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Contributions Welcome

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

Newsletter Deadlines

<u>Issue</u>	<u>Due Date</u>
January	October 1st
April	January 1st
July	April 1st
October	July 1st

IEEE Electron Devices Society Newsletter

2002 IEEE Symposium on VLSI Technology



Hilton Hawaiian Village, Honolulu, Hawaii

The 22nd Annual Symposium on VLSI Technology will be held in the beautiful city of Honolulu, Hawaii, June 10-13, 2002. The Symposium on VLSI Technology is jointly sponsored by the Japan Society of Applied Physics (JSAP) and the IEEE Electron Devices Society (EDS).

The conference will be held in the Hilton Hawaiian Village in Honolulu, Hawaii. The conference begins with a one-day short course held on Monday, June 10, 2002. This is followed by three days of technical sessions held June 11-13, 2002. The technical sessions commence with a plenary session given by distinguished invited speakers, and then continue with presentations of submitted technical papers. Evening "Rump Sessions" on topics of current technical interest will also be held. A banquet will be held on the evening of Tuesday, June 11, 2002.

The Symposium welcomes the submission of papers on all aspects of VLSI Technology. The scope of the Symposium includes:

- New concepts and breakthroughs in VLSI devices and processes.
- New functional devices including quantum effect devices with possible VLSI implementation.
- Materials innovation for MOSFET and interconnect in VLSI.
- Advanced lithography and fine patterning technologies for high density VLSI.
- Process/Device modeling of VLSI devices.
- Packaging and reliability of VLSI devices.
- Theories and fundamentals related to the above devices.

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Your Comments Solicited

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

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Message from the President



Steven J. Hillenius

It is my privilege to serve as the President of the Electron Devices Society for the year 2002. This year we will be celebrating our 50th year as a society and I look at this opportunity as a means to give a start for the Society into the second half of our first hundred years. This Society was born two years after the invention of the transistor and has grown over the years as the entire field of microelectronics, photonics, power devices, vacuum electronics and MEMS have evolved into major businesses throughout the world and have affected the daily life of almost everyone.

The fact that a society like ours has existed for 50 years is a testament to our ability to adapt to change. The challenges that we have had over the last decade have been one of coping with growth and utilizing our resources to better serve and benefit the membership. We have established an executive office to maintain a standard for service and have moved the publications activities there. This has dramatically reduced the turn-around time for paper publication and has reduced the burden on the volunteers that serve as editors and reviewers. We have also driven and have been one of the first to implement electronic distribution of journals. We have expanded our international chapter representation over the last ten years from 32% non-North American to 58% in 2002. This has also created a better balance of representation on our officers and AdCom members. This change in the Society is representative of the change in the business and the way the world has become smaller with the ease of communications and the advent of the internet.

Looking forward, I feel that the challenges that we are confronted with in the research and businesses that the Society represents are greater now than they have been for our entire history. We are looking at the end of the roadmap for the transistor scaling, a globalized economy that is making many of our technology innovations a widely available commodity and new technology developments that will challenge and disrupt our established institutions. The viability of the Society will be determined by how quickly we will be able to adapt to these changes and position the technical component of the Society to the interests and needs of the people who will be driving these

(continued on page 6)

EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

2002

C. L. Claeys (1)
J. A. Dayton, Jr. (1)
M. Fukuma (1)
K. M. Lau (1)
K. Lee (1)
M. L. Ostling (1)
D. L. Pulfrey (1)
K. Shenai (2)

2003

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

*2004

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

Number in parenthesis represents term.

* Members elected 12/01

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Upcoming Technical Meetings

VLSI

(continued from page 1)

- New concepts and technologies for VLSI manufacturing.

Submitted technical papers are reviewed by two technical committees consisting of technical experts from industry and academia. These two committees are a North America and Europe (NAE) committee, and a Japan and the Far East (JFE) committee. Based on the combined ranking of these two committees, the best papers are selected and organized into technical sessions.

One of the strengths of the Symposium on VLSI Technology is its association with the Symposium on VLSI Circuits, which is held each year at the same location during the same week. The 2002 Symposium on VLSI circuits will also be held at the Hilton Hawaiian Village, June 12-15, 2002. A joint "Rump Session", on a topic of interest to both technologists and circuit designers, will be held on the evening of Wednesday, June 12, 2002.

The 2002 Symposium on VLSI Technology will be the 22nd such meeting. The Symposium was initiated for the purpose of bringing together VLSI technologists from around the world in a forum where ideas and results can be exchanged and directions for future advances can be discussed and debated. The location of the Symposium typically alternates between the United States and Japan. The 2001 Symposium on VLSI Technology, held in Kyoto, Japan, was attended by more than 500 participants from around the world, including significant attendance from the U.S., Japan, Europe, Taiwan, and Korea.

Honolulu, Hawaii is a beautiful city which includes many beautiful physical and cultural attractions. Travel to the other surrounding Hawaiian islands, each of which offers a unique setting and flavor, is also relatively easy. The Hilton Hawaiian Village, located on world-famous Waikiki Beach, is a world-class facility which offers many recreational opportunities in addition to the intellectual stimulation of the conference. The Hotel is easily reached by taxi from nearby Honolulu International Airport.

For further information, please visit our web site at <http://www.vlssymposium.org>, or contact the following organizations:

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for Academic Societies Japan
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Fax: +81 3 5814 5823
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Advanced Semiconductor Research Center
Tsukuba, Japan

Program Chairman:
Yuan Taur
University of California, San Diego
San Diego, CA, USA

Program Co-Chairman:
Kenji Maeguchi
Toshiba Corporation
Kawasaki, Japan

Craig Lage
Motorola
Austin, TX, USA

2002 IEEE Photovoltaic Specialists Conference (PVSC)

Electric power reliability, utility deregulation, global climate change, National Energy Strategies, distributed generation – each of these topics captured headlines during the past year. The public is generally aware that something is amiss in the energy infrastructure and its prospects for sustainable delivery of the electricity needed to meet rapidly growing demands. Some people are aware that solar electric power can contribute in a significant way, but few know that the photovoltaic (PV) business is growing 40% per year in sales and is on track to provide a significant percentage of the electricity generation around the world. The 2002 (or the 29th) IEEE Photovoltaic Specialist Conference (PVSC), sponsored by the Electron Devices Society, continues a forty-year tradition of bringing together the research community in electronic materials and devices, packaging and encapsulation, systems, and applications to discuss the technical issues, real-world challenges, and future directions for the continued growth of PV



as the power source of choice for terrestrial and space power needs. The Conference will be held at the Hyatt Regency Hotel, New Orleans, Louisiana, May 21 through 24, 2002.

The PVSC is held every 18 months to collect a comprehensive record of the state of the technology and business and to stimulate and explore ideas to accelerate progress toward delivering significant amounts of electric power. The technical sessions include oral and poster presentation formats to provide in-depth coverage of materials properties, device developments, manufacturing and processing, optical components, and module perfor-

mance for the four major materials systems as well as emerging technologies. These include:

- Crystalline and multicrystalline silicon, ribbon silicon, and thin-film silicon
- II-VI compounds, copper indium diselenide, and related materials
- III-V compounds, concentrators, space cells and systems, and radiation effects
- Amorphous silicon, microcrystalline silicon, nano-structured materials, and other novel devices

In addition to these device topics, we are making special efforts to expand our coverage of terrestrial systems, applications, and reliability. This encompasses engineering of systems components, systems research and development, field experience, utility interconnection, and reliability. We have also invited speakers to highlight the technical scope and political influences affecting PV in several National Programs.

Photovoltaic technology is entering a very exciting phase of development. Business grew through providing power in remote applications—for communications, lighting, and battery charging. This supported expanding production and associated cost reductions, and new markets have opened with each cost reduction. Innovations in incorporating photovoltaic devices into building designs and products have opened many other opportunities. Today, many nations and several U.S. states offer incentives to encourage and accelerate the deployment of PV power systems for residential power. Japan has perhaps the most aggressive program. Their target is to produce more than 2% of total national electric generating capacity in PV by the end of the decade. As processes continue to improve for manufacturing large-area electronic devices, costs are competitive with conventional sources in many markets.

Space power systems are pushing the performance of sophisticated solar cells to ever higher levels. Multiple-junction devices, comprised of heteroepitaxial III-V layers responding to different light energies, exceed 30% power conversion efficiencies in the laboratories and are available in commercial quantities at 26%.

The breadth of materials technology in research is expanding to address the ever-greater challenges of long-term energy supply. PV interests push technology in areas of p-type transparent conducting oxides, nano-structure processes, polymer semiconductors, and a range of other materials finding applications in non-PV electron devices.

This gathering of PV specialists provides an important opportunity to educate and inform others interested in solar electric power. On May 20, the Conference will host several special events including tutorials and auxiliary meetings. Short courses will cover the following topics:

- Polycrystalline Thin-Film Solar Cells
- Radiation Effects and Modeling in Space Photovoltaics
- New Environmental Health & Safety Challenges in Photovoltaics Manufacturing
- Photovoltaic System Applications and Design
- Photovoltaic Array Design and Manufacturing (Space & Terrestrial)

The 29th PVSC is coordinated with two auxiliary meetings, starting May 20. The first of these is the Workshop on PV in the Americas. This interactive, one-day workshop will focus on sustainability and cost-recovery issues of commercial PV applications, research and development needed to satisfy these issues, systems quality in the context of certification and standards, and PV designed to both increase rural quality of life and enable economic development. It will bring together industry product designers; suppliers, installers, and users in Latin America and the Caribbean with IEEE PVSC

scientists and engineers for a discussion of the real-world technology needs of photovoltaic applications in the Americas. The second event is the International Conference on Solar Electric Concentrators. This will examine entry markets for developing concentrator technologies; provide insight for further research planning on solar electric concentrator technologies; and, in joint session with the PVSC, share research information leading to higher performance or lower cost technologies and discuss field experience, reliability, and improved standards.

Throughout the week, the Exhibits area will showcase manufacturers of PV products, systems components, manufacturing and research tools, characterization equipment, array designs and distributors, space power systems, market information, publications, and education.

To find out more, please visit the Conference website at <http://www.ieee.org/pvsc> or send an e-mail john_benner@nrel.gov to be added to our mailing list. On behalf of the organizers of the 29th IEEE PVSC, we all hope you will join us in New Orleans this May.

*John Benner
National Renewable Energy Laboratory
Golden, CO, USA*

2002 International Conference on Microelectronics (MIEL)

The 23rd International Conference on Microelectronics (MIEL 2002) will be held May 12-15, 2002 at the Faculty of Electronic Engineering, University of Nis, Yugoslavia. The MIEL 2002 Conference will be organized by the ED/SSC Yugoslavia Chapter, in cooperation with the Faculty of Electronic Engineering, University of Nis, IEEE Yugoslavia Section, and Ei-Holding Co.-Nis, under the co-sponsorship of the IEEE EDS, with the cooperation of IEEE SSCS, and under the auspices of Serbian Ministry of Science, Technology and Development, Yugoslav Secretariat of Development and Science, Yugoslav Academy of Engineering, Yugoslav Society for ETRAN, and City Assembly of Nis.

MIEL is an outstanding European conference providing an international forum for the presentation and discussion of the recent developments and future trends in the field of microelectronics. Since 1984,



there is an aura of internationalization around the MIEL conferences, providing an opportunity for specialists from both academic and industrial environments from the West and East, as well as from the countries of the Third World, to meet in an informal and friendly atmosphere and exchange experiences in the theory and practice of microelectronics. From 1995, MIEL has been organized under the technical co-sponsorship of IEEE EDS, while the

conference received IEEE EDS financial co-sponsorship for the first time in 2000.

The topics that will be covered by the technical programme of the MIEL 2002 Conference include all important aspects of microelectronic devices, circuits and systems, ranging from materials and processes, technologies and devices, device physics and modeling, process and device simulation, circuit design and testing, system design and packaging, and characterization and reliability. The technical programme of the MIEL 2002 Conference will consist of 140 contributed papers by the authors from more than 30 countries all around the world, which will be structured into oral and poster sessions. These papers, together with 12 invited papers, which are to be presented by the world leading authorities from the field of microelectronics, will form the solid foundation of the Conference MIEL 2002. Two related scientific events, namely the workshops "Power Devices and ICs" and "Microsystem Technologies", containing 6 invited papers each, will round off the technical programme of the Conference.

The invited lectures are: "Process-Related Reliability of Gate Dielectric for ULSI Device" (C.Y. Chang, National Chiao Tung University, Taiwan), "Isolation Issues in Power Integrated Circuits" (G. Charitat, LAAS-CNRS, France), "SOI Devices for 0.1 mm Gate Lengths" (J.-P. Colinge, University of California, USA), "Access to Microsystem Technology: the MPC Services Solution" (B. Courtois, CMP, France), "Microsystems: Research Task, Education Task, Application Fields, Examples" (H. Dettner, Technical University of Vienna, Austria), "Channel-Carrier Mobility Parameters for 4H SiC MOSFETs" (S. Dimitrijević, Griffith University, Australia), "Quantum Well Intermixing for Optoelectronic Device Integration" (C. Jagadish, Australian National University, Australia), "Technology for MEMS and Electronics: Review of Status and Perspectives" (E. Kohn, University of Ulm, Germany), "Semiconductor Devices for Fiber Optic Communication Systems" (L. Lunardi, JDS Uniphase Corp., USA), "Advances in Silicon Carbide Power MOS Technology" (P. Mawby, University of Wales, United Kingdom), "Smart Sensor Interface Electronics" (G. Meijer, Delft University of Technology, The Netherlands), "Amorphous Integrated Circuits" (A. Nathan, University of Waterloo, Canada), "Clocked Storage Elements for Multi-GHz Design" (V. Oklobdzija, University of California, USA), "SiC Device Technology for

High Voltage and RF Power Applications" (M. Osling, Royal Institute of Technology, Sweden), "MEMS and NEMS Technologies for Advanced Wireless Communication" (R. Plana, LAAS-CNRS, France), "Integrated Hall Magnetic Sensors" (R. Popovic, EPFL, Switzerland), "Is Innovation and Competition Crucial in the Power Semiconductor Industry?" (E.M. Shankar, De Montfort University Leicester, United Kingdom), "Semiconductor Technologies for Powering Microchips in the Information Age: From Source to Load" (K. Shenai, University of Illinois at Chicago, USA), "Technology Options for Developing Manufacturable Nanoelectronics" (R. Singh, Clemson University, USA), "Thermal Instabilities in High Current Power MOS Devices", (P. Spirito, University of Naples, Italy), "Biologically Inspired Optical Vision Sensors" (J. Van der Spiegel, University of Pennsylvania, USA), "Reliability of Microsystems from the Materials Point of View" (J. Villain, University of Applied Sciences Augsburg, Germany), "Recent Developments in Silicon Optoelectronic Devices" (H. Wong, City University of Hong Kong), and "Beyond the Conventional MOSFET" (P. Wong, IBM, USA).

The city of Nis is the administrative, cultural and economic center of south-eastern Serbia. Among many and various industries located in Nis, it is the electronic industry that is to take credit for its occasionally used nickname "City of Electronics". It is no wonder when the largest company in Nis is the Ei-Holding

Company founded in 1948, which is the leading Yugoslav manufacturer of a wide range of electronic products. Situated in the Nisava Valley, some 240 kilometers away from Belgrade, Nis is one of the busiest road and railway junctions in this part of Europe. Good road and railway connections put Nis within easy striking distance from Belgrade. Rich in ancient monuments that bear witness of turbulent periods of its history, Nis is now a burgeoning seat of learning. University of Nis, although relatively young, has come to be called "my alma mater" by many of the highly skilled professionals. Faculty of Electronic Engineering, one of the organizers of the Conference MIEL 2002, has constantly been giving a significant contribution to the development of the University of Nis, as one of its most prosperous institutions.

For registration and other information, visit the MIEL 2002 Home Page at <http://europa.elfak.ni.ac.yu/miel/>, or contact Conference Secretary Miss Tatjana Pesic, Department of Microelectronics, Faculty of Electronic Engineering, University of Nis, Beogradska 14, 18000 Nis, Yugoslavia; Tel.: +381 18 529 325; Fax: +381 18 46 180; or E-mail: tatjana@elfak.ni.ac.yu

The MIEL organizers and committee members look forward to seeing you in May 2002.

*Ninoslav Stojadinovic
University of Nis
Nis, Yugoslavia*

2002 IEEE International Symposium on Power Semiconductor Devices and ICs (ISPSD)

On behalf of the technical committee, we would like to welcome and invite you to attend the 14th ISPSD (International Symposium on Power Semiconductors and ICs). The IEEE and co-sponsored IEEJ (Institute of Electrical Engineers of Japan) ISPSD has become the leading conference in the field of power semiconductors and power ICs (PICs). Each year this truly international conference rotates between Europe, Japan, and North America. The ISPSD conference specializes in the semiconductor technology surrounding the device physics and integration of power devices.

Papers for this conference cover four main topical areas in process, device, and packaging technology: 1) low voltage discrete power semiconductors, 2) high voltage and high power semiconductors, 3) rf power semiconductors, and 4) power IC's. This conference serves as an excellent forum to meet and socialize with experts and colleagues in the field of power semiconductors from all over the world. The growth rate of the ISPSD over the past five years has distinguished it as the most important and recognized conference in the field of power device technology.



1. A short course organized around real issues shadowing power IC technology integration.

2. Three invited plenary speakers from the three regions. From North America the topic will be "Safe Operating Area — a New Frontier in Ldmos Design" by Dr Phil L. Howler, IEEE Fellow and Distinguished Member Technical Staff at Texas Instruments, from Japan "RF Power Devices" by Dr Daisuke Ueda, Councilor Semiconductor Devices Research Center Matsushita Electric Industrial Co., and from Europe a topic on high power electric trans-

portation.

3. A workshop centered on panel discussions involving four fields of power devices and technology: 1) High Power devices, 2) Discrete Devices, 3) Integrated Power Devices, and 4) RF Power Devices. This work shop has had excellent attendance in past years.

4. 20 international oral presentations on low voltage power device and technology and ICs

5. 20 international oral presentations on high voltage and high power devices

6. 31 poster session papers split between the low voltage and high voltage categories

More information on ISPSD02 will be forth coming to the web link at www.ti.com/ispsd02/, or contact the Technical Program Chairman, Dan Kinzer by email at dkinzer@irf.com.

Taylor R Efland
ISPSD General Chairman
Texas Instruments
Dallas, TX, USA

Dan Kinzer
ISPSD Technical Program Chairman
International Rectifier
El Segundo, CA, USA

This year the conference will be held at the Hilton Hotel of Santa Fe, in New Mexico from June 4 - 7. Santa Fe, "The City Different," is one of the better-kept secret regions of natural beauty and aesthetic quality in America. It has been ranked as one of the country's top travel destinations. It is the second oldest town in the United States. It is home to over 150 art studios, 13 museums including the Georgia O'keeffe museum. The city is rich in Pueblo Indian and Hispanic tradition. It is one of the most visited places in America and frequented by the rich and famous. The town is known for its Adobe building style and scenic landscapes around the area that have inspired the traditional pastel colors of Southwestern art. There is a famous Indian artists jewelry market on the weekends in the down town area and 50+ stores featuring the craft, and a famous and interesting flea market is just outside of town. The down town area is centrally located and small enough such that most restaurants and shops are located within walking distance. Within a short drive one can be either on the plains of the Santa Fe trail or in the elevations of the southern Sangre de Cristo range of the Rocky Mountains above Santa Fe, or if

you like, one of the various Indian reservation's gambling casino. Outside of Santa Fe, are the famous Puye Cliff dwellings of the ancient Anasazi culture. Within a couple of hours travel distance is the famous resort area of Taos. It is about a days travel from Santa Fe to the Durango/Silverton area or the Colorado Springs/Denver area of Colorado, along with the Grand Canyon national park in Arizona. The Hilton of Santa Fe is about one hour from Albuquerque, New Mexico Airport via hotel bus or rental car.

As you are aware, this past year has been extremely difficult with all of the worldly events affecting an electronic industry already in a down-swing from the previous excellent years. Expectations are high for the future, however, and this year's abstracts for the ISPSD are of very strong and interesting quality. There were 128 international abstracts submitted to ISPSD02, 30% from North America, 29% from Europe, 24% from Japan, 14% from Korea and 3% from other Asia. This year the ISPSD will feature 3 invited international plenary papers, 3 extended length plenary papers, 40 oral presentations, and 30 poster session papers arranged in the following technical program format:

Message from the President

(continued from page 2)

changes. These changes will be driven by the technical component of this Society and I believe that the future will be determined by how well we can attract the best researchers and developers to participate. We have created several new technical committees over the last several years and have given the technical committees a greater influence in the direction of the Society activities. I would like to see more society members become active in these committees along with the organizing and editorial committees for the meetings and journals. I think

that the challenge for me and the Society as a whole will be in continuing to make these activities attractive to the best researchers and developers in the world as a natural part of their jobs. I would like to encourage you all to think about ways that we could do this better and to let me know how the Society can better serve you each individually. If we succeed in keeping the Society vibrant and relevant to the world's device community, we can all look forward to the 100th anniversary in 2052.

Steven J. Hillenius
Agere Systems
Murray Hill, NJ, USA

Society News

December 2001 AdCom Meeting Summary

President Cary Yang welcomed the attendees of the December meeting of the EDS Administrative Committee (AdCom) on Sunday December 2 at the Washington (D.C.) Hilton & Towers preceding the 2001 IEDM. As usual, prior to approving the minutes from the June 2001 meeting, those officers who are departing the AdCom received recognition. This year the following individuals were saluted: Cary Yang (President), April Brown (Treasurer, Elected AdCom Member), T.P. Chow & M. Ayman Shibib (Elected AdCom Members), Krishna Shenai (Newsletter Editor-in-Chief), Mikael Ostling, S.C. Sun, Paul Yu, & Stephen Parke (Newsletter Editors), Werner Weber (VLSI TC Chair) and Kwok Ng (IEEE Press Liaison).

Officer Reports

In his opening address, Cary discussed the current budget situation within the EDS & the IEEE itself. The IEEE Board of Directors recently approved an interim budget for 2002 as it attempts to move toward a balanced budget and away from the deep financial assessments it has made within the various societies. EDS should have a higher visibility and stronger voice at the IEEE Board level, since Past EDS President, Michael Adler, will be the 2003 IEEE President, and Cary becomes the new Division I Director for 2002. In the ExCom summary, Vice President Steve Hillenius reported a bill of \$109K from IEEE Xplore for the cost of offering EDS publications on-line. ExCom recommended to make the payment from our surplus and not increase dues or publication prices to cover the assessment. Seoul, Korea was selected as the site of the Spring 2003 AdCom meeting. It will be held in conjunction with the International Vacuum Electronics Conference, May 28-30. The status of EDS's offerings on Short Courses was hotly debated. The last two years, the courses lost money for a variety of reasons. Many have the opinion that EDS does not have the infrastructure to put such classes together and

cannot compete with universities and professional services that do. The decision was reached to put future courses "on hold" pending further investigation into what role EDS should serve in this capacity. There was also no consensus on several of the proposed methods to revise the AdCom elections. Favoring an incremental approach, it was decided to evaluate changes to the EDS Constitution and Bylaws to elect AdCom members by the entire membership from a slate of candidates put forth by the nominating committee. Treasurer, April Brown, observed that our current 2001 budget projection (\$213.2K) is close to the original estimate (\$265K). The IEEE assessment for 2001 is expected to reduce EDS' reserves by about \$1,825K, which is a significant increase from last year's payment of \$879K. However, the total EDS reserves at the end of 2001 will still be at a very healthy figure of about \$5M. For 2003, AdCom voted to maintain the price of EDS membership at \$6 (regular) and \$30 (permanent) and to continue providing free on-line access to the same 10 EDS sponsored publications. In addition, AdCom voted to maintain the same page counts and member prices for EDL and T-ED for 2003.

AdCom also received a visit from outgoing Division I Director, Ralph Wyndrum. Ralph's comments underlined some of the accomplishments IEEE has made this year. Despite a tough economic period, IEEE membership is up driven by overseas and student memberships. The Board of Directors also voted to spend some of the surplus funds in such areas as the Xplore system, web membership software, and other internet improvements. However, due to the economic climate, the general size of the reserves diminished considerably. This resulted in budget cuts and assessments to the technical societies. Additional reductions are possible, most likely through job cuts, postponed raises, and the delay of scheduled projects. On the technical side, Ralph believes that IEEE must make

a strong effort to support such initiatives as nanotechnology and SOC (system-on-a-chip), especially in the publications arena. The proliferation of new technologies inside and outside of Division I should also be addressed. However, Dr. Wyndrum feels that IEEE should not make new technical societies; but rather, find ways for existing ones to embrace and support new ideas. Electronic publishing continues to be an important issue. In a recent survey, IEEE found that the needs of academics and those of industry people with respect to electronic publication are not only different, but often, in opposition. Since many societies look to publications as major sources of income, IEEE must find a balanced business model in this area to be successful and supportive of university and industry requirements.

Since July, Executive Director, Bill Van Der Vort, and his staff have completed a number of projects. Among these are: the coordinated development of the EDS History booklet in honor of EDS' 50th Anniversary; administrative support for the IEEE TAB Nanotechnology Committee; making arrangements for the biennial Region 9 Chapters Meeting; assistance with the short course pilot program; completing the implementation of the first graduate student fellowship award program; helping to revamp the Publications Committee; final transition of the T-ED Office to the IEEE Operations Center; and reestablishment of relations with IEEE Press. Upcoming projects for the Executive Office include: final development and distribution of the history booklet; developing a portable display for the anniversary festivities in San Francisco; preparation of the formal 50th Anniversary Celebration and help for the incoming *EDS Newsletter* Editor-in-Chief.

Standing Committee Chair Reports

As of October, EDS membership stands at 13,346, or 7892 regular members, 4057 permanent members, 1381 students, and 16 affiliates total according to James Kuo, Membership Chair. It is estimated that

by year-end 2001 EDS membership will total about 13,650 (a 2.7% increase). Special promotions at conferences (ISSCC, IEDM) have been successful, as has the pursuit of IEEE members with EDS aligned TIP profiles. The special program to get members to apply for Senior IEEE membership has seen 104 members promoted to this level with EDS as their nominating society. Regions/ Chapters Chair, Hiroshi Iwai, and his team have completed the reconstruction of the chapters committee. The new structure has five "Subcommittees for Regions & Chapters" which streamlines the communication between chapter chairs, lecturers, partners, and the EDS Office worldwide. Each chapter and region is poised to participate fully in the DL program, help in the nomination of Senior Members & Fellows, and organize colloquia. The Region 8 Chapters Meeting, previously shared with other IEEE societies,

will now be "EDS-only". Since June, Iwai-san reports that new chapters in Cuba, Bangalore, and Shanghai, plus a student chapter in Tehran, have been formed, with additional ones in South Brazil, North Brazil and Argentina expected soon. The AP/ED Bombay Chapter was selected as the EDS "Chapter of the Year" for 2001.

Ilesanmi Adesida, Education Chair, and his committee have had a busy year. Directives on policy have been sent to all the DL lecturers informing them that they must perform one lecture within two years to remain in the program. Several lecturers combined their efforts to give invited mini-colloquia. In 2001, 45 participants for a total cost of \$10.4K gave 81 lectures. Use of videotapes for chapter presentations declined. As previously mentioned, the Short Courses are at a crossroads. In addition to the financial losses and the lack of an established infrastructure for

packaging such classes, some AdCom members feel that colloquia or industry-sponsored classes are preferable, and that EDS could be a vital source of information and contacts for their organization. However, the openness of company-based classes remains questionable as well as its effectiveness for members who do not work at the host firm. For the near term, however, no new courses are planned. This year's Graduate Fellowship award has been a success, and plans for getting nominations for next year's award are underway. Some on AdCom have asked if the awards could be reduced and given to more students, or perhaps given to a "Young Engineer" who has obtained a graduate degree and has already started a professional career. Both suggestions are being studied. Publications continue to

(continued on next page)

Celebrating 50 Years of Electron Devices



Arlene A. Santos

The Electron Devices Society is turning fifty years old this year, and we are going to celebrate!

In late 1951, a proposal was approved by the IRE Executive Committee to form the Professional Group on Electron Devices — the antecedent of the present IEEE Electron Devices Society. Its Administrative Committee (AdCom) held its first meeting on March 5, 1952, at IRE headquarters in New York City. At the helm was Chairman George D. O'Neill of Sylvania, who had served in many capacities on the previous committees since the late 1930s. Leon Nergaard was the founding Vice Chairman and John Saby served as the first Secretary.

By the mid-1950s, there were active chapters in Boston, Los Angeles, New York City, Philadelphia, San Francisco and Washington, as well as struggling groups in other areas. By December 1953, paid membership in the full Professional Group exceeded 1,000 engineers and scientists.

Of major importance during those formative years were the tireless efforts of Yale professor, Herbert J. Reich, and Saby, as the successive Chairmen of the AdCom subcommittee on publications, to pull together and publish a quarterly journal for the group, called the *Transactions of the IRE Professional Group on Electron Devices*. The *Transactions* was first published in October 1952.

Today, the Electron Devices Society has about 13,500 members, 107 chapters, 15 publications (including a Newsletter and Directory), and 138 technical meetings.

The story of our beginnings and the subsequent years are chronicled in a history booklet, written by Michael Riordan, entitled "50 Years of Electron Devices: The IEEE Electron Devices Society and Its Technologies". The manuscript relates the technical achievements in electron devices from the vacuum tubes era to the present. Interwoven with our technical work is a chronology of our Society's history. The booklet is the end result of the hard work and dedication of the EDS History Committee led by Craig Casey: The committee members are: Jim Early; Tak Ning; Lew Terman; Richard True; and Cary Yang. The booklet will be mailed to EDS members this Spring.

An exhibit based on the booklet will be designed by the IEEE History Center

and put on display at the IEEE Operations Center. It will travel to San Francisco in December 8-11, 2002 and will be available for viewing in the public spaces at the IEDM.

Also at the IEDM, a membership booth will be set-up at the end of the exhibit. EDS Administrative committee members will be on hand to assist with membership applications, answer your questions, and welcome volunteers, etc.

A dinner celebration will be held on Sunday, December 8, 2002, with invitations to be sent to Past EDS Presidents, EDS-related Nobel Prize Winners, EDS Distinguished Service Award Winners, J.J. Ebers Award Winners, IEEE Millennium Medal Winners, and long standing EDS service volunteers. Introductions and a special award are planned before dinner, and a keynote talk, "50 years in 50 minutes," will be given over dessert. Discussions are also currently underway about special IEDM events to commemorate our 50th anniversary.

But it doesn't end there. To make our birthday party a global celebration, subsequent regional activities are being planned throughout the subsequent year.

Stay tuned for details in future newsletter issues.

Arlene A. Santos
National Semiconductor Corp
Annapolis, MD, USA

do well, and the centralized support systems for EDL and T-ED have made major improvements for their respective authors. Renuka Jindal, Publications Chair, indicated that his committee has been expanded, with almost all members having a direct link with one of the EDS sponsored publications. In other news, this year the relations with IEEE Press have been renewed and strengthened. Joe Brewer is now the new liaison replacing Kwok Ng. The impact of EDS publications is high but Renuka observes that the influence of electronic publishing is changing things. For example, since both flagship pubs are available on the web the circulation numbers for both are dropping. While subscription costs may play a role, the total circulation has been going down by 10% compounded over the last five years, which coincides with the initial moves to electronic publishing by EDS. The long-

term issues of this trend are unclear and merit further analysis. However, AdCom approved \$5K for each of the next two years for the committee to examine the "Impact Factor" of both journals and how time, reviewer ratings, length, topic, special issues, citations, and web distribution affect it. A new best paper award, similar to the Rappaport Award, will be proposed this year for EDL's best. Meetings Chair, Ken Galloway's report discussed the reduction in attendance for EDS meetings following the events of September 11, as well as a mention that his committee has been expanded to include representatives from the technical committees.

Al MacRae and Dexter Johnston announced this year's award winners. For the IEEE Field Awards, EDS winners included Dimitri Antoniadis (Andrew Grove Award), Supriyo Datta & Mark S. Lundstrom (Brunetti Award), and Ping Ko

& Chenming Hu (Solid-State Circuits Award). H. Craig Casey received the EDS Distinguished Service Award, and the J.J. Ebers winner was Hiroshi Iwai. Al also exhorted the AdCom to nominate more members for the IEEE Field Awards saying many do not have sufficient numbers of nominees. A new, 1-page nomination form for these awards can be found on the IEEE website, and all nominations are welcomed. On the Fellows side, Lou Parrillo announced that 20 of the 46 members evaluated by EDS were elected as Fellows. Fifteen of these individuals were EDS members, while another 15 EDS members evaluated by other societies were also elected as fellows. In related news, the IEEE TAB has approved the formation of a Nanotechnology Council. Several members of the EDS Nanotechnology Technical Committee (TC)

(continued on next page)

EDS Announces the Appointment of a New Editor-in-Chief (EIC) for its Newsletter

Our *EDS Newsletter* has reached a crossroads. After many distinguished years of service, Krishna Shenai is stepping down as founding Editor-in-Chief (EIC). Under his stewardship, the new EDS Newsletter was created in 1994. In the past seven years, the Newsletter has improved dramatically with



Ninoslav D.
Stojadinovic

increased coverage of chapters and reporting of EDS activity around the world making it the premier vehicle for members to keep in touch with society news and events. It has been a pleasure to work with Krishna and his Editors. This year, besides Krishna, Mikael Ostling, S.C. Sun, Chuck Yarling, Paul Yu & Stephen Parke are also departing the Editorial Board. The entire AdCom, and all EDS members wish them the best, and our gratitude for a job well done. In turn, we should also look forward with anticipation to the new Newsletter EIC, Ninoslav Stojadinovic (whose bio follows), and his new Associates, Murty Polavarapu, Sunit Tyagi, Alexander Gridchin, and Andrzej Napieralski. Nino becomes our first non-U.S. EIC and should bring a new and unique perspective to the position. It is also timely since

the Piscataway office will also be more involved with automated submissions and author relations. Thus, the Newsletter with a new EIC, new Editors, and a new editorial look embarks on a different path. We owe Krishna and his team our thanks for their contributions and improvements, as the Newsletter enters a new era under Nino's care. It should be an exciting time.

Ninoslav D. Stojadinovic was born in Nis, Yugoslavia, in 1950. He received the Dipl. Ing., M. Sc. and D. Sc. degrees, all in electrical engineering, from the Faculty of Electronic Engineering, University of Nis, in 1974, 1977 and 1980, respectively.

In 1974, he joined the Ei-Semiconductors, Nis, where he worked on R&D of bipolar semiconductor devices, such as low-voltage Zener diodes, hyper-abrupt varicap diodes and planar bipolar transistors. In 1976, he joined the Faculty of Electronic Engineering, University of Nis, where he is now Professor and Head of the Department of Microelectronics. His current research interest involves various aspects of MOS devices and circuits, ranging from device physics and modeling, process and device simulation, and characterization and reliability.

He is a distinguished lecturer of the IEEE Electron Devices Society for the area of microelectronics reliability. He is the author or co-author of 58 papers in refereed international journals and 120 papers for international and national conferences. He was the supervisor of more than 40 Dipl. Ing. theses, 10 M. Sc. theses and 11 D. Sc. theses in the field of microelectronics.

Dr. Stojadinovic was an Editor-in-Chief of the *"Microelectronics Journal"* and Regional Editor of the *IEEE EDS Newsletter*. Currently, he is an Editor-in-Chief of *"Microelectronics Reliability"* journal and a member of the International Advisory Board of the *"Journal of Semiconductor Technology and Science"*. He is also the Programme Committee Chairman of the IEEE International Conference on Microelectronics (MIEL). He is the Chair of the Yugoslavia IEEE Section and Chair of the Yugoslavia IEEE ED/SSC Chapter.

Dr. Stojadinovic is President of the Yugoslav Society of Electronics, Telecommunications, Computers, Automation and Nuclear Engineering (ETRAN) and Corresponding Member of Yugoslav Academy of Engineering.

John K. Lowell
Consultant
Dallas, TX, USA

are prominently involved. The "50 Years of Electron Devices" historical booklet is nearing completion and should be distributed in the Spring of April 2002.

Technical Committee Chair Reports

Technical Committee Coordinator, Steve Hillenius, announced that he has asked all TC chairs, who are now voting members of AdCom, to take an increased role in the nominations for Senior Member/Fellow, and awards, the meeting approval process, and suggested topics for Special Issues. Electronic Materials TC chair, Jerry Woodall, discussed the overlap between meetings that are materials-related and those that appeal more to device specialists. His group is encouraging the ISDRS conference to adopt a "materials" theme to avoid any conflicts with the more device-related IEDM. The Semiconductor Manufacturing TC, under Rajendra Singh, sponsored a workshop at the ISSM on "Sub 70nm Manufacturing". The meeting also generated a special issue of Transactions on Semiconductor Manufacturing (T-SM) on "Manufacturing Beyond the 70nm Node" to appear in May 2002. The committee also entertained a proposal from Applied Materials on single wafer processing and is looking to collaborate with the Nanotechnology and VLSI TC's on topics of mutual interest. Herb Bennett's Compound Semiconductor TC has combined their objectives with the

Optoelectronic Devices TC lead by Chenupati Jagadish. Both plan to contribute to the new Compound Semiconductor ITRS, and are expanding their topics of interest to include modulation of semiconductor lasers to 40 Gbps, ultrawideband semi optical amplifiers, organic LED's, long wavelength VCSELs using quantum dots or InGaAsN, nitride-based optical devices, ZnO-based devices and magnetic semiconductors. Special issues covering cross topics such as CMOS & VCSEL interconnect, and CMOS/HEMT-HBT ADCs & Photonic ADCs are proposed possibly in collaboration with the TC's on Semi Manufacturing, & VLSI Technology.

Werner Weber's VLSI Technology TC is sponsoring a discussion session on emerging technology at IEDM 2001, and contributing to a workshop on compact modeling at the Intl. Conf. On Modeling & Simulation of Microsystems. Their website (www.ieee.org/organizations/society/eds/groups.html) has also been launched this year. Jim Hutchby, the incoming VLSI TC chair, plans to solicit nominees for promotions and awards. EDS' Nanotechnology TC has been very active in getting the IEEE Nanotechnology Committee established and remains actively involved. Chair, Alan Seabaugh, plans to participate in the IEEE Nano-2002 conference in August and to promote their new website (www.ieee.org/organizations/society/nono.html). The

Vacuum Devices TC Chair Jim Dayton reports that the IVEC conference has now emerged as a combination of the former US Power Tube Conf., and the ESA Space TWT/TWTA Workshop. IEDM Chair, Judy Hoyt, expressed optimism that despite the industry problems this year's IEDM would be successful. Courses on sub-70nm technology, and advanced memory architectures were well subscribed, and the evening panel discussions are attractive. Estimates of a 50% reduction in attendees were based on low pre-registration numbers, and fewer hotel registrations than normal. To reduce expenses, there was no pre-conference mailing of the schedule, and some cut-backs in food.

Publications News

EDL Editor-in-Chief, Yuan Taur, reported that some major milestones for the publication were reached this year. The time-to-publication has now been reduced to an average of 5.2 months, a reduction of two months in a year's time, and achieving his target of four months looks very promising. Outgoing *EDS Newsletter* Editor-in-Chief, Krishna Shenai, welcomed new editor, Nino Stojadinovic, and expressed his appreciation to all the Editors who have served under his editorship. Nino announced his new editors, Murty Polavarapu (Regions 1-3), Sunit Tyagi (Regions 5 & 6), Alexander Gridchin (Region 8 Eastern Europe/Formal Soviet Union), and Andrzej Napieralski (Region 8 Scandinavia/Central Europe), and discussed a new author submission system through the IEEE Executive Office that will centralize newsletter operations similar to that of T-ED & EDL. After introducing Joe Brewer, IEEE Press Liaison Kwok Ng outlined the new agreement with Wiley. The publisher assumes responsibility for marketing, sales, production and promotion whereas IEEE handles acquisition, review and editorial issues. In a survey, Kwok found that there is no shortage of authors within the membership; however, the apparent lack of interest in IEEE Press by member/authors needs to be turned around.

Reporting on *T-ED*, Editor-in-Chief, Doug Verret, reported that things are rapidly improving with the recently installed editorial submission system in the Executive Office. Time-to-publication has been cut to 7-8 months, a 30% improvement within a year. The system has actually forced an exceeded page budget, for 2001 (3100 vs a budgeted 2600 pages)

A Message from the Outgoing Editor-in-Chief (EIC)



Krishna Shenai

As the outgoing Editor-in-Chief (EIC) of the EDS Newsletter, it is my privilege and opportunity to address you for a last chance and update you on the status of our Newsletter. As you may recall, our new EDS Newsletter was founded in 1994 and I have served as the founding EIC since then. It has been a great pleasure to work with all of you in various capacities in the past eight years of my service. I enjoyed my work a great deal and I am certain that our new EIC, Prof. Ninoslav Stojadinovic, will provide you even better service and dedication in the coming years. As I depart, I want to thank all EDS members for their sustained support, and Bill Van Der Vort and his staff at the EDS Executive Office for their outstanding service over the years.

Krishna Shenai
University of Illinois at Chicago
Chicago, IL, USA

since more papers can be processed. However the average number of pages decreased over the same time. Tony Oates has seen the first IEEE fully electronic journal, *Transactions on Device and Materials Reliability (T-DMR)*, through its initial start-up year. In 2001, it was available free to all IEEE members and non-members via IEEE Xplore. For 2002, it will continue to be free for all IEEE members. Of the 32 papers submitted, 21 were accepted in 2001. Each manuscript is posted on IEEE Xplore as a PDF file within 1-2 weeks after it is accepted for publication. Duane Boning is the new editor of *Transactions on Semiconductor Manufacturing (T-SM)*s. He announced that T-SM

has been voted the top manufacturing journal on the basis of citations. Goals for the journal include increased paper submissions, exploration of new subjects, and a thorough evaluation of past issues to assess strengths and weaknesses. T-SM's transition to all-electronic manuscript handling commences next year. Duane hopes to explore areas such as EHS, sub-70nm fabrication, and compound semiconductor manufacturing in future special issues. The *Journal of Technology Computer Aided Design (J-TCAD)* is likely to cease publication. An all-electronic journal started in 1996 under Mark Law, it has suffered from a dearth of submissions, small readership, and issues of being non-archival.

For 2002, the EDS President will be Steve Hillenius, Vice President, Hiroshi Iwai, Treasurer Paul Yu, and Secretary, John Lowell. Newly elected AdCom members include: Magali Estrada del Cuerto; Johnny K. O. Sin; and Nino Stojadinovic. Re-elected members include: Kenneth F. Galloway, Stephen J. Hillenius, Chennupati Jagadish and Rajendra Singh.

The next meeting of EDS AdCom will be on Sunday, June 9, 2002 in Honolulu, Hawaii prior to the 2002 Symposium on VLSI Technology.

*John K. Lowell
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2001 EDS Distinguished Service Award

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

The Electron Devices Society Distinguished Service Award was established to honor an outstanding volunteer each year. It is a challenge to select just one outstanding volunteer each year. There are numerous outstanding volunteers in EDS and it is a shame that they can't all be given significant recognition. In 2001, we are pleased to single out one of those volunteers for his contributions. We honor H. Craig Casey, Jr. as the recipient of this award.

Craig Casey was born in 1934 in Houston, Texas. He received a BS degree in electrical engineering in 1957 from Oklahoma State University and joined Hewlett-Packard in Palo Alto, Cali-



H. Craig Casey, Jr.

fornia. While at H-P, he attended Stanford University as a half-time graduate student. During this time at H-P he joined HP's new semiconductor division, HP Associates. In 1962, he left H-P to complete his PhD in electrical engineering at Stanford University.

Upon completion of his PhD in 1964, Craig joined Bell Telephone Laboratories in Murray Hill, New Jersey. His initial assignment was the investigation of electroluminescence in GaAs p-n junction diodes. During this time, he began to collaborate with Mort Panish on the impurity incorporation and diffusion in GaAs. In 1972, the collaborations with Panish began to include properties that influence the behavior of GaAs-AlGaAs heterostructure lasers such as the compositional dependence of the energy gap of AlGaAs and the refractive indices. With Panish, semiconductor laser improvements such as the reduction of the threshold current density by adding layers to have separate optical and carrier confinement with the separate confinement heterostructure (SCH) laser were made. With Sasson Somekh and Mark Ilegems in 1975, the SCH laser was used with a grating in the optical waveguided region to obtain room temperature operation in a distributed-feedback (DFB) laser. He became an IEEE Fellow in 1984 for contributions to III-V compound semiconductors. In 1979,

Dr. Casey joined the Electrical Engineering Department at Duke University as Professor and Chairman. In 1996, he turned the Chairman duties over to his successor and became a full-time teacher and began research in the recently developed wide-energy gap group-III nitrides.

Craig became involved with the Electron Devices Society as a member of the Device Research Conference Program Committee in 1975 and served as Conference Chairman in 1983. He became an elected AdCom member in 1981 and served as President in 1988-1989. Since that time, he has been involved in a variety of EDS activities.

Craig has found North Carolina to be a great East Coast location. There are many activities in the Durham-Raleigh-Chapel Hill area during the school year. In the summer, Craig and his wife Jackie go to their house in the North Carolina mountains near Blowing Rock. Blowing Rock is like Andy Griffith's Mayberry, but with great restaurants, summer theater, concerts, and a variety of outdoor activities. With the internet, call forwarding, and express mail, telecommuting from the mountains works during the summer break. Also, it is actually cool in these southern mountains in the summer. They look forward to the time when they can also be there for the fall leaf season.

*W. Dexter Johnston, Jr.
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2001 EDS J.J. Ebers Award

The 2001 J. J. Ebers Award, the prestigious Electron Devices Society award for outstanding technical contributions to electron devices, was presented to Dr. Hiroshi Iwai of Tokyo Institute of Technology at the International Electron Devices Meeting in Washington, D.C. on 3 December 2001. This award recognizes Dr. Iwai "For sustained leadership and technical contributions to the continuous scaling of CMOS devices."



Hiroshi Iwai

Hiroshi Iwai was born in Tokyo, Japan, in 1949. He received the B.S. and Ph.D. degrees in electronic engineering from the University of Tokyo, in 1972 and 1992, respectively. In 1973, he joined the Research and Development Center of Toshiba Corporation, where he developed the first generation of Toshiba's NMOS LSI. From 1977 to 1979, he was also associated with NEC-Toshiba Information Systems as a research member of advanced NMOS technology. From 1979 to 1989 he was with the Semiconductor Device Engineering Laboratory in the Semiconductor Group of Toshiba, where he engaged in the development of various LSI technologies and products as a deputy

manager — DRAM, SRAM, high-speed logic CMOS, and mixed analog and logic BiCMOS. In 1983 and 1984, he joined the Integrated Circuit Laboratory, Stanford University as a Visiting Scholar, where he studied small-geometry effects of MOSFET capacitances. From 1989 to 1996, he was associated with the ULSI Research Laboratories Toshiba as a senior research scientist, heading groups of sub-50 nm CMOS research and ultra-high speed bipolar device development. From 1997 to March 1999, he was a chief specialist of the Microelectronics Engineering Laboratories of Toshiba, serving as the project leader of next generation Si RF technology development of Semiconductor Group in Toshiba. Since April of 1999, he has been a professor of the Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, engaging in research on CMOS downsizing.

Dr. Iwai contributed to the development of advanced LSI products in Toshiba for more than 25 years, starting from a 1k bit NMOS static memory. He has also been a key contributor to technologies related to the downward scaling of NMOS/CMOS devices from 8 micrometers to sub-50 nanometer generations. From the late 70's to the beginning of 90's, he and his group published numerous seminal papers on subjects such as the first 2D analysis of subthreshold-leakage suppression by deep-channel implantation in 1978, the first demonstration of LOCOS downsizing limits in 1980, invention of on-chip capacitance measurement in 1980, first demonstration of short- and narrow-channel effects on MOSFET capacitances in 1984, discovery of avalanche hot-hole injection in p-MOSFETS in 1988, first systematic study of TED during RTA in 1989, first demonstration of boron penetration suppression by RTN nitrided-oxide in 1990, and invention of a unique charge pumping method for fixed charge spatial distribution in 1991.

Dr. Iwai was the first to breakthrough the 50 nm technological wall of down scaling. He and his group established fundamental technologies for sub-50 nm devices, and demonstrated a good operation of sub-50 nm MOSFETS in the early 90's. The impact of the sub-50 nm MOSFETS drove the SIA roadmaps into the sub-50 nm region, which had been believed to be very difficult or even impossible

because of limits to further scaling of MOSFET parameters such as gate oxide thickness. Examples of the ground-breaking work of Dr. Iwai and his group are: nickel mono salicide MOSFETS in 1990, 10 nm depth S/D junctions by SSD in 1993, 40 nm gate length MOSFETS in 1993, epitaxial channel MOSFETS in 1993, direct-tunneling gate oxide MOSFETS in 1994, and raised S/D MOSFETS using silicon gate sidewall in 1995. The above structures and techniques, some of which are fundamental elements of recent 30 – 20 nm MOSFETS, were originally proposed by him and his group, and were presented at conferences in the 90's for the first time.

Further, he and his group started RF CMOS technology development in 1993 and demonstrated various excellent RF characteristics, such as 150 GHz ft in 1996 and 0.3 dB NF values in 1998. This led to new applications and markets for RF-CMOS technologies for wireless telecommunication by international joint development of RF front-end circuits with designers from universities and industry.

He has contributed to the IEEE EDS, serving as chair and committee member of many conferences, editor of journals and newsletters, and an elected member and a standing committee chair of the IEEE EDS AdCom. His honors include the Nagoya Mayor Award (1968) at high school graduation, Local Commendation for Invention from the Japan Institute of Invention and Innovation (1990) for self-aligned contact hole technology, Grand Prize of Nikkei BP Technology Awards (1994) for 40 nm MOSFETS, IEEE EDS Paul Rappaport Award (1994) for his paper on a new charge pumping technique, IEEE Fellow (1997) for contribution to small geometry CMOS and BiCMOS, and the IEICE ES Electronics Award (1998) for research of downsizing Si-MOSFETS.

His current research interests are downsizing of CMOS towards sub 10 nm, high K gate insulator development, ultra-shallow junction formation by plasma doping, chip assembling on silicon and circuit modeling for RF CMOS. He, his wife, Ayari, and their daughters, Yu and Rei, live in Yokohama, Japan, and are enjoying their lives working, studying and playing.

Louis C. Parrillo
Motorola
Austin, TX, USA

2002 EDS J.J. EBERS AWARD CALL FOR NOMINATIONS

The IEEE Electron Devices Society invites the submission of nominations for the 2002 J.J. Ebers Award. This award is presented annually for outstanding technical contributions to electron devices. The recipient(s) is awarded a certificate and a check for \$5,000, presented at the International Electron Devices Meeting (IEDM).

Nomination forms can be requested from the EDS Executive Office (see contact information on page 2). The deadline for submission of nominations for the 2002 award is 1 July.

EDS Members Named Winners of the 2002 IEEE Technical Field Awards

Six EDS Members were among the winners of the 2002 IEEE Technical Field Awards. They are:

Dimitri A. Antoniadis, of MIT won the 2002 IEEE Andrew S. Grove Award. His citation states, "For seminal contributions to field-effect devices and silicon process modeling."



Dimitri A. Antoniadis

Known for his intuitive approach to complex technologies, Dr.

Dimitri A. Antoniadis has had a tremendous effect on several areas of microelectronics technology, especially in field-effect controlled, quantum-effect devices and silicon process modeling.

At Stanford in the mid-1970s, Dr. Antoniadis played a key role in developing the SUPREM I and II, which became the first widely used process simulation tools in industry and the basis of programs in use today. After joining the faculty of the Massachusetts Institute of Technology (MIT) in 1978, Dr. Antoniadis led a program that proved and quantified the dual, vacancy-interstitialcy diffusion mechanism of substitutional dopant atoms in Si. This dual diffusion model remains at the core of all modern process simulators.

In the 1980s, Dr. Antoniadis, with his colleagues at MIT, established a bold research program into field-effect devices that took advantage of cutting-edge extreme sub-micron lithography techniques. The program produced many groundbreaking demonstrations, including those of lateral-surface superlattice and quasi-one-dimensional channels in silicon and GaAs, and the first silicon single-electron transistor.

Working with his students, Dr. Antoniadis has made many pioneering contributions to Bulk-Silicon and Silicon-on-Insulator MOSFET research that had major impact on key aspects of device design for today's high performance silicon MOSFETs. His current research focuses on the physics and technology of extreme-sub-micron Si, SOI and Si/SiGe MOSFETs. He is author and co-author of more than 200 technical articles.

Dimitri A. Antoniadis was born on 1 January 1947, in Athens, Greece. He received his B.S. in Physics from the

National University of Athens in 1970, and his Ph.D. in Electrical Engineering from Stanford University in 1976.

In 1978, Dr. Antoniadis joined the faculty at MIT where he co-founded and was the first Director of the MIT Microsystems Technology Laboratories. He later directed the SRC MIT Center of Excellence for Microsystems Technology. Currently, he holds the Ray and Maria Stata Chair in Electrical Engineering and directs the Multi-University Focus Research Center for Materials Structures and Devices.

Dr. Antoniadis is a Fellow of the IEEE. His awards include the IEEE Paul Rappaport Award and the Solid State Science and Technology Young Author Award of the Electrochemical Society. At the IEEE, he has served as Editor of the *IEEE Transactions on Electron Devices*, and on various technical committees.

Dr. Young-Kai Chen, a Bell Laboratories research group Head, won the 2002 IEEE David Sarnoff Award. His citation states, "For contributions to ultrahigh-speed heterostructure transistors and seminal work on colliding pulse mode-locked semiconductor lasers."



Young-Kai Chen

Dr. Young-Kai Chen's outstanding career in semiconductor device physics, design, and technology has included many important milestones.

A pioneer of many key devices Dr. Chen and his team demonstrated operational frequencies well beyond 100 GHz in InP-based heterojunction bipolar-based transistors in 1988 at Bell Laboratories. When he first introduced the technology, it paved the way for intense research worldwide. Since then, the work's importance has endured: It remains the basis for high-speed commercial technology today.

Another of Dr. Chen's revolutionary contributions to ultrafast semiconductor devices involves a groundbreaking colliding pulse mode-locked semiconductor laser, which generates 600 femto-second pulses at a 350 GHz repetition rate. His work in this area, along with Dr. Ming Wu, set the standard by which subsequent developments have been judged. It is now in use in many high-speed com-

munications systems, including optical clock regenerators and phase-locked wavelength division light sources, and numerous other wireless applications.

Young-Kai Chen was born on 7 October 1953, in Taipei, Taiwan. He received a B.A. in Electrical Engineering from the National Chiao Tung University in Taiwan, an M.A. from Syracuse University, and a Ph.D. from Cornell University.

Dr. Chen joined the technical staff of General Electric in 1980, before starting research at Cornell University in 1985. Upon earning his Ph.D. in 1988, he joined the staff of Bell Laboratories in Murray Hill, where he became Director of the High Speed Electronics Research Department in 1994. He currently heads a Bell Laboratories research group that explores high-speed electronics and optoelectronics for advanced optic-fiber communication networks.

A Fellow of the IEEE, Dr. Chen holds 10 patents and has contributed to more than 100 papers. The many honors he has earned include the Young Scientist Award at International GaAs Symposium. He has been a Member of Technical Program Committees at many IEEE conferences and meetings, and has organized IEDM courses. He has also chaired or advised numerous conferences and organizations, including those of the NSF and NIST.

Supriyo Datta, a member of the faculty at Purdue University, won the 2002 IEEE Cleo Brunetti Award. His citation states, "For significant contributions to the understanding and innovative simulation of nano-scale electronic devices."



Supriyo Datta

Supriyo Datta has long been a leading figure in the modeling and understanding of nano-scale electronic conduction. His work has vastly expanded the knowledge and technology of nanoelectronics.

Since 1981, Dr. Datta has been a member of the faculty at Purdue University where he is currently the Thomas Duncan Distinguished Professor of Electrical and Computer Engineering. He began his work in nano-scale electronics in 1985 and his early work with his students Micahel McLennan, Roger Lake and Gerhard Klimeck, laid

the foundation for the development of quantum-transport simulation tools based on the non-equilibrium Green's function (NEGF) formalism. Dr. Datta then went on to pioneer the application of the NEGF formalism to molecular electronic devices.

In a joint effort with Mark Lundstrom, Dr. Datta has pioneered new models for electronic-flow simulation in ultra-small devices and, in doing so, has greatly expanded the world's understanding of nano-scale electronic flow. Using the NEGF formalism and a unique "scattering model," Drs. Datta and Lundstrom have revolutionized the methods for simulation and prediction of ultra-small scale electronics by developing approaches that apply to conventional transistors at the scaling limit, as well as to radically new technologies. Dr. Datta is well-known for his seminal contributions to emerging fields such as spintronics and molecular electronics.

Supriyo Datta was born 2 February 1954, in Dibrugarh, India. He was awarded a B.Tech. in Electronics from the Indian Institute of Technology, with the President of India Gold Medal, in 1975. He received an M.S. in Electrical Engineering in 1977, and a Ph.D. in Electrical Engineering in 1979, both from the University of Illinois at Urbana-Champaign.

Dr. Datta has authored three books, including the lauded *Electronic Transport in Mesoscopic Systems*, and numerous articles and papers on nano-scale electronic conduction. He is a Fellow of the IEEE, the American Physical Society, and the Institute of Physics. Dr. Datta has received many awards and honors for his work, including the IEEE Centennial Key to the Future, the National Science Foundation Presidential Young Investigator Award, the D.D. Ewing Teaching Award from the Purdue University School of Engineering, and the Frederick Emmons Terman Award of the American Society of Engineering Education.

Chenming Hu, Chief Technology Officer of TSMC in Taiwan, won the 2002 IEEE Solid-State Circuits. His citation states, "For contributions to MOSFET physics and development of the BSIM model for CMOS circuit simulation."



Chenming Hu

Working with Professor PingKo, Professor Chenming Hu contributed to key physical models for nearly all features of the electrical behavior of modern MOSFETs. The duo's leadership

also led to the Berkeley Short-Channel IGFET Models (BSIM), which resulted in a groundbreaking device model that became an industry standard while remaining entirely in the public domain.

The BSIM1 and BSIM2 models were widely used for IC design. The BSIM3 model incorporates numerous novel physical elements, and broke new ground in accuracy, ease of parameter extraction, and the ability to predict how MOSFET characteristics would change with variations in manufacturing parameters. Subsequent updates and releases include an important thermal noise model, models for RF circuit design for the wireless industry, and a model for SOI product design.

Chenming Hu was born on 12 July 1947, in Beijing, China. He earned a B.S. from the National Taiwan University, and M.S. and Ph.D. degrees from the University of California at Berkeley.

He joined the faculty of Berkeley in 1976, where he is a TSMC Distinguished Professor of Electrical Engineering and Computer Sciences. He is currently on leave from Berkeley and is the Chief Technology Officer of TSMC in Taiwan.

Professor Hu is involved in a number of professional activities, and has been a key organizer, speaker, or committee member for numerous IEEE conferences and activities. He has been involved in developing numerous standards, and created some tutorials and University of California Extension courses that have reached thousands of engineers. Professor Hu has authored or co-authored more than 700 papers and five books. Professor Hu is a Fellow of the IEEE and the Institute of Physics as well as a member of the National Academy of Engineering. The many awards he has won include the IEEE's Jack A. Morton Award, Berkeley's Distinguished Teaching Award, Sigma Xi's Monie A. Ferst Award, the Pan Wen Yuan Foundation Award, and a DARPA Most Significant Technological Accomplishment Award.

Ping-Keung Ko, a Vice Chairman and Chief Strategy Officer of Authosis Inc., won the 2002 IEEE Solid-State Circuits Award. His citation states, "For contributions to MOSFET physics and development of the BSIM model for CMOS circuit simulation."



Ping-Keung Ko

Practically every silicon foundry, inte-

grated device manufacturer, and fabless company benefits from the work of Professor Ping-Keung Ko.

Working with Professor Chenming Hu, Professor Ko helped to pioneer key physical models for nearly all features of the electrical behavior of modern MOSFETs. The duo's leadership also led to the Berkeley Short-Channel IGFET Models (BSIM), which resulted in a groundbreaking device model that was an instant industry standard while remaining entirely in the public domain.

The BSIM1 and BSIM2 models were widely used for IC design. The BSIM3 model incorporates numerous novel physical elements, and broke new ground in accuracy, ease of parameter extraction, and the ability to predict how MOSFET characteristics would change with variations in design and manufacturing. Subsequent updates and releases include an important thermal noise model, models for RF circuit design for the wireless industry, and a widely used model for SOI product design.

A native of Hong Kong, Professor Ping-Keung Ko earned his B.S. with special honors from Hong Kong University in 1974, and M.S. and Ph.D. degrees in Electrical Engineering and Computer Science (EECS) from the University of California at Berkeley, in 1978 and 1982, respectively.

In 1982, Professor Ko joined Bell Labs as a Member of the Technical Staff. He joined the Berkeley faculty in 1984, and was Vice Chairman of the EECS department and Director of the Berkeley Microfabrication Laboratory before returning to Hong Kong University of Science and Technology (HKUST) in August 1993, where he served as Dean of Engineering from 1994 to 2000. In Hong Kong, he has also been chairman of the Research Grants Council, a member of the University Grants Committee, a member of the Industrial Technology Development Council, and a Justice of Peace. He is currently on professional leave from HKUST and is Vice Chairman and Chief Strategy Officer of Authosis Inc., a VC firm focuses on funding IC fabless design companies targeting the China market.

Professor Ko holds six patents and has authored or co-authored hundreds of papers and a book. Together with Professor Hu, he has authored about 200 papers on the physical models of MOSFET. A Fellow of both the IEEE and the Hong Kong Institute of Engineers, his many awards include a Best Paper Award from the International Reliability Physics

Symposium and the IBM Faculty Development Award. He is involved in start-up ventures in Silicon Valley and China .

Mark Lundstrom, Professor at Purdue University, won the 2002 IEEE Cleo Brunetti Award. His citation states, "For significant contributions to the understanding and innovative simulation of nano-scale electronic devices."



Mark Lundstrom

Dr. Mark Lundstrom's groundbreaking effort in the simulation of electronic flow in ultra-small devices has revolutionized the field. His innovative work has laid the foundation for rapid advances in the modeling and understanding of nano-scale electronics.

After joining Purdue University in 1980, Dr. Lundstrom began research in the physics and modeling of semiconductor devices, including work on III-V solar cells and heterojunction devices, bandgap narrowing and minority carrier transport, computer simulation of semi-

conductor devices, carrier transport theory, and the physics of deep sub-micron MOSFETs. Working with colleagues N.H. Kapadia and J.A.B. Fortes, Dr. Lundstrom pioneered the PUNCH project to develop a web-based infrastructure for delivering computing services, and co-founded Cantiga Systems, Inc., to commercialize the PUNCH technology.

In a joint effort with Supriyo Datta, Dr. Lundstrom has pioneered new models for electronic-flow simulation in ultra-small devices and, in doing so, has greatly expanded the world's understanding of nano-scale electronic flow. Using the NEGF formalism and a unique "scattering model," Drs. Lundstrom and Datta have revolutionized the methods for simulation and prediction of ultra-small scale electronics by developing approaches that apply to conventional transistors at the scaling limit as well as to radically new technologies such as molecular electronics. Their work has provided practical simulation tools that provide complete I-V characteristics as well as a conceptual view that is useful for illuminating the complexities and limitations of nano-scale MOSFETs. For

example, their pioneering studies provided new insights into the velocity limit at the source end of the channel the role of carrier backscattering in a MOSFET.

Mark Lundstrom was born on 8 June 1951, in Alexandria, Minnesota. In 1973, he received a bachelor's degree in electrical engineering with high distinction, and in 1974, he earned an M.S. Both degrees came from the University of Minnesota. In 1980, he was awarded a Ph.D. from Purdue University.

Dr. Lundstrom is a Fellow of both the IEEE and the American Physical Society. He has authored over 200 conference and journal papers, along with a textbook, *Fundamentals of Carrier Transport*. He has been the recipient of numerous awards and honors for his work, including the Frederick Emmons Terman Award of the American Society of Engineering Education, the D.D. Ewing Teaching Award from the Purdue University School of Engineering Education, and the Purdue University AA Potter Best of Engineering Award.

*Alfred U. Mac Rae
Mac Rae Technologies
Berkeley Heights, NJ, USA*

EDS Region 9 Chapters Meeting Summary

The 2001 IEEE Electron Devices Society Region 9 Chapters Meeting was held on 18 November 2001, in conjunction with the IEEE EDS Colloquium on Future Trends on Microelectronics at the Hotel Vista del Sol, Guadalajara, México. The meeting provided an opportunity for the Chapter Chairs, IEEE staff and EDS AdCom members to meet each other as well as to have a discussion forum. This was a great opportunity to share the experiences of the chapters and at the same time to express the needs and expectations.

The 2001 Chapters Meeting was co-hosted by Hiroshi Iwai, EDS Regions/Chapters Committee Chair and EDS Vice President for 2002 and Magali Estrada, Chair of the EDS Region 9 Subcommittee for Regions and Chapters (SRC-LA). Other participants included: Steve Hillenius, EDS President for 2002; William F. Van Der Vort, EDS Executive Director; Ilesanmi Adesida, Chair of the EDS Educa-



The participants of the EDS Region 9 Chapters Meeting, from left to right: Ayman Shibib, Ilesanmi Adesida, Hiroshi Iwai, Tracy Hawkins, Steve Hillenius, Arturo Escobosa, Jacobus Swart, Magali Estrada, Bill Van Der Vort, Adelmo Ortíz, Enrique Miranda, María Sánchez, Salomón Ledezma, Rodolfo Quintero and Héctor Báez.

tional Activities Committee; Ayman Shibib, Chair of the EDS Regions 1-3 & 7 Subcommittee for Regions and Chapters (SRC-NAE); and Tracy Hawkins, Manager of the IEEE Section/Chapter Support Department.

Representatives from 5 of the 6 EDS Region 9 chapters attended the meeting. They were: ED CINESTAV-Guadalajara Student Branch; ED CINESTAV-México

Student Branch; ED México; ED Cuba-Vedado; and CAS/ED/PEL Venezuela. The meeting was also attended by representatives from two Region 9 chapters currently in the process of being formed, i.e., ED Argentina and ED Campinas (South Brazil).

Hiroshi Iwai started the meeting with a presentation concerning the EDS Regional Chapter Coordination Program and its influ-

ence on the Regional Chapters. Then, Magali Estrada and Ayman Shibib gave presentations regarding the achievements and expectations of the SRC Plan in Latin America and North America East, respectively. Afterwards, Ilesanmi Adesida, talked about programs and activities of the Educational Activities Committee. He reviewed the ED Distinguished Lecturer Program and emphasized the opportunities it affords EDS Chapters, specifically mentioning the Colloquium celebrated the day before.

Each Chapter Chair that attended the meeting presented an activity report of the achievements during the academic year and their expectations for the future. At the end of each presentation, experiences and advice were shared in order to improve the development of activities in the region.

Tracy Hawkins presented a report on Section/Chapter Support from IEEE Regional Activities. Topics such as the new EDS Membership Fee Subsidy Program, the IEEE subsidies available to chapters in

Latin America, as well as requirements for chapter formation were also discussed.

The representative from Brazil, Jacobus Swartz, and the Argentina Representative, Enrique Miranda from Argentina, talked about their efforts and problems in starting new chapters in the region. Jacobus brought to the meeting the petition with the required signatures to start a new chapter in South Brazil.

It was mentioned that one of the primary difficulties in starting a new chapter is the high fee required for IEEE membership. There was a general agreement at the meeting that if fees are not reduced, the recruitment of new members in the region is going to be very difficult.

Finally, Hiroshi Iwai moderated an open discussion forum for all attendees. Each chapter chair was encouraged to be in contact with their Partners or SRC Chairs/Vice-Chairs to generate more and new activities. Additionally, the SRC Chair, in conjunction with the AdCom members

will pay special attention to support EDS Distinguished lecturer visits to the chapters. Also, it was discussed that there was a need to recruit experienced lecturers in the region to become part of the EDS DL Program. Updating the membership of those who meet the requirements in the chapters will also be encouraged.

One of the other items discussed was the holding of an informal working meeting of all EDS Region 9 chapters during the 4th International Caracas Conference on Circuit Devices and Systems (ICCCDS) to be held in Aruba, April 17-21 2002.

Héctor Báez Medina
Chair of the ED Student Branch Chapter
CINVESTAV-IPN
México, D.F.

Magali Estrada del Cueto
Chair of the EDS Region 9 Subcommittee
for Regions/Chapters
CINVESTAV-IPN
México, D.F.

2001 EDS Chapter of the Year Award

On December 3, 2001, at the IEDM held in Washington DC, the AP/ED Bombay Chapter received the EDS Chapter of the Year Award which included a certificate and check for \$1,000.

The IEEE AP/ED Bombay Chapter is a relatively new Chapter, formed in late 1999, and formally inaugurated on February 14, 2000, with Dr. Hiroshi Iwai, Chairman of the EDS Regions/Chapters Committee, and Dr. Renuka Jindal, Partner of the newly-formed Chapter, in attendance.

The major event during this period was the co-sponsorship of the symposium "VLSI: Systems, Design and Technology" organized in Bombay during December 9-11, 2001. This symposium attracted over 300 delegates. One of the invited speakers was Dr. Xing Zhou, who attended the symposium as a Distinguished Lecturer with EDS support. The Chapter also conducted two workshops during this period. These were a one-day workshop on "Microelectronics" conducted on August 27, 2000 at a local engineering college to acquaint the IEEE Bombay Section students with the recent advances

in Microelectronics; and a half-day workshop on "Micro-electro-mechanical Systems (MEMS)" on March 21, 2001, conducted by Dr. Prakash Apte, Tata Institute of Fundamental Research. Both workshops were very successful, and were attended by about 150 persons.

The Chapter also conducted a Panel Discussion on "Careers in VLSI in India" on September 6, 2000. The panelists included 4 persons from leading VLSI industries in India, and 2 from academia. This event, which attracted about 150 people, was also extremely successful, and helped create awareness about exciting career opportunities in VLSI now available in India.

The Chapter arranged a screening of the 1999 IEDM Short Course videos on "Sub-100 nm CMOS" on August 29 and 30, 2000. This was attended by about 50 researchers and students working in the area of MOS devices. In addition to the above activities, the Chapter organized 12 technical talks and seminars on various aspects related to Electron Devices, which included two distinguished lectures.

30 EDS Members Elected to the IEEE Grade of Fellow

Effective 1 January 2002

Vasudev Kalkunte Aatre, Defense R&D Organization, Government of India, New Delhi, India, For leadership in research and development for strategic electronics and defense systems

Narain Das Arora, Simplex Solutions, Inc., Sunnyvale, CA, USA, For contributions to the development of MOSFET compact models for circuit simulation

Keh-Yung Cheng, University of Illinois at Urbana Champaign, Urbana, IL, USA, For contributions to semiconductor heterostructure materials and devices using molecular beam epitaxy

Bijan Davari, IBM, Hopewell Junction, NY, USA, For contributions to high performance deep-submicron CMOS technology development

Nico De Rooij, University of Neuchatel, Neuchatel, Switzerland, For contributions to microelectrical/mechanical systems and technology transfer to the marketplace

Toshio Goto, Nagoya University, Aichi, Japan, For contributions to plasma processing, gaseous electronics and lasers

James W. Haslett, University of Calgary, Calgary, Canada, For contributions to high temperature instrumentation and noise in solid-state electronics

Allen Ray Hefner, National Inst. of Standards and Tech., Gaithersburg, MD, USA, For contributions to the theory and modeling of power semiconductor devices

Chang-Gyu Hwang, Samsung Electronics Co., Ltd., Yongin, Korea, For contributions to, and leadership in, device and process technologies for high density memories

Chennupati Jagadish, Australian National University, Canberra, Australia, For contributions to III-V compound semiconductor optoelectronic device integration

Ralph Boyd James, Brookhaven National Laboratory, Upton, NY, USA, For contributions to and leadership in the development of wide band-gap compound semiconductor devices used for detecting and imaging X- and gamma-ray radiation

Allan Hugh Johnston, Glendale, CA, USA, For contributions to the understanding of space radiation effects in optoelectronics

Rajiv V. Joshi, IBM Research Division, Yorktown Heights, NY, USA, For contributions to chip metallurgy materials and processes, and high performance processor and circuit design

Jack C. Lee, The University of Texas at Austin, Austin, TX, USA, For contributions to the understanding and development of ultra-thin dielectrics and their application to silicon devices

Si-Chen Lee, National Taiwan University, Taipei, Taiwan, For contributions to heterojunction bipolar transistor technology in low noise and high gain applications

Neville Clinton Luhmann, University of California, Davis, CA, USA, For advances in millimeter/submillimeter wave plasma diagnostics, intense microwave plasma interactions, and coherent radiation generation

Leda M. Lunardi, JDS Uniphase Corp., Freehold, NJ, USA, For contributions to the development of high-performance 1.55 μm monolithically integrated photoreceiver for optical communication

Akira Matsuzawa, Matsushita Electric Industrial Co., Ltd., Osaka, Japan, For contributions to high-speed A/D converters and mixed-signal integrated circuits

Wolfgang Porod, University of Notre Dame, Notre Dame, IN, USA, For contributions to circuit concepts and architectures for nanoelectronics

Ulrich Lothar Rohde, Synergy Microwave Corp., Paterson, NJ, USA, For contributions to and leadership in the development and industrial implementation of microwave computer-aided design technology

Tadashi Saitoh, Tokyo University of Agriculture & Technology, Tokyo, Japan, For contributions to development of crystalline silicon solar cells and materials for photovoltaic applications

Naoyuki Shigyo, Toshiba Corporation, Semiconductor Company, Yokohama, Japan, For contributions to the development of technology-oriented computer-aided design of semiconductor devices

Rajendra Singh, Clemson University, Clemson, SC, USA, For contributions to and technical leadership in the materials processing and manufacturing of semiconductor devices

Albert J.P. Theuwissen, Philips Semiconductors, Eindhoven, Netherlands, For contributions to the development of CCD image sensors for still photography and HDTV applications

Tseung-Yuen Tseng, National Chiao Tung University, Hsinchu, Taiwan, For contributions to ceramic capacitor and sensor technologies

Toshiaki Tsuchiya, Shimane University, Shimane, Japan, For contributions to the understanding of the reliability physics of MOS devices and the development of hot-carrier-immune CMOS technologies

Charles Wuching Tu, University of California, San Diego, La Jolla, CA, USA, For contributions to molecular beam epitaxy of novel III-V semiconductors

Jan Van der Spiegel, University of Pennsylvania, Philadelphia, PA, USA, For contributions in biologically motivated sensors and information processing systems

Ming C. Wu, University of California, Los Angeles, CA, USA, For contributions to optical micro-electro-mechanical systems and high speed optoelectronics

Toshiaki Yachi, NTT Telecommunication Energy Laboratories, Tokyo, Japan, For contributions to power semiconductor and micro-magnetic devices

The Nominations of the Following IEEE Members Were Evaluated by EDS But the individuals are Not Current Members of EDS

Austin Michael Andrews, II, Alexandria, VA, USA, For technical leadership of government research and development programs

Joachim N. Burghartz, Zoetermeer, The Netherlands, For contributions to integrated high-speed and radio-frequency silicon devices and components

Paul Siu-Chung Ho, The University of Texas at Austin, Austin, TX, USA, For contributions to metalization of and metrology for multilevel interconnects and electronic packaging

Nicholas Reinhardt, Lexington, MA, USA, For contributions to hydrogen thyratrons, high voltage pulse power, high voltage transmission and distribution

Larry F. Weber, Plasmaco, Inc., Highland, NY, USA, For contributions to plasma display technology

FINAL CALL FOR NOMINATIONS

2002 IEEE Electron Devices Society Graduate Student Fellowship

Description: One year fellowships awarded to promote, recognize, and support graduate level study and research within the Electron Devices Society's field of interest: Compact Modeling, Compound Semiconductor Devices and Circuits, Device Reliability Physics, Displays, Electronic Materials, Microelectromechanical Systems, Nanotechnology, Optoelectronic Devices, Photovoltaic Devices, Power Devices and ICs, Semiconductor Manufacturing, Technology Computer Aided Design, Vacuum Devices, VLSI Technology and Circuits. At least one fellowship will be awarded to students in each of the following geographical regions every year: Americas, Europe/Mid-East/Africa, Asia-Pacific.

Prize: US\$5,000 to the student, US\$1,000 grant to the student's department, US\$1,000 grant to the student's faculty advisor in support of the student's project, travel subsidy of up to US\$3,000 to each recipient to attend the IEDM for presentation of award plaque.

Eligibility: Candidate must: be an IEEE EDS student member at the time of nomination; be pursuing a doctorate degree within the EDS field of interest on a full-time basis; and continue his/her studies at the current institu-

tion with the same faculty advisor for twelve months after receipt of award. Sponsor must be an IEEE EDS member. Previous award winners are ineligible.

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

Nomination Package:

Nominating letter by an EDS member; two-page (maximum) statement by the student describing his or her education and research interests and accomplishments; one-page biographical sketch of the student; one copy of the student's under-graduate and graduate transcripts/grades; two letters of recommendation from individuals familiar with the student's research and educational credentials.

Nomination packages will be due at the EDS Executive Office no later than May 15, 2002. They can be submitted by mail, fax or e-mail, but a hard copy must be received at the EDS Office at IEEE Operations Center, 445 Hoes Lane, Piscataway, NJ 08854 USA.

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

Mariano Aceves
Aruna B. Ajjikuttira*
Sanghoon Bae
Jonathan J. Bernstein
Jonathan P. Bird
Cindy Blair
John O. Borland*
Bernhard Boser
Henri Boudinov
Florin Calderaru*
Nigel Cameron
Dale Carnegie
Lawrence T. Clark
Simon Deleonibus
Ertugrul Demircan
Paul E. Dodd
Nels Dumin*
Takatomo Enoki
Oscar Enomoto
Kenneth R. Farmer II*
Minoru Fujita*

Remi B. Galliard
Sumanta K. Ghosh
Douglas Greenway
Laszlo S. Gutai
Peter Habitz
Jung Han*
Masachika Harada
Lili He*
Jason Henning
Dongsheng Hsu*
Meikei leong*
Md. Shafiqul Islam
Sheng-Lyang Jang
Nebojsa Jankovic
Qi Jiayue*
Aniruddha Joshi*
Miin-Horng Juang*
Gary Kaatz*
Muhammad A. Khaliq*
Yo-Hawn Koh*
Felix I. Kovalev

Anatoly I. Kuzmichev*
Jen-Jiang Lee
Haifeng Li*
John Lin
Charles F. McConaghy
Lyle B. McCurdy
Kahtan A. Mezher*
Philip K. Mok*
John D. Moores
Kiyoshi Mori
Oleg A. Mukhanov*
Clark T.C. Nguyen
Vicente Nunez
Aaron K. Oki
Dinu D. Patel
Betty Prince
Yuriy K. Rozanov
Axel Richter*
Guo-Ping Ru
Maxim Ryzhii*
Enrico Sangiorgi*

Edval J.P. Santos*
Frederick W. Sexton*
Dinesh K. Sharma*
Finley R. Shapiro
Miloljub Smiljanic*
Gregory L. Snider
Bruce M. Thompson
Bing-Yue Tsui*
Yuji Uenishi
Ramgopal Rao Valipe
Ashok Vaseashta*
Timofeyev Vladimir
David J. Walkey
Robert M. Wallace
Todd R. Weatherford*
Dexin Wu
Qiuxia Xu*
Vladimir M. Yakovenko
Kwang Sub Yoon
Kyung-Sik S. Yoon

* = 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>.

Regional and Chapter News

USA, Canada and Latin America (Regions 1-6, 7 & 9)

ED Washington/Northern Virginia

This EDS chapter held successful meetings in September, October, and November of 2001 highlighting a broad array of topics. At its September 13 meeting, Dr. Robert Parker from the Naval Research Laboratory spoke about vacuum electronics for the 21st century. Dr. Parker described today's modern RF vacuum electronic device as being a far cry from the glass envelope "vacuum tube" of the past. Modern vacuum electronic devices are the technology of choice for many high-power microwave and millimeter-wave applications. Dr. Parker's presentation highlighted recent trends in RF vacuum electronic technology and identified several opportunities for future development.

Professor Hiroshi Iwai, an EDS Distinguished Lecturer from the Tokyo Institute of Technology, delivered a thought-provoking review of silicon technology trends from past to future at the October meeting. Professor Iwai's presentation provided an excellent overview of the history of electronic circuits, from the first vacuum tube triode in 1906 to today's ULSI's circuits. Professor Iwai stated that Information Technology applications, such as the internet, i-mode, Bluetooth, cell phones, and game machines, are the driving force for Silicon technology in the 21st century. Dr. Iwai also provided a glimpse at future novel device concepts.

In November, the chapter co-sponsored a meeting with the Antennas and Propagation Chapter to hear a lecture by Dr. William Tang of DARPA on the MEMS Program at DARPA. The Microsystems Technology Office at DARPA sponsors a wide variety of research projects in the field of MEMS, with military applications in all four domains of engagement: air, land, sea, and space. Dr. Tang discussed current research projects as well as DARPA's vision of the future for MEMS technology.

—Murty S. Polavarapu, Editor

EDS Colloquium on Future Trends on Microelectronics

- by Hector Baez-Medina

The Colloquium on Future Trends on Microelectronics, sponsored by the IEEE Electron Devices Society and CINVESTAV-IPN, was held on 17 November 2001, at ON Semiconductor, Guadalajara, México. This event provided the attendees an opportunity to be involved in the area of microelectronics as three important presenters gave talks. The presenters, all of whom are IEEE Fellows and Distinguished Lecturers, were: Hiroshi Iwai from Tokyo Institute of Technology; M. Ayman Shibib, Consulting Member of Tech. Staff Agere Systems; and Sigurd Wagner from Department of Electrical Engineering, Princeton University.

On the other hand, the attendees came from different places, such as: ON Semiconductor (Guadalajara); CINVESTAV-IPN (México and Guadalajara); Simón Bolívar University (Venezuela); Campinas University (Brazil); University of Havana (Cuba); University of Buenos Aires (Argentina); and University of Illinois (USA).

Magali Estrada began the colloquium with a welcome to all the attendees, and a thank you to everyone who had made the event possible. Hiroshi Iwai gave the first talk entitled Silicon Technology Trend from Past to Future from milli to nano-meters. Dr. Iwai presented a review of the silicon technology and the trends for nanoelectronics development. All attendees were interested in the talk, but especially those who

develop technology and work with silicon. Then, M. Ayman Shibib gave a talk entitled State of the Art and Perspectives on Power Devices and ICs. Dr. Shibib gave an overview of power devices followed by state of the art topics and perspectives. At the end of the presentation, he outlined a technology roadmap.

The last talk, entitled Trends in low-cost electronics, was given by Sigurd Wagner. Low cost electronics was the first topic of Dr. Wagner's presentation. He then followed with information concerning experimental products which improve the performance of devices and circuits, as well as printing devices and flexible/deformable circuits. Other important topics covered were TFTs and Matrix & Cell circuits.

By the end of each talk, a question and answer session was held to clarify possible doubts and to share experiences and future expectations. Finally, Magali Estrada adjourned the colloquium. This was a great opportunity to be involved with the microelectronics area in several ways, from the development to the application.

Future colloquiums will be planned to increase the number of lectures and the topics that can be taken. Some future topics may include New materials, New devices and VLSI design.

Visit from Magali Estrada and Antonio Cerdeira to Venezuela

Magali Estrada, IEEE EDS Distinguished lecturer from México, presented a seminar "New dielectrics for submi-



Distinguished Lecturers at the Colloquium, from left to right: Hiroshi Iwai, Sigurd Wagner, Magali Estrada, Ilesanmi Adesida and M. Ayman Shibib.



Magali Estrada, IEEE EDS Distinguished lecturer from México

from MOSFET" on November 27, 2001 at Universidad Simon Bolivar in Venezuela. About 40 local students and specialists attended the conference. Many questions were answered before concluding the lecture.

—Adelmo Ortiz-Conde, Editor

Europe, Middle East & Africa (Region 8)

ED/MTT/AP St. Petersburg

- by Sergei Zagriadski

The seminar "Electromagnetic compatibility in techno- and biosphere" was organized by the St. Petersburg State Electrotechnical University and held on October 23, 2001. The lecture, "Synthesis of mathematical models for problems of electromagnetic compatibility on the base of smart computations", was presented by prof. N. Korovkin. Besides, Dr. I. Ioffe also presented a lecture, "Electrophobia and why people are afraid of electromagnetic fields?"

The All-Russia student conference in Radiophysics was held in Peterhoff December 11-14, 2001. This conference was organized by the St. Petersburg State University and the St. Petersburg State Technical University (see <http://radio.stu.neva.ru/studconf.htm>). Over 50 participants, including 35 students from 10 universities and higher-education institutes of 8 cities of Russia attended the conference. Nine students received best paper monetary awards from the ED/MTT/AP St. Petersburg Chapter. Three of these students were also awarded by free IEEE membership for the year 2002 and diplomas from the ED/MTT/AP St. Petersburg Chapter. The abstracts of their papers were also submitted for publication in IEEE Microwave Magazine.

The traditional student conference, "Week of Science", was held on December 10, 2001 at the St. Petersburg State Technical University. The moving exhibition of IEEE materials was organized for participants of the student conference as well.

For further information about the next conferences being held in St. Petersburg and the nearby area, please contact Prof. Sergei Zagriadski; E-mail: zagriadski@ieee.org.

MTT/ED/AP/CPMT/SSC West Ukraine

- by Mykhaylo Andriychuk

Over the past few months the Chapter directed its activities towards the growth of Chapter membership and organization of the Chapter Seminar/Workshop DIPED-2001. We awarded 2001 IEEE student membership for two new Ph.D. students from National University "Lvivska Politehnika" using the funds from the Chapter budget, and three individuals were also recruited to the IEEE owing to the partial financial support from the Chapter.

The 6th International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory (DIPED-2001) was held September 18-20, 2001, at Pidstryhach Institute of Applied Problems of Mechanics and Mathematics, NASU, Lviv, Ukraine. The West Ukraine and Republic of Georgia Chapters were the co-organizers of the DIPED-2001. The Electron Devices Society provided technical co-sponsorship support, with the inclusion of the Seminar Proceedings into the IEEE Book Broker Program. The MTT, AP, CPMT, SSC societies and the Ukraine Section were among the supporting IEEE institutions. The State post enterprise "Lviv post" and its general director, Mr. Anatoliy I. Kydysyuk, provided significant technical support to extend and to make the Seminar/Workshop social program more interesting.

The 42 papers of participants from Georgia, Germany, Greece, Finland, Israel, Russia, and Ukraine were presented in the 6 oral sessions. The topics of papers covered the traditional scientific areas: propagation; diffraction and scattering of waves

in homogeneous and non-homogeneous media; synthesis of radiating systems and field transformers; restoring the shape of radiating and scattering bodies; as well as the novel problems such as study and simulation of electromagnetic field in the complete vehicle structure; development and modeling the new antenna system for mobile phones; and decreasing the interaction of electromagnetic field of mobile phones on the human's body.

At the Opening ceremony, Dr. Mykhaylo I. Andriychuk, the current West Ukraine Chapter Chair, awarded Prof. Voitovich, the SSC Society Past Chapter Chair, a pin and certificate for his valuable efforts to create the West Ukraine Chapter and permanent contribution to activate the various areas of Chapter activities.

The educational and social events were presented widely alongside with the scientific program. Many young scientists and students attended the Seminar and received the ED and SSC Societies promotion materials distributed for the DIPED-2001. The Seminar participants had the possibility to take part in the excursion tour around Lviv, which really is an architectural pearl of Europe.

Traditionally, the Best Young Speaker Awards are granted at the Seminar banquet. This year, Mr. Andriy Radchenko from Tbilisi State University, Tbilisi, Georgia won the Best Young Speaker Award for the presentation, "Adaptive Scheme of Calculation of 3D Wire Structures by the Method of Moments".

The next annual Seminar/Workshop DIPED will be held October 10-13, 2002, at Tbilisi State University, Tbilisi, Georgia. For more information, please contact Dr. Mykhaylo I. Andriychuk by e-mail andr@iapmm.lviv.ua, and Dr. David D. Karkashadze by e-mail lae@resonan.ge.



Members of the DIPED Organizing Committee and the guests with the Institute building in the background.



Prof. Michael V. Davidovich

MTT/ED/AP/CPMT Saratov-Penza

- by Michael Davidovich

The Sixth Chapter Workshop, "CAD and Numerical Methods in Applied Electrodynamics and Electronics" was recently organized by the MTT/ED/AP/CPMT Saratov-Penza Chapter. This Workshop was held on December 19, 2001 at Saratov State University. The main goal of this Workshop was to advertise the benefits IEEE has for young scientists and post-graduate students. All such Workshops have been held without requiring any registration or publication fees for participants, so it is very attractive for young scientists. There were more than 40 participants from Saratov. After this workshop, there was the Chapter meeting with the election of the 2002 Chapter Officers.

The 2001 year for our Chapter has been marked as the year of increased seminar activity. Chapter seminars were held once a month, with the last one being held in December. The theme of this seminar given was "The influence of Gunn diode structure on third harmonic generation in the resonance system of oscillator", given by Prof. V. Dvinskikh. Now we are preparing for two big conferences in 2002 in Saratov: 2002 IEEE International Vacuum Electron Sources Conference IVESC'2002 and Actual Problems of Electron Devices Engineering, APEDE'2002.

For more detailed information, please contact Prof. M.V. Davidovich:

DavidovichMV@info.sgu.ru

—Ninoslav Stojadinovic, Editor

Report related to the visit of the South Africa ED/LEO Partner

- by Marcel Profirescu

The Region 8 EDS Chapter Partner for South Africa was appointed in co-operation with the Region 8 EDS committee.

Our Partner for South Africa is Prof. Marcel Profirescu from the University Politehnica of Bucharest in Romania.

Prof. Profirescu visited South Africa as Partner in August 2001 to stimulate local EDS activities. He is also an EDS Distinguished Lecturer and gave three lectures in South Africa. Two EDS/LEOS Chapter meetings were held in Pretoria on 27 August 2001, and another meeting was held in Stellenbosch on 28 August 2001. The Pretoria meetings (a chapter meeting for EDS/LEOS members and a student branch meeting) were attended by 50 people in total. The second meeting at Stellenbosch was attended by 14 people.

The two talks by Prof. M. Profirescu were given on "Recent developments in deep submicron devices – theory and experiment" and "Distance education in microelectronics". The second topic was also the topic of the lecture in Stellenbosch.

These meetings were very successful and the social functions which were free to all attendees after the technical meetings were well attended. This trip to South Africa by our Partner and also Distinguished Lecturer helped to enhance the profile of the EDS/LEOS Chapter in South Africa, especially among the students.

MTT/ED/AP/LEO UK&RI Chapter

- by Terry Oxley

In its ninth year, EDMO 2001 (the Electron Devices for Microwave and Optoelectronic Applications Symposium) was held 15-16 November 2001 at the Vienna University of Technology Austria; a first time for a venue outside the United Kingdom (having previously been held at UK Universities). The Vienna University of Technology and the IEEE UK&RI MTT/ED/AP/LEO Chapter sponsored the event with technical co-sponsorship from IEEE EDS, and in co-operation with IEEE MTT and LEO Societies, the Institution of Electrical Engineers (IEE UK) and Institute of Physics (IOP UK). The Symposium was hosted by Professor Gottfried Magerl (Chairman) and Professor Horst Zimmermann (Co-Chairman) from the Kiel University. Financial support by the Erste Bank was gratefully acknowledged, and special thanks were given to Dr. Ali Rezazadeh (UK&RI Chapter Chairman), Dawn Cloake (London based EDMO secretary and Andrea Foreith (Vienna based EDMO secretary) for organizational contributions.

The technical programme included presentations from sixteen different countries and the papers were arranged in eight oral and two poster sessions (24 oral and 33

poster). These covered all aspects of modern SiGe, GaAs, InP, GaN and SiC devices ranging from modelling over circuit simulation and design to system aspects, with emphasis on material growth and characterization, wide-band gap microwave devices, Si and Si Ge devices and circuits, device and circuit modelling and technology, and microwave and photonic devices and circuits. Invited speakers included: M Missous (UMIST UK) on "Optical and Electrical Properties of $\text{In}_{0.48}\text{Al}_{0.52}\text{Ga}$ ", 52P, grown by Solid Source MBE using a GaP decomposition source"; Matthias Bopp (Atmel Wireless & Microcontrollers, Heilbronn, Germany) on "RF Silicon-Germanium Circuits"; Peter Seitz (CSEM Zurich and IMT, University of Neuchatel, Switzerland) on "Smart Pixels"; and Rudolf Schwarte (ZESS – INV, University of Siegen, Germany) on "Dynamic 3D Vision".

It is the tradition of the IEEE UK&RI MTT/ED/AP/LEO Chapter to support two best papers awards, one each from the oral and poster sessions. EDMO 2001 awards were presented to Dieter Smely (University of Technology, Vienna) on "A Measurement Based Gate Current Model for GaAs MESFETs and HEMTs Including Self-Heating and Impact Ionisation" for best oral paper, and Martin Mikulics (Research Centre Julich, Germany) on "Low-temperature-grown MBE GaAs for terahertz photomixers" for best poster paper. See photograph.

In summary, a well-attended event enjoyed an excellent technical programme, which had attracted considerable paper contributions from Eastern Europe. Copies of the Proceedings are available from the IEEE under IEEE Catalogue No: 01TH8567, ISBN: 0-7803-7049-X. EDMO 2002 is planned for 18 and 19th November 2002 at UMIST Manchester UK, please contact Dr. Ali Rezazadeh (address details below) for advance particulars.

The Chapter is pleased to announce that the third of the series of annual European workshops under the acronym MIDAS (Mm-wave, microwave and rf Integrated circuit Design And Simulation) is planned for the 1st and 2nd of July 2002 at TNO-FEL, The Hague, The Netherlands. Each year the MIDAS Workshop focuses on a particular area within the overall scope of integrated circuit design and simulation techniques over the RF, microwave and mm-wave frequency ranges, and the 2002 event will focus on "Active Array Technology - Towards Wideband Integrated Antenna Panels". In summary, active



EDMO 2001. From left to right: Horst Zimmermann – EDMO 2001 Co-Chairman (Kiel University), Martin Mikulics - Poster Paper Award Recipient (Research Centre, Julich, Germany), Dieter Smely – Oral Paper Award Recipient (University of Technology, Vienna), and Gottfried Magerl – EDMO 2001 Chairman (Kiel University).

array design gives rise to a number of simulation challenges, and the aim of the workshop is to bring together MMIC designers, packaging experts and microwave system designers to discuss current and future needs in the field of simulation and design of wideband integrated antenna panels. Topics will include: Simulation Needs For Current Modules - ("mixed signal MMIC simulation on GaAs and Si substrates" and "noise-and non-linear simulation for complex waveforms"); Simulated Packaged MMICs - ("package model extraction", "combined EM and electrical simulation" and "electrothermal simulation"); Ceramics Or Plastics Future Module Technology - ("technology needs" and "integration of active panels, including antennas, biasing, cooling"). For additional details or wish to contribute, please E-Mail Dr. Frank E van Vliet at vanvliet@fel.tno.nl, or Dr. Steve Marsh at steve.marsh@ieee.org.

For information on Chapter activities, please contact the Chapter Chairman: Dr. Ali Rezazadeh, Department of Electronic Engineering, King's College, University of London, Strand, London WC2R 2LS, UK. Tel/Fax: +44 20 7848 2879. E-Mail: ali.rezazadeh@kcl.ac.uk.

—Gady Golan - Editor

Report related to the visit of the ED Spain Chapter Partner

-by Paul K.L. Yu, Chapter Partner, SRC Chair of NAW Region

DL presentation: "Recent Advances in Photonic Devices for RF/Wireless Communication Applications"

Date of Visit: 10 December 2001

Location of Meeting: Technical Univer-

sity of Catalunya (UPC), Barcelona, Spain

Formal Meetings: (I) 12:00 - 13:00, Chapter meeting was presided by the Chapter Chair, Professor Ramon Alcubilla, EDS program discussions was led by Paul Yu (II) 15:00 - 16:30, DL presentation by Paul Yu

Discussion: The Spain ED Chapter has about 100 members that are located all over Spain, making it difficult to organize chapter meetings for members to attend. Instead, the chapter organizes a two-day workshop which takes place every 18 months. The last one (CDE 2001) took place in February 2001. The main objective of the workshop is to bring together members to present technical papers that are of local interest, such as solar cells, novel materials, nanotechnology etc., and that are in main stream of the Spanish ED related industrial community. The past workshops had been well attended, with 100 attendees. A workshop digest and CD-ROM were available to the attendees. The registration fee was very reasonable and the financing of the workshop was in good shape. The Chapter would like to keep the local nature of the workshop, but would consider inviting prominent speakers from other regions to give plenary discussions on emerging areas of research.

The chapter leadership comments on the future growth of ED membership in the chapter. The on-line availability of EDS journals are welcomed by the members, however, it also reduces the tangible benefit that the EDS members think they are receiving from the society (in the past, the main reason of joining IEEE EDS was the low subscription rate for the EDS publications). In the discussion, it was suggested

that the IEEE Xplore should advertise the EDS sponsorship of the journals every time before the papers were viewed/downloaded over the web. The Chapter Chair agreed that the Society's support of chapter activity such as local workshops and symposia would be very welcomed by the members. The chapter is very pleased with the support they have received so far for the workshop. During the presentation of various EDS programs, some members expressed particular interest in the Graduate Student Fellowship program, Video Lending Library and Chapter of the Year program. The chapter was encouraged to coordinate joint technical activities with chapters of other societies in the region. It was emphasized that promoting the member benefit will be essential for the retention and recruitment of members. The Chapter's involvement in the nomination of senior members and award winners was encouraged. The Chapter Partner is very thankful for the hospitality received from the chapter, and especially from Professor Acubilla.

—Christian Zardini, Editor

Region 10 East Asia

ED Beijing

-by Fu Jiang Liao

The Chapter organized the following events in the second half of 2001.

- Visit of EDS People to People Delegation

In September 2001, the EDS President, Dr. Cary Yang, and Regions/Chapters Chair, Dr. Hiroshi Iwai led the *People to People Delegation* to visit China. On September 12, 2001, Dr. Yang and Dr. Iwai held a meeting with the EDS leading group of the Beijing chapter, with some Chinese scientists and engineers joining the meeting. Dr. Yang and Dr. Iwai gave an overview of the EDS organization, activities and bylaws. Professor Fu Jiang Liao, EDS Beijing Chapter Chair, reported on the chapter activities in 2001. Professor Hiroshi Nozawa of Kyoto University, EDS Kansai Chapter Chair of Japan, summarized his chapter activities in 2001. The meeting also included a discussion on how to have more activities and expand the EDS membership in China. Following this meeting, the EDS Beijing chapter did increase its activities at universities and industrial units. Before the end of the year, there was a number of people from Beijing, Xi-an and Nanjing who applied to become IEEE and EDS members.



Some of the committee members of the 2001 ICSICT

Report of the The Sixth International Conference on Solid-State and Integrated-Circuit Technology (ICSICT-2001)

-by Bing-Zong Li

The Sixth International Conference on Solid-State and Integrated-Circuit Technology (ICSICT-2001) was held at the Hotel Equatorial, Shanghai, China, from October 22 to 25, 2001. The conference was sponsored by the Chinese Institute of Electronics and the IEEE Beijing Section and

technically co-sponsored by the IEEE Electron Devices Society. The number of participants was 450 from 18 countries and regions, with 127 being from overseas. The conference accepted 351 invited and contributed papers for oral and poster presentation. The conference technical program consisted of one plenary session, one evening panel session, 31 categorized oral sessions and two poster sessions. All the conference papers are included in two volume proceedings published before the conference. The presented talks covered the new developments and highlighted the leading edge technologies in various fields of solid state and IC technology. Professor Chih-Tang Sah of the University of Florida and Professor Dennis L. Polla of the University of Minnesota, USA gave invited presentations on deep submicron MOS and Bio-MEMS technologies at the plenary session. The 5 parallel categorized sessions focused on the following subjects: CMOS ULSI and SoC technology, Cu and low-k interconnect, ultra thin and high-k gate dielectrics, novel structure MOS devices, SiGe/Si materials and devices, SOI materials and devices, smart/intelligent and power IC, Si analog/RF devices and circuits, MEMS and sensors, wide bandgap materials and heterojunction and devices, nanostructures and nanodevices, optoelectronic devices, device reliability, modeling, simulation and characterization, etc. One of the highlights of the ICSICT-2001 was the Panel Discussion on "The Future IC industry in Mainland Chi-

na". Seven panelists from China, Japan and USA shared their viewpoints on the perspective, market, competitiveness, challenge and influence of the Chinese IC industry in the next 10 years.

—Tahui Wang, Editor

ED/SSC Bangalore

-by Prof. Navakanta Bhat

The new IEEE Bangalore ED/SSC Chapter was officially approved by the IEEE in October 2001. The officers of the Chapter are: Navakanta Bhat (Chair, Indian Institute of Science); P.R. Suresh (Vice Chair, Texas Instruments); and Santosh Saunkhe (Treasurer/Secretary, Analog Devices); Prof. J. Vasi (IIT Bombay, India) and Dr. R.P. Jindal (Agere Systems, USA) played a very important role, as chapter partners, in enabling the new chapter to be formed. The first event of the chapter, which was held on December 6 at the Indian Institute of Science, Bangalore. Prof. Rajesh Gupta, University of California Irvine, delivered the IEEE distinguished lecture on "Design Technology and Architectural Adaptation for Deep Sub-micron VLSI Systems". This event was very well attended with more than 90 attendees from academia and industry. The focus of the lecture was systems and circuits aspects.

The second event was a distinguished lecture on December 14 by Dr. M.K. Radhakrishnan from Singapore on "Failure Analysis Challenges in Deep Sub-micron Devices". Dr. Radhakrishnan also volunteered to be the partner of the new chapter. The lecture focused on device aspects.

The third event was a seminar on 19 December by Prof. Gautam Sarkar, University of Alaska, Fairbanks on "Development and Characterization of Low Dielectric Constant Materials for CMOS and other Microelectronic Device Applica-



Rajesh Gupta, IEEE Distinguished Lecturer, and Navakanta Bhat, Chair of the ED/SSC Bangalore Chapter

• Distinguished lecture by Dr. Juzer Vasi

The EDS Beijing Chapter invited Dr. Juzer Vasi of the Indian Institute of Technology, Bombay, India, 2001, to visit Beijing from September 26 to 30. He gave a presentation concerning new MOS technique at both the Hebei Semiconductor Research Institute and the Beijing Vacuum Electronics Research Institute. He also visited some laboratories in Beijing.

• Short course of "100nm CMOS Technology"

The EDS Beijing Chapter organized the showing of the IEDM videotape short courses on "100 nm CMOS Technology" in Beijing and Xi-an. This short course was held at the Xidian University campus, Beijing Microelectronics Research Institute, Beijing Hua Da IC Design Center and Beijing 9th Semiconductor Device Factory. Engineers and students felt that this course was very good for students to understand the new technologies in the IC field.

• National Vacuum Electronics Conference

The EDS Beijing Chapter co-sponsored the 2001 National Vacuum Electronics Conference, which was held in Guiyang, Guizhou province, China in August 15-18, 2001. "The advance of PDP Display", "Multi-Klystron" and "The Vacuum Electronics for 21 century" were reported in the plenary session. One hundred papers were presented at this conference.

For further information about the Beijing Chapter, please contact the Chapter Chair: Professor Fu Jiang Liao, Beijing Vacuum Electronics Research Institute, P. O. Box 749, Beijing 100016, China. Telephone and Fax: 86-10-64362878, E-mail:liao@hotmail.com.

tions". The focus of this lecture was mostly new materials for CMOS technology.

Thus, we were able to address the entire spectrum from systems to materials in these three events which covered very well the diverse interests and expertise of the members of both EDS and SSCS. For more information, please contact Prof. Dr. Navakanta Bhat, ECE department, Indian Institute of Science, Bangalore, India-560012, Email: navakant@ece.iisc.ernet.in.

ED Malaysia

-by Burhanuddin Yeop Majlis

The ED Malaysia Chapter has successfully organized the 2001 IEEE National Symposium on Microelectronics (NSM2001) November 12-13, 2001 at Awana Golf Resort Genting Highland. This is the third NSM organized by the ED Malaysia Chapter with the collaboration of Universiti Kebangsaan Malaysia and National Photonic Group. The symposium was officiated by the Chairman of IEEE Malaysia Section, Prof. Shamsudin H. M. Amin. The scope of the symposium covered all aspects of the semiconductor technology, from materials issues and device fabrication, photonics technology, IC design (RF and VLSI) and testing, manufacturing, and system applications. A total of 77 papers were presented. All papers were published in the Proceedings NSM2001. The participants are mainly researchers and students from local universities and semiconductor industries in Malaysia and Singapore.

Prof. Kei May Lau from the Department of Electrical and Electronic Engineering, the Hong Kong University of Science and Technology, visited the Chapter and delivered a lecture on Metalorganic Chemical Vapor Deposition (MOCVD) for Optoelectronic and Electron Device Applications. The lecture was held at the University Malaya on November 22, 2001.

For more information, please contact Prof. Burhanuddin Yeop Majlis, Department of Electrical, Electronics and System Engineering, Universiti Kebangsaan Malaysia. Tel: 603-89265861, FAX: 603-89259080, Email: burhan@eng.ukm.my.

CPMT/ED/R Singapore

-by Y.C. Ng

Despite the 9/11 event and its aftermath, the CPMT/REL/EDS Singapore



2001 IEEE National Symposium on Microelectronics (NSM2001)

Chapter managed to organize the following events for the last quarter of the year: Four guest speakers from the IEEE Reliability Society gave a Special Lecture series on 19 October 2001. The venue for this Special Lecture series was Nanyang Technical University (NTU), so as to encourage more participation from industry as well as academic staff/students. Dr. Sam Keene from Seagate Technology presented "Six Sigma Impact on Reliability", Mr. Dick Doyle from Doyle and Associates presented the "Thermal analysis (Minimize Stress)", Dr. Alan Street from Integrated Reliability Laboratory presented "FIB Device Modification Technology" and Prof. Shuichi Fukuda from Tokyo Metropolitan Institute of Technology presented "Emotional Engineering: A New Technology for Product Development". The turnout was very overwhelming with 200 attendees for the whole day event with 150 participants from industry and 50 students from universities.

The Chapter participated in the EDS DL mini-colloquium held in November 2002.



Prof. K.M. Lau's lecture in Singapore

Prof. K.M. Lau from Hong Kong University of Science and Technology, FIEEE, was our guest speaker for the EDS Distinguished Lecture Programme. She gave a Lecture on "Metalorganic Chemical Vapor Deposition (MOCVD) for Optoelectronic and Electron Device Applications" on 19 November, 2001 at the National University of Singapore. The lecture was attended by 30 participants. See attached picture of Prof KM Lau's Lecture in Singapore.

The tenth technical talk was presented by Dr. John H. Lau, Agilent USA, FIEEE, Distinguished Lecturer (CPMT-DL), entitled, "IC Packaging Trend" on 8 December, 2001. The talk was lively and interactive and 76 participants attended. The Chapter is currently preparing for the two international conferences in the year 2002 - IPFA to be held in July 2002 (web site: <http://www.ieee.org/ipfa>) and EPTC in December 2002 (website: <http://www.ewh.ieee.org/soc/cpmt/singapore/epc>). A new website for the Chapter was created during this quarter; <http://www.ewh.ieee.org/soc/cpmt/singapore/>

Last, but not least, the 2002 committee for the Chapter has been formed and Dr. M.K. Radhakrishnan was elected to continue with the Chairmanship for 2002. For more information on Chapter activities, please email Chapter Chair, M.K. Radhakrishnan, radhakrishnan@ieee.org

AP/ED Bombay Chapter

-by Prof. V. Ramgopal Rao

During September-December 2001, the AP/ED Bombay Chapter organized the following events: On October 16, 2001, Dr. Rajendra Patrikar of the Institute of High-Performance Computing, Singapore, gave a talk on "Physical Design Engineering Activities at IHPC." He discussed the importance of surface roughness for greater reliability of VLSI circuits. He also described other VLSI design activities at IHPC.

The AP/ED Bombay Chapter has established a tradition of conducting workshops on 'Microelectronics' in the Bombay region in order to develop an appreciation amongst the students for Microelectronics research. In addition to motivating the students to join the post-graduate programs in Microelectronics offered at IIT Bombay and other reputed institutions in India, these workshops also help faculty in



IEEE EDS Distinguished Lecturer, Prof. Cor Claeys, IMEC, Belgium delivering his lecture on "Technology roadmap challenges for deep submicron CMOS"

various engineering colleges by providing advanced lecture material and an exposure to research in these areas. One such workshop was conducted by IIT Bombay faculty on October 27, 2001 at Fr.C.R.Institute of Technology, Vashi, Bombay. About 250 participants from various colleges in the region attended this one-day workshop. Profs. A.N.Chandorkar, Dinesh Sharma, Mahesh Patil and V.Ramgopal Rao from the EE Department, IIT Bombay delivered lectures on various aspects of Microelectronics.

Dr. Anil Kottantharayil, Universitat der Bundeswehr, Munich, presented a seminar on "Low voltage impact ionization in n-channel MOS transistors" on October 31, 2001. The talk covered experimental investigation of impact ionization by measuring the substrate current. Some of the graduate students at IIT Bombay, who are working on related topics, interacted closely with Dr. Kottantharayil.

A talk on "Technology roadmap challenges for deep submicron CMOS" was delivered under the IEEE EDS Distinguished Lecture program, by Prof. Cor Claeys, IMEC, Belgium, on November 26, 2001. Prof. Claeys discussed a variety of challenges envisaged in the near future in VLSI technology. Possible technical collaboration between IIT Bombay and IMEC was also discussed in a meeting attended by Prof. Claeys and faculty members in the Microelectronics group at IIT Bombay.

On December 3, 2001, Prof. Kunio Tada, Yokohama National University, presented an IEEE EDS Distinguished Lecture on "Wideband and low voltage waveguide modulators with asymmetric coupled quantum wells beyond 40 Gb/s." Prof. Tada described a novel five-layer coupled quantum well structure, which performs better than the conven-



Prof. Kunio Tada, Yokohama National University, delivering an EDS Distinguished Lecture on "Wideband and low voltage waveguide modulators with asymmetric coupled quantum wells beyond 40 Gb/s" organized by the IEEE AP/ED Bombay chapter.

tional rectangular quantum well structure. He also described the "migration enhanced epitaxy" technique for improved heterointerface flatness.

Dr. Radhakrishnan, Philips Semiconductors, Singapore and Distinguished Lecturer, IEEE EDS delivered a lecture on "Physical Analysis of Ultra Thin Gate Oxide Breakdown" on December 13, 2001. Dr. Radhakrishnan described the importance of device failure mechanisms in understanding and enhancing the reliability of CMOS devices. His talk covered important aspects of the failure mechanism study related to the fail site identification using physical analysis, and the challenges involved in deep sub-micron CMOS technologies.

For more information, please contact Prof. Ramgopal Rao, Electrical Engineering Department, IIT Bombay, Powai, Mumbai 400076, India. FAX: 91-22-5783480, Email: rrao@ee.iitb.ac.in.

ED/MTT India

- by K.S. Chari

The Chapter sponsored a national Conference on "Recent Advances in Microwaves Antennas and Propagation" (Microwave 2001) at S S Jain Subodh PG College, Jaipur (Rajasthan) during the period 2-4 November 2001. The Conference brought together many contributed papers and invited talks from experts from academic, research and industrial institutions in the areas of Micro Strip Antennas, Microwave Antennas, Microwave Devices and Amplifiers, MICs and MMICs, Microwave Components, Measurements and Techniques and Microwave Applications etc. About 150 participants attended the Conference. The

event was coordinated by Dr. S Sancheti., Head, EC Deptt. MREC, Jaipur and Dr. K B Sharma from SSJASC, Jaipur.

The Chapter, along with the IEEE Student Branch of the Jamia Millia Islamia University, organized the All India Technical Festival "ENCOMIUM" on 8 November 2001. To encourage young engineers to carry out research, the festival consisted of a paper contest (Rationale), Software Design Contest (Eniac) and Quiz (Enigma). About 150 students and 50 faculty members from all over India attended these events. The ED India Chapter instituted six awards as prizes for the winning candidates in the Rationale and Eniac. The awards under Rationale were won by Ms. Richa Gupta (Indraprastha College, UP) for her Paper on "Enzyme Field Effect Transistors" and Mr. Sumit Chachra and Mr. Himanshu Sahani (IIT Roorkee) for their paper on "AI Application to Signal Processing". The third award was won by a team from Jamia Millia. Under Eniac, the contest consisted of Mouse Pointer Design, Neural Network Simulation, Auto Navigation and Simulation of Chess etc. The award was won by the REC, Warangal and Jamila Millia groups. The event was co-sponsored by NTPC, Power Finance Corporation and IEEE Delhi Section. Dr. Mini Thomas, Branch Counselor at Jamia coordinated the event.

The Chapter Chair served as a panel member in the India Japan Workshop on New Advanced Materials in Molecular Electronics (NAMME) organized by the National Physical Laboratory, New Delhi during 10-11 December 2001. Presentations by prominent speakers from India and Japan (Profs. Madoka Tokumotu, Keiichi Kaneto, Kazuyoshi Tanaka) on the developments in nano materials, molecular electronics materials, bio sensors, molecular electronic devices, Langmuier-Blodgett films and sensors were given in the Workshop. The event was coordinated by Dr. B. D. Malhotra from NPL.

The chapter co-sponsored the Xth International Workshop on Physics of Semiconductor Devices organised by the Solid State Physics Laboratory and the Society for Semiconductor Devices at Delhi during 11-15 December 2001. The conference featured papers in the areas of infrared devices, photo voltaics, opto-electronics, nano structures, power devices, sensors and MEMs technologies, VLSI and ULSI technologies, high frequency devices, growth and characterization and emerging technologies. The conference also had 4 workshops and poster paper presentation

sessions. The event attracted 450 participants. The India EDS Chapter also instituted 6 Best Poster Paper Awards given to the following outstanding poster papers: (1) 'Plasma deposition of fully crystallized intrinsic microcrystalline Silicon films' by V. Tripathi, S. Kumar, R. Vanderhaghen, B. Dreviron and P.R.J. Cabrarrocas, (2) 'Overview of trench gated MOS-controlled bipolar semiconductor power devices' by O. Spulber, M. Sweet, K. Vershinin, N. Luther-Kind, M.M. De Souza and E.M. Sankara-Narayanan, (3) 'Analysis of reverse I-V characteristics of C-Si / PS heterojunctions', by Md. N. Islam, S.K. Ram and S. Kumar, (4) 'Improvement in breakdown field strength of thin thermally grown SiO₂ by selective anodic oxidation', by R. Paily, A. DasGupta and N. DasGupta, (5) 'Optimization of window spacing in dual-window high power SPST switch of W-band frequencies', by A.K. Gupta, U.C. Ray, R. Pal, P. Dutta and V.K. Jain and (6) 'AlxGa1-xAs/GaAs Structures for HEMTs : MBE Growth and TEM Characterization', by D.V. Sridhara Rao, K. Muraleedharan, R. Balamuralikrishan, T. Srinivasan, R. Muralidharan and R.K. Jain. The Chapter also sponsored 4 student travel fellowships for students to attend the conference. The Chapter Chair chaired a session of paper presentations on power devices.

At the invitation of the Chapter, Prof. V.K. Arora of Wilkes University and an IEEE EDS Distinguished Lecturer visited the Dept. of Electronics Science of Kurukshetra University on 22 December 2001 and delivered 2 lectures entitled '21st Century Engineer – Entrepreneur' and 'Quantum Engineering of Nano Devices'. The event was attended by about 100 undergraduate and postgraduate students and coordinated by Profs. P.J. George and Anil Vohra of the Electronic Science Dept.

The Chapter initiated a major effort of enrolling new EDS members by having a one week intensive recruitment drive at Jamia Millia University. As a consequence, a total of 44 new EDS members (3 full EDS members) were enrolled. The India EDS Chapter subsidized the EDS membership of these new participants.

—Choi Wee Kiong, Editor

ED Kansai

—by Hiroshi Nozawa

A Univ. DL Meeting was held at Kyoto Univ., Kyoto, Japan, 2 Oct. 2001. Dr. Yuu Watanabe, Treasurer of ED Japan Chapter, Manager of Fujitsu, was invited as the Distinguished Lecturer. Dr. Wantabe, who

is well known as one of active and energetic researchers in the field, lectured about the technical trend of compound semiconductor devices for 90 min in English, though he is a native of Japan. This lecture was one of the English Lecture Courses organized for foreign students in the Doctoral Class of Kyoto Univ. this fall. The host was Prof. Hiroshi Nozawa, the Chair of the ED Kansai Chapter, Kyoto Univ. Dr. Hidemi Takasu, the Education and Membership Committee Chair of ED Kansai Chapter, Director of Rohm chaired this DL meeting. The number of participant was 20 people (8 from Univ., 12 from Companies). It has been recognized that technical discussions after the lecture significantly contributes to the activation and encouragement for EDS members in the Kansai region, Japan. The ED Kansai Chapter deeply appreciates his voluntary efforts and supports of his company, Fujitsu, with use of this space.

Report on the 2001 International Conference on Solid State Devices and Materials (SSDM 2001)

—by Naoki Yokoyama

The 2001 International Conference on Solid State Devices and Materials (SSDM 2001) was held in Tokyo from September 25 to 28 with a short course. This year, we selected 295 papers, including 13 late newspapers, out of 381 papers submitted from 15 countries. A total of 717 people attended the conference from Japan, USA, Korea, Taiwan China and other countries. In addition, we have arranged 39 distinguished invited talks in interesting technological fields. Three plenary lectures, "WebTop Collaboration and Semiconductor Industry,"

"Prospects of Si ULSI Devices for the Next Ten Years" and "Nano-Technology Strategy and Grand Challenges in U.S.," provided us with future directions for the solid state devices and materials society. Furthermore, two topics, "Next Generation ULSI: Challenge and Breakthrough" and "What Innovation Can We Expect by Fusion of Nano-Technology and Biotechnology?" were discussed in the rump session. "Recent development of RF-, Optical, Probe, Power, Bio-MEMS Technologies Changing Devices in the 21 Century", planned as a special session, explored the new field of the SSDM.

The next conference will be held in Nagoya-City, in the middle of Japan, on September 17-19, 2002. For details, please contact the Secretariat of SSDM 2002 c/o Business Center for Academic



Dr. Yuu Watanabe, Fujitsu lectured at Univ. DL Meeting, Kyoto Univ. Kyoto, Japan, 2 Oct. 2001.

Societies Japan: Tel: +81-3-5814-5800, fax: +81-3-5814-5823, E-mail: ssdm@bcasj.or.jp and refer to the SSDM 2002 Web site: <http://ssdm.bcasj.or.jp/>

Report on the 28th International Symposium on Compound Semiconductors (ISCS2001)

—by Kaz Hirakawa

The 28th International Symposium on Compound Semiconductors (ISCS2001) was held from October 1 through October 4, 2001, in a cozy atmosphere at Mathematical Science Building on Komaba Campus, University of Tokyo, Tokyo, Japan. Although there were a few people who could not make their trip to Tokyo because of the big tragedy that occurred in New York on Sep. 11, 2001, there were more than 320 participants from 12 countries. At the conference, 175 papers were presented in total, including 14 plenary and invited talks, 9 late-news papers, and 152 regular papers. These were selected from over 200 submissions from 11 countries.

ISCS is the preeminent international conference in the field of III-V, II-VI, and IV-IV compound semiconductors. ISCS 2001 covered wide aspects of compound semiconductors — including growth, processing, devices, ICs, and applications — and dealt with the III-V compounds such as GaAs, InP, and GaN, II-VI compounds, such as ZnSe and ZnS, and IV-IV materials such as SiC and SiGe.

Notable progress was reported in the development of optical and electronic devices based on nitride semiconductors. Steady advances were seen in traditional topics such as III-V based electronic and optical devices, growth and processing,

and characterization. Novel research trends were found in quantum structures, such as quantum wires and dots, and spintronics, which are greatly promising for future developments in nanotechnology.

Finally, we would like to thank all the people and the sponsoring organizations, who made the conference successful and enjoyable both scientifically and socially, for their help and generosity.

The next conference (ISCS2002) will be held in Lausanne, Switzerland, from October 7 to 10, 2002. Please, visit the conference homepage at "<http://iscs2002.epfl.ch>".

ED/SSC Seoul

-by Taegeun Park

The IEEE Seoul Chapter is a joint chapter of SSCS and EDS. The chapter has actively worked to promote the research activities and to build a strong relationship between the members by organizing and sponsoring conferences, inviting distinguished lecturers, and having regular chapter meetings. The year 2001 was memorable year for IEEE Seoul Chapter being selected for the best chapter of the year award from IEEE SSCS. The award was another recognition that the chapter received after the best chapter of the year award from IEEE EDS in 1999. The best chapter of the year award accompanied a check of \$1000 for chapter activities. The

award will be officially given to the chapter at ISSCC 2002. The SSCS newsletter allocated an extra page in its October 2001 issue to introduce the IEEE Seoul Chapter and its activities throughout the world. The IEEE Seoul Chapter has established a home page for the conferences that we organized as well as the chapter's own home page (<http://sscs-eds.ieee.or.kr>), to facilitate the communication within the chapter and local research community.

In the year 2001, the IEEE Seoul Chapter hosted 3 lectures by distinguished lecturers. The topics covered various interesting research fields in solid-state circuits as well as electron devices. A distinguished lecture is followed by a Chapter meeting on a dinner table to give the chapter members a chance to get together with distinguished lecturers and to have close conversations on selected topics. The lecture topics were: "High Lights of Taiwan High Technology Development and the Roles of High Education" by Dr. Chun-Yen Chang, National Chiao Tung University; "High Q very stable dielectric Ceramic and Non-linear ferro-electric ceramics" by Dr. Yuriy Poplavko, Kiev Polytechnic Institute, Ukraine; and "Ultra Low Power Wireless Sensors" by Professor Charles G. Sodini, MIT, USA.

The IEEE ED/SSC Seoul Chapter sponsored the 8th Korean Conference on Semiconductors (KCS) held at Koex, Seoul,

Korea, Feb. 14-15, 2001. The 8th KCS included 20 invited papers 350 papers in 33 regular sessions, and 120 papers in 2 poster sessions. Prof. Chun-Yen Chang, President of National Chiao Tung University was invited as a keynote speaker at KCS. He presented a seminar entitled as "Present and Future Prospects of Sub 0.1 μ m CMOS Technology For Wireless Communications". The Seoul Chapter has also sponsored IEEK VLSI and CAD Conference, held at Kyunghee University, Suwon, Korea on May 12, 2001. To promote academic developments and student activities, The Seoul Chapter sponsored 6 papers for the best student award with certificates and \$50 cash rewards. The conference featured 3 tutorial sessions and 58 regular papers. The number of attendees was about 150. As a part of annual support of the conferences, the Seoul Chapter sponsored the SOC Design conference, formerly IEEK Circuits and Systems Conference, held at Hoam Convention Center, Seoul Nation University, Seoul, Korea, Nov. 22-23, 2001. The conference had 153 papers presented with 256 attendees. The Seoul Chapter sponsored \$300 for the best paper awards. Three papers were selected and awarded for the best papers.

*—Hisayo S. Momose
Editor*



ISCS2001 in Tokyo



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