

IEEE ELECTRON DEVICES SOCIETY

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2004 IEEE INTERNATIONAL ELECTRON DEVICES MEETING TO CELEBRATE 50TH ANNIVERSARY



“San Francisco Convention & Visitors Bureau.”

This year marks the 50th anniversary of the Electron Devices Society’s annual technical conference, the IEEE International Electron Devices Meeting (IEDM). IEDM will be held in San Francisco, California, U.S.A. at the Hilton San Francisco and Towers Hotel, December 13-15, 2004. It will be preceded by a full day of Short Courses on Sunday, December 12.

A number of special events and functions are planned to commemorate the role the IEDM has played over the last half-century as the world’s premier forum for cutting-edge research into electronic, micro-electronic, and now nano-electronic devices and processes.

Among them are a special historical poster session and evening reception; a luncheon address by Prof. Richard Smalley, winner of the 1996 Nobel Prize in Chemistry; a commemorative DVD containing all past IEDM Technical Digests; and a retrospective plenary talk to be given by Dr. Louis C. Parrillo, former Chief Technology Officer of the semiconductor products sector at Motorola, and a past IEDM General Chair.

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

IEDM 2004 will offer a full slate of short courses, evening panel debates, invited plenary talks and presentation of prestigious IEEE/EDS awards, in addition to the technical program.

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

2004	Term	2005	Term	2006	Term
M. Estrada del Cueto	(1)	C.L. Claeys	(2)	S.S. Chung	(1)
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C. Jagadish	(2)	F.J. Garcia-Sanchez	(1)	M. Lundstrom	(1)
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R. Singh	(2)	J.J. Liou	(1)	H.S.P. Wong	(2)
N.D. Stojadinovic	(1)	M. Ostling	(2)	X. Zhou	(1)
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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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SPRING 2004 EDS ADCOM MEETING SUMMARY

President, Hiroshi Iwai, called the Spring 2004 meeting of the IEEE Electron Devices Society to order on Sunday, May 23 at the Mirasierra Hotel in Madrid, Spain.

Executive Reports

Following the approval of the December 2003 AdCom minutes, President Iwai addressed the group outlining several of the EDS goals for 2004 and thereafter. For the last two years, EDS has been developing a strategic plan for EDS (see EDS Newsletter, April 2004). Half-day meetings have been held at every AdCom meeting since 7 June 2002, spending the first two hours of every Executive Committee meeting discussing our strategic plan. As previously reported, one of the outcomes of these meetings has been the EDS' position statements, "To Broaden the Base of Technical Areas of Interest" and, "Ensure EDS Activities Reflect the Current and Future Global Trends". More recently, on 13 February at the TAB Meeting in Savannah, GA, a few members of ExCom held a Strategic Planning Meeting whereby the current position statements were reviewed and several new goals and projects were identified. These positions are as follows: (1) "To work with the IEDM to increase industry participation at the meeting (possibly include exhibitors) and to implement a few procedural changes to better promote IEEE and EDS membership", (2) "To include IEEE and EDS membership information in the acceptance letters to authors of manuscripts accepted by EDL and T-ED", (3) "To show more appreciation to EDS volunteers by increasing the

number of AdCom members awarded with certificates when leaving office (e.g., Chapter Chairs and SRC Chairs/Vice-Chairs)", "Increase the number of Distinguished Lecturers (DLs) by insuring each technical committee has at least ten speakers representing their respective area, and increase the DL budget", (4) "Increase the value of EDS membership by completing the development of an archival DVD of all past issues of EDL, T-ED and the IEDM proceedings to be made available at this year's IEDM (at a cost of \$30 for members). Moreover, IEDM will be giving a free archival DVD of all past IEDM proceedings to all attendees of the 2004 meeting, and (5) "Increase both the number of members from industry and the overall involvement of industry people."

In the news, President Iwai reported that EDS, EDL, T-ED and the Newsletter had their Five Year Review by the IEEE Technical Activities Board (TAB). Each publication fared well, but the final committee report has not been received. A new publication, *Journal of Display Technology*, was approved by TAB. The EDS AdCom had previously approved to co-sponsor this publication, along with OSA, LEOS and a few other IEEE societies. Following a better than expected net revenue from the IEEE Electronic Library (IEL) and a late rally by the investment market, the IEEE budget for 2003 closed with a surplus of \$26.4M as opposed to a budgeted amount of \$0.7M. Due to this positive outcome of the IEEE budget, the TAB and EDS budgets for 2003 fared better than expected, as IEEE was able to

reduce the infrastructure charge and give an investment credit to its various entities. EDS ended the year with a surplus of about \$877K instead of the negative final budgeted amount of \$230K. In April, the TAB FinCom requested all societies to submit information concerning any adhoc initiatives that they have planned for 2005 and beyond. TAB Finance will evaluate the impact of all these proposals with an eye towards having societies collaborate their efforts on any parallel initiatives. The Spring 2005 EDS AdCom meeting is scheduled to be held in conjunction with the Transducers - International Conference on Solid State Sensors, Actuators and Microsystems at the Convention and Exhibition Center (COEX) in Seoul, Korea on Sunday, June 5th.

Chair Reports

Treasurer, Paul Yu, reported that EDS finances look good for 2004 in the aftermath of costly IEEE assessments of previous years, and that the reserves are holding steady. EDS budgeted for a \$107K net surplus for 2004, but the current forecast shows -\$93.2K outcome due to a lower net return from publications (-\$70K) and conferences (-\$113K). [Note: all financial information within this report is in US\$.]

Reporting for the EDS Executive Office, Bill Van Der Vort, presented a lengthy list of Adhoc projects completed since the December AdCom meeting. A few of the projects include; obtaining the necessary approvals to have a President-Elect instead of a Vice-President, and require that a least one AdCom member be a Graduate of



Attendees at the EDS Spring AdCom meeting in Madrid, Spain

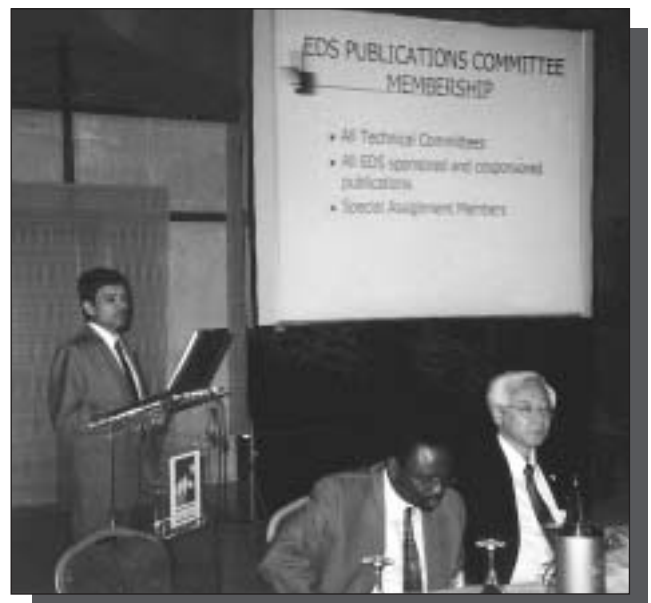
the Last Decade (GOLD); obtaining approval for a the new Region 9 Outstanding Student Paper Award; preparation of documents for the TAB Five-year review of EDS and its fully-owned publications (T-ED, EDL, EDS Newsletter); respond to TAB draft report concerning the EDS review; hiring a consultant to analyze the EDS survey results and make recommendations on improving EDS and better serving its members; helping to develop an industry mailing list to advertise the EDS Short Course Program; coordinating EDS' participation in IEEE's pilot project of offering web-based short courses called the Xplore Enabled Learning Library (XELL); performed an analysis of the costs and sales associated with the short course videotapes to determine if the business should be continued; worked with IEDM to include manuscript acceptance letters on its registration form and website; modified the EDL and T-ED acceptance letters to encourage authors to join IEEE and EDS; and participate in the IEEE's all society renewal survey project to determine why members drop their society membership; continued to add changes in EDS' Newsletter design, color, and content; converted to IEEE's new web software which enables updates to be easier; continued the scanning and digitization of pre-1988 issues of T-ED, EDL and the IEDM proceedings; developed a proposal with the IEDM and Parity Computing to produce (in time for the 2004 IEDM) an archival 'IEDM only' DVD as well as a two-DVD set of EDL & T-ED and the IEDM Proceedings. In addition, the Executive Office team continues to coordinate initiatives that might increase both the readership and number of manuscripts for T-DMR, and prepared documentation for a review of T-DMR by the IEEE FinCom and the IEEE Periodicals Review Committee to decide if T-DMR can receive its full share of ASPP income.

Between now and December some additional projects will include changing the December 2004 election to require that at least one AdCom member be a GOLD candidate, coordinating the selection and award granting for the Region 9 Student Paper Award,

preparing a response to the TAB Periodicals Review Committee for EDL, T-ED, and the Newsletter, working with the Industrial Relations Committee to make recommendations on better serving the membership, compose slides which promote EDS membership for use at the Industry Short Courses, continue EDS' participation in the XELL program, expand the number of Distinguished Lecturers by requesting that each of the technical committees have at least ten lecturers representing their respective area, complete study to assess whether or not to continue making and selling Short Course videotapes, add changes to the Membership Fee Subsidy Program for the 2005 billing cycle, implement cost savings changes to the EDS Senior Member Program, coordinate with IEDM to add 'EDS Member' and IEEE Grade on IEDM badges of all EDS members, continue EDS Newsletter improvements, continue all tasks for the EDS Digitization project, coordinate production of EDS DVDs and make available with IEEE Publications, all years of T-ED, EDL, and IEDM online through Xplore for EDS members.

Vice-President of Regions/Chapters, Cor Claeys, listed the ED University of Campinas Student Branch (Brazil) as the first new EDS chapter scheduled for approval in 2004 with twenty one chapters currently in-progress to be formed. Today, the current number of worldwide chapters is 110. Additional committee actions are the establishment of an EDS Region 9 Outstanding Student Paper Award, and the appointment of new SRC Vice Chairs, namely Durga Misra (R1), Murty S. Polavara (R2), Juin J. Liou (R3), Arokiya Nathan (R7), and Enrico Sangiorgi (R8). The Distinguished Lecturer (DL) program continues worldwide. However, both the number of lecturers (106) and the number of lectures scheduled for 2004 (76) will be lower than their respective 2003 levels according to Ilesanmi

Adesida, Vice-President of Education. The EDS Graduate Student Fellowship Program has rebounded from 2003 when there were no nominees from Region 8. This year an impressive list of sixteen nominees from all over the world has been received. After an update on IEEE EAB's Xplore-Based Educational Products Initiative (started in July 2003), Ade discussed a new subcommittee headed by Leda Lunardi on increasing student attendance and involvement in IEDM. Among the committee's plans are the establishment of a new criteria for student IEDM papers, reduced rates for students at conferences & short courses, posting the paper that wins the IEDM Student Paper Award on the IEDM website, appointment of student co-chairs for sessions, holding workshops/tutorials aimed at students or early career engineers, and informal recruiting sessions for students only. A new EDS/IEDM collaboration to increase EDS' visibility and promotion was also outlined. Suggestions for this new directive are including information about how to join IEEE and EDS on the paper acceptance letters to authors, including information on IEEE and EDS membership on the IEDM conference registration forms, possibly have exhibitors at IEDM, and, for EDS members only, adding EDS Member and IEEE grade on individual IEDM badges. AdCom also approved a motion to insert in an upcoming issue



Renuka Jindal, Vice-President of Publications gives the EDS Publications Committee report to the EDS AdCom.

of the EDS Newsletter, instructions for forming a new student chapter.

Renuka Jindal, Vice-President of Publications, reviewed his group's efforts in establishing policies, procedures, & guidelines, performance metrics, publication costs, digitization, author recognition, IEEE Press relations, and all-electronic processing standards. On the nanotechnology side, Renuka reported that the Nanotechnology Council (NTC) would increase the rate of diversification by adjustments in the editorial board to minimize the overlap between T-ED and Transactions on Nanotechnology (TNT). Doug Verret will head a subcommittee to look at EDS' nanotechnology involvement. Addressing the EDS DVD project, Renuka summarized the expenses for producing a 2-DVD Set of IEDM (1955-2004), T-ED (1954 -June 2004) and EDL (1980 -June 2004) and will include SSC metadata for VLSI Symposium (1988-2003), ISSCC (1955-2003), & JSSC (1966-2003). The total cost for completion of this project is \$185.3K. A second, "IEDM Only" DVD will be produced for distribution at the 2004 IEDM Conference.

New EDS Vice-President of Technical Activities, Mark Law, reviewed the goals the technical committees. Specifically, the technical committees will identify new technical areas, assume responsibility for updating the IEEE New Technology Directions Committee's Home Page, provide inputs for the Spectrum Magazine's annual technology issue, initiate the start of new or modify existing technical meetings or publications for "Hot Areas" of technology, coordinate and provide support for meetings, and suggest speakers/panels/short courses to IEDM. In addition, the committees will insure the Society has sufficient coverage of its respective field in its journal, provide a liaison to other technically - related societies, and IEEE Staff, and direct awards and fellow nominations as appropriate.

Technical Committee (TC) Reports

Narain Arora's Compact Modeling TC reported conference involvement for 2004, which includes a workshop on Compact Modeling (Boston, March 2004) and a Symposium on Compact Modeling (Santa Clara, June 2004). A new on-line Journal of Compact Modeling is seeking approval. However, Narain reports that there has been little progress in collaborative work between Foundries and development of compact models at universities. The meeting closed with short reports from Jim Dayton on the Vacuum Devices TC, and the SRC Chairs from North America West, Latin America, and Asia-Pacific.

The next meeting of EDS AdCom will be on Sunday December 12, 2004 in San Francisco at the 2004 IEDM.



*John K. Lowell
EDS Secretary
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IEEE ELECTION – DID YOU VOTE YET?

This is a reminder for EDS members to vote in the 2004 IEEE Election for the following positions and candidates.

Position	Candidates
IEEE – President-Elect, 2005	Michael R. Lightner Levent Onural James M. Tien
Division I Delegate Elect/ Director 2005	Steven J. Hillenius H. Scott Hinton Hari C. Reddy
Region 2 Delegate-Elect/ Director-Elect 2005-2006	Satish Aggarwal Parvis Famouri John Dentler
Region 4 Delegate-Elect/ Director-Elect 2005-2006	Robert J. Dawson James N. Riess
Region 6 Delegate-Elect/ Director-Elect 2005-2006	Loretta J. Arellano Sundaran K. Ramesh
Region 10 Delegate-Elect/ Director-Elect 2005-2006	Jakkampudi A. Chowdary Marzuki B. Khalid Janina Mazierska
Standards Association Board of Governors Member-at-Large 2005-2006	Jean M. Baronas Steven M. Mills
Standards Association Board of Governors Member-at-Large 2005-2006	George D. Gregory Raymond Hapeman
Technical Activities Vice President-Elect, 2005	Celia L. Desmond James D. Isaak Phillip T. Krein
IEEE-USA President-Elect, 2005	Charles P. Rubenstein Peter S. Winokur Ralph W. Wyndrum, Jr.
IEEE-USA Member-at-Large, 2005-2006	Donald C. Herres James M. Howard

Election ballots with biographies of the candidates were mailed out September 1 to all IEEE voting members and the deadline for the submission of your ballot is November 1, 2004. For more information concerning the election (including biographies), please visit the IEEE website at www.ieee.org/corporate/elections/candidates.xml

UPCOMING TECHNICAL MEETINGS

2004 IEEE COMPOUND SEMICONDUCTOR INTEGRATED CIRCUIT SYMPOSIUM (CSICS), (FORMERLY THE GALLIUM ARSENIDE IC SYMPOSIUM, GAAS IC)

The wireless and optical fiber markets are roaring back to life. The lifeblood of these markets have been the high performance integrated circuits typically made in compound semiconductor technology. GaAs, SiGe, InP, SiC, and more recently GaN and antimonides, have been making impressive strides in performance, availability and features. However, the recent market lull has given RF CMOS a chance to make inroads into some opportunities that were previously the sole purview of III-V semiconductors. The Compound Semiconductor Integrated Circuit Symposium (formerly the GaAs IC Symposium) offers the premier vantage point to stay abreast of these developments in critical compound semiconductor technology and circuit techniques. This year, our 26th, the symposium will be held from 24-27 October in Monterey, its home away from home, in the Portola Plaza Hotel overlooking Monterey Bay. The Symposium is co-located with CS-Max with a unified CS-Week 2004 Technology Exhibition. CS-Max will offer a distinct manufacturing oriented technical program that will follow the CSICS technical program 27-30 October.

