topics including "Extending Transistor Scaling and Moore's Law with Silicon Innovations and Nanotechnologies", "Hf-based High-K Dielectrics", "Interface Reliability and Fundamental Limitations of Hafnium

Oxide Films for Nanoscale MOS Device Applications", "Analog/RF characteristics of deeply scaled devices", "Technology-Based Predictive Compact Model Development for Next Generation CMOS", and "Nano-sized Gallium Oxide and Indium Oxide Materials Synthesized by Ion Implantation".

The event was very successful, receiving an enthusiastic response with more than 40 attendees. The workshop was concluded with a discussion between the DLs and representatives from local universities to promote more collaboration between different regions of the world.

*Mansun J. Chan
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Hong Kong*