

April 2001

Vol. 8, No. 2 ISSN:1074 1879

Editor-in-Chief: Krishna Shenai

Table of Contents

| | |
|--|----|
| Upcoming Technical Meetings | 1 |
| • 2001 VLSI Technology • 2001 NVSMW | |
| • 2001 UGIM • 2001 IVMC | |
| December 2000 AdCom Meeting Summary... | 2 |
| Society News | 8 |
| • IEEE Members Who Received the Nobel Prize for Physics | |
| • EDS Millennium Medals Award Luncheon | |
| • 2000 J.J. Ebers Award | |
| • 2000 EDS Distinguished Service Award | |
| • EDS Chapter of the Year Award | |
| • Regional Chapter Coordination Program | |
| • 2001 J.J. Ebers Award Call for Nominations | |
| • Obituaries | |
| • UCSD ED/LEO Student Chapter | |
| • ED Malaysia Chapter Meeting Report | |
| • 2000 EDS Regions 1-7 & 9 (US, Canada & Latin America) Chapters Meeting | |
| • Summary of Changes to the EDS Constitution & Bylaws | |
| • EDS Members Recently Elected to IEEE Senior Member Grade | |
| Regional & Chapter News | 16 |
| 39 EDS Members Elected to the IEEE Grade of Fellow | 25 |
| EDS Meetings Calendar | 26 |

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

2001 Symposium on VLSI Technology

The 21st Annual Symposium on VLSI Technology will be held in the historic and beautiful city of Kyoto, Japan, June 11-14, 2001. 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 Rihga Royal Hotel in Kyoto, Japan. The conference begins with a one-day short course held on Monday, June 11, 2001. This is followed by three days of technical sessions held from June 12-14, 2001. 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 are also held. A banquet will be held on the evening of Tuesday, June 12, 2001.



Daigo Temple, Kyoto, Japan

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

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 2001 Symposium on VLSI circuits will be held at the Rihga Royal Hotel, June 13-16, 2001. A joint "Rump Session", on a topic of interest to both technologists and circuit designers, will be held on the evening of Wednesday, June 13, 2001.

continued on page 3

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.

Electron Devices Society

President

Cary Y. Yang
Santa Clara University
Tel: +1 408 554 6814
E-Mail: c.yang@ieee.org

Vice President

Steven J. Hillenius
Agere Systems
Tel: +1 908 582 6539
E-Mail: s.hillenius@ieee.org

Treasurer

April S. Brown
Georgia Institute of Technology
Tel: +1 404 894 5161
E-Mail: april.brown@ieee.org

Secretary

John K. Lowell
PDF Solutions, Inc.
Tel: +1 972 889 3085
E-Mail: j.lowell@ieee.org

Sr. Past President

Louis C. Parrillo
Motorola, Inc.
Tel: +1 512 895 2002
E-Mail: l.parrillo@ieee.org

Jr. Past President

Bruce F. Griffing
GE Corp. Research & Development
Tel: +1 518 387 6207
E-Mail: b.griffing@ieee.org

EDS Executive Director

William F. Van Der Vort
IEEE Operations Center
445 Hoes Lane
P.O. Box 1331
Piscataway, NJ 08855-1331
Tel: +1 732 562 3926
Fax: +1 732 235 1626
E-Mail: w.vandervort@ieee.org

Awards Chair

Alfred U. MacRae
MacRae Technologies
Tel: +1 908 464 6769
E-Mail: a.macrae@ieee.org

Educational Activities Chair

Ilesanmi Adesida
University of Illinois
Tel: +1 217 244 6379
E-Mail: i.adesida@ieee.org

Meetings Chair

Kenneth F. Galloway
Vanderbilt University
Tel: +1 615 322 0720
E-Mail: k.galloway@ieee.org

Membership Chair

James B. Kuo
University of Waterloo
Tel: +1 519 888 4025
E-Mail: j.kuo@ieee.org

Publications Chair

Renuka P. Jindal
Bell Laboratories ERC
Tel: +1 609 639 3113
E-Mail: rjindal@bell-labs.com

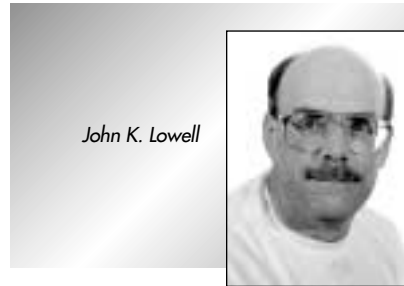
Regions/Chapters Chair

Hiroshi Iwai
Tokyo Institute of Technology
Tel: +81 45 924 5471
E-Mail: h.iwai@ieee.org

IEEE Newsletter Coordinator

Andrea Watson
IEEE Operations Center
445 Hoes Lane
P.O. Box 1331
Piscataway, NJ 08855-1331
Tel: +1 732 562 6345
Fax: +1 732 981 1855
E-Mail: a.watson@ieee.org

December 2000 AdCom Meeting Summary



John K. Lowell

The December 2000 meeting of EDS AdCom convened on December 10 in San Francisco, CA, as usual before the IEDM. As President Cary Yang remarked, this year was a very special one for EDS, due to the seminal events of the IEEE/EDS Millennium Medal Awards and the Nobel Prize in Physics. The Millennium awards have already been well publicized and comments on the awards luncheon are printed elsewhere in this issue. The 2000 Nobel Prize in physics was awarded to three IEEE members: Jack Kilby, Herbert Kroemer, and Zhores Alferov. The first two named are also EDS members. President Yang also gave out AdCom Certificates of Appreciation to outgoing AdCom members, Herb Bennett, Hiroshi Iwai, and Kunio Tada, to the outgoing Meetings Chair, (Jim Clemens replaced by Ken Galloway), Publications Chair (Steve Hillenius replaced by Renuka Jindal), Ebers Committee Chair (Al MacRae replaced by Lou Parrillo), and VLSI Technical Committee Chair (Philip Wong replaced by Werner Weber). Hiroshi Iwai also was recognized as the outgoing NE Asia Newsletter Editor. The remaining appointed and re-appointed ex-officio members of AdCom for 2001 were approved by AdCom. Cary's opening comments also discussed the new TAB financial model, which is still unapproved, so there is no model yet for the tax on society reserves. Nevertheless, EDS will be more fiscally conservative over the next few years as a precaution. This year in fact the EDS surplus is expected to be much less due to the volatile fluctuations in the stock market.

Treasurer April Brown reported that EDS income for the year was projected to be \$5,499K against \$4,959 in expenses for a net gain of \$537K. AdCom approved April's recommendation to maintain the 2001 EDS membership price and Transactions on Electron Devices (T-ED) and Electron Devices Letters (EDL) prices and page budgets for 2002. The EDS office completed several significant tasks in Y2000, i.e., the Regions 1-7 & 9 Chapters Meeting, the Region 8 Chapters Meeting, and the new manuscript tracking program for T-ED. Upcoming in Y2001 are the offering of EDS short courses on the web, the continuation of efforts towards the EDS 50th anniversary celebration in 2002, and transitioning in the new *Transactions on Device and Materials Reliability* electronic journal.

On the membership front, Chair James Kuo projects an increase of about 150 new members over Y1999's enrollment, which was

continued on page 6

EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

2001

A. S. Brown (2)
T. P. Chow (2)
K. F. Galloway (1)
S. J. Hillenius (1)
C. Jagadish (1)
M. A. Shibib (2)
R. Singh (1)

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)

Number in parenthesis represents term.

* Members elected 12/00

IEEE Electron Devices Society Newsletter is published quarterly by the Electron Devices Society of the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. Printed in the U.S.A. One dollar (\$1.00) per member per year is included in the Society fee for each member of the Electron Devices Society. Periodicals postage paid at New York, NY and at additional mailing offices. **Postmaster:** Send address changes to IEEE Electron Devices Society Newsletter, IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

Copyright © 2001 by IEEE: Information contained in this Newsletter may be copied without permission provided that copies are not used or distributed for direct commercial advantage, and the title of the publication and its date appear on each photocopy.