If you work or are interested in compound semiconductor technology and multi-GHz circuits and want to keep abreast of developments in your specialty or in competing technologies, then this is the conference for you. Exciting new developments from a variety of compound semiconductor disciplines will be presented. Our new name reflects the diversity of materials technology that currently



exists and is of interest to our attendees. There are papers on GaN, SiC, SiGe, InP and of course GaAs as well as other less widespread technologies. There is once again a tremendous amount of activity in the wireless and optical communication areas, as well as a strong showing in defense electronics. For the first time, we will hold an entire technical session on circuits with data rates beyond 100 Gb/s. In keeping with our long tradition as a forum for microwave and millimeter wave and multi-Gb/s circuits and not just as a showcase for GaAs or InP, we will hold an entire session on Si-based transceivers and have our first-ever presentation on 40 Gb/s CMOS. The technical program for IEEE CSICS consists of one day of short courses given by noted experts and three days of invited and contributed technical presentations in the areas of compound semiconductor technology, RF devices and circuits and Digital/OEIC circuits. There are more than 64 technical papers, five panel

sessions, an Industry Exhibit, and two Short Courses, "Power Amplifier Technologies and Markets for Compound Semiconductors" and "High Speed Data Converters." We will also be offering our annual introductory level class "Basics of Compound Semiconductor ICs" (Primer Course). This year we have invited 22 papers on a wide range of important topics encompassing device engineering to circuit application using advanced compound and other related semiconductor technologies. In addition, we will continue the tradition of including important "late breaking news" papers.

It is no surprise that Monterey is a favorite venue among our attendees. The Portola Plaza Hotel (formerly the Doubletree) is located on picturesque Monterey Bay and is within walking distance of numerous shops, galleries, Fisherman's wharf, Cannery row and, for the more physically fit, the Monterey aquarium. Attendees and guests can enjoy the fresh seafood, play golf at one of 17 world-class courses or just enjoy one of the most picturesque towns along California's coast. The more adventurous can seek out some of the most spectacular scenery along the California coast just a short drive south of Monterey at Big Sur.

For registration and other information, please visit our website at <http://www.csics.org>. We hope that you will join us in Monterey in October.

*Marko Sokolich
CSICS 2004 Publicity Chair
HRL Laboratories
Malibu, CA, USA*

2004 IEEE SEMICONDUCTOR INTERFACE SPECIALISTS CONFERENCE (SISC)



The 2004 IEEE Semiconductor Interface Specialists Conference (SISC) will be held December 9-11, 2004 in San Diego, CA, immediately prior to the IEDM. The SISC provides a unique forum for device engineers, solid-state physicists, and materials scientists to discuss issues of common interest. Principal topics for discussion at SISC are semiconductor/insulator interfaces; the physics of insulating thin films, and the interaction among materials science, device physics, and state-of-the-art technology.

This year will be the 35th meeting of SISC. The first meeting was held in 1965 and attendance was by invitation. The conference, now public, alternates between the east and west coasts, and meets just before the IEDM in San Francisco. An important goal of the conference is to provide an environment that encourages interplay between scientific and technological issues. Invited and contributed talks, as well as a lively poster session, are presented in an informal setting designed to encourage discussion, and conference participants enjoy numerous opportunities for social gatherings with renowned scientists and engineers. Abstracts for contributed talks will be due in mid-July (see website listed below for more information).

The 2004 SISC will be held at the Catamaran Resort Hotel, 3999 Mis-

sion Boulevard, San Diego, CA 92109, phone 1-800-422-8386. The Catamaran is on Mission Bay, and one block from the Pacific Ocean (see photo). San Diego typically has fabulous weather, which complements the Catamaran's luxurious Hawaiian decor. The hotel grounds are beautifully lush with colorful fish and tropical birds. San Diego also boasts Sea World™, a world-class zoo and historic monuments, all within an easy drive from the Catamaran. Bike and boat rentals are offered on the Catamaran premises.

The conference emphasis is on silicon-based devices, including the high-k dielectrics, metal gates, SiC, SiGe and nanocrystal systems, and other topics that evolve with the state-of-the-art. There will be invited and contributed talks, complemented by informal events designed to encourage lively discussion and debate. Generous hospitality allows attendants to focus on enjoying the conference. Hors d'oeuvres, wine, and cheese encourage interaction among poster authors and other conference participants at Thursday's poster session. Friday afternoon has no scheduled talks, to allow time to meet informally, relax on the beach, or visit one of San Diego's numerous attractions. On Friday evening the

conference hosts a banquet and awards ceremony, complete with the now-famous (and always riotous) limerick contest. The limericks never fail to give the conference presentations, people and events an entirely new perspective!

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

For registration information and general inquiries about SISC, please contact the Arrangements Chair, Glen Wilk, at ASM America, 3440 E University Dr., Phoenix, AZ 85034, USA. Phone: 602-470-5825, Fax: 602-437-1403, E-mail: glen.wilk@asm.com. Also, for updates on the 2004 IEEE SISC, including travel, technical program, and registration information, visit our web site at <http://www.IEEESISC.com>

*Glen Wilk
SISC Arrangements Chair
ASM America
Phoenix, AZ, USA*

2005 IEEE PHOTOVOLTAIC SPECIALISTS CONFERENCE AND EXHIBITION (PVSC)

Once thought of as a futuristic source of electricity, solar electric (photovoltaic) energy is more and more becoming a mainstream choice for residential and commercial consumers of electricity. Strong incentive programs in Japan, Germany, and California are spreading throughout Europe, while more states in the U.S. are opting to promote solar electric energy as a viable choice over conventional energy sources and even other renewables. With the increase in incentive programs around the world, photovoltaic shipments could increase substantially, primarily into on-grid applications, and hopefully prove to the conventional energy community that solar electric energy has now entered the mainstream, and is here to stay.

To continue to promote photovoltaic energy the 31st IEEE Photovoltaic Specialists Conference and Exhibition will take place from Monday to Friday, January 3-7, 2005, at Disney's Coronado Springs Resort, in Lake Buena Vista, Orlando, Florida. The conference Technical Program will feature not only plenary sessions in each of the major areas, such as those organized in the past, but will be broadened scientifically and yet accommodate the needs of the rapidly growing PV industry better. Both the terrestrial and space communities will be well represented. The following six major areas will be covered at the conference.

Area 1 is concerned with Fundamentals, Novel Materials and Devices. Advances in the synthesis of nanostructured materials and further research on the physics of photo-carrier generation and collection in materials may enable new and fundamental advances in photovoltaics to be made. Area 2 will focus on polycrystalline thin-film semiconductors, mainly based on cadmium telluride and copper indium diselenide. These are scoring impressive advances in small cell efficiencies while the range of promising alloy materials broadens. Improvements are also being made in



the efficiency, reproducibility and reliability of large-area modules while the production volume of several manufacturers is increasing

Area 3 concerns solar cells based on III-V semiconductors and concentrator photovoltaics. These are among the highest-efficiency routes to solar energy conversion, in terms of both theoretical potential and demonstrated performance. Solar concentrators strongly favor the use of highly efficient cells, whether they are made from silicon, III-Vs, or other semiconductors, and can accommodate technologies that have relatively high cost per unit cell area, because of the small area of cells required in such systems. Crystalline silicon (c-Si) continues to be the dominant material system for solar cell manufacturing and is fully represented in Area 4. Many advances have occurred in the areas of material growth, solar cell processing, process-monitoring/characterization methods, and module manufacturing, which have facilitated increases in production and lowering of the photovoltaic energy costs.

Area 5 encompasses photovoltaics technology based on multijunctions of amorphous and nano/microcrystalline silicon and its alloys with germanium. These have matured over the last two decades through steady advances in the design and fabrication of improved materials and solar cell structures as well as the manufacture of very large area, integrated panels. The global

market for photovoltaic panels is increasing at an annual rate of 25 to 30%. The largest growth has been in the urban area where PV systems connected to the grid are becoming increasingly popular. A major share of the market has been taken up by building-integrated photovoltaic - PV integrated to the roof and this façade is now a common sight. PV is used extensively in remote areas as well. Area 6 focuses on terrestrial systems and brings together the topics of manufacturing, reliability and field experience.

This conference not only fulfills the need to understand the key technical issues, but also addresses the recent activities, problems and concerns of the PV community. To this end an expanded exhibition is being organized with the participation of companies active in PV. The most recent developments in products and services will be highlighted with special emphasis on applications, system integrators, distributors, and manufacturers. Because we recognize the impressive growth in the markets worldwide, the conference organizers are making significant efforts to ensure that the program offerings address the needs, not just of the R&D community, but also of the critically important commercial markets and the infrastructures that support them (e.g., finance and development community, government officials and policy makers, utilities, etc.). Having these communities, as active participants of the Conference will enhance the overall exchange of information, provide a better context for the technologies, and make available an expanded audience for the markets that the exhibitors need to reach.

The Auxiliary Program for the 31st IEEE Photovoltaic Specialists Conference and Exhibition consists of special events for attendees and students, as well as specialized programs for target audiences. A special topical workshop will be held before the conference, and there will

be a high school demonstration of photovoltaic applications. Solar Decathlon is a special workshop for participating university teams that will be held on Monday, January 3, 2005. The Solar Decathlon is a competition for university schools of architecture and engineering to design, build and operate the most effective and efficient solar powered house. The contest will be held in late September 2005 on the National Mall in Washington, DC. The work-

shop, with all 19 participating teams, will be used to assess progress and fully plan for the historic event on the Mall.

An Exhibition of High School Photovoltaic Demonstrations will be held in conjunction with the exposition. High school students from the Orlando area will design and build experiments and applications in photovoltaic technology. Students will display their work and discuss their projects with attendees. Awards will also be given to the

best high school projects.

Please visit our web site at www.ieeevsc.org and join us at Disney's Coronado Springs Resort, Walt Disney World®, Florida for the next conference in this foundation series of photovoltaic conferences that have served the field since 1961.

Christopher R. Wronski
PVSC General Chair
Penn State University
University Park, PA, USA

2004 IEEE INTERNATIONAL ELECTRON DEVICES MEETING TO CELEBRATE 50TH ANNIVERSARY

(continued from page 1)

Short Courses

This year the Short Courses, on Sunday Dec. 12, will be: "45 nm CMOS Technology," organized by Clement Wann of IBM, and "Circuit and System Technologies for Digital Consumer Electronics," organized by Akira Matsuzawa of Tokyo Institute of Technology.

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

Technical Program

This year's technical areas of coverage are:

- CMOS Devices
- CMOS and Interconnect Reliability
- Displays, Sensors and MEMS
- Integrated Circuits and Manufacturing
- Modeling and Simulation
- Process Technology
- Quantum Electronics and Compound Semiconductors
- Solid State Devices

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

CMOS and Interconnect Relia-

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

Displays, Sensors and MEMS sessions will cover critical devices, structures and integration for imaging, and displays, detectors, sensors, and MEMS. A subset of key topics would include CMOS imagers; CCDs; TFTs; organic, amorphous and polycrystalline devices; vacuum microelectronics; emissive displays; and sensors for chemical, molecular and biological applications. MEMS topics include resonators, switches and passives for RF applications; integrated sensors; micro-optical and micro-fluidic devices, and micro-power generators. Particular emphasis will be placed on integrated implementations. Other relevant subjects include design, fabrication, reliability, theory and modeling.

Integrated Circuits and Manufacturing sessions will focus on advances in integrated circuits technology; novel memory cell concepts; full process integration for memory, logic and mixed-mode applications, and manufacturing. Areas of interest include process architecture for per-

formance and manufacturing, high-speed logic, advanced memories and multifunction integrated circuits; and integrated passives, low power, low-noise, analog, RF and mixed signal ICs. Topics also include IC manufacturing technology and methodology, process control, failure analysis, yield enhancements and modeling.

Modeling and Simulation sessions will discuss all areas of analytical, numerical, and statistical approaches to the modeling of electronic and optical devices, their isolation and interconnection; physical and circuit models for devices and interconnects; and the modeling of fabrication processes and equipment, including simulation algorithms, process characterization, and parameter extraction. Submissions should advance the modeling and simulation art or apply existing techniques to gain new insights into devices.

Process Technology sessions will cover front-end and back-end process modules for fabrication of CMOS, memory, and BICMOS devices. Front-end topics will include substrate technologies; lithography; etching; isolation; thin dielectrics; high-k materials and metal electrodes for transistors and MIM capacitors; shallow junctions; RTP; silicides; and new materials. Back-end topics will include conductor systems; low-k materials; contact and via processes; planarization, and multilevel interconnect design considerations.

Quantum Electronics and Compound Semiconductors will cover compound semiconductors

(e.g. GaAs, InP, GaN, SiC and related alloys) with electronic and optoelectronic device applications, such as FETs, HBTs, high-power transistors, LEDs, lasers and external modulators. Also, devices with ballistic, quantum, and single-electron effects; spintronics, optoelectronic ICs and optical interconnects; and photonic bandgap structures and crystals.

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

Plenary Presentations

This year's plenary talks are, "Future Semiconductor Manufacturing — Chal-

lenges and Opportunities," by Hiroshi Awai, current EDS Society President and Director of the Iwai Laboratory, Frontier Collaborative Research Center, Tokyo Institute of Technology; and "Emerging Technologies on Silicon," by Michel Brillouet, Deputy Director of CEA/LETI of France; and the retrospective talk by Louis Parrillo.

Evening Panel Sessions

IEDM 2004 will feature two evening panel sessions. One, organized and moderated by Prof. Mark Lundstrom of Purdue University, will deal with the question, "Nanotechnology = Nanoprofits?" Another, organized and moderated by Dr. Hans Stork, Chief Technology Officer at Texas Instruments, is on the topic, "What will end CMOS Scaling — Money or Physics?"

For **Registration and other information**, visit the IEDM 2004 home page at www.ieee.org/conference/iedm or contact Conference Manager, Phyllis Mahoney, 16220 S. Frederick Ave., Gaithersburg, MD 20877, USA; tel. (301) 527-0900, ext.

103; fax (301) 527-0994; or email: phyllism@widerkehr.com. The submission date for regular papers has already passed, but a limited number of **Late-News Papers** will be accepted for presentation until September 13, 2004.

The San Francisco area provides many attractions for visitors and we encourage attendees to explore them in the off hours of the conference. The IEDM committee members look forward to seeing you in December.

*Clifford King, Noble Device Technologies, Publicity Chair
E-mail: cliffordking@nobledevice.com*

*Tom Bonifield, Texas Instruments, Publicity Vice Chair
E-mail: t-bonifield@ti.com*

*Jeffrey J. Welser
IEDM General Chair
IBM T.J. Watson Research Center
Yorktown Heights, NY, USA*

EDS ANNOUNCES "REVISED" MEMBERSHIP FEE SUBSIDY PROGRAM (MFSP)

Effective for the 2005 member cycle (9/1/04), EDS has revamped its Membership Fee Subsidy Program and will be launching a new Partial Membership Fee Subsidy Program (PMFSP).

IEEE policy currently allows a 50% discount on IEEE dues and one society membership for any individual whose annual salary is less than US\$11,300. This offering is referred to as the Minimum Income Special Considerations Option. The Electron Devices Society currently has a program for its chapters called the Membership Fee Subsidy Program (MFSP), which both complements the IEEE Minimum Income offering and provides a significant additional benefit for qualified individuals. With the EDS Partial Membership Fee Subsidy Program, EDS will pay \$30 (\$15 for students) towards the IEEE and EDS dues for any new member or student applicant quali-

fying for the Minimum Income option. The individuals can be applying for either regular membership or student membership. This program is also available to all unemployed members. Although the IEEE Minimum Income option allows individuals to purchase publication subscriptions for one-society at a 50% reduced rate, the EDS PMFSP does not cover the payment of publication subscriptions. In addition, PMFSP is not available to current IEEE members or students renewing their IEEE and EDS memberships.

If a chapter has individuals who qualify for the reduced IEEE Minimum Income offering and the EDS PMFSP, all the Chapter Chair needs to do is coordinate the obtaining and submission of the IEEE/EDS membership application forms for the individuals he/she is proposing to be covered by EDS. The Chapter Chair should also contact the EDS

Executive Office to advise of their participation in the program. All application forms should be mailed to the EDS Executive Office along with the appropriate funds. Once received, the application forms will be coded by the Executive Office with a special account number and submitted to the pertinent IEEE department for processing.

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

*James B. Kuo
EDS Vice-President of Membership
Simon Fraser University
Burnaby, British Columbia, Canada*

SOCIETY NEWS

EDS STANDING COMMITTEE REPORT - AWARDS COMMITTEE

The Awards Committee of the Electron Devices Society is responsible for oversight of all its awards as well as the stimulation of nominations for both EDS awards and the numerous IEEE awards. The Awards Committee consists of the following members: D. Buss; Y. Hirayama; R.P. Jindal; L.C. Parrillo; J. Prasad; S.C. Sun and J.J. Welser. Our awards include:

J. J. Ebers - This is the premier award of the EDS and recognizes outstanding technical contributions to electron devices. The award consists of a certificate and a check for \$5,000 and is presented annually to the recipient in the opening ceremonies at the IEDM. The submission deadline for this award is July 1st.

Distinguished Service - This award was established in 1993 to recognize and honor outstanding service to the Electron Devices Society and its sponsored activities. It is presented annually and the recipient is awarded a certificate and a check for \$2,500, and is presented to the recipient in the opening ceremonies at the IEDM. The submission deadline for this award is July 1st.

Paul Rappaport Award - This award was established in 1984 to honor the author(s) of the best paper that has appeared in an EDS publication in the preceding calendar year. With the start of the George Smith Award in 2002, this award is targeted specifically to *Transactions on Electron Devices*. It is presented annually and the recipient(s) is awarded a certificate and a check for \$2,500, presented at the IEDM.

George E. Smith - This Award was established in 2002 to recog-

nize the best paper appearing in a fast turn around archival publication of the IEEE Electron Devices Society, targeted to IEEE *Electron Device Letters*. It is presented annually and the recipient(s) is awarded a certificate and a check for \$2,500, presented at the IEDM.

EDS Graduate Student Fellowships - EDS established the Graduate Fellowship Program to promote, recognize, and support graduate level study and research within the fields of interest of the Electron Devices Societies. At least one fellowship is awarded annually to students in each of the Americas, Europe/Mid-East/Africa, Asia-Pacific, geographical regions every year. It consists of a prize of 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 and a travel subsidy of up to US\$3,000 to each recipient to attend the IEDM for presentation of an award plaque. The submission deadline for this award is May 15th.

EDS Chapter of the Year - The award is given annually based on the quantity and quality of the activities and programs implemented by the chapters during the prior July 1st - June 30th period. It is presented annually and the recipient(s) is awarded a certificate and a check for \$1,000, presented at the IEDM. The submission deadline for this award is September 15th.

EDS Region 9 Outstanding Student Paper Award - It promotes, recognizes, and supports 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 interests. The prize is presented at one of the EDS supported conferences periodically held within Region 9. In addition to the recognition certificate, the recipient will receive a subsidy of up to \$1,000 to attend the conference where the award is to be presented. The submission deadline for this biennial award is April 15th.

The IEEE has numerous awards consisting of Medals and Technical Fields Awards. Fortunately, EDS members make contributions that are included in the technical, educational and leadership categories covered by these awards and the recipient list typically includes EDS members every year. I encourage you to become familiar with these awards, which are listed on "IEEE Awards and Recognition" web site and nominate colleagues for the awards. It is my experience that EDS and IEEE award recipients and their institutions are proud of the recognition that is an integral part of the award structure. Do your part- nominate deserving colleagues for an award.



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

EDS TECHNICAL COMMITTEE REPORTS - COMPACT MODELING AND VACUUM DEVICES

EDS Compact Modeling Technical Committee Report

- by Narian Arora, EDS Compact
Modeling Chair



Narian Arora

The IEEE Electron Devices Society (EDS) Santa Clara Valley Chapter (SCV) in collaboration with the IEEE Compact Modeling Committee (CMC) organized a half-day symposium on Compact modeling on May 7, 2004. The meeting was held at National Semiconductor's Building 31 Auditorium, 955 Kifer Road, Sunnyvale, CA. The Event Manager was IEEE-EDS CMC member, Dr. Samar Saha (samar@ieee.org). The symposium proceeding was published in CD-ROM. The registration fee per person was \$40 and \$50 for IEEE members and non-members, respectively, while full time students and unemployed were free. The total number of attendees was more than 125. There were six speakers (Professor Bob Dutton, Dr. Jane Xi, Dr. Peter Bendix, Dr. Narian Arora, Sunil Yu, and Dr. Philip Jensen) and seven presentations in the meeting. Dr. Narian Arora presented the paper for Dr. Miura-Mattausch who could not be at the meeting. The title of the papers and their authors are:

1. Next Generation Compact Modeling, R.W. Dutton and C-H. Choi, Stanford University.

2. The Development of the Next Generation BSIM for Sub-100nm Mixed-Signal Circuit Simulation, J. Xi, University of California, Berkeley.

3. A Practical Examination of MOS Transistor Model Accuracy in Modern CMOS Technology, P. Bendix, *D. Foty, and D. Pachura, LSI Logic Corporation, *Gilgamesh Associates.

4. Self-consistent Surface-Potential-based Model HiSIM: Advantages and Applications, M. Miura-Mattausch, H.J. Mattausch, *T. Ohguro, *T. Iizuka, *M. Taguchi, and *S. Miyamoto, Hiroshima University, Japan, *Semiconductor Technology Academic Research Center, Japan.

5. Interconnect Modeling for Frequency-Dependent Crosstalk Noise Analysis, S. Yu, S. -P. Sim, S. Krishnan, *D.M. Petranovic, and C. Y. Yang, Santa Clara University, *Mentor Graphics Corporation.

6. Compact Modeling for Snap-back-based ESD Protection, P. Jansen, V. Vassilev, N. Mahadeva, and **G. Groeseneken, IMEC, Belgium.**

7. Modeling and Characterization of On-chip Inductance for Sub-100nm Cu CMOS Process, N. Arora, L. Song, Cadence Design Systems, and *V. Chang, Cadence Design Systems, *TSMC.

Limited number of conference CD-ROMs are available from the SCV chapter EDS committee (contact: samar@ieee.org).

EDS Vacuum Devices Technical Committee Report

- by James A. Dayton, EDS Vacuum
Devices Chair



James A. Dayton, Jr.

Dan M. Goebel has been elected Chairman of the EDS Technical Committee on Vacuum Devices, succeeding James A. Dayton, Jr., who organized the committee in 1998. Goebel recently joined the NASA Jet Propulsion Laboratory, Pasadena, CA, after a distinguished career with Hughes, first at the Research Laboratory in Malibu, CA and later with the Electron Dynamics Division (now Boeing EDD) in Torrance, CA. Goebel has served as the Vacuum Devices Editor for *Transactions on Electron Devices* (T-ED) for the last five years.

The EDS President appoints chairmen and members of the technical committees. Typically, the outgoing chairman proposes a successor to the EDS President for appointment. The election of Goebel represents the first occasion that this recommendation is based on an election by the committee members. All 19 committee members participated in the nomination

and election process.

The most visible product of the Technical Committee has been the International Vacuum Electronics Conference (IVEC), which was initiated in 2000 and has become the premier conference for the presentation of work in the field. The fifth IVEC was held in Monterey, CA in April with Goebel as General Chair and Carol L. Kory as Technical Program Chair. A new feature at IVEC 2004 was the IVEC Student Paper Award, which was won by C. W. Baik of Seoul National University. Georges Fleury of Thales ED, Velizy, France, won the IVEC Award for Excellence in Vacuum Electronics, which was initiated in 2002. Previous winners of the Award for Excellence have been George Caryotakis of Stanford Linear Accelerator Center, Palo Alto, CA, in 2003 and Armand Staprans of Communication and Power Industries, Palo Alto, CA, in 2002.

Under the leadership of Gun-Sik Park, the fourth IVEC was held in Seoul, Korea in May 2003 under what can be conservatively described as dramatic conditions brought about by the threat of the SARS epidemic. Fortunately, the virus did not migrate to Korea and IVEC 2003 was a resounding success.

Venues have been selected for IVEC through 2007. They are IVEC 2005, April 20-22, Noordwijk, The Netherlands, General Chair, Pierre Waller; IVEC 2006, April 25-27, Monterey CA, General Chair, Bob Fickett and Technical Program Chair, Baruch Levush; and IVEC 2007, April 24-26, Kitakyushi, Japan, General Chair, Takao Kageyama. IVEC 2006 will be a joint meeting with the International Vacuum Electronic Sources Conference.

The current members of the Technical Committee are Dan M. Goebel (Chairman), NASA Jet Propulsion Laboratory, Pasadena, CA, John H. Booske, U. of Wisconsin, Madison, WI, Richard G. Carter, Lancaster University, Lancaster UK, George Caryotakis, Stanford Linear Accelerator Center, Palo Alto, CA, Han-Ying Chen, Air Asia Technology, Hsinchu, Taiwan, Jon A. Christensen, Boeing EDD, Torrance, CA, James A. Dayton, Jr., Genvac Aerospace, Cleveland, OH, Takao

Kageyama, Kitakyushi Foundation, Kitakyushi, Japan, Guenter Kornfeld, Thales ED, Ulm, Germany, Carol L. Kory, Calabazas Creek Research and Analex/NASA Glenn Research Center, Cleveland, OH, Baruch Levush, Naval Research Laboratory, Washington, DC, Shenggang Liu, U. of Electronic Science and Technology, Chengdu, ROC, Gun-Sik Park, Seoul National U., Seoul, Korea, Michael I. Petelin, Russian

Academy of Science, Nizhny Novgorod, Russia, Charles A. Spindt, SRI International, Menlo Park, CA, Armand Staprans, Communication and Power Industries, Palo Alto, CA, Philippe Thouvenin, Thales ED, Velizy, France, Richard B. True, L-3 Communications ED, San Carlos, CA, Pierre Waller, European Space Agency, Noordwijk, The Netherlands.

The Technical Committee meets

annually during IVEC. In the interim, communication is maintained by email and occasional audio teleconferences. The membership of the committee provides not only geographic diversity, but also represents the varied technical specialties that comprise vacuum electronics. It should also be pointed out that two of the members, Kory and Waller, were under the age of 30 when they joined the committee.

2003 GEORGE E SMITH AWARD

One priority of the Electron Devices Society is to recognize and enhance the quality of papers published in EDS archival literature. The George E. Smith Award was established in 2002 to recognize the best paper appearing in a fast turnaround archival publication of EDS, targeted to *IEEE Electron Device Letters*. Among other criteria including technical excellence, an important criterion for selection for the award is comprehensive and impartial referencing of prior art. The paper winning the 2003 George E. Smith Award was selected from 225 manuscripts that were published in 2003. The article is entitled "(110) Strained-SOI n-MOSFETs With Higher Electron Mobility". This paper appeared in the April 2003 issue of *IEEE Electron Device Letters* and was authored by Tomohisa Mizuno, Naoharu Sugiyama, Tsutomu Tezuka and Shin-ichi Takagi. The award will be presented in the plenary session of the International Electron Devices Meeting to be held on December 13th, 2004 in San Francisco, California. In addition to the award certificate, the authors will receive a check for \$2,500. On behalf of the Electron Devices Society I would like to congratulate the authors for this achievement. Brief biographies of the authors are given below.



Tomohisa Mizuno was born in Japan, 1955. He received the B.S. degree in physics, the M.S. degree in astrophysics, and the Ph.D. degree in applied physics from Nagoya Uni-



Naoharu Sugiyama was born in Shizuoka, Japan, in 1959. He received the B.S., M.S., and Ph.D degrees in nuclear engineering from Nagoya University, Nagoya, Japan, in 1982,

1984, and 1993, respectively. In 1984, he joined the Toshiba Research and Development Center, Kawasaki, Japan. From 1987 to 1990, he was on leave at the Optoelectronics Technology Research Laboratory, Tsukuba, Japan. His research field is the epitaxial growth of semiconductor thin films. Dr. Sugiyama is a member of the Japan Society of Applied Physics and the Vacuum Society of Japan.



Tsutomu Tezuka was born in Utsunomiya, Japan, in 1964. He received B.S. and M.S. degrees in physics from Tohoku University, Sendai, Japan in 1987 and

1989, respectively. He joined the Toshiba Research and Development Center, Kawasaki, Japan, where he has been working on the research and development of semiconductor lasers and strained-SiGe/Si field effect transistors. He is currently developing strained Si-on-Insulator MOSFETs. Mr. Tezuka won the Japan Society of Applied Physics Award for the Most Promising Young Scientist in 1994. He is a member of the Physical Society of Japan and the Japan Society of Applied Physics.



Shin-ichi Takagi was born in Tokyo, Japan, on August 25, 1959. He received the B.S., M.S. and Ph.D. degrees in electronic engineering from the University of Tokyo in 1982, 1984

and 1987, respectively. He joined the Toshiba R&D Center in 1987, where he has been engaged in the research on the device physics of Si MOSFETs. From 1993 to 1995, he was a Visiting Scholar at Stanford University. Since 2001, he has joined to MIRAI Project, as the leader of New Transistor Structures Group. In 2003, he moved to the University of Tokyo as a professor in the Graduate School of Frontier Science.

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

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

Akintunde I. Akinwande

Andreas G. Andreou

Yves L. Baeyens

James D. Bernstein

Zeljko Butkovic

Ming-Cheng Cheng

Wing Yiu Cheung

Vitaly P. Chumachenko*

Mark D. Feuer

Shri N. Gupta

Krzysztof Iniewski

Naz E. Islam

Igor V. Ivanchenko*

Wai Tung Ng

Jorgen Olsson

Nina O. Popenko*

Roland Stenzel

Randir Thakur*

Peide Ye*

* = 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>.

2003 PAUL RAPPAPORT AWARD

One priority of the Electron Devices Society is to recognize and enhance the quality of papers published in EDS archival literature. To this end, the Society confers its prestigious Paul Rappaport Award to the best paper published in the IEEE Transactions on Electron Devices. Among other criteria including technical excellence, an important criterion for selection for the award is comprehensive and impartial referencing of prior art. The winning paper was selected from 333 manuscripts that were published in 2003. The article is entitled, "Programmable Single-Electron Transistor Logic for Future Low-Power Intelligent LSI: Proposal and Room-Temperature Operation". This paper was published in July, 2003 issue of the IEEE Transactions on Electron Devices, and was authored by Ken Uchida, Junji Koga, Ryuji Ohba and Akira Toriumi. The award will be presented in the plenary session of the International Electron Devices Meeting to be held on December 13th, 2004 in San Francisco, California. In addition to the award certificate, the authors will receive a check for \$2,500. On behalf of the Electron Devices Society I would like to congratulate the authors for this achievement. Brief biographies of the authors are given below.



Ken Uchida was born in Cambridge, MA in 1971. He received B.S. degree in physics, M.S. and Ph. D. degrees in applied physics all from the University of Tokyo, Tokyo,

Japan, in 1993, 1995, and 2002, respectively. In 1995, he joined the R&D Center, Toshiba Corporation, Kawasaki, Japan. He has studied the carrier transport properties in nano-scaled structures and has engaged in the research on physics and technology of single-electron devices, Schottky source/drain MOS-FETs, and ultrathin-body SOI MOSFETs.



Junji Koga received the B.S. degree in physics from the University of Tokyo, Japan, in 1988. He joined the Research and Development Center of

Toshiba Corporation, Kawasaki, Japan, in 1988, where he has been engaged in the research on the MOS-FET device physics including thin film SOI transistor, Cryo-CMOS device technology, and silicon functional tunnel devices. He is with Advanced LSI Technology Laboratory of Toshiba Corporation.



Ryuji Ohba was born in Osaka, Japan, on September 10, 1966. He received the B.S. and M.S. degrees in physics in 1989, 1991, respectively, from the University of Tokyo, Tokyo, Japan.

Since 1994, he has been working with Research and Development Center of Toshiba Corporation, where he has been doing research on the semiconductor device physics in sub-0.1mm Si devices.



Akira Toriumi received the B.S. degree in physics, the M.S. and Ph.D. degrees in applied physics from the University of Tokyo in Japan, 1978, 1980 and 1983,

respectively. He entered R&D Center of Toshiba Corporation in 1983. From Aug. 1988 to Feb. 1990, he was with Massachusetts Institute of Technology as a visiting researcher, on leave from Toshiba Corporation. In May 2000, he moved to the University of Tokyo. His research interests have been silicon device physics and related materials science throughout his professional career. He is now interested in reliability physics of ultra-thin gate oxides and materials science of high-k dielectrics, and physics and technology of organic electron devices as well as very small size silicon devices.

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

EDS MEMBERS NAMED WINNERS OF 2004 IEEE MEDALS AND SERVICE AWARDS

Three EDS members won 2004 IEEE medals. Paul R. Gray won the IEEE James H. Mulligan, Jr. Education Medal, Frederick H. Dill won the IEEE Jun-ichi Nishizawa Medal and Jerry R. Yeargan won the IEEE Haraden Pratt Award.

IEEE James H. Mulligan, Jr. Education Medal



Paul R. Gray

"For exemplary contributions to electrical engineering education through mentoring of students, an influential textbook, and University-wide academic leadership."

The executive vice chancellor and provost at the University of California at Berkeley, Dr. Paul R. Gray has equipped a generation of integrated circuit designers to excel in industry and academia. His students have won numerous prizes, including four Best Paper Awards at the IEEE International Solid State Circuits Conference and the IEEE Transactions on Circuits and Systems and the IEEE Journal of Solid-State Circuits Best Paper Awards.

Since joining Berkeley's department of electrical engineering and computer sciences (EECS) in 1971, Dr. Gray has held a number of administrative posts, including department chairman in the early 1990s, dean of engineering from 1996 to 2000 and now executive vice chancellor and provost. He helped redesign the EECS undergraduate curriculum, established a department of bioengineering and championed interdisciplinary initiatives in health science and nanotechnology.

Dr. Gray is the co-author of the widely used 1977 textbook "Analysis and Design of Analog Integrated Circuits." Expanded in successive editions, it remains the standard reference work for the field. He has co-edited two other texts, contributed to more than 130 papers and holds 13 U.S. patents.

An IEEE Fellow and member of the U.S. National Academy of Engineering, Dr. Gray has served as editor of the IEEE Journal of Solid State Circuits and also as president of the IEEE

Solid-State Circuits Council. He is a past member of several Engineering Dean's Councils, and his numerous awards include the IEEE W.R.G. Baker Prize Paper Award and the IEEE Solid-State Circuits Award. He has held several industry positions and continues to consult to electronics companies.

IEEE Jun-ichi Nishizawa Medal



Frederick H. Dill

"For lifetime contributions to microelectronics processing, including lithographic simulation, semiconductor lasers and magnetic recording."

Since 1958, when he joined IBM Research Division, then in Poughkeepsie, New York, Frederick (Rick) Dill, the inaugural recipient of the IEEE Jun-ichi Nishizawa Medal, has done seminal work in a remarkable range of fields.

Dr. Dill's early achievements include essential contributions to semiconductor lasers, and to building high-speed integrated circuits using germanium. In the 1970s he spearheaded research that led to pioneering process models and materials characterization for photolithography, transforming device lithography from an art to an engineering science. His papers are still referenced today; the parameters used to describe photoresist exposure are called "The Dill Parameters." In the 1980s Dr. Dill was lead inventor of the video RAM, and he currently works on disk drive recording heads to improve disk drive capacity. Today's disk drive heads are built with processes he pioneered.

An IEEE Life Fellow, Dr. Dill has served on the IEEE Board of Directors as Division I Director. He also served as president of the IEEE Electron Devices Society and on the society's Administrative Committee. Dr. Dill helped establish several IEEE journals including the IEEE Journal of Technology Computer Aided Design, the first IEEE all-electronic journal. Inaugurated into the U.S. National Academy of Engineers in 1990, Dr. Dill subsequently chaired the Academy's Engineering Electronics Engineering sec-

tion. He also was one of the early president's of IBM's Academy of Technology.

A recipient of an IEEE Centennial Medal and an IEEE Third Millennium Medal, Dr. Dill has more than 30 patents, including fundamental patents on automated tools for thin film measurements. IBM promoted him to Distinguished Engineer in 2002. He joined Hitachi Global Storage Technologies in San Jose, California in 2003, following IBM's sale of the disk drive business. He is an executive engineer solving manufacturing process problems.

IEEE Haraden Pratt Service Award



Jerry R. Yeargan

"For outstanding contributions to the Engineering Accreditation Activities of the IEEE."

A skillful and charismatic diplomat, Dr. Jerry Yeargan is widely hailed as a voice of reason

with a knack for creative compromise ably demonstrated over a long career of IEEE service. He is an outstanding ambassador for the IEEE, advancing its accreditation interests and influence with his appearances around the globe.

Dr. Yeargan distinguished himself as an IEEE representative director on the Accreditation Board for Engineering and Technology (ABET) Board of Directors and as ABET president. He played a seminal role in the vitally important merger of ABET and the Computer Science Accreditation Board (CSAB), enabling unprecedented synergy in the accreditation of computer science, computer engineering and software engineering programs.

Dr. Yeargan is Distinguished Professor and the Texas Instruments Chair of Mixed-Signal and Linear Microelectronics in Electrical Engineering at the University of Arkansas in Fayetteville, where he has taught since 1967.

An IEEE Fellow, Dr. Yeargan has served as IEEE vice president for Educational Activities (EA) and as president of the IEEE Education Society, as well as on the IEEE Board of Directors,

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2003 IEEE TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING (T-SM) BEST PAPER AWARD

The IEEE Transactions on Semiconductor Manufacturing (T-SM) Best Paper Award is presented to the authors of that paper considered by the Transactions' Editorial Staff and reviewers to be the outstanding paper published during the year. The Award is based on the accuracy, originality, and importance of the technical concepts, as well as the quality and readability of the manuscript. The Best Paper is also based on the immediate or potential impact that this work will have on the overall semiconductor manufacturing industry.

The Editorial Staff is pleased to announce that the paper entitled "Electrical Characterization of the Copper CMP Process and Derivation of Metal Layout Rules," by S. Lakshminarayanan, Peter J. Wright, and Jayanthi Pallinti has been recognized as the best paper published in the 2003 Transactions. This paper, which appeared in the November issue, has been chosen because it develops and demonstrates a methodology to understand the effect of process variations on electrical interconnect parameters, and to define design rules which limit or minimize the impact of these variations. By using a pair of carefully designed test masks, the effects of dishing and erosion in chemical mechanical polishing (or CMP) are studied, and the impact on electrical line resistances in a variety of single level metal and multilevel metal dual damascene copper interconnect structures are characterized. Based on analysis of these structures, guidelines about pattern density, feature size, and feature proximity are generated. The paper convincingly demonstrates the improvements possible through engineering-based methodologies for design rule generation, and shows the

importance of this link between design and manufacturing.



S. Lakshminarayanan received the B.Tech. degree in electronics and communication engineering from the Indian Institute of Technology,

Madras, India, in 1990 and the M.S. and Ph.D. degrees in electrical engineering from Rensselaer Polytechnic Institute, Troy, NY, in 1992 and 1997, respectively. He is currently a Process Development Engineer at LSI Logic, Milpitas, CA. From 1997 to 2000, he was a member of the process integration team working on the development of LSI's 0.18- μm backend technology. Since 2001, his research interests have included advanced interconnect development for the 65-nm technology node.



Peter J. Wright received the B.S. and M.E. degrees in electrical engineering from Rensselaer Polytechnic Institute, Troy, NY, in 1983 and 1984, respectively, and the Ph.D. degree in

electrical engineering in 1989 from Stanford University, Stanford, CA. He held summer positions at GTE Laboratories in 1982 and 1984, and the GE R&D Center in 1983, working in the area of VLSI device and materials research. From 1989 to 1994, he

worked on silicon process integration and module development at Texas Instruments, Dallas, TX. From 1994 to 1998, he worked on integration issues for EEPROM products, Altera Corporation, San Jose, CA. From 1998 to the present, he has worked on metal integration at LSI Logic, Milpitas, CA. He has authored or coauthored over 35 technical papers.



Jayanthi Pallinti received the B.S. degree in chemical engineering from Anna University, Madras, India, the M.S. degree in chemical engineering from Indian Institute of Technology,

Madras, India, and the Ph.D. degree in chemical engineering from Pennsylvania State University, State College, in 1989, 1991, and 1996, respectively. She was a Postdoctoral Fellow at the Center for Integrated Electronics, Rensselaer Polytechnic Institute, NY, from 1996 to 1997. She joined the CMP process module group at LSI Logic Corporation, Santa Clara, CA, in 1997, and has been a key contributor to the BEOL process research and development. She is currently employed as a Staff Engineer in the Copper Wiring Module of Advanced Process R&D Group at LSI Logic, Gresham, OR. She has numerous publications/presentations in various conferences and journals and have nine issued patents.

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

EDS MEMBERS NAMED WINNERS OF 2004 IEEE MEDALS AND SERVICE AWARDS *(continued from page 15)*

the IEEE Executive Committee and numerous committees including the IEEE EA Accreditation Policy Committee. He is a Fellow of the American Society for Engineering Education (ASEE) and former chair of the ASEE Electrical Engineering Division.

Dr. Yeagan's honors include the

IEEE Educational Activities Board Meritorious Service Award, the IEEE Education Society Achievement Award, the Arkansas Academy of Electrical Engineers and Halliburton Outstanding Faculty Awards and the College of Engineering Outstanding Service to Students Award. He holds

one patent and has produced approximately 100 papers.

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

EDS DISTINGUISHED LECTURERS PARTICIPATE IN THE 4TH WIMNACT-SINGAPORE



From right to left: James Kuo (Speaker, National Taiwan University), Kin Leong Pey (Chapter Chair, NTU), Juin Liou (Speaker, University of Central Florida), Meng Hwa Er (Guest-of-Honor, NTU), Cary Yang (Speaker, Santa Clara University), Yuhua Cheng (Speaker, Skyworks Solutions), Chaw Sing Ho (Chapter Committee Member, Chartered Semiconductor Manufacturing), Chee Lip Gan (Chapter Committee Member, NTU), Xing Zhou (Speaker, NTU, Chapter Committee Member)

The 4th Workshop and IEEE EDS Mini-colloquium on NANometer CMOS Technology (WIMNACT-Singapore) was successfully held on July 12, 2004 in Singapore. This mini-colloquium was organized and sponsored by the IEEE CPMT/ED/R Singapore Chapter, and co-sponsored by the EDS Distinguished Lecturer (DL) Program and Subcommittee for Regions/Chapters (SRC) as well as the School of Electrical & Electronic Engineering (EEE) at Nanyang Technological University (NTU). The Guest-of-Honor was Prof. Meng Hwa Er, Deputy President and Dean, School of EEE, NTU, who delivered a welcome address to the invited guests and the audience. Chapter Chair, Prof. Kin Leong Pey, delivered the opening address and introduced Chapter activities to the audience. This was followed by brief introductions of the Sili-

con Technology, Nanoelectronics & Devices, and Computational Nano-Electronics Groups in the Microelectronics Division, NTU, who were the co-hosts of this event, by the Program Directors, Prof. Kin Leong Pey, Prof. Beng Kang Tay, and Prof. Xing Zhou, respectively.

There were five invited DL speakers, including four from overseas and one from the local Chapter. The first talk was given by Prof. Cary Yang from Santa Clara University entitled "Carbon Nanotubes as On-chip Interconnects," followed by the talk on "Trends on Low-Voltage SOI CMOS VLSI Devices and Circuits" given by Prof. James Kuo of National Taiwan University. After lunch at the NTU staff club with the invited guests and Chapter committee members, Prof. Juin Liou from University of Central Florida gave the talk on "On-Chip

Spiral Inductors for RF Applications: An Overview," followed by the talk on "An Overview of CMOS Technology for RF IC Applications" given by Dr. Yuhua Cheng from Skyworks Solutions. The Workshop ended with the talk by Prof. Xing Zhou on "Technology-Based Predictive Compact Model Development for Next Generation CMOS." The Chapter at the end of the Workshop presented all the speakers with a token of appreciation.

In summary, the 4th WIMNACT-Singapore has been another successful event after the 3rd WIMNACT-Singapore, which was organized by the Chapter in October 2003. The Workshop received enthusiastic response with more than 100 attendees from the local industries and academic institutions. They showed deep interests in the invited talks, which covered a wide range of important topics of current and future technologies. The complete information on the 4th WIMNACT-Singapore, including all the slides and snapshots, has been made available at the following website: <http://www.ntu.edu.sg/eee/eee6/conf/WIMNACT04.htm>

*Xing Zhou
Nanyang Technical University
Singapore*

*Kin Leong Pey
CPMT/ED/R Chapter Chair
Nanyang Technical University
Singapore*

ANNUAL CD ROM PACKAGES AVAILABLE TO EDS MEMBERS

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

Currently, EDS has seven CD ROM Packages available to its members, i.e., 1997, through 2003. Each is available for US \$25.00 (US \$13.00 for students). If you would like to receive an order form for any of these products, please visit the EDS web site at: <http://www.ieee.org/society/eds/pubs/pubs.xml> and click on the order form. Please note that this is strictly an EDS member benefit with a non-member price of \$175.00.

You can request the 2004 CD ROM Package in advance as a subscription via your 2005 IEEE Membership

Renewal Bill when you receive it this Fall. The 2004 EDS CD ROM Package will be available in June 2005. Once you sign-up to receive the 2004 package via your member renewal bill, you will automatically be billed each year for subsequent versions of the package. If there is any way we can improve this offering and make it more useful please let us know.

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

2004 EDS REGION 8 CHAPTERS MEETING SUMMARY

– MADRID, SPAIN



Professor Cor Claey's, opens the EDS Region 8 Chapters meeting.

The 2004 EDS Region 8 Chapters meeting was held in conjunction with the EDS Administrative Committee (AdCom) meeting at the Mirasierra Suites Hotel, Madrid on Saturday, May 22nd. The meeting gathered around 30 people representing 19 chapters from Region 8 (Europe, Africa & Middle East). This was the first EDS Region 8 Chapters meeting in four years.

Professor Cor Claey's, EDS Vice-President Regions/Chapters, opened the meeting and greeted everyone with an introduction to the Regional Chapter Coordination Program.

Professor Mikael Östling, the SRC Chair for Region 8 gave the detailed

plan for the activities and also introduced a new Vice-Chair, Professor Enrico Sangiorgi, University of Bologna, Italy. Region 8 currently has a total of 39 chapters and there are plans for a number of new student chapters in the future. In order to support all these chapters, it was decided last year to appoint one more SRC Vice-Chair. Enrico has generously accepted the Vice-Chair position and will be the main coordinator for the following chapters; Novosibirsk, Novosibirsk Student Chapter, Tomsk, Sweden, Finland, Poland, Spain, Portugal and France.

Vice-Chair, Prof Ninoslav Stojadinovic, is coordinating; Egypt, Israel, Kiev, Kharkov, Lviv, Yugoslavia, Yugoslavia Student Chapter, Bulgaria Varna, Bulgaria, Greece, UK & Ireland, Benelux, and the Universite Catholique de Louvain Student Chapter. Vice-Chair, Marcel Profirescu, coordinates; Moscow, Saratov-Penza, Nizhny Novgorod, Hungary, Czechoslovakia, Germany and South Africa. Mikael is coordinating the chapters; Central & South Italy, North Italy, Switzerland, St. Petersburg, Lithuania, Minsk, Georgia, Romania, Turkey, and Middle East Student Chapter.

Professor Ilesanmi Adesida, EDS President-Elect and Vice-President of Educational Activities, gave a comprehensive overview of the EDS Distinguished Lecturer Program. The DL program should be used by the different chapters to facilitate technical seminars by invitation of lecturers in hot topics.

Professor Magali Estrada, SRC of Latin America presented a special report on the Region 9 activities and also discussed the establishment of the special EDS outstanding student paper award for the region. During the chapter reports portion of the meeting 12 of the 19 attending chapters gave presentations.

Dr. Mykhaylo Andriychuk, Chapter Chair of the joint MTT/ED/AP/CPMT/SSC West Ukraine Chapter, gave a thorough description of the activities and plans of the coming period. Mykhaylo described the forming of the Lviv Polytechnic National University Student Branch dur-

ing 2003 and its official approval in 2004. Moreover, the joint chapter showed a full activity agenda with a membership development prognosis reaching 55 during the coming year, 18 technical lectures and 2 educational events. They also identified several members eligible to become IEEE Senior Members.

It was very encouraging to see several student branch presentations. Dr Alexander Gridchin reported on both the Novosibirsk State Technical University Student Branch and the joint MTT/ED/COM/CPMT/SSC Novosibirsk chapter.

In total, we had three student branch reports. Mr. Oray Orkun Cellek reported on the ED/SSC Middle East Technical University Student Branch (as well as the MTT/AP/ED/EMC Turkey chapter) and Mr. Remy Pampin gave a presentation concerning the ED/CAS Université Catholique de Louvain Student Branch. Also, representatives presented the ED Romania, ED/SSC Bulgaria-Varna, ED Poland, ED Sweden, ED Israel, ED/LEO South Africa, ED Benelux, and ED Spain chapter reports from the various respective chapters. In addition, the Belarus, Bulgaria-Sofia, Central & South Italy, Georgia, Russia-Moscow, UK& RI and Yugoslavia representatives were all present and took part in the various discussions.

Mikael Ostling led an open forum discussion and it covered several important issues like meeting forms and frequency, relation with the region and activation of ED members. One idea to promote activities in the chapters was to establish an EDS Region 8 Award. The SRC team will further explore this idea. The discussion was very vivid, but we had to close the open forum in time for the EDS buffet dinner. In summary, the EDS Region 8 Chapters Meeting was much appreciated and it was considered to be a very important forum for the EDS activities.



A coffee break during the region 8 chapters meeting. In the middle Professor Enrico Sangiorgi, the new SRC EAM Vice-Chair in discussion with IEEE EDS colleagues.

*Mikael Östling
EDS Region 8 SRC EAM Chair
KTH, Royal Institute of Technology
Kista, Sweden*

HOW TO FORM AN IEEE STUDENT BRANCH AND STUDENT BRANCH CHAPTER

An IEEE Student Branch gives students the opportunity to meet and learn from fellow students, as well as faculty members and professionals in the field. A good IEEE Student Branch can be one of the most positive elements in an Electrical Engineering, Computer Engineering or Engineering Technology department. IEEE Student Branches are established at over 1,000 universities and colleges throughout the world. Student Branch activities offer numerous educational, technical, and professional advantages of IEEE membership through special projects, activities, meetings, tours and field trips.

Establishing an IEEE Student Branch requires the signatures of 20 IEEE Student members on a petition. The petition must specify the name of the Branch, and the names of the Interim Student Chair and faculty member who will serve as Counselor of the Branch. The petition must also be approved by the Department Chair and two faculty members, who are also IEEE members above student grade. Submit the petition to IEEE Student Services to begin the approval process, which includes verification of the IEEE membership of the students and the faculty members on the petition, review of the programs offered at the educational insti-

tution, review and approval by the IEEE Regional Director, the Regional Student Activities Committee Chair and the IEEE Regional Activities Board (RAB). If further information is required, please contact: IEEE Student Services, Phone +1 732 562 5527/5392, Fax +1 732 463 3657 or e-mail: student-services@ieee.org

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

- A petition by not less than twelve (12) Student Branch members, who are members of the IEEE technical Society, must be submitted to Stacey Waters of the EDS Executive Office at 445 Hoes Lane, Piscataway, NJ 08854 USA or via fax at 732-235-1626.
- The petition must specify the name of the Student Branch, the name of the technical Society with which the Student Branch Chapter will be affiliated, the

name of the interim Branch Chapter Chair and the name of the faculty Advisor, who must be a member of IEEE and the technical Society above student grade.

- After the Advisor and the IEEE Student Branch Executive Committee have approved the petition, it should be sent to the EDS Executive Office.
- Upon receipt of the petition, the EDS Office will forward it to IEEE Student Services to verify the IEEE and technical Society membership of individuals who signed the petition. If the petition is in order, Student Services staff will take the necessary action to obtain formal approval of the petition by the Society President, the Regional Director and the Regional Student Activities Committee Chair. Student Services staff will acknowledge receipt of the petition and will keep the faculty advisor informed of the status of the request

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

OFAC – WHERE ARE WE TODAY?

Note: On 2 April 2004, IEEE received a ruling from OFAC that resolved U.S. embargo-related publishing issues for the IEEE. The decision confirmed IEEE's argument that its entire scholarly publishing process is exempt from OFAC restrictions. IEEE immediately resumed its normal publication process, including copy and style editing, for authors worldwide. IEEE is now focusing its resources on an assessment of unresolved membership issues to determine those that may require further clarification from OFAC.

One of these unresolved issues is restrictions on scholarly collaboration. IEEE President Arthur Winston reported at the June, 2004 Board of Directors' meeting that "this concerns IEEE

because it is a membership issue that transcends publication authorship and could be seen to inhibit a broad range of activities that are normally associated with participating as a member of a professional society."

The information below provides the background leading up to the April 2004 OFAC ruling and the current status of issues affecting membership.

OFAC stands for United States Department of the Treasury's Office of Foreign Assets Control (OFAC). In 2001 IEEE, during a transfer of funds for a conference to be held in Iran, was informed by a financial institution that the transfer could not occur due to OFAC restrictions. IEEE researched OFAC embargoes and found that they

could impact our normal business operations including member services and publishing activities for individuals in certain countries. Needless to say, IEEE was not at all pleased with this knowledge, so staff and volunteers have been actively working with the US government and the publishing industry to determine what needs to happen to allow us to continue our business as usual.

With knowledge of the embargoes, IEEE informed members residing in, Cuba, Iran, Libya and Sudan — countries sanctioned by OFAC — that, because of OFAC regulations, those members would not be able to take

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REGIONAL AND CHAPTER NEWS

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

ED Northern Virginia/Washington

- by Hrayr Sayadian

The Northern Virginia/Washington Chapter of the Electron Devices Society held three meetings in April and May of 2004. Two of the meetings were co-sponsored with other organizations as part of the ongoing Atlantic NanoForum activities, and the third meeting was co-sponsored with the Washington/Northern Virginia Chapter of the IEEE LEOS.

The April 29, 2004, nano-technology presentation was titled "Nanotech Tools: Accelerating the Development of Nanotechnology," and was moderated by Mr. Kitu Bindra of the Nanotech Team at Burns, Doane, Swecker & Mathis. This presentation featured Mr. Lewis Gruber, CEO and Chairman of Arryx, Inc., and Dr. Brian Holloway, Assistant Professor of Applied Science at College of William & Mary. The presenters described instruments and software allowing us to see, touch, manipulate, manufacture, model and simulate in the nano-world.

The May 26, 2004, nano-technology presentation was titled "Nanotech Tools: Part II," and was moderated by Mr. Murty Polavarapu, Chair Elect of IEEE Northern Virginia Section and Senior Principal Engineer, BAE Systems. This presentation featured Dr. S. V. Sreenivasan, CTO and Co-Founder of Molecular Imprints, and Dr. George T. Gillies, Research Professor of Mechanical and Biomedical Engineering, University of Virginia. Dr. Sreenivasan described lithography systems and technology for manufacturing applications in the areas of nano-devices, microstructures, advanced packaging, bio-devices, optical components, and semiconductor devices. Dr. Gillies described nano-scale tools for neuro and cancer characterization and surgery.

Additionally, on May 12, our Chapter co-sponsored with the

Washington/Northern Virginia Chapter of the IEEE LEOS an IEEE Distinguished Lecturer presentation titled "Solid State Lighting" by Dr. Michael Shur, Patricia & Sheldon Roberts Professor at Rensselaer Polytechnic Institute. Dr. Shur described history, technology, and applications of visible LEDs.

For more information, please see http://www.ewh.ieee.org/r2/no_virginia/eds/.

ED Mid-Hudson Valley

- by Michael Hargrove

The IEEE EDS Mid-Hudson Valley Chapter has had a busy start to 2004. The Chapter Executive Committee met in early February to plan the upcoming year's activities and discuss who might be interested in replacing me as Chairman in 2005. We are still discussing the latter, but have already started implementing our activity plans. On March 25, 2004, the Chapter hosted the regional IEEE Section meeting and invited Dr. Ken Shepard of Columbia University to talk on CMOS Biochips. The meeting was very well attended and Dr. Shepard provided an excellent talk that fostered many questions and discussion. The talk described his ongoing research project to develop CMOS DNA micro arrays, biochips that incorporate silicon microelectronics technology for detection, programming, and hybridization control. The general approach described is one of hybridization analysis in which target single-stranded DNA binds to immobilized DNA probes generating double-stranded DNA. Dr. Shepard also described the detection scheme used to determine if the DNA has bound to the probe site, including the active CMOS DNA micro array substrate with integrated photodiodes that replace much of the expensive external bulky measurement equipment.

Our plans for the remainder of the year include a possible lecture on carbon nanotubes, and a possible tour of the University at Albany Advanced Technology Center.

~ **Murty S. Polavarapu, Editor**

ED/SSC Kitchener-Waterloo

- by Arokia Nathan & Emanuel Istrate

The ED/SSC Chapter at the University of Waterloo and the ED/CA/CPMT/LEO Chapter at the University of Toronto have been active in hosting several very interesting and well-received lectures.

In 2004, the technical meetings at Waterloo included:

- Prof. Nicolas Wyrsh, Institute of Microtechnology, University of Neuchatel – Microcrystalline silicon: From Material to Solar Cells (April 20, 2004).
- Dr. Peyman Servati, Laboratory for Giga-to-Nano Electronics, University of Waterloo – Mechanically Flexible Electronics (May 21, 2004).
- Dr. Beng S. Ong, Xerox Research Centre of Canada – Towards Printed Organic Electronics – Design of Enabling Materials for Low-Cost Transistors (May 3, 2004).

These talks addressed new and emerging research areas in large area electronics on glass and flexible plastic substrates, intended for multi-disciplinary researchers, including graduate students, from the Faculties of Engineering and Science.

Prof. Juin J. Liou from the University of Central Florida visited the



Prof. Juin Liou gives a Distinguished Lecture in Toronto on the evolution and recent advances in RF/microwave transistors.

Toronto Chapter on April 27, and gave an EDS Distinguished Lecture titled "Evolution and Recent Advances in RF/Microwave Transistors." The lecture was held at the University of Toronto and was attended by approximately 20 people. In the talk, Prof. Liou gave an overview of the applications of high-frequency transistors and then described the different classes of transistors, discussing their properties, advantages and disadvantages.

~ **Arokia Nathan, Editor**

EDS Distinguished Lecturer/ Chapter Partner Visits Orange County

- by *Hector J. De Los Santos*

The ED/MTT Orange County joint chapter held a seminar on April 19 2004 at the campus of Skyworks Solutions. Prof. Mikael Östling, Head of Dept. of Microelectronics and Information Technology in KTH – Royal Institute of Technology, Sweden, was invited to deliver a distinguished lecture on "SiGe HBT Device Technology for High-Speed Applications". Skyworks Solutions sponsored this seminar. The chapter chair, Dr. Hector J. De Los Santos, and Dr. Yuhua Cheng of Skyworks Solutions, hosted the seminar. In this seminar, Prof. Östling reviewed the recent trend of SiGe BiCMOS for RF wireless and high-speed optical applications and summarized the key process features and performance of advanced SiGe bipolar processes. A device with novel collector structures is discussed as an example of demonstrating advanced process features. A mixed-mode



From left to right: Francisco García Sánchez, Víctor Guzmán, Juan Muci, Juin Liou, and Adelmo Ortiz-Conde.

device and circuit simulation methodology was also presented to investigate the influence of collector doping and Ge-profiles on the intermodulation distortion.

The lecture took about 50 minutes and 20 minutes for questions and answers. Prof. Östling's talk was well received by the audience. After the seminar, a group of people continued another 20-minute discussion with Prof. Östling on the technical contents in the presentation. About 30 attendees from universities and companies attended the seminar.

~ **Sunit Tyagi, Editor**

EDS Distinguished Lecturer/ Chapter Partner Visits Venezuela

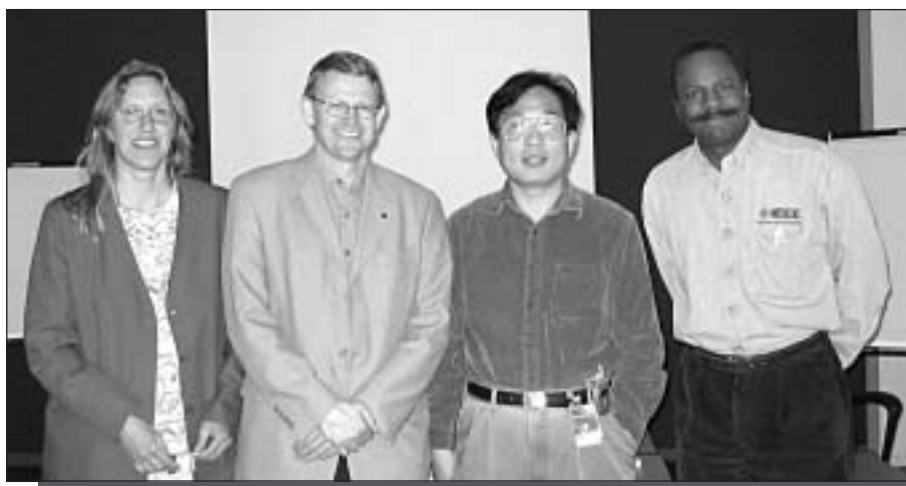
-by *Adelmo Ortiz-Conde*

Chapter Partner and AdCom member Prof. Juin J. Liou, from University of Central Florida, visited the ED

Venezuela Chapter 1-2 April 2004. During his visit he met with chapter officers and other members to discuss and support several operational aspects of the chapter's activities. The visit to the Chapter was combined with a Distinguished Lecture delivered by Prof. Liou. The two-hour technical talk, entitled "Recent Advances and Modeling of RF MOS Devices," was presented at the "Universidad Simón Bolívar" and attended by numerous graduate students and research staff. Prof. Liou, who is a well known researcher in the areas of semiconductor device modeling/simulation, RF device/IC design, and semiconductor manufacturing, had ample opportunity to interact with the audience, and to discuss about how MOSFETs are presently considered for radio frequency applications due to the aggressive feature size reduction in the past several years. In addition and in conjunction with these activities, Prof. Liou attended a working meeting of the Organizing Committee of the fifth "IEEE International Caracas Conference on Devices, Circuits and Systems" (ICCDACS). This conference has been organized by this Chapter since 1995 and is held biannually within the Caribbean basin. The coming one will take place in the Dominican Republic during the first week of November 2004. Chapter members thank and recognize Prof. Liou's valuable and continuous support of our chapter's activities.

For additional information, contact Professor Adelmo Ortiz-Conde at ortizc@ieee.org.

~ **Adelmo Ortiz-Conde, Editor**



From left to right: Dr. Carina Zaring, Prof. Mikael Östling, Dr. Yuhua Cheng, and Dr. Hector J. De Los Santos

EUROPE, MIDDLE EAST & AFRICA (REGION 8)

MTT/ED Republic of Georgia

- by Revaz S. Zaridze

The Georgia Chapter was founded in 1996. To understand the importance of this organization for Georgian scientists several serious factors should be taken into consideration. At that time Georgia was one of the republics in the post-Soviet space, where together with the economy, the science and the technology were also subject to destructive processes. For years the overwhelming majority of scientists and engineers had been working in the defense industry of the former Soviet Union and due to the specific character of their work they were completely excluded from the world community of scientists. Finally, with the breakdown of the Soviet Union, financing of the scientific activity practically stopped and supply of organizations with scientific literature was interrupted.

Last year's Georgia Chapter was widely represented by experienced scientists and skilled engineers in semiconductor technology, material science, RF engineering and instrument-making. This year the foreign financial support of Georgian scientific schools is a single source for preservation and developing of their scientific potential.

Along with such organizations and programs as the International Science and Technology Center (ISTC), the Science and Technology Center in Ukraine (STCU), the NATO Science Program and Eurocommission Programs, IEEE has already made a significant contribution to the solution of our problems. At present, the Georgia Chapter is joint with MTT/ED/AP.

It is interesting to trace the change in the number of Chapter members since 1996. In the first years, when IEEE completely undertook a financial support, the Chapter consisted of about 24 members. Today there are 18 Chapter members, but only ten of them are supported by IEEE, whereas eight members became self-financing. This may be regarded as progress. We hope that as the economic situation in Georgia improves, the number of Chapter members will increase and they will change-over to full self-financing.

Initially the Georgia Chapter involved mainly scientists and engineers from Tbilisi State University, but now the circle of participants has broadened. At different periods it consisted of members from Georgian Technical University, Institutes of Physics and Cybernetics of the Academy of Sciences of Georgia and Research and Production Association "MION".

Now, we believe that the IEEE membership has the following advantages:

- First, to be a member of the IEEE is rather prestigious and here we see an interesting moral factor.
- Second, IEEE facilitates integration of the Georgia Chapter members into the world community of scientists by participation in regular meetings of this organization and grants them a financial support. An opportunity to participate in international professional conferences and symposiums on preferential terms is an important aspect of IEEE membership.
- Third, some of Georgia Chapter members can pay their IEEE membership and scientific literature on the reduced rate basis.

The main goal of the Georgia Chapter activity is to attract scientists and engineers who want to use the possibilities of IEEE via distribution of literature for members and public libraries and the organization of seminars and workshops.

Finally, we support a regular IEEE/EDS Region 8 Chapters Meeting in Georgia. Optimally, it can be a combined with a Workshop in Electron Devices with the participation of international experts.

The reasons for this proposal are:

- the new, young government of Georgia is solving questions of priorities for the country, one of which should be Hi-Tec; therefore this meeting together with a conference, will attract the government's attention to the problems of electronics;
- no doubt that this event will evoke interest of young specialists and students in the field of Electron Devices and will stimulate their activity.
- meeting participants could familiarize themselves with Georgia – a country with beautiful nature,

ancient culture and unique hospitality. The prerequisites are:

- intensive stabilization of the situation in the country;
- availability of meeting halls perfectly equipped with required facilities;
- availability of first-class hotels with modern communication systems.

The Georgia Chapter will be happy to take part in the organization of this Meeting. One can also rely on the assistance of the government of Georgia.

ED/MTT/AP St. Petersburg

- by Margarita F. Sitnikova

Some important events have been organized and held by the IEEE ED/MTT/AP St. Petersburg Chapter with good success.

First, the 2004 Regional Olympic Games on Radio Engineering and Telecommunications was held in St. Petersburg State University of Electrical Engineering 'LETI' on April 24. About 40 undergraduate students participated in this event.

Second, the 11th International Student Seminar on Microwave Applications of Novel Physical Phenomena was held at LETI University June 7-9. The total number of accepted papers was 36 and the total number of participants was 135. This seminar was organized by Professors Orest and Irina Vendik from LETI University, Russia and E. Kolberg from Chalmers Technical University, Göteborg, Sweden. For the past 10 years, this seminar has been held in many European countries and has been very successful. The aim of the seminar is to bring together the graduate and postgraduate students from the world and to provide the place for exchange of scientific experience in the field of microwave applications of physical phenomena.

During the seminars six sessions on various scientific directions were organized by many outstanding professors such as Irina B. Vendik, 'LETI' University, Russia, Sergei A. Tretyakov, Helsinki University of Technology, Finland, Heli Jantunen, University of Oulu, Finland, Antin Velichko, University of Birmingham and Peter K. Petrov, London South Bank University (UK), etc. Graduate and postgraduate students from various countries like Switzerland, Sweden, Belgium, Turkey, Greece, Spain,



Participants of the 11th International Student Seminar on Microwave Applications of Novel Physical Phenomena

Ukraine and from various Russian cities like St. Petersburg, Moscow, Nizhny Novgorod presented their scientific results in the seminar.

As a result, the volume of Proceedings with all presented papers was published. Some report from this seminar was published in one of leading Russian newspapers ('Izvestija') on June 15, 2004.

~ **Alexander V. Gridchin, Editor**

2004 International Conference on Microelectronics (MIEL)

- by *Ninoslav Stojadinovic*

The 24th International Conference on Microelectronics (MIEL 2004) was held on 16-19 May 2004 at the Faculty of Electronic Engineering, University of Nis, Serbia and Montenegro. The conference was organized by the IEEE Yugoslavia Section and ED/SSC Chapter, in co-operation with the Faculty of Electronic Engineering and Ei-Holding Co.-Nis, and under the auspices of the Serbian Ministry of Science and Environment Protection, Yugoslav Academy of Engineering, Society for ETRAN, and City Assembly of Nis.

Two workshops, "Power Devices and ICs" and "Microsystem Technologies", along with an opening address entitled "The Objectives of the 6th Framework of the European Commission: Research Training Networks, Nanotechnologies and Eligibility of Participants from Western Balkan Countries", given by Dr. Gordana Popovic, representative of the Research Directorate General, European Commission (Brussels, Belgium), attracted a lot of attention and was an excellent introduction to the main technical program. The technical program consisted of eight sessions: Power Devices and ICs, Microsystem Tech-

nologies, Modeling and Simulation, Opto and Microwave Devices, Processes and Technologies, Circuit Design, Reliability Physics, and System Design.

A total of 47 domestic and 109 foreign participants took part at the conference, representing 34 countries from all over the world (Algeria, Australia, Austria, Belgium, Bulgaria, China, Czech Republic, Estonia, Finland, France, Germany, Greece, Hong Kong, India, Iran, Ireland, Israel, Italy, Japan, Korea, Macedonia, Mexico, Poland, Romania, Russia, Serbia and Montenegro, Slovak Republic, Spain, Taiwan, The Netherlands, Turkey, Ukraine, United Kingdom, and USA). A total of 22 keynote speakers were invited and 135 regular papers (71 oral and 64 posters) were presented. The conference proceedings (two volumes, 802 pages) were published through the IEEE Book Broker Program.

The keynote invited speakers were: N. Shammas, Staffordshire University, Stafford, United Kingdom ("Forward and Reverse Recovery Behaviour of Diodes in Power Converter Applications"), J. Lutz, Chemnitz University of Technology, Germany ("Fast Recovery Diodes-Reverse Recovery Behaviour and Dynamic Avalanche"), P.A. Mawby, University of Wales Swansea, United Kingdom ("Advanced Junction Isolation Structures for Power Integrated Circuit Technology"), J. Millan, CNM-CSIC, Barcelona, Spain ("Recent Developments in SiC Power Devices and Related Technology"), M. Darvish, Vishay-Siliconix, Santa Clara, USA ("Advanced Power devices for DC-DC Conversion"), H. Detter, Technical University of Vienna, Austria ("Concept of Virtual MST Factory"), G. Wachutka, Munich University of Technology, Germany ("Predictive Simulation of Microdevices and Microsystems: The Basis of Virtual Prototyping"), R. Plana, LAAS-CNRS, Toulouse, France ("Power Capabilities of RF MEMS"), M. Bazu, National Institute for Microtechnologies, Bucharest, Romania ("Concurrent Engineering – A Tool for Improving MEMS Research and Manufacturing"), T. Rijks, Philips Research, Eindhoven, The Netherlands ("MEMS Tunable Capacitors and Switches for RF Applications"), I. De Wolf, IMEC, Leuven, Belgium ("Instrumentation and Methodology for MEMS Testing, Reliability Assessment and Failure Analysis"), J. Burghartz, Delft University of

Technology, The Netherlands ("Add-On Process – An Economic Enhancement for High-Frequency Silicon Technology"), I. Adesida, University of Illinois at Urbana-Champaign, USA ("GaN Electronics with High Electron Mobility Transistors"), V. Palankovski, Vienna University of Technology, Austria ("Analysis of High Speed Heterostructure Devices"), P. Yu, University of California, San Diego, USA ("Microwave Photonics Links in Modern Networks: Component Technology"), K. Kim, Samsung Electronics Co., Kyungki-Do, Korea ("Future Memory Technology Including Emerging New Memories"), O. Nieto-Taladriz Garcia, Technical University of Madrid, Spain ("High Speed Circuits for Genetics Applications"), Y. Papananos, National Technical University of Athens, Greece ("Inductor Over MOS-FET: Operation and Theoretical Study of a CMOS RF Three-Dimensional Structure"), V. Liberali, University of Milano, Crema, Italy ("CMOS Analog Design for Wireless Communication"), K. Lee, KAIST, Daejeon, Korea ("MICROS: An Experimental Coin-Sized, Low Cost, Low-Power CMOS ZigBee-Like Radio at 2.4 GHz as an Ubiquitous Network Node"), and J. Liou, University of Central Florida, Orlando, USA ("Design and Modeling of On-Chip Electrostatic Discharge (ESD) Protection Structures").

Based on evaluation of the quality of the papers and presentations, three Best Paper Awards were presented to J. Millan (CNM-CSIC, Barcelona, Spain) for an oral paper "Direct Measurements of Self-Heating Effects at the Drift Region of 600V PT-IGBTs", to H. Hein (Fraunhofer Institute for Integrated Circuits, Erlangen, Germany) for a poster paper "A Fully Integrated 0.35 mm CMOS MMIC Amplifier for Short Range 433 MHz ISM Band Transceiver Application", and to F. De Paola (University of Naples Federico II, Italy) for a student paper "A Scalable Physical Model for Coplanar Waveguide Transition in Flip-Chip Applications". The international scientific journal Microelectronics Reliability also awarded the paper "Electrical Properties and Conduction Mechanisms in HfxTiySizO Films Obtained from Novel MOCVD Precursors" by A. Paskaleva et al., Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria.

As is the past, the social program of this year's conference issue was partic-



Dr. Aleksandar Popovic, Serbian Minister of Science and Environment Protection, is giving the opening address at MIEL 2004

ularly rich, with a conference banquet and gala-dinner as highlights. In general, besides the high quality of presentations, the MIEL conferences are flavored by the friendly atmosphere and great hospitality of the organizers and people of Nis. This special charm adds to the very positive impressions participants bring from MIEL and Nis, and is one of the reasons why one rarely attends MIEL just once: one who comes once will almost certainly come again. So, we are very much looking forward to welcoming old and new friends at MIEL 2006 in Nis.

11th International Conference: "MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS" - MIXDES'2004

- by Andrzej Napieralski

The 11th International Conference MIXDES 2004 was held on 24-26 June 2004 in Szczecin, Poland. The event was organized by The Technical University of Łódź (DMCS-TUL), Poland, in cooperation with The Warsaw University of Technology. The conference was co-sponsored by The Institute of Electrical and Electronics Engineers, Inc., IEEE ED/CAS Poland Chapter, REASON -

Research and Training Action for System on Chip Design IST-2000-30193, Ministry of Scientific Research And Information Technology, and Section of Microelectronics and Section of Signals, Electronic Circuits and Systems of the Committee of Electronics and Telecommunication of the Polish Academy of Sciences.

In addition to the regular program, six tutorials, coordinated by Prof. Lech Józwiak from Eindhoven University of Technology (The Netherlands), were organized and presented in the frame of FP5 European project REASON: "Research and Training Action for System on Chip Design". The REASON Tutorial Event accompanying MIXDES'2004 were composed of the following half-day parts:

- "Measurement, Modeling and Simulation of Thermal Dynamics in Microelectronic Structures" - A. Poppe (Budapest Univ. of Techn. and Econom., Hungary), M. Janicki (Technical Univ. Lodz, Poland),
- "Embedded Application Specific Systems on Silicon" - B. Mesman, O.P. Gangwal, J.L. van Meerbergen (Philips, Technische Universiteit Eindhoven),
- "Behavioral Design Using VHDL" - K. Siekierska, D. Obrebski (Institute of Electron Technology, Poland),
- "Methods for Testing of Electronics Systems" - S. Mosin (Vladimir State Univ., Russia), R. Ubar (Tallinn Tech. Univ., Estonia), R. Seinauskas (Kaunas Univ. of Techn., Lithuania),
- "Frontiers of Nanoelectronics" - V. Nelayev (Belarusian State Univ. of Informatics and Radioel., Belarus), A. Melker (St. Petersburg State Tech. Univ., Russia),

V. Labunov (Belarusian State Univ. of Informatics and Radioel., Belarus), P. Vityaz F., S. Zhdanok, S. Gaponenko, V. Kabanov, S. Kilin (National Academy of Sciences, Belarus),

- "Analog and RF design" - M. Hristov, E. Gadjeva (Tech. Univ. Sofia, Bulgaria), V. Lantsov (Vladimir State Univ., Russia), M. Tomaska (Slovak Univ. of Techn., Slovakia).

In addition to the regular conference program, a special session: "Advanced Compact Modeling and its Standardization" was organized by Dr. Wladyslaw Grabinski from Motorola Modeling Center in Geneva. After the discussion with Prof. Hiroshi Iwai from Tokyo Institute of Technology, Japan, and Dr Sadayui Yoshitomi from Toshiba Semiconductor, Japan, the organization of a new "Toshiba Special Session" has been planned for MIXDES 2005 in Kraków.

The conference was attended by over 140 scientists from 29 countries from all over the world (Algeria, Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Japan, Lithuania, Netherlands, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, Ukraine, and USA). During the conference six invited papers and over 120 regular papers were presented at oral, poster, and special sessions. The conference proceedings (684 pages, ISBN 83-919289-7-7) and CD ROM were published by DMCS TUL.

The keynote invited speakers were: Hiroshi Iwai, Tokyo Institute of Technology, Japan, ("Future Scaling of CMOS Devices"), Salvatore Baglio, University of Catania, Italy, ("Development of Integrated Microsensors for Chemical and Biochemical Applications"), H. Alan Mantooth, University of Arkansas, USA, ("Compact Modeling for Silicon Carbide Power Devices"), Stephan Wagner, Technische Universität Wien, Austria, ("Mixed-Mode Device and Circuit Simulation"), R. "Ben" Bennetts, Bennetts Associates, UK, ("Electronic Product Life-Cycle Design-For-Test: Status and Future Challenges"), and Erhard Kohn, University of Ulm, Germany, ("Diamond Technology for MEMS and Electronics").

Based on evaluation of the quality of the papers and presentations, eleven



A part of MIXDES 2004 participants during the excursion around Szczecin.



Two invited speakers of MIXDES: Prof. Hiroshi Iwai from Tokyo Institute of Technology, Japan (center) and Prof. Salvatore Baglio from University of Catania, Italy (left) during the welcome party discussion with Prof. Mitiko Miura-Mattausch, Prof. Andrzej Kobus, Dr Wladyslaw Grabinski and Dr Sadayui Yoshitomi.

Best Paper Awards were presented.

During the conference a joint meeting of the IEEE ED Chapter and Section of Microelectronics of the Committee of Electronics and Telecommunication of the Polish Academy of Sciences took place. As is among the best traditions of MIXDES, the social program of this year's conference was particularly rich, with a welcome party and conference banquet as highlights. The participants of the conference had also a possibility to learn more about Szczecin. Unfortunately due to heavy rain, the planned football match between the conference organizers and participants was cancelled. The organizers hope that next year the weather will be more convenient and the football match "Poland against the Rest of the World" will take place in Kraków next year.

The Preliminary Call for Papers for the next 12th MIXDES Conference is already available at <http://www.mixdes.org/downloads/call2005.pdf>. More information about the MIXDES Conference can be found at <http://www.mixdes.org>.

EDS Distinguished Lecturer Visits Hungary

- by Gady Golan

On Thursday, June 24, 2004, at the Technical University of Budapest, Hungary a Distinguished Lecturer talk was given by Professor Gady Golan, entitled "From science to industry - PTC barium titanate crystals as self-regulated heaters/sensors".

Abstract: Positive temperature coefficient (PTC) thermistors as heating elements are electronic devices that utilize barium titanate crystals as opposed to metallic filaments to generate heat. When used as a heating



From right to left: Prof. Tibor Berceli, Prof. Gady Golan and Prof. Imre Zolomy at the Technical University of Hungary

element the PTC thermistor is electrically heated until it becomes highly resistive. The high resistance reduces the power absorbed. A state of equilibrium is then established in which the electrically absorbed power equals the thermally dissipated power. In contrast to other types of heating elements, PTC thermistors are "self-regulated", they adapt their electrically absorbed power automatically to the thermally dissipated power.

Chairman of the meeting: Prof. Tibor Berceli

~ Andrzej Napieralski, Editor

ED Israel

-by Prof. Gady Golan;

A. On Wednesday, June 9, 2004, at the Holon Inst. of Technology (HAIT) - Holon.

Subject of meeting: "Lighting", By Dr. Inna Nissenboim,

Abstract: Lighting consists of several fields of study: physics, mathematics, optics, engineering, physiology, ergonomic and architectural design. In this talk we discussed the quality of light on a qualitative basis. The physiology of the eye will be briefly presented. Also, systems for color definition, practical units and light sources and luminaries, were presented. Furthermore, we discussed some topics of regulations and standards, calculate light installation properties and, finely, described practical implementations in buildings.

About the author: Inna Nissenbaum holds B.Sc., M.Sc. and Ph.D. degrees from Tel Aviv University (Electric and Electronic Engineering). Energy studies at the Gordon Institute. Since 1987, Inna Nissenbaum has an extensive industrial record in lighting engineering and design (such as Beer-Sheva Court Building, Tourism Center of Old

City of Acre, Israeli New Lighting Regulation etc.). Inna Nissenbaum is active within the societies of Electrical Engineering, chairman of the Israeli Lighting Society and plays an active role in enhancing the dialog between academy and industry on this matter. Chairman of the meeting: Prof. Gady Golan -

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

B. On Wednesday, June 16, 2004, at the Holon Inst. of Technology (HAIT) - Holon.

Subject of meeting: "The Zero-crossing nonlinearity and switched circuits; an initial design principle for consideration: linear or nonlinear?" By Dr. Immanuel Gluskin,

Abstract: The nonlinearity associated with a use in the time domain of zeros (e.g. zero-crossings) of state variables is considered. The way from some equational examples that introduce this nonlinearity, to a design principle for switched circuits, is straightforward. The point is to know, in terms of switching, whether the switched system being designed will be linear or nonlinear.

About the author: Emanuel Gluskin received his M.Sc. in Physical Engineering from Leningrad Polytechnical Institute (Faculty of Radio-Electronics), and his Ph.D. in Electrical Engineering from Ben-Gurion University, Beer-Sheva. He has industrial and research experience, and has taught B.Sc. students in Israel for many years. His research interests include basic system theory, electrical and physical aspects of lighting circuits, quality of the power consumption, spatial filtration, signal processing and the problem of autistic vision disturbance.

Chairman of the meeting: Prof. Gady Golan -

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

~ Gady Golan, Editor

Exmatec04

- by Jean Camassel

The seventh International Workshop on Expert Evaluation & Control of Compound Semiconductor Materials & Technologies (EXMATEC 04) took place in Montpellier, France, June 1-4, 2004. It was attended by 112 participants from all over Europe and additional countries like Australia, Japan, South Africa and the USA. The central topic of the Conference was on the

development, improvement and application of advances investigation methods devoted to the fabrication and evaluation of compound semiconductor materials and devices.

The technical program covered 3 days of presentations with 11 invited speakers, 20 contributed presentations and 75 poster papers arranged in 2 sessions. With respect to the previous EXMATEC conferences, one has to notice an increasing participation of the industrial companies; some of them contributing directly to the technical program, some exhibiting their latest development.

The Introductory Session reviewed the state of the art of layer transfer technologies. Three successive presentations covered the whole range of technologies running from bonded SiGe layer onto Si wafers for strained silicon applications to large area solar cells produced by epitaxial lift-off and, finally, molecular bonding of InP detectors on processed Si wafers using standard "pick and place" machines.

Most of the Growth and Characterisation sessions were devoted to wide bandgap semiconductors. The presentations included the use of the "checkers-board" carbonisation method to reduced the bow of 2 inch 3C-SiC wafers on Si, as well as the growth of AlN substrates by the PVT (Physical Vapor Transport) method or the investigation of defects in binary and ternary wide gap II-VI compounds using the synchrotron radiation facilities. Concerning GaN and related compounds, the main emphasis was on the reduction of threading dislocations by in-situ patterning; on the properties of InN material, on the bowing and non-random distribution of atomic species in InGaN and AlGaIn epitaxial layers, on the investigation of deep levels by combined capacitance transient techniques and, finally, on the deposition of highly resistive iron-doped GaN layers.

Concerning some more advanced characterisation techniques, the focus was either on 3d-surface metrology using interferometry or in-depth characterisation of epitaxial layers using photoreflectance and spectroscopic ellipsometry. Time-resolved four wave mixing was also reviewed, as well high resolution glow discharge mass

spectroscopy for control of the chemical composition.

Optoelectronics covered many different topics, including the evaluation of dilute nitride semiconductors for optical communication systems, the review of nitride-based laser manufacturing, the development of Sb-based laser diodes emitting at room temperature at 2.61 μm in the CW mode. The radiative recombination in InAs-based QD lasers, the defect-states in AlGaIn solar-blind UV photodetectors and the degradation signature in AlGaAs-based high-power laser arrays were also considered.

Concerning the field of electronic devices, the source of noise in Hall sensors based on III-V heterostructure was reviewed. Then the generation of terahertz frequencies by plasma waves in nm gate HEMTs was considered and the role of mesa-etching in 4H-SiC pin diodes was demonstrated. The preparation of novel group III-nitride devices for micro and nanomechanical MEMS concluded the presentations.

~ Cora Salm, Editor

ASIA & PACIFIC (REGION 10)

ED/SSC Bangalore

-by Dr P R Suresh

The Chapter along with National Semiconductor, India conducted a 5-hour seminar on May 17th. The topic was "Art of Analog Electronics" presented by Bob Pease, National Semiconductor, USA. This event received a phenomenal response with more than 200 attendees. Bob's lively presentation ensured that the audience stayed through the event. The topics included

amplifiers, power management applications, linear regulators, and data converters. The audience appreciated the issues discussed in the practical implementation of the circuits.

The Chapter co-sponsored a two-week "VLSI Education Workshop" along with the VLSI Society of India, conducted at SJCE, Mysore from May 24th to June 5th. The workshop was specifically targeted towards the faculty members of engineering colleges engaged in postgraduate courses in VLSI. The attendance was limited to about 35, so that a better interaction was possible. The workshop also had lab sessions to enable the attendees to get hands on exposure to various design tools. Several leading experts presented the lectures from academia and industry. Some of the topics covered were physics of sub-micron MOS transistors, analog CMOS design, CAD tools for VLSI circuits, testing and verification, VLSI system architecture, filter design and reliability of IC's.

The third event was held on 28 June. This was a technical seminar by Prof. Bhargab Bhattacharya, Indian Statistical Institute on "Energy-Aware Testing of VLSI Circuits".

ED/MTT India

-by K. S. Chari

During the period April-June 2004, the Chapter activities focused on the following events:

- Two invited lectures were organized. The first talk on "Evolution of Semiconductor Manufacturing: Design and Technology Issues" was delivered by Mr. Kuldip Sethi, President and CEO of Sentient AMR Technologies Inc, Sunnyvale, CA, U.S.A on 24 May. The second talk "Optoelectronic Devices for IT and Bio-medics" was given by Prof D. K. Gautam, a JSPS



A section of attendees to NASET-2004 held at Kurukshetra University, Kuruk



Participants of Nanotechnology Workshop. Third from left is the ED Chapter Chair, Prof. Burhanuddin Yeop Majlis, and the main speaker, Dr. Joydeep Dutta

Prasanna of DEC, New Delhi and Mr. Vikram Singh and Mr. Kamal Kant of KUK (2nd Prize).

Prof A. K. Chawla, Vice-Chancellor, inaugurated the event. Prof Anil Vohra and Prof P. J. George along with faculty were local hosts at Kurukshetra University. NASET has been playing the role of fostering innovation in students. A snapshot of the event is attached.

ED Malaysia

- by Burhanuddin Yeop Majlis

The ED Malaysia Chapter, together with the Institute of Micro engineering and Nanoelectronics (IMEN), University Kebangsaan Malaysia successfully organized a workshop on Nanotechnology 3-4 June 2004 at the Merriot Hotel Putrajaya. The workshop covered all-important aspects of nanotechnologies, giving an introduction to budding enthusiasts of the Nanoworld. It was attended by academia and researchers representing almost all universities and related research institutions from all over Malaysia that have an interest in nanotechnology. The main speaker was Dr. Joydeep Dutta from the Asian Institute of Technology (AIT). Dr. Dutta has been associated with the Swiss Federal Institute of Technology since 1993. From 1997 to 2001, he worked for several companies in technical and managerial qualities, namely Unaxis, Phonak, CNET and Bobst. He has been the member of the board of two companies working in high technology electronics and environmental consulting, respectively. Dr. Dutta has built up the course on nanomaterials along with Prof. Hofmann in 1997, probably the first of this kind in Europe and has delivered it in EPFL since 2002. Dr. Dutta is a member of several professional bodies, including the Asia-Pacific Nanotechnology Forum (APNF), Institute of Nanotechnology, UK Futurists Network, The Science Advisory Board, The Nanotechnology Group, International Microelectronics & Packaging Society, and European Consortium on Nanomaterials amongst others. His broad research interests include nanomaterials and nanotechnology, self-organization, microelectronic devices, nanoparticles and its applications in electronics and biology.

For more information, please contact: Prof. Burhanuddin Yeop Majlis
Institute of Microengineering and Nanoelectronics (IMEN) University

Fellow and Head of Electronic Science Department in North Maharashtra University, Jalgaon, Maharashtra on 16 June. Both these talks, held at the Department of Information Technology, attracted large audiences.

- A 2-day National Conference on Microwaves and Optoelectronics (NCMO-2004) was organized at Babasaheb Ambedkar University, Aurangabad during the period 29-30 June. The event held under the active encouragement and co-sponsorship of the chapter also attracted co-sponsorship and funding from the Ministry of Communications and Information Technology, the University Grants Commission, the Department of Science and Technology etc. The conference was attended by 300 participants and featured over 100 presentations covering the theme of the conference. Prof M. D. Shirsat of the Department of Physics coordinated the event at the University.

- Electronic Science Department of Kurukshetra University, with active co-sponsoring of the Chapter, organized a 2-day National Symposium of Electronics Technology (NASET-2004) from 19-20 March. This event, held as a special event exclusively to the student community, attracted over 300 students from different Engineering Colleges and Universities in the northern region. NASET-2004 featured the events of the S&T

Quiz, Logic Design Contest, Poster Contest, Hardware contest and Presentation on Computers and Information Technology and Electronics. The events attracted entries in excess of 150 from which a condensed list of selections was drawn for attendance. The Chapter awarded a total of 12 prizes for the outstanding candidates in these events. The winners of these events are:

S&T Quiz: Mr. Jitender Saini, Mr. Hinashu Sekahr Pandey (1st Prize) and Ritesh Saini and Rohit Bharadwaj (2nd Prize) from NIT, Kurukshetra. Mr. Amit Gupta of DVIET, Karnal received the 3rd Prize.

Poster Contest: The winners were Mr. Vedpal Singh (1st Prize) and Ms Meenu Srivastava and Ms Seema Tomar (2nd Prize) from Department of Electronic Science, Kurukshetra and Mr. Gaurav Kumar and Satish Kaushik (3rd prize) from DVIET.

Hardware Exhibition: Sandeep Sharma, Mr. Vichal Verma (1st prize) and Ms Jasbir Kaur (2nd Prize) from Dept of Electronic Science. 3rd Prize went to Mr. Sachin Gupta of HEC, Jagasdhari.

Paper Presentation: 6 awards were won. The prizes went to Mr. Guntas Randhawa and Ms Meera Jindal; Mr. Mohit Handa and Ishpreet Singh of PEC Chandigarh (1st Prizes), Mr. Sameer Mehta and Mr. Amit Goel

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CPMT/ED/R Singapore

-by Dr. Kin Leong Pey

The Chapter organized the following ED-related technical talks during April-June 2004:

- (1) On April 15, Professor Chandan Kumar Sarkar (IEEE EDS distinguished lecturer) of Jadavpur University, India gave a talk on "Gate Oxide Degradation in MOS "Devices Under High Field Stress-Breakdown Issues and the Model"
- (2) On May 20, Professor Kishor S. Trivedi of Duke University, USA gave a talk on "Reliability Modeling: Tools & Techniques"
- (3) On May 27, Dr. Lakshmi Kanta Bera of Institute of Microelectronics, Singapore gave a talk on "Strained-Si MOSFETs and High-K Gate Dielectrics for Advanced CMOS Applications".

These technical talks were well attended by members, professionals and students.

A Workshop and IEEE EDS Mini-col-

loquium on NANometer CMOS Technology (called "The 4th WIMNACT-Singapore") scheduled for 12 July 2004 was organized and sponsored by IEEE CPMT/ED/R Singapore Chapter, and is co-sponsored by the IEEE EDS Distinguished Lecturer Program & Subcommittee for Regions/Chapters, and the School of Electrical & Electronic Engineering (EEE), Nanyang Technological University (NTU). In conjunction with the Chapter, the event will be co-hosted by the Silicon Technology, Nanoelectronics & Devices, and Computational Nano-Electronics Groups of the Microelectronics Division, School of EEE, NTU. Two IEEE Fellows and three DLs will present their latest research work on nano-scale devices. Further details regarding WIMNACT can be found in a separate article in this issue of the Newsletter.

The 2004 International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA'04), jointly organized by the IEEE ED Taipei Chapter, IEEE Taipei Section, National Chiao Tung University (NCTU) and IEEE CPMT/ED/R Singapore Chapter, and technically co-sponsored by EDS

has been progressing well. More than 70 technical papers were presented, including two Keynotes speeches on "Opportunities and Challenges for High-k Gate Dielectrics" by Prof. T. P. Ma of Yale University, USA and "Technology and Reliability Challenges: A Foundry Perspective" by Dr. Jack Sun of TSMC, Taiwan. As per the IPFA tradition, four tutorial sessions and an equipment exhibition were held in conjunction with IPFA'04.

The General Chair, Dr. Alastair Trigg of the Institute of Microelectronics, Singapore, has formed the organizing committee of IPFA'05. It will be held in Singapore in July 2005 and the first call for papers was announced at the IPFA'04 in Taiwan.

The Chapter has donated S\$1,200 to Temasek Polytechnic for a Bronze Course Medal Award in 2004 and 2005.

~ Xing Zhou, Editor

ED Kansai

- by Hiroyuki Sakai

The ED Kansai Chapter held a Distinguished Lecturer Meeting at Kyoto University, Kyoto, Japan, on May 12, 2004. Dr. Hidemi Takasu, Director,



Distinguished lecturers and invited speakers presented in the meetings organized by the ED Japan Chapter. From the upper left to the lower right; Prof. H. Iwai, Dr. Y. Takahashi, Dr. K. Maeguchi, Dr. K. Okuwada, Prof. K. Itoh, Dr. E. Godshalk, Prof. R. Dutton, Prof. D. Donoval and Prof. E. Seebaue.



Dr. Hidemi Takasu giving a Distinguished Lecture on May 12, 2004 at Kyoto University, Kyoto, Japan

Member of the Board, R&D Headquarters, Rohm Co., Ltd. was invited as a Distinguished Lecturer. Dr. Takasu is well known for his prominent contributions to the semiconductor devices field both in technical and in industrial aspects. The title of his talk was "Technology trends of FeRAM application to CMOS logics". Starting from a brief review of superiority of FeRAM to other memory technologies, he introduced the cutting edge technologies of FeRAM applications; not only as replacement of SRAM but also as novel logics using ferroelectric materials. His talk was not limited to technical fields but extended to the industrial structure. He concluded by expressing his strong expectations to young researchers. Prof. Nozawa, Kyoto University, hosted the meeting and the number of participants was 20 including students and researchers from industries. We truly appreciate Dr. Takasu's dedicated effort.

ED Japan

-by Hiroshi Ishiwara

The ED Japan Chapter held Distinguished Lecturer Meetings on 22 April, 28 May, and 4 June 2004, at the Tokyo Institute of Technology, Yokohama. Three prestigious lecturers from EDS gave presentations on: "Technology and Architecture Challenges of Sub90nm" by Prof. Robert W. Dutton (Stanford Univ.) on 22nd April, "New Mechanisms Governing Diffusion in Silicon for Transistor Manufacture" by Prof. Edmund G. Seebau (Univ. of Illinois) on 28th May, and "Microelectronic Department, Slovak University of Technology in Bratislava" by Prof. Daniel Donoval (Slovak Univ. of Technol., Slovakia) on 4th June. On the same day of the first lecture, the technical meeting was also held in which Dr. Ernest L. Godshalk (President and COO of Varian Semiconductor Equip-

ment Associates) presented a talk entitled "Semiconductor Equipment Industry's Response to Market Trends and Challenges". The workshop entitled "New collaborations between industries and universities on semiconductor technology" was held on 26th March at Tokyo Institute of Technology, Yokohama, cosponsored by the EDS Japan Chapter, Silicon Technology Subcommittee of the Japanese Society of Applied Physics, Subcommittee of the Institute of Electrical Engineering of Japan, and Research and Development Association of Future Electron Devices. Prof. Hiroshi Iwai (Tokyo Inst. of Technol.), Dr. Yasuo Takahashi (NTT), Prof. Kohei Itoh (Keio Univ.), Prof. Toshiro Hiramoto (Univ. Tokyo), Dr. Kumi Okuwada (Ministry of Education, Culture, Sports, Science and Technology), and Dr. Kenji Meguchi (Toshiba Corp.) presented topics related to the workshop theme, and we enjoyed very active discussions.

~ Hisayo S. Momose, Editor

ED Shanghai

- by Guo-Ping Ru

The ED Shanghai Chapter was involved in organizing an international workshop named the 4th International Workshop on Junction Technology (IWJT-2004) during March 15-16, 2004. IWJT is an annual event and the first three workshops were held in Japan. IWJT-2004 was sponsored by the Chinese Institute of Electronics and Japan Society of Applied Physics (Silicon Technology Division), and technically co-sponsored by the IEEE Electron Devices Society, the IEEE EDS Shanghai Chapter, in cooperation with the International SEMATECH & SEMI and Electrochemical Society, supported by the Natural Science Foundation of China, Science and Technology Commission of Shanghai Municipality, School of Microelec-

tronics at Fudan University, Axcelis Technologies Inc., and the State Key Laboratory of Functional Materials for Informatics at the Shanghai Institute of Microsystem and Information Technology of Chinese Academy of Sciences.

IWJT-2004 consisted of a plenary session, six parallel sessions, and one poster session. A total of 85 papers, including 63 oral and 22 poster papers, were accepted for presentation. Over 140 participants from 10 countries or regions attended the workshop. Dr. S. Deleonibus from CEA-LETI delivered a plenary talk entitled "The nanoelectronic CMOS era: silicon meets the other materials on the roadmap". Dr. H. M. Wu from Semiconductor Manufacturing International Corporation (SMIC) gave a plenary talk on "Technology requirement for leading edge foundry operation in Mainland China". Mr. J. O. Borland from JOB Technologies presented a plenary talk on "USJ formation & characterization for 65nm node and beyond", and Prof. Y. Nanishi from Ritsumeikan University gave a plenary talk titled "Recent development of nitride semiconductor electronic devices for next generation wireless communications". In addition, prominent scientists presented 12 invited talks from Belgium, China, Japan, Singapore and the USA in the parallel sessions. After the two-day technical program, a tour of the Grace Semiconductor Manufacturing Corporation (GSMC) at Zhangjiang Hi-tech Park in Shanghai Pudong Area was arranged.

IWJT-2004 provided a very good opportunity for Chinese scientists and engineers involved with junction technology to have a close touch with the world's pioneering scientists. Meanwhile, it gave an opportunity for overseas researchers to have a vivid view of the rapid progress of microelectronics research and industry in Mainland China.

~ Hei Wong, Editor



Part of the IWJT-2004 committee members and plenary speakers.

EDS MEETINGS CALENDAR

(AS OF 5 AUGUST 2004)

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

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

October 1 - 6, 2004, T **International School on Chaotic Oscillations and Pattern Formation**, Location: Volzhskie Dali Hotel, Saratov, Russia, Contact: Dmitry Trubestkov, Saratov State University, E-Mail: true@cas.ssu.runnet.ru, Deadline: 6/20/04, www: <http://www.nonlin-mod.sgu.ru/chaos04.htm>

October 3 - 6, 2004, T **IEEE Custom Integrated Circuits Conference**, Location: Caribe Royale Resort Suites, Orlando, FL, USA, Contact: Melissa Widerkehr, Widerkehr & Associates, E-Mail: melisaw@widerkehr.com, Deadline: 4/5/04, www: <http://www.ieee-cicc.org>

October 3 - 6, 2004, T **IEEE Conference on Intelligent Transportation Systems**, Location: Loews L'Enfant Plaza Hotel, Washington, DC, USA, Contact: Paul Kostek, E-Mail: p.kostek@ieee.org, Deadline: 5/1/04, www: <http://www.itsc2004.org/>

October 4 - 7, 2004, * **IEEE International SOI Conference**, Location: Francis Marion Hotel, Charleston, SC, USA, Contact: Bobbi Ambruster, BACM, E-Mail: bacm@attbi.com, Deadline: 8/13/04, www: <http://www.soiconference.org>

October 4 - 8, 2004, T **European Symposium on Reliability of Electron Devices, Failure Physics and Analysis**, Location: Swiss Federal Institute of Technology Main Bldg, Zurich, Switzerland, Contact: Mauro Ciappa, Swiss Federal Institute of Technology (ETH), E-Mail: esref04@iis.ee.ethz.ch, Deadline: 3/26/04, www: <http://www.iis.ee.ethz.ch/esref/index.html>

October 4 - 6, 2004, * **International Semiconductor Conference**, Location: Sinaia Hotel, Sinaia, Prahova, Romania, Contact: Dan Dascalu, IMT-Bucharest, E-Mail: dascalu@imt.ro, Deadline: 5/19/04, www: <http://www.imt.ro/CAS>

October 11 - 14, 2004, T **IEEE International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory**, Location: Tbilisi State University, Republic of Georgia, Ukraine, Contact: Mykhalyo Andriychuk, Inst. of Applied Problems of Mech. & Math. OF NASU, E-Mail: andr@iapmm.lviv.ua, Deadline: 7/1/04, www: <http://www.ehw.ieee.org/soc/cpmt/ukraine/>

October 11 - 12, 2004, T **European Gallium Arsenide and Other Semiconductor Appli-**

cations Symposium, Location: Amsterdam RAI, Amsterdam, The Netherlands, Contact: Frank Van den Bogaart, E-Mail: gaas2004@fel.tno.nl, Deadline: 3/1/04, www: <http://www.eumw2004.com/gaas2004.html>

October 11 - 13, 2004, T **IEEE International Conference on Computer Design**, Location: Doubletree Hotel, San Jose, CA, USA, Contact: Thomas Dillinger, Sun Microsystems Inc., E-Mail: tdill@east.sun.com, Deadline: 5/14/04, www: <http://www.iccd-conference.org>

October 17 - 21, 2004, T **International Conference on Advanced Semiconductor Devices and Microsystems**, Location: Smolenice Castle, Smolenice, Slovak Republic, Contact: Stefan Hascik, Institute of Electrical Engineering, Slovak Academy of Sciences, E-Mail: asdam@savba.sk, Deadline: 4/15/04, www: <http://www.elu.sav.sk/asdam>

October 18 - 21, 2004, * **IEEE International Integrated Reliability Workshop**, Location: Stanford Sierra Camp, Lake Tahoe, CA, USA, Contact: Roy and Becky Walker, E-Mail: roy@sar101.com, Deadline: 6/18/04, www: <http://www.irps.org/irw>

October 18 - 21, 2004, T **International Conference on Solid-State & Integrated Circuits Technology**, Location: Beijing International Conference Center, Beijing, China, Contact: Mengqi Zhou, Chinese Institute of Electronics, E-Mail: mqzhou@public.bta.net.cn, Deadline: 5/31/04, www: <http://dme.pku.edu.cn/icsict>

October 24 - 27, 2004, T **International Workshop on Computational Electronics**, Location: Purdue University, West Lafayette, IN, USA, Contact: Jane Boone, NSF Network for Computational Nanotechnology, Purdue University, E-Mail: ncn@ecn.purdue.edu, Deadline: 6/14/04, www: <http://www.iwce.nanohub.org>

October 24 - 27, 2004, T **IEEE International Conference on Sensors**, Location: The Vienna University of Technology, Vienna, Austria, Contact: M Vellekoop, Vienna University of Technology, E-Mail: vellekoop@iemw.tuwien.ac.at, Deadline: 4/16/04, www: <http://www.ehw.ieee.org/tc/sensors/sensors2004/index.html>

October 24 - 27, 2004, * **IEEE Compound Semiconductor IC Symposium**, Location: Double Tree Monterey, Monterey, CA, USA, Contact: Brad Nelson, Sirenza Microdevices, E-Mail: bnelson@sirenza.com, Deadline: 7/28/04, www: <http://www.csics.org>

October 24 - 24, 2004, T **Reliability Workshop on Compound Semiconductors**, Location: Doubletree Hotel, Monterey, CA, USA, Contact: Anthony Immorlica, BAE Systems, E-Mail: anthony.a.immorlica@baesystems.com, Deadline: 8/16/04, www: <http://www.jedec.org/home/gaas/default.cfm>

October 26 - 29, 2004, T **International Microprocesses and Nanotechnology Conference**, Location: Hotel Hankyu Expo Park, Osaka, Japan, Contact: Hiroaki Masuko, Business Center for Academic Societies Japan, E-Mail: mnc@bcasj.or.jp, Deadline: 7/9/04, www: <http://www.nano.ee.es.osaka-u.ac.jp/mnc>

November 3 - 3, 2004, T **IEEE Electron Devices Activities in Western New York Conference**, Location: Xerox Auditorium, James E. Gleason Building, Rochester, NY, USA, Contact: Karl Hirschman, RIT Microelectronic Engineering, E-Mail: kdhemc@rit.edu, Deadline: 10/22/04, www: <http://www.microe.rit.edu/eds.html>

November 3 - 5, 2004, T **International Caracas Conference on Devices, Circuits and Systems**, Location: Barcelo Bavaro Convention Center, Punta Cana, Dominican Republic, Contact: Adelmo Ortiz-Conde, Dpto de Electronica, Simon Bolivar University, E-Mail: ortizc@ieee.org, Deadline: 5/17/04, www: <http://pancho.labc.usb.ve/iccdcs2004>

November 7 - 11, 2004, T **IEEE International Conference on Computer Aided Design**, Location: Doubletree Hotel, San Jose, CA, USA, Contact: Kathy MacLennan, MP Associates, Inc., E-Mail: kathy@dac.com, Deadline: 4/21/04, www: www.iccad.com

November 8 - 9, 2004, T **International Symposium on Electron Devices for Microwave and Optoelectronic Applications**, Location: Kruger National Park, Pretoria, South Africa, Contact: Thereza Botha, Techno Conferences, E-Mail: thereza@technoscene.co.za, Deadline: 9/10/04, www: <http://www.edmo-symposium.org>

November 15 - 17, 2004, T **Non-Volatile Memory Technology Symposium**, Location: Crowne Plaza Universal Hotel, Orlando, FL, USA, Contact: Nazeeh Aranki, E-Mail: nazeeh.l.aranki@jpl.nasa.gov, Deadline: 6/15/04, www: <http://nvm.jpl.nasa.gov/>

December 6 - 8, 2004, T **International Conference on Field-Programmable Technology**, Location: University of Queensland, Brisbane, Australia, Contact: Neil Bergmann, School of ITEE, University of Queensland, Brisbane, E-Mail: n.bergmann@itee.uq.edu.au, Deadline: 6/7/04, www: <http://www.itee.uq.edu.au/~icfpt04/>

December 6 - 8, 2004, T **International Conference on Microelectronics**, Location: Le Palace Hotel, Carthage, Tunis, Tunisia, Contact: Brahim Mezghani, IPEIS BP 805, E-Mail: brahim.mezghani@ipeis.rnu.tn, Deadline: 8/10/04, www: <http://www.gmslab.org/conferences/icm2004>

December 7 - 9, 2004, T **IEEE International Conference on Semiconductor Electronics**, Location: Mines Beach Resort & Spa, Kuala Lumpur, Malaysia, Contact: Burhanuddin Majlis, Institute of Microengineering and Nanoelectronics (IMEN), E-Mail: burhan@vlsi.eng.ukm.my, Deadline: 8/1/04, www: <http://www.eng.ukm.my/~eds/icse>

December 8 - 10, 2004, T **Conference on Optoelectronic and Microelectronic Materials & Devices**, Location: The University of Queensland, Brisbane, Australia, Contact: Aleksander Rakic, The University of Queensland, E-Mail: rakic@itee.uq.edu.au, Deadline: 7/25/04, www: <http://www.commad2004.itee.uq.edu.au>

December 9 - 11, 2004, * **IEEE Semiconductor Interface Specialists Conference**, Location: Catamaran Hotel Resort, San Diego, CA, USA, Contact: Glen Wilk, ASM America, E-Mail: glen.wilk@asm.com, Deadline: 7/15/04, www: <http://www.ieeesisc.com>

December 9 - 11, 2004, T **International Conference on Fibre Optics and Photonics**, Location: Hotel Le Meridien, Cochin, India, Contact: P Radhakrishnan, International School of Photonics, Cochin University of Science & Technology, E-Mail: radhak@cusat.ac.in, Deadline: 8/15/04, www: http://www.photonics.cusat.edu/ph_2004/photonics2004.htm

December 13 - 15, 2004, * **IEEE International Electron Devices Meeting**, Location: San Francisco Hilton & Towers Hotel, San Francisco, CA, USA, Contact: Phyllis Mahoney, Widerkehr & Associates, E-Mail: phyllism@widerkehr.com, Deadline: 6/24/04, www: <http://www.ieee.org/conference/iedm>

January 3 - 7, 2005, * **IEEE Photovoltaic Specialists Conference**, Location: Disney's Coronado Springs Resort, Lake Buena Vista, FL, USA, Contact: Americo Forestieri, E-Mail: moeforestieri@att.net, Deadline: 7/9/04, www: <http://www.ieee.org/pvsc>

January 3 - 7, 2005, T **International Conference on VLSI Design**, Location: Taj Bengal, Kolkata (Calcutta), India, Contact: Partha Das, Interra Systems (I) Pvt. Ltd., E-Mail: ppd@interrasystems.com, Deadline: 7/10/04, www: <http://www.isical.ac.in/~vlsi2005>

February 2 - 5, 2005, T **Spanish Conference on Electron Devices**, Location: Hotel Imperial Torracó, Tarragona, Spain, Contact: Josep Pallares, University Rovira I Virgili, E-Mail: jpallares@etse.urv.es, Deadline: 10/1/04, www: <http://cde05.etse.urv.es>

February 6 - 10, 2005, T **IEEE International Solid-State Circuits Conference**, Location: San Francisco Marriott Hotel, San Francisco, CA, USA, Contact: Anne O'Neill, IEEE Solid-State Circuits Society, E-Mail: sscs@ieee.org, Deadline: 9/20/04, www: <http://www.isccc.org/isscc/>

* = Sponsorship or Co-Sponsorship Support
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@ = Alternates support between 'Sponsorship/Co-Sponsorship' and 'Technical Co-Sponsorship'

OFAC - WHERE ARE WE TODAY? *continued from page 19*

advantage of member benefits and services; only print subscriptions to IEEE publications could be provided with membership.

Certain aspects of editing of papers and manuscripts submitted to IEEE publications also were affected by these regulations. So, in December 2002, IEEE sent a request for OFAC to exempt its entire publishing process. After many months of discussions and providing additional information to OFAC, on 30 September 2003, OFAC confirmed that IEEE could publish articles from authors in Iran and that the IEEE peer review process was entirely exempt from the Iranian embargo rules. But OFAC also said IEEE needed a license for editing. On 6 October 2003, IEEE provided supplemental information to OFAC, reiterating our position that the entire publishing process for authors in all

embargoed countries should be exempt. At the same time, IEEE also requested that OFAC issue a license to enable us to carry on our normal publication process if an exemption was not possible. After the ruling, IEEE continued to receive papers, send them to editors and reviewers for peer review and publish those that met its publication standards without style and copy editing.

While awaiting the decision about the October request, IEEE took a leading role to help other scholarly publishers understand its experience with OFAC regulations by organizing a special summit of scientific, technical and medical publishing organizations, which was held on 9 February 2004 in Washington, D.C. At that meeting, David Mills, OFAC chief of licensing, encouraged the groups represented to work together to help OFAC better understand the academic peer

review process.

After the meeting, IEEE continued discussions with OFAC. On 2 April, IEEE received the ruling mentioned at the note at the top of this document that exempted our entire scholarly publishing process from OFAC restrictions. IEEE has been the subject of a number of news stories worldwide during recent months about this issue. Since many of these stories contain inaccurate information, IEEE has been communicating the facts on the IEEE OFAC web page at <http://www.ieee.org/ofac>.

Please continue to monitor this Web page for updates to all aspects of this situation.

*Celia Desmond
IEEE Transnational Committee Chair
World Class-Telecommunications
Mississauga, Ontario, Canada*

REPORT ON THE IEEE EDS EAM MINI-COLLOQUIUM - MADRID, SPAIN

An IEEE EDS Europe, Africa and Middle East (EAM) Mini-colloquium was held in Madrid, Spain on 21 May in conjunction with the EAM (Region 8) Chapters Meeting and the EDS Ad-Com Meeting on 22 and 23 May, respectively. The speakers were composed of eleven EDS Distinguished Lecturers. After the welcoming address by Marcel Profirescu, EDS SRC EAM Vice-Chair, Professor Gady Golan from the Open University in Tel Aviv, Israel, presented the first lecture entitled 'Investigation of Metal-Silicon Interfaces Influenced by Vacuum Photothermal Processing (VPP)'. Two presentations on deep submicron device simulation followed given by Professor Marcel Profirescu of Technical University of Bucharest, Romania, on 'Simulation on the Nanometer Scale' and Professor Enrico Sangiorgi of the University of Bologna, Forli, Italy, on 'Advanced Simulation of Decananometer MOSFETS'. The last lecture before lunch on 'MICROS: An Experimental Coin-Sized, Low Cost, Low Power CMOS ZigBee-Like Radio at 2.4 GHz as an Ubiquitous Network Node' was presented by Professor Kwyrro Lee from Korea Advanced Institute of Science and Technology, Taejeon, Korea.

The afternoon session comprised four talks given by Professor Renuka Jindal from the University of Louisiana at Lafayette, USA, on 'Nano-FET Fluctuation Physics', Professor Cor Claeys of KUL / IMEC in Leuven, Belgium on 'Technological Challenges of Advanced CMOS Processing and Their Impact on Design Aspects', Professor Monuko du Plessis from the University of Pretoria, South



The lecturers and attendees of the IEEE EDS EAM Mini-Colloquium

Africa, about 'Silicon Light Emitting Devices in Standard CMOS / BiCMOS Technology' and Professor Alexander Gridchin of Novosibirsk State Technical University, Russia, on 'Physical fundamentals for designing the pressure and pressure-temperature sensor based on shear piezoresistive effect'.

Within the last session after the coffee break Professor Paul Yu from the University of California at San Diego, USA, presented a lecture on 'Advances in Analog Fiber Links', then Professor Mikael Ostling of KTH, Royal Institute of Technology in Kista, Sweden, gave a talk on 'Silicon Carbide Device Technology – The State of the Art', and Professor Mark Law from the University of Florida in Gainesville, USA, presented the last

lecture entitled 'Moore's Law – Challenges for Materials and Processes'.

The level of the lecturers was high and they were lively and well presented. There were 28 attendees from most Region 8 Chapters who showed deep interest in all presentations, with questions and comments extended over the breaks.

In summary, the Madrid EAM Mini-colloquium was successful and well organized and once again it proved the efficiency of such events where the audience has the chance to listen to many DLs in one place.

*Marcel D. Profirescu
Region 8 SRC EAM Vice-Chair
Technical University of Bucharest
Bucharest, Romania*