Upcoming Technical Meetings

VLSI Technology

(continued from page 1)

The 2001 Symposium on VLSI Technology will be the 21st 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 2000 Symposium on VLSI Technology, held in Honolulu, HI, was attended by more than 600 participants from around the world, includ-

ing significant attendance from the U.S., Japan, Europe, Taiwan, and Korea.

Kyoto, Japan is a beautiful city which includes a large number of historic sites as well as many modern amenities. The Rihga Royal Hotel is located within walking distance of the Kyoto train station. Overseas travelers may find the most convenient and economical way to reach the hotel is to travel by train or bus from Kansai International Airport near Osaka.

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

Secretariat for VLSI Symposia (Japan)
c/o Business Center for Academic Societies Japan

5-16-9 Honkomagome, Bunkyo-ku, Tokyo
113-8622, Japan.

TEL: +81 3 5814 5800

FAX: +81 3 5814 5823

E-Mail: vlsisym@bcasj.or.jp

Secretariat for VLSI Symposia (USA)
Widerkehr and Associates
101 Lake Forest Blvd.

Suite 400B

Gaithersburg, Md. 20877 USA

TEL: +1 301 527 0900 ext. 103

FAX: +1 301 527 0994

E-Mail: vlsi01@aol.com

Craig Lage
Motorola
Austin, TX

2001 Non-Volatile Semiconductor Memory Workshop (NVSMW)

The 2001 IEEE Non-Volatile Semiconductor Memory Workshop (NVSMW) will be held August 12–15, 2001, in Monterey, CA. The workshop is sponsored by the IEEE Electron Devices Society. NVSMW is a unique forum for both specialists in all aspects of nonvolatile memory microelectronics and novices wanting to gain a broader understanding of the field. Attendees represent professional and academic researchers involved with semiconductor non-volatile memory development and production along with end users of memory products. Principal topics for discussion at NVSMW are device physics; silicon processing; product testing; new technologies, including multi-level-cell approaches; programmable logic; memory cell design; integrated circuits; solid state disks and memory cards; memory reliability; and new applications.

An important goal of NVSMW is to provide an informal environment to encourage discussions among participants and lively interactions. There will be morning and afternoon technical sessions, along with a lively evening panel discussion on a



hot topic in the nonvolatile memory field. Technical interaction among presenters and attendees is encouraged through question and answer sessions and allotting ample time after the formal paper presentations for further in-depth discussions. Organized breaks, including snacks and the workshop dinner and lunch, are provided as opportunities to meet and exchange ideas with colleagues. Breakfasts are also provided. The morning and afternoon technical sessions are organized in a manner to provide ample time for the informal exchange and to enjoy the beauty

of the Monterey peninsula region of California.

This year will be the 18th meeting of NVSMW. The workshop is held every 18 months, alternating between February and August. The February meeting is usually held the week after ISSCC and the August meeting in the early weeks of the month. For many years, the attendance for the workshop was around 100. Early workshops alternated between Monterey, CA, for the February meeting and Vail, CO, for the August meeting. The Vail venue was dropped a number of years ago, to facilitate

attendance and travel from the nearby Silicon Valley. In recent years, the attendance has grown considerably, reflecting the large growth in the memory market, particularly flash memory and embedded memory on logic cores, with the last workshop attendance being in excess of 250. In order to maintain the workshop atmosphere of the forum, the maximum attendance is limited to 300. Therefore, advance registration is highly recommended. NVSMW is attended by a wide inter-

continued on page 4

NVSMW

continued from page 3

national community from North America, Europe, Japan and other Asian countries. The past several workshops have had featured sessions to address the growth of segments of the memory market.

The last workshop, in 2000, featured two invited papers in addition to the keynote speech presented by Alan Niebel of Web-Feet Research, Inc. He presented the Flash memory five-year forecast, which established the 1999 Flash sales of \$4.5 billion and projected 2000 to be around \$11 billion. In addition, Web-Feet Research provided forecasts for the other NV memories, Flash card forecasts, embedded Flash forecasts as well as application specific Flash forecasts for cell phones, digital cameras, and MP3 Players among the fifty different applications he covers in his market research. One of the invited papers was on Foundry Operation with Flash Technology presented by Di-Son Kuo of TSMC. He reviewed Flash technology development at their foundry fab, discussed the complexity of running logic process and embedded Flash process in same fab, and managing production logistic issues. The other invited paper was on NAND Flash memory, presented by Riichiro Shirota of Toshiba Corporation, who reviewed the NAND cell operation, reliability, processing and design considerations. We had two panel discussions in the last workshop, in 2000. One was on Monday afternoon titled, "End User Forum"

moderated by John Caywood to explore possible applications and desired product features. The Wednesday evening panel discussion focused on Test & Testability and provided different perspectives from both test equipment suppliers and memory product designers, and was moderated by Alan Niebel.

For this year's workshop, the deadline for submitting abstracts to the Technical Chairman was February 23, 2001. Electronic submission of the abstract using either Microsoft Word or Adobe Acrobat was highly encouraged. Proceedings consisting of bound copies of all abstracts will be handed out to attendees at the conference, along with a list of attendees and their phone numbers and e-mail addresses to allow future contact of workshop colleagues. It is anticipated that the format of the 2001 workshop will closely mimic that of this past year's, with 30 technical paper presentations expected. The last workshop consisted of six technical sessions over a three day period. The workshop opened with a Sunday evening registration reception, consisting of drinks and hors d'oeuvres. The technical sessions consisted of an invited paper, sessions on: design issues, integration issues, new devices, reliability issues, and cell characterization & device modeling. Breakfast opened each day, while a workshop reception dinner and evening panel discussion closed out Tuesday evening. The workshop formally closed on Wednesday afternoon. Breakfast was also provided on Thursday morning, for those remaining in the Monterey area.

The 2001 NVSMW will be held at the Hyatt Regency in Monterey, CA. The hotel is conveniently situated in the Monterey peninsula and allows fast access to many sights. Among favorite destinations are the famous Fisherman's Wharf, Cannery Row, The Monterey Bay Aquarium, 17-Mile Drive, nearby Carmel, and the many tranquil sights of natural beauty of the Monterey coastline and the fine dining experiences of the area. The Hyatt Regency is located at One Old Golf Course Road, Monterey, CA. The hotel can be reached by TEL: 408-372-1234.

For registration information and general inquiries about NVSMW, please contact any of the workshop chairmen.

General Chairman: Arthur Wang, Hyundai Electronics America, 3103 North First Street, San Jose, CA 95134 USA, TEL: 408-232-8811, FAX: 408-232-8805, E-Mail: awang@hea.com;

Technical Chairman: Krishna Parat, M/S RN3-01, Intel, 2200 Mission College Blvd. Santa Clara, CA 95054, USA, TEL: 408-765-9381, FAX: 408-765-5775, E-Mail: Krishna.Parat@intel.com;

Finance Chairman: Kelly Baker, Motorola, Inc., Mail Drop OE341, 6501 William Cannon Dr. West, Austin, TX 78735, TEL: 512-895-8335, FAX: 512-895-2722, E-Mail: kelly.baker@motorola.com.

You can also visit the NVSMW web site at <http://www.hea.com/hean2/flash/nvsmw/index.html>.

*Arthur Wang
Hyundai Electronics America
San Jose, CA*

2001 University/Government/Industry Microelectronics Symposium (UGIM)

The 2001 University/Government/Industry Microelectronics Symposium (UGIM) will be held in Richmond, VA, June 17-20, 2001. UGIM'01 will be the fourteenth in this series of biennial symposia that bring together educators and researchers to discuss activities related to micro- or nano-fabrication technologies and programs. Representatives of university programs ranging from new fledgling labs to nationally recognized facilities attend to exchange information. Government agencies such as NSF, NIH, NIST, Sematech, SRC, DARPA, and ONR regularly participate with co-authored papers and updates on funding opportunities. Industry interac-



tions with universities (often with government support) make up the other corner of the triangle that is UGIM. Talks on technology transfer, collaborative research, and training efforts have been strongly represented. The UGIM Symposia are sponsored

by the Electron Devices Society of the IEEE.

The UGIM Symposium has been hosted by universities with strong microelectronics research and education programs, such as Rochester Institute of Technology, University of Texas at Austin, North Carolina State University, and the University of Minnesota. By moving the symposia to a different host school each time, attendees benefit from seeing how each host school's education and research programs are structured. The similarities and differences serve as a backdrop for the discussions held at the symposia. The attendees also get to see how the research laboratories and cleanrooms are constructed, maintained, staffed, and

funded. At UGIM 2001, Virginia Commonwealth University and the State of Virginia will be highlighted. In the 1990's Virginia's state and local governments embarked on a mission to transform Virginia into the "Silicon Dominion". Major DRAM manufacturers such as Infineon Technologies (formerly WhiteOak Semiconductor) and Dominion Semiconductor have fabrication facilities in Virginia and both have announced major expansions. Additionally, a group of Virginia Universities known as the Virginia Microelectronics Consortia (VMEC) will be represented at the symposium. Various schools will describe their efforts at micro-electronic education, research and collaboration under the consortia.

This year's host for the symposium is Virginia Commonwealth University's Microelectronics Center. The sessions will be held in the new VCU School of Engineering building, which is two blocks from the historic Jefferson Hotel. An outstanding program is planned with about 60 papers from each of the groups, universities, government and industry. The UGIM symposium traditionally covers a broad range of topics. Papers range in focus from descriptions of microelectronics programs through detailed research papers. The largest session is usually devoted to reporting on the progress of microelectronics educational and research programs at various educational institutions. Technology computer aided design (TCAD) new process or device modeling and simulation are also usually strongly represented, as are papers concerning devices and systems. Materials and processing papers from both standard silicon and compound semiconductors will be presented, along with process equipment development, manufacturing, statistical process control and design

of experiments. Processing results often involve equipment that is also found at other universities and can be beneficial to attendees with similar interests to use in their own research programs or at the least expand their knowledge

Microelectromechanical systems (MEMS) focused papers have been increasing in number and a session or two devoted to all aspects of MEMS will be held. Topics include simulation, processing, packaging and testing. The confluence of biotechnology and micro-fabrication is an additional subject area for which papers are expected. The UGIM symposium, in particular, is a good place to discuss the co-existence of MEMS processes and microelectronics in a facility. UGIM has traditionally been a good forum to report on efforts that tie together universities with government and industry programs. Typical interactions include distance learning and re-training, technology transfer and industrial implementation of new ideas. As the amount of funding available for traditional microelectronics research tightens, university research programs are stretching out to new areas. New applications such as FRAM, information storage, "bio-chips", displays, and advanced sensors bring new challenges and opportunities.

While the technical sessions begin on Monday, June 18, on Sunday afternoon, June 17, the VCU Microelectronics Center will host an open house. The open house will consist of an informal discussion session for people managing microelectronics laboratory facilities and tours of the facility. The discussion will focus on issues common to such facilities such as funding, equipment acquisition, maintenance, staff, operational expenses, processing issues, industry inter-

action, collaborations with other universities, intellectual property and compatibility problems. Tours will be given of the cleanrooms, support areas, and characterization labs. Staff members will be on hand to discuss the operation of the facility and answer questions. Attendees have a unique opportunity to give a short presentation describing their facility and share some of their experience and knowledge about what works and what does not.

Richmond offers a range experiences from the historic to the exciting edge. You can tour Civil war battle sites and museums in the former capital of the confederacy or can take your kayak through class 5 white-water right downtown. There are river cruises, plantations, Monument Avenue, shopping, dining, the symphony or the ballet. Richmond has been described as "the perfect blending of the past and present". Richmond, being the state capital, also has wonderful science and art museums. Washington D.C., the Chesapeake Bay, Virginia Beach, and the Shenandoah Valley are all nearby as is historic Jamestown and Williamsburg. A block of rooms is available at a reduced rate at the majestic Jefferson Hotel (<http://www.jefferson-hotel.com>), a national historic landmark, just two blocks from the symposium site.

For more information on the symposium, please visit the symposium website at <http://www.vcu.edu/egrweb/ugim2001>, or contact Rob Pearson, Virginia Commonwealth University, 601 West Main Street, Richmond, VA 23284, TEL: 804-827-7627 or E-Mail: repearso@vcu.edu.

*Rob Pearson
Virginia Commonwealth University
Richmond, VA*

2001 International Vacuum Microelectronics Conference (IVMC)

The International Vacuum Microelectronics Conference (IVMC), which rotates its venue between America, Europe, and Asia, returns to the USA in 2001 and will be held at the University of California in Davis, August 13-16, 2001. The IEEE served as the pioneering sponsor for this international conference with the first IVMC having been held in Williamsburg, Virginia in 1988. Since then, the IVMC has been held in a diverse set of locations, including Vienna, Austria, Newport, Rhode Island, St. Petersburg, Russia (the first IEEE conference ever held in the former Soviet republic),



South Korea, and (most-recently, in August, 2000) Ghanzhou, China. UC Davis is proud to join this group by hosting the 14th

IVMC in its beautiful Northern California college-town setting. A group of approximately 200 attendees is anticipated, coming from all parts of the world to present the latest research results in the field of Vacuum Microelectronics.

Field-Emission Vacuum Microelectronics has evolved from a promising laboratory curiosity to a foundational technology for exciting, emerging applications. Pioneering work during the 70's and 80's in the field, which was centered on the use of low-workfunction

continued on page 6

IVMC

continued from page 5

metals and semiconductors fashioned into microscopic needles, as "field-emission tips", was restrained by the somewhat crude microfabrication tools and techniques which were available at that time. Along with the exponential increase in microstructure feature density, driven by the semiconductor memory and microprocessor demands being imposed today, have come the benefits of superior lithographic and fine-feature microfabrication tools and methods which have advanced the vacuum microelectronics arena substantially. Consequently, field emission devices are now being fabricated in large-scale arrays, with nanoscopic features, and operating at low voltages. Furthermore, the novel microstructure fabrication techniques which have been developed in the sensor, actuator, and MEMS community are being applied to vacuum microelectronics and are resulting in a diverse variety of emitter structures and configurations. At the same time, exciting advances in materials science, specifically in the areas of deposition of carbon nanotubes, microcrystalline diamond and graphite films, and wide-bandgap semiconductors (GaN, SiC, diamond, etc.), as well as novel low-workfunction metal carbides, have resulted in a virtually limitless set of emission surface modification possibilities which improve performance and dramatically increase the potential applications for field emitters.

Early work in vacuum microelectronics focused on the application of field-emitters to high-frequency switching devices, radiation-hard electronics systems, and RF amplifiers. However, in the past decade, the use of field-emission devices as pixel cathodes in flat-panel field-emission displays (FED's) emerged as an important commercial mar-

ket, resulting in several American, Asian, and European corporations deciding to develop and market prototype displays. As the display market is just now starting to include commercial FED's among their available products, several other applications of field-emission cathodes are emerging as having commercial potential. These include the use of field-emission sources for specialty lamps, such as traffic signals, backlights for laptop displays, pixel units for jumbo displays, theatre lights, and environmentally-safe, low-power replacements for compact fluorescent lights. Highly specialized opportunities also exist, including nanoscopic X-ray sources for in-vivo medical procedures and remote imaging, and numerous spectroscopic and instrument applications of high-brightness electron sources. In the field of vacuum microelectronics, this is an exciting time because of the opportunities which now exist.

This year's Conference venue, Davis, CA, is located 65 miles northeast of San Francisco and 15 miles west of California's capital, Sacramento. UC Davis, with 26,500 students, is the third largest of the UC system and has the third largest College of Engineering in California. The city is readily accessible from three major airports and lies in close proximity to many major California vacation spots, such as the Sierra Nevada, with Lake Tahoe or Yosemite, the Pacific Coast, with Carmel and San Francisco, and the Napa/Sonoma wine country. August in Davis typically enjoys warm days and cool Delta-breeze nights. The City of Davis is famous for its restaurants, art galleries, bookshops, and a unique college atmosphere. Attendees can stay in a broad range of hotels, or take advantage of very economical student housing (with meals, if desired) which is made available through UC Davis Conference Services. Included

with the Conference Program will be a garden reception, a field trip and dinner to a Napa-Valley winery, and the Conference Banquet, which will be held at the famous California Railroad Museum in nearby historic Old Sacramento. As in previous IVMC's, a Companion's Program will also be organized.

The Conference Committee will be selecting oral and poster presentations from 200-word short abstracts, with a submission deadline of May 1, 2001. Submission by e-mail text (no attachments) is strongly encouraged, however regular mail or FAX submissions will be acceptable; all contact information is given below. Accepted presenters will be notified and a two-page Extended Abstracts, for inclusion in the IVMC 2001 Technical Digest, will be due by July 1, 2001. As in past years, full-length manuscripts, for publication in a refereed Journal, will be received at the Conference. The General Chairman of IVMC 2001 is Prof. Charles E. Hunt of the Department of Electrical and Computer Engineering at UC Davis. Prof. Hunt directs the Vacuum Microelectronics Group at UC Davis and members of this Group, including Dr. S. A. Chakhovskoi and N. Chubun, will be assisting in organizing the Program. Questions regarding the Technical Program should be directed to this Group by e-mail at ivmc@ece.ucdavis.edu. The facilities and registration arrangements will be directed by Ms. Julie Sheehan of UC Davis Conference Services. Non-technical questions concerning the Conference should be directed to her, by e-mail, at jasheehan@ucdavis.edu. Most questions can also be answered by visiting the IVMC 01 website at <http://www.cevs.ucdavis.edu/Cofred/Public/Aca>.

*Prof. Charles E. Hunt
University of California
Davis, CA*

December AdCom

continued from page 2

12,977. Of the total, the US dominates with 59.1%, followed by Region 8 (Europe) with 18.7% and Region 10 (Pacific Rim) with 10%. There are also 3,937 permanent members as well. Recognizing the need to help individuals in developing countries cover the prohibitive costs of IEEE and EDS memberships, the EDS Membership Committee has proposed a new program whereby EDS would cover the cost of the IEEE and EDS membership fees for individu-

als whose annual income fall at or below US\$8,600. AdCom approved to fund this program at \$10K to cover an estimated 200 members in 20 chapters who would take advantage of this new program. The Membership Committee also proposed a new incentive for existing members to apply for Senior Membership. A direct mail promotion to prospective senior members is planned. AdCom members will serve as conduits for references and assistance. Chapters will receive \$25 for each member who is approved to be elevated to senior member grade and who has designated EDS as the nominating entity. A budget of

\$10K was approved by AdCom for the projected 400 new SMs in Y2001.

The number of EDS chapters worldwide now stands at 103 as reported by Hiroshi Iwai, Regions/Chapters Chair. The newest to be added this year were Denver, Kansai, and a joint ED/LEO chapter at the Univ. of California at San Diego. A new Regions/Chapters Committee organization has been put in place, with the formation of five Subcommittees for Regions and Chapters (SRC) which is organized into five geographical areas with a chair and vice chair for each area. Further information concerning the reorganization is included in a separate arti-



S.C. Sun, Ilesanmi Adesida, Paul Yu and Kei May Lau in discussion at the AdCom meeting.

cle in this issue. Iwai-san also announced that the ED/SSC Yugoslavia Chapter has been awarded the "Chapter of the Year" award for 2000. Congratulations to this chapter's officers and members on their successful effort!

Outgoing Publications Chair, Steve Hillenius, who will be replaced by Rinuka Jindal, reported that the impact factors for both T-ED and EDL significantly increased this year, and the transfer of editorial responsibility (i.e. manuscript submission & processing) to the EDS Piscataway office has been completed. Steve also introduced Doug Verret of Texas Instruments, the incoming Editor-in-Chief of T-ED. It was also revealed that in place of an archival CD-ROM of all issues of T-ED & EDL back to 1954, a "Best of" publication is under consideration. This publication will include a subset of seminal papers published since 1954 in T-ED and EDL selected by a committee based on information such as the citation index and peer reviews.

In other committee reports, Ken Galloway, Meetings Chair, stated that in 2000 EDS had 31 sponsored meetings, 60 that were technically co-sponsored, and 7 that were cooperatively sponsored for a total of 98 meetings. AdCom also approved the meeting list for 2002. As Technical Committee Coordinator, Steve Hillenius named the two new committees, i.e., Nanotechnology and TCAD that have been added this year. The responsibilities of the technical committees will include reporting new technology directions to AdCom and making recommendations for EDS publications & meetings. On the awards front, this year's EDS Distinguished Service Award goes to Mike Adler, former Division I Director and EDS President, and the J. J. Ebers Award goes to Bernard Meyerson of IBM.

The Education Committee, under Ilesanmi Adesida, has been quite

busy this year. The DL program has given 42 lectures by 26 lecturers. This is a good number, but changes in the program are being considered to have more lecturers and chapters participate. Questionnaires concerning the DL Program were sent to both lecturers and chapters. Lecturers like the program and value their participation. However, they believe that the program should be better promoted, have an improved budgeting process, and perhaps include video conferencing. Chapters, in turn, like the program, but feel that more lectures should be available on video. The disparity between lecturers who do and do not actively participate (for whatever reason) is also growing. It is the committee's opinion that those who do not give at least one talk every two years may be dropped from the roster. The EDS Graduate Fellowship announcement is going out early in 2001. The EDS Short Course "Vanguard" program for 2000 was comprised of three live presentations in the US and in 2001 short courses will be given outside the US as well. EDS expects to launch its first efforts at giving these courses over the web within the next year. AdCom approved the underwriting of independent short courses, live and web based. Our EDS outreach program has made some progress at extending assistance to several minority universities to form student branch chapters.

In other actions, a proposal for EDS to support the (ISDRS) meeting as a follow-on to IEDM was withdrawn. EDS received fifty Fellows nominations this year of which 2 were rated extraordinary, with 23 highly qualified. Twenty-six of the nominees evaluated by EDS were approved by IEEE. Subsequent to the meeting it was learned that 41 EDS members were approved as Fellows. April Brown presented a motion for EDS to underwrite its portion of the cost (\$7K) to start an IEEE Nanotechnology

Council in which EDS will participate with 17 additional societies; AdCom approved this motion. The society also voted to be a co-sponsor (33%) of a new IEEE Nanotechnology Conference with two other IEEE societies. AdCom also gave its consent to the several changes in its Constitution and Bylaws. The changes primarily involved granting Technical Committee chairs the same voting rights as Standing Committee chairs and giving technical and standing committee members two-year instead of one-year terms. A summary of the changes to the EDS Constitution and Bylaws is included in another article in this issue. Five thousand dollars was also approved by AdCom to continue the current project at the Historical Electronics Museum in Baltimore, MD.

Craig Casey reported that luminaries John Saby, Gene Gordon, and James Early have been interviewed for the EDS Oral Histories Project which is part of EDS' 50th Anniversary Celebration. These interviews, along with another dozen or so to be conducted with other famous individuals in the field of Electron Devices, will comprise a 50 years of EDS History Publication to be sent to all EDS members. Recently, the histories were given over to Michael Riordan, author of the book "Crystal Fire" who is now under contract to complete them and conduct all the remaining interviews. Ralph Wyndrum, current Division I Director, addressed the AdCom giving an outline of projected plans for IEEE covering membership, the IEEE Presidential Election, IEEE Awards, New Products & Services, and IEEE Operations. Mark Law, this year's IEDM Chair, stated that 2300-2400 attendees were expected for the 2000 meeting and all short courses were sellouts.

Turning to publications, all EDS flagship journals continue to prosper. The statistics of Yuan Taur, EDL Editor-in-Chief, showed that 183 of 442 submissions were published in 2000, very close to 1999's total. Moreover, turnaround time has been reduced to about 7 months with the move of the Publications Office to Piscataway. Outgoing T-ED Editor, Renuka Jindal, presented his study of the impact factor for T-ED to find out just exactly how the journal has been affected over the last twenty years. EDS Newsletter Editor, Krishna Shenai, made a request for a page increase to handle such additional news areas as student



Craig Casey presents to AdCom the status of the EDS 50th Anniversary project to produce an oral histories booklet.

continued on page 24

Society News

IEEE Members Who Received the Nobel Prize for Physics

The year 2000 Nobel Prize in Physics was awarded one half to Jack S. Kilby "for his part in the invention of the integrated circuit," and one half jointly to Herber Kroemer and Zhores I. Alferov for "developing semiconductor heterostructures used in high-speed and opto-electronics." Both Jack Kilby and Herbert Kroemer are members of the Electron Devices Society, while Zhores Alferov is a member of LEOS. Their work was recognized for providing the foundation for modern information technology. Not only do we want to congratulate our colleagues for this recognition of their contributions, but this award also recognizes the impact that the electron devices of our Society have made to information technology. This award was

made for invention rather than a discovery in physics.

The three biographies of the Nobel recipients have been written by close colleagues. Jim Merz was recruited by Herb Kroemer to come to the University of California at Santa Barbara. Willis Adcock was Jack Kilby's supervisor at TI when he demonstrated his integrated circuit. Nick Holonyak and Zhores Alferov have visited and worked with each other for many years.

*H. Craig Casey, Jr.
Duke University
Durham, NC*



Jack S. Kilby

Jack S. Kilby

Jack S. Kilby has been awarded the Nobel Prize in Physics for 2000 by the Royal Swedish Academy of Science "for his part in the invention of the integrated circuit".

Jack joined Texas Instruments, Dallas, TX, in June 1958, and became involved with his idea of a miniature circuit made up only with semiconductor parts. He demonstrated the first simple circuits in September 1958. His impaired hearing was a factor in his interest in hearing aids and miniaturization.

Pat Haggerty, President of Texas Instruments, immediately became very interested in the project and this insured management support for an expanded program.

The applications for integrated circuits grew rapidly. Fairchild Semiconductor became a major player with the inventions of Bob Noyce. These developments are well described in the paper: "Invention of the Integrated Circuit," J. S. Kilby, IEEE Transactions on Electron Devices, vol. ED-23, no. 7, p. 648, July 1976.

The past 50 years have witnessed such a remarkable growth of the related information industries: semiconductor, computers and telecommunications. The developments have created such a wide application of products that as we enter the new millennium we will witness major global transformation of national societies.

Jack Kilby was born in Jefferson City, MO, in 1923. He grew up in Great Bend,

KS. He received his B.S. in electrical engineering from the University of Illinois and a M.S. degree from the University of Wisconsin. In 1947, he began his career with the Centralab Division of Globe Union Inc. in Milwaukee, and then in 1958 joined TI. He is a Fellow of the IEEE and a member of the National Academy of Engineering. Among his many awards are the IEEE's Medal of Honor, the Cleo Brunetti Award, and the David Sarnoff Award. He holds over 60 patents.

Congratulations, Jack Kilby.

*Willis Adcock
Austin, TX*



Herbert Kroemer

Herbert Kroemer

The theme that threads its way through the many accomplishments of Herbert Kroemer is best described by his favorite talk: "Heterostructures for Everything". His interest in utilizing combinations of dissimilar materials for improved devices motivated a lifetime of work; his insistence that one understand the band diagram resulting from these combinations was legendary - "If you cannot draw the band diagram, you don't know what you are talking about!" In an early paper published in the RCA Review (1957), he was the first to realize the consequences of the electric fields generated at heterointerfaces between semiconductor materials. One such consequence was the possibility of

making a greatly improved transistor (the heterojunction bipolar transistor, or "HBT") by using a wide bandgap emitter. Today the HBT is at the heart of the highest-speed commercially available electronic devices.

Notably, Kroemer was also the first to realize the possibilities for carrier and photon confinement offered by a double heterostructure, at a time when the intense research on homojunction semiconductor light emitters seemed to be making little progress towards a practical room-temperature laser. In what proved to be another landmark paper in the Proceedings of the IEEE (1963), a paper which drew little attention at the time, Kroemer suggested that a vastly improved laser could be designed by sandwiching a layer of a narrow bandgap semiconductor between two wide-bandgap semiconductors. This novel idea is the basis for the entire modern optoelectronics industry.

Today Kroemer continues his fascination with dissimilar materials through his investigations of so-called broken-bandgap combinations of arsenides and antimonides having mid-infrared device applications, and the induced superconducting behavior of semiconductors sandwiched between superconductors.

Kroemer's impact in education has also been significant, with two unique and widely used textbooks. Thermal Physics by Kittel and Kroemer (Freeman, San Francisco, 1980), was a result of Kroemer's many suggestions to Charles Kittel for improvement of the latter's original version of the book; Kittel consequently invited Kroemer

to join him in a thorough revision of that work. The second book, *Quantum Mechanics* (Prentice Hall, Englewood Cliffs, 1994), culminated years of teaching intermediate quantum mechanics to electrical engineers, condensed matter physicists, and materials scientists.

Herbert Kroemer, the Donald W. Whitier Professor of Electrical Engineering and Professor of Materials at the University of California Santa Barbara (UCSB), was born in Germany in 1928. He received his Ph.D. from the University of Göttingen at the age of 24. He later immigrated to the U.S., where he worked at RCA Laboratories (1954-57), Varian Associates (1959-66), the University of Colorado, Boulder (1968-76), and UCSB (1976-present). At UCSB he convinced the administration to invest its limited resources not in conventional Si technology, but in the emerging field of compound semiconductors, which Kroemer, as founding member of the group, built into a world-class program. He is the winner of several major awards, including the J. J. Ebers Award, the Jack Morton Award of the IEEE, the Heinrich Welker Medal, and the Alexander von Humboldt Research award. He holds honorary doctoral degrees from the Technical University of Aachen, Germany, and the University of Lund in Sweden, and became a member of the National Academy of Engineering in 1997.

*Jim Merz
University of Notre Dame
Notre Dame, IN*

lation and wish for some form of discrete transition (e.g., an unknown mysterious atom) in a p-n junction. Also demolished, by the GaAsP laser, was the question of the viability of III-V alloys, which indeed, were required for heterojunctions. All of these questions were settled in 1962.

After these break-through events (1962), one of the first to appreciate the fact that a diode laser should take the form of a p-n double heterojunction was Zhores I. Alferov, the 2000 Nobel laureate. In fact, after first meeting Alferov in Leningrad in 1967, in a trip report of limited circulation, I wrote:

"Zhorez [sic] then took me to his group to talk about heterojunctions and GaAsP. Heterojunctions are very interesting to Zhorez [sic]; he wants to use such junctions as high efficiency emitters into GaAs platelets sandwiched between wider gap material on either side. He thinks maybe a low threshold GaAs laser can be built."

After the semiconductor laser work of 1962, Alferov and his research group launched a large effort to realize double heterojunction devices (for superinjection and carrier and photon confinement). He was able, with the AlGaAs-GaAs system, to demonstrate the first low threshold double heterostructure solar cells (1970), heterojunction p-n-p-n switches (1969), laser p-n-p-n switches (1971), high efficiency AlGaAs heterostructure LEDs (1968), wide-gap emitter AlGaAs transistors (1972), and grating lasers with narrow beam

divergence (1974). He is credited with being one of the prime instigators of the new field of heterostructure electronics, which now includes quantum well heterostructures and superlattices. His most recent work has been concerned with trying to convert the quantum-well laser into a quantum-dot laser.

Zhores Alferov was born on March 15, 1930, in Vitebsk, Byelorussia (USSR) and received most of his higher education in Leningrad before becoming a permanent member of the Ioffe Physico-Technical Institute and ultimately the director of the Institute, as well as now Russian Academy Vice President and member of the State Duma. He spent the winter of 1970 and spring of 1971 in Urbana as an Academy exchange visiting scientist. Besides being a member of the Russian Academy of Sciences, he is a foreign member of numerous academies, including the U.S. National Academy of Sciences (1990) and the National Academy of Engineering (1990). He has published over 400 papers on heterojunctions and has received many awards, including the Balantyne Medal (Franklin Institute, 1971), Lenin Prize (1972), H-P Europhysics Prize (1978), State Prize (1984), GaAs Conference Award and Welker Medal (1987), Karpinski Prize (1989), Ioffe Prize (1996), and OSA Holonyak Award (2000).

*Nick Holonyak
University of Illinois
Urbana, IL*



Zhores I. Alferov

Zhores I. Alferov

When R.H. Rediker's group (Lincoln Laboratory, MIT) reported generation and long-range transmission (and detection) of a recombination-radiation signal from a simple Zn-diffused GaAs p-n junction at the 1962 IRE Solid State Device Research Conference (July, Durham, NH), optoelectronics became a reality. Immediately the race began to defeat the large recombination-radiation linewidth ($\geq 100 \text{ \AA}$) and to make a laser of this strangest of all light-emitting substances—the semiconductor. Little did anyone appreciate that by fall of 1962, GaAs and the III-V alloy GaAs_{1-x}P_x would be operating as directly-driven (current-driven) diode lasers. Simulated recombination radiation in a semiconductor cavity demolished the question of the broad linewidth, and the erroneous specu-

2001 EDS J.J. Ebers Award Call for Nominations

The IEEE Electron Devices Society invites the submission of nominations for the 2001 J. J. Ebers Award. This award is presented annually by EDS to honor an individual(s) who has made either a single or a series of contributions of recognized scientific, economic, or social significance to the broad field of 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 2001 award is July 13, 2001.

EDS Millennium Medals Award Luncheon

The highlight of the 2000 EDS AdCom Meeting in San Francisco was the EDS Millennium Medals Award Luncheon, which was held on Sunday, December 10. As part of IEEE's Third Millennium celebration, EDS presented its allotment of 45 IEEE Millennium Medals to its honored recipients, "For their outstanding contributions to the Electron Devices Society and to the field of electron devices." Presenting the awards were IEEE Past President Ken Laker and EDS President Cary Yang. Included in the ceremony were historical and personal anecdotes and information



Robert Adler, inventor of the TV remote control, receives his medal from Past IEEE President, Ken Laker.

Eastman, James F. Gibbons, James S. Harris, Cyril Hilsum, David A. Hodges, James A. Hutchby, Renuka P. Jindal, Stephen Knight, Matt Kuhn, Alan L. McWhorter,

on each recipient prepared by the past EDS President and Awards Chair, H. Craig Casey Jr. Among the recipients were AdCom members, EDS Officers, and past editors of EDL, T-ED, and the EDS Newsletter.

Attending and receiving their medals were Robert Adler, Shojiro Asai, Frank S. Barnes, Dennis D. Buss, H. Craig Casey, Jr., Frederick H. Dill, Jr., Lester F.

James L. Merz, Richard S. Muller (represented by his wife), Harvey C. Nathanson, William T. Pietenpol, James D. Plummer, Robert H. Rediker, Joseph E. Rowe, J. Earl Thomas, Jr., Richard B. True, Glen Wade and Jerry M. Woodall. Recognized but not in attendance were recipients Willis A. Adcock, M. George Craford, Rudolf S. Engelbrecht, Clifford E. Fay, A. George Foyt, Eugene I. Gordon, Robert N. Hall, Nick Holonyak, Jr., Aleksandar B. Jaksic, Lucian A. Kasprzak, G. Ross Kilgore, Toivo Liimatainen, Hebert J. Reich, Ian Munro Ross, John S. Saby, John B. Singleton, Earl L. Steele, and Clare G. Thornton. EDS is proud to salute and reward these distinguished individuals, and deeply appreciates their efforts on behalf of the Society.

John K. Lowell
PDS Solutions Inc.
Richardson, TX

2000 J.J. Ebers Award

The 2000 J. J. Ebers Award, the prestigious Electron Devices Society award for contributions to electron devices, was presented to Dr. Bernard J. Meyerson of IBM at the International Electron Devices Meeting in San Francisco, CA, on December 11, 2000. This award recognizes his "Seminal Contributions to the Growth of Si/SiGe Heterostructures and Leadership in its Application to Telecommunications Integrated Circuits." This emerging technology has been applied to the manufacture of high-speed integrated circuits and promises to make a major impact on the technology that is utilized to manufacture integrated circuits that are used in high speed and wireless communications systems.



Bernard S. Meyerson

Bernard was born in New York City and attended the Bronx High School of Science. He then completed a BS in Physics at the City College of New York. Dr. Meyerson received a PhD in Solid State Physics from the City College of the City University of New York in 1980. His thesis work examined the growth and electrical properties of hydrogenated amorphous carbon, and this began his period of ten years work in the study of materials growth and analysis.

Upon completion of his PhD requirements, he joined IBM as a Research Staff member and focused his attention on stud-

ies of the fundamentals of the chemical deposition of thin films and their electrical properties. These studies spanned many materials, ranging from amorphous silicon to gallium arsenide. In the mid-1980's, he incorporated his understanding of these chemical systems into the growth of thin films by Ultra-High-Vacuum/Chemical Vapor Deposition. The most significant result of these studies was the deposition and growth of Silicon-Germanium epitaxial layers at temperatures of 500°C and below, leading to the development of manufacturing techniques for the production of extremely high speed Si/Ge Heterojunction Bipolar Transistors (HBT).

Dr. Meyerson led a team of IBM research personnel to apply this Si/Ge HBT technology to the design and fabrication of integrated circuits, first for computer and then for communications applications. He then was instrumental in the formation of alliances between IBM and numerous corporations to leverage this high-speed technology to the manufacture of commercial products. Early consumer and commercial products included a 10 Gbps SONET data system and an 802.11b wireless LAN card.

IBM's analog and mixed signal development and subsequent commercialization of this technology was consolidated under Dr. Meyerson in 1998. He is presently

Vice-President of the Communications Research and Development Center in IBM. This organization encompasses IBM's worldwide communications technology and circuit designs efforts and supports a rapidly increasing customer base.

Dr. Meyerson received IBM's highest honor in 1998, that of IBM Fellow. He is a Fellow of the American Physical Society. He holds over 40 patents and has published several hundred papers. He has received several awards for his work, including the Materials Research Society Medal in 1991, the Electrochemical Society Electronics Division Award in 1993, and was cited as "Inventor of the Year, 1997" by the New York State Legislature. The US Patent Office honored him with the "United States Distinguished Inventor of the Year" award in 1999 and he received the 1999 IEEE Ernst Weber Award for the leadership in the commercialization of the Si/Ge HBT technology.

The IEEE Electron Devices Society is pleased to recognize Dr. Meyerson for his pioneering work in this Si/Ge HBT technology. He has turned this laboratory activity into an emerging technology that has been commercialized to manufacture high-speed integrated circuits with application in the consumer and commercial sector of the electronics industry.

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

2000 EDS Distinguished Service Award



Michael S. Adler

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 2000, we are pleased to single out one of those volunteers for his contributions. We honor Michael S. Adler as the recipient of this award. Mike is well known among the active members and volunteers. His leadership has played an important role in making EDS into such a successful Society. His achievements are numerous. As is the case of many EDS volunteers, he started as a member of a technical committee for the EDS flagship meeting of the year, namely the IEDM. He assumed the positions of the Technical and the General Chair in the 1981-1983 time frame. During this period he was instrumental in establishing the popular Sunday tutorials and the Tuesday night panel sessions. Subsequently, he became the EDS Meetings Chair from 1985 to 1992 and then EDS President from 1992 to 1994. As President, Dr. Adler led a successful effort to increase the global outreach of the Society with the most significant accomplishment being the growth in the number of chapters in Region 8 from eight in 1992 to almost thirty-five in 1995. These activities have also expanded into Regions 9 and 10. He initiated a series of chapter chair meetings, which have served as a forum for the exchange of information between the chapters, the Regions, and EDS. There is no doubt that Mike's efforts have result-

ed in EDS becoming a truly global society.

Mike Adler has extended his outstanding technical and leadership talent by assuming IEEE positions. He was elected Division I Director in 1999. He utilized his EDS experience in this position by leading the Division I Societies into more global activities. All the Chapters of the Division I Societies now meet annually to share ideas. The last meeting attracted 80 people, from all over the globe. In 1999, he became the first elected Vice President of the IEEE Technical Activities Board, with oversight of the 40 Societies and Councils. In 2000, he was the Vice President of IEEE Publication Activities, an extremely important responsibility. IEEE is the largest publisher of electrical and electronic engineering and related fields, with over 100 journals and magazines. I expect Mike will have a major influence on improving the effectiveness of IEEE serving its members.

Dr. Adler received his BS and PhD degrees from MIT. His PhD studies were in solid-state physics. He then joined the Research and Development Center of General Electric in Schenectady, NY and retired in 2000, when he managed the Control Systems and Electronic Technologies Laboratory. In this position, he directed the work of about 150 engineers and scientists. Presently, Mike is VP of Technology at Mechanical Technologies where he is involved in the investigation of opportunities in renewable energy. He is also a Research

Professor at RPI, investigating advanced power devices and associated electronics. His honors include being elected to Fellow of the IEEE in 1987 for his contributions to the CAD of Power Semiconductor Devices.

Dr. Adler continues to live in Schenectady, NY, but he also spends considerable time at his other homes in Schroom Lake, NY and Jackson, WY. His wife Virginia and son Jerry are the joys of his life. He is a passionate sailor, skier, and hiker. His other interests include coin collecting and astronomy.

I have worked with Mike on EDS and IEEE activities for over 20 years. He is a delightful person. His technical, leadership and human interaction skills are outstanding. His impact on EDS and the IEEE has been impressive. Indeed, he is the kind of person that I would like to have living next door to me.

I would be remiss in this write-up if I did not encourage the readers of this article to become volunteers in EDS's activities. There are numerous opportunities for you to work on a global, local or at the EDS level. The success of this outstanding society is dependent on the leadership and activities of its volunteers. Don't hesitate to contact Bill Van Der Vort, the EDS Executive Director on w.vandervort@ieee.org. I am sure that he will find a rewarding opportunity for you.

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

EDS Chapter of the Year Award

On December 10, 2000, at the IEDM held in San Francisco, CA, the ED/SSC Yugoslavia Chapter received the EDS Chapter of the Year Award which included a certificate and check for \$1,000. The Chapter was founded at the end of 1994, and since its start, the number of regular members has increased from 15 to 45. Student membership has also grown, with the current number of members being 16. The increase in membership would have been even more impressive, if there had not been a significant ongoing flow of graduated electrical engineers to developed countries.

Since 1994, the Chapter has been steadily increasing its level of activity which has had a significant impact on related communities in Yugoslavia. During the past year, the Chapter has organized the International Conference on Microelectronics (MIEL), held an annual administrative meeting and three regular meetings (with Distinguished Lecturer presentations, invited lectures, and video tape presentations), and organized a session on Microelectronics and Optoelectronics at the national conference, ETRAN. The Chapter coordinates a very active STAR Program with six major events being held last year (plant tours, museum visits, picnics, and other social events). Also, the Chapter is very active in helping and participating in the activities of the ED/SSC University of Nis Student Branch Chapter, which has held 5 major events during last year.

Hiroshi Iwai
Tokyo Institute of Technology, Yokohama, Japan

Regional Chapter Coordination Program

As of January 1, 2001, there has been a restructuring of the Regions/Chapters Committee (RCC) and a planned rejuvenation of the Chapter Partners Program, while the Region Champions Program has been terminated. As part of the restructuring, there have been five new Subcommittees for Regions and Chapters (SRCs) formed as follows:

| Subcommittee | Corresponding Region | Chair/Vice-Chair |
|------------------------------------|----------------------|--|
| North America East (NAE) | Regions 1 – 3, & 7 | A. Y. Shibib (Chair), A. A. Santos (Vice-Chair) |
| North America West (NAW) | Regions 4 – 6 | P.K.L. Yu (Chair), S.Tyagi (Vice-Chair) |
| Europe, Africa & Middle East (EAM) | Regions 8 | M.L. Ostling (Chair), M.D. Profirescu (Vice-Chair), N.D. Stojadinovic (Vice-Chair) |
| Latin America (LA) | Regions 9 | M. Estrada Del Cueto (Chair), F.J Garcia Sanchez (Vice-Chair) |
| Asia and Pacific (AP) | Regions 10 | K. Lee (Chair), J. Vasi (Vice-Chair) |

The role of each subcommittee is to help support chapter activities by discussing with the chapters the most appropriate partners to be assigned to each respective chapter and organizing to have the partners and distinguished lecturers visit the chapters. It is expected that this new structure will form closer relations between EDS and its chapters.

*Hiroshi Iwai
Tokyo Institute of Technology
Yokohama, Japan*

Obituaries

D. Stewart Peck



D. Stewart Peck

Stewart Peck was born on October 19, 1918, in Grand Rapids, MI, the son of Arthur and Ruby Peck. Mr. Peck received his BSEE and MSEE degrees from the University of Michigan in 1939 and 1940. He began his career at General Electric Company. In 1947 he joined the Bell Telephone Laboratories, Allentown, PA. He retired from Bell Labs in 1980.

Mr. Peck died on January 9, 2001, in Chelsea, MI. Services were held on January 13th in Chelsea. Donations are being received at the Ann Arbor Hospice, 2366 Oak Valley Drive, Ann Arbor, MI 48103.

Mr. Peck became the Department Head in charge of the semiconductor reliability group when it was formed in 1958. His leadership promoted the active use of accelerated testing, including 24-hour life acceptance tests at 280 °C.

This activity promoted the use of accelerated stress by vendors, through the purchase specifications. For accurate evaluation, he prepared nomographs and graph papers to facilitate the use of the log-

normal life distribution and the Arrhenius relationship for accelerated temperature.

The new procedures, based on the log-normal distribution, were used on all Bell System devices, providing confidence in the techniques. They have been used in all mechanisms found, such as ionic contamination, chemical and electrolytic corruptions, electromigration, and oxide breakdown. He has taught this topic to hundreds of engineers worldwide for over 20 years.

Mr. Peck has been active in the IEEE. He was a member of the Board of Directors of the International Reliability Physics Symposium (IRPS) representing the Reliability Society, and was General Chairman of the 1972 IRPS.

In 1979, Mr. Peck received an Award from the IRPS, "In recognition of his pioneering efforts in the field of Reliability Physics and on behalf of this Symposium."

Mr. Peck is a Life Fellow of the IEEE. He was an associate of Technology Associates, 1978-99. He is an author of many papers and the Accelerated Testing Handbook (Editions: 1978, 1987, & 1991).

His children, Donald Peck and Priscilla Peck Dunn, three grandchildren, and two great-grandchildren survive him.



Keats A. Pullen, Jr.

Keats A. Pullen, Jr. ED, PE

Dr. Keats A. Pullen, 84, a renowned scholar, died of shock trauma as the result of a fall. Dr. Pullen was born in Onawa, IA, in November 1916. He attended schools in

Los Gatos, CA, followed by a B.S. in physics from the California Institute of Technology, Pasadena, CA, in 1939. He received his Doctorate in Engineering from Johns Hopkins University in 1946 and became a licensed professional engineer in Maryland in 1948.

Dr. Pullen started working at the Ballistics Research Laboratory (BRL), Aberdeen Proving Ground, MD, in June 1946, where he remained until 1978. He transferred from BRL to the U.S. Army Material Systems Analysis Activity (AMSAA) in 1978, and worked until his retirement from the Army in 1990.

While working at BRL and AMSAA, Dr. Pullen designed and evaluated designs for a wide range of electronic systems for military use, such as DOVAP, DORAN, EMA, a drone program, satellite systems, Have-name, and many other systems.

During his years working at Aberdeen Proving Grounds, he was also on the faculty of several universities where he taught college courses in engineering. These included the Pratt Institute, University of Delaware, and Drexel University.

Dr. Pullen was a Life Fellow of the Institute of Electrical and Electronics Engineers, President of the Aberdeen Chapter of Armed Forces Communications and Elec-

tronics Association, member of ADPA, AUSA, Association of Old Crows, and Sigma Xi. In 1982, he received the Marconi Memorial Medal from the Veteran Wireless Operators Association.

During his lifetime, Dr. Pullen published nine books, more than 25 reports, and many more papers and letters. He also was the holder of six patents. He was active in developing improved com-

munication systems for the Special Operations Forces, Airland Battle 2000, and developing improvements for grounding for the Army to protect the ever-increasingly more delicate systems that support the U.S. Military.

Dr. Pullen is survived by his wife, Dr. Phyllis K. Pullen, four sons, Peter, Paul, Keats III, Andrew, his daughter Victoria Leonard, and seven grandchildren.

UCSD ED/LEO Student Chapter



Rebecca J. Welty

The University of California at San Diego ED/LEO Student Chapter was founded in April 2000. The Chapter is organized as follows: Chapter Chair Rebecca Welty, Vice-Chair Yimin Kang, Treasurer, Masaya Iwamoto,

and Secretary, Jessica Fischer; our Advisor is Prof. Paul Yu. A joint Electron Devices and Lasers and Electro-Optics Chapter was chosen for two main reasons: increase student participation and increase student interaction in these two very similar disciplines. Students frequently interact within their own research groups but seldom between research groups, unless they are on a joint project. In many instances we use the same software, fabrication tools, and test equipment. With increased student interaction, students will have more opportunities to learn from each other.

The Chapter's current activities include technical seminars and student recruitment. Currently we are holding quarterly technical seminars. In the summer of 2000, Prof. Dalma Novak of the University of Melbourne, Australia, gave an impressive seminar where she overviewed the research activities for future optically fed millimeter-wave radio communication systems. Students had expressed an interest to have talks from companies to learn more about what companies are doing and what are the opportunities for them. In the Fall of 2000, Dr. Don D'Avanzo from Agilent Microwave Technology Center, Santa Rosa, CA, USA, gave a seminar on GaAs HBT and HEMT technologies for Agilent instruments. Interested students also had the opportunity to meet with Dr. D'Avanzo to talk about employment opportunities at

Agilent, Santa Rosa. These two seminars were very successful. Approximately 50 people attended each of the seminars.

In the Fall of 2000, we had a recruitment drive where we discussed the advantages of becoming involved in an IEEE professional society: keeping up to date with research by reading Letters and Transactions, keeping up to date with Society Newsletters where readers can find the most up to date conference listings, and most importantly, to have a forum to network with researchers both at UCSD and from other institutions. Our chapter started with 12 student members and at the membership drive we had 16 IEEE EDS or LEOs members and 12 non-members participate. To date, about 50% of the non-members have joined either ED or LEO societies, most of them enrolling via the webpage. Currently, all of the student members are Graduate Students in Electrical Engineering (EE). Further work will be done to recruit undergraduate students in EE and students from other departments.

The Chapter is currently planning outreach programs for the Winter 2001 quarter with the Preuss School. The Preuss School opened in 1998 as a college preparatory school on the UCSD campus. The School currently holds sixth through ninth grade with 419 students and will add one grade each year until twelfth grade is filled. The target enrollment of 700 will be achieved in 2004. Students come from low-income families and are chosen from a lottery once they pass the initial screening. The goal of this school is to have each student be the first in their family to attend college. A subset of the UCSD ED/LEO Student Chapter will participate with the Preuss School. Members of the Chapter will mentor them in a robotics competition, "botball". In this game students design, build, and program their

robot to score points by placing balls in specified positions. Students will gain experience in programming, engineering, and teamwork. After the competition there will be another meeting with the group of students to discuss the engineering field and opportunities there are in the field, hold lab tours, and view some of the videotapes that are available from the EDS Videotape Lending Library, which are targeted for the STAR program.

The Chapter is also planning activities for 2001. We will continue to have quarterly seminars and hold recruitment drives. The Chapter plans to take advantage of the Distinguished Lecturer (DL) program, and is anticipating having at least one DL come to UCSD in 2001. We also plan to have some of our technical seminars include the IEDM short course videotapes, which are available from the EDS Videotape Lending Library.

I had the pleasure of attending the EDS Adcom Meeting and EDS Regions 1-7 & 9 Chapters Meeting in San Francisco, CA, USA, on December 10, 2000. I found the Chapters Meeting to be particularly useful in hearing other Chapters activities and also talking to other Chapter Chairs about similar problems in their Chapters, such as getting students involved when free time seems to be such a scarce commodity. In my very short experience with the Student Chapter I have already found it to be a rewarding experience and hope many more people will find the time and opportunity to get involved.

If you have any suggestions or would like any other information about our Chapter please contact me at rwelty@ece.ucsd.edu.

Rebecca J. Welty
University of California, San Diego
San Diego, CA

Summary of Changes to the EDS Constitution & Bylaws

At its 10 December 2000 Meeting, the EDS AdCom approved changes to the EDS Constitution and Bylaws. A summary of these changes is indicated below. The complete Constitution and Bylaws may be obtained from the EDS Executive Office.

Constitution

Article V/Section 9

Change the voting rights of Technical Committee Chairs from ex-officio members without vote to ex-officio members with vote.

Bylaws

Section 7/Executive Office

Change the title of IEEE Staff Director for Technical Activities to IEEE Managing Director for Technical Activities as implemented by IEEE in May 1995.

Section 12.1/Technical Committees

Change the terms of the members of technical committees from one-year renewable terms to two-year renewable terms as approved by AdCom in October 1999. Furthermore, change the renewable number of terms for chairs from one to an unlimited number.

Section 13/Standing Committees

Change the terms of the members of standing committees from one-year renewable terms to two-year renewable terms as approved by AdCom in October 1999.

Section 13.2 (Part C)/Meetings Committee

Delete the part of section 13.2 (Part C) which states that the DRC chair will be an ex-officio member of the EDS AdCom without vote and a member of the Meetings Committee, as per both the AdCom vote in 1997 to eliminate Meeting Liaison positions and the reorganization of the Meetings Committee in 1999.

Section 13.3/Sections/Chapters Committee

Change the name of the Sections/Chapters Committee to the Regions/Chapters Committee as per the restructuring of the Chapters Committee in 1996.

Section 13.9/ International Technical Activities Committee

Delete section 13.9 as the committee was eliminated as per the restructuring of the Chapters Committee in 1996.

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

ED Malaysia Chapter Meeting Report

The ED Malaysia Chapter Meeting was held in Guoman Port Dickson on November 12, 2000, in conjunction with the 2000 IEEE International Conference on Semiconductor Electronics. The purpose of the meeting was to better understand EDS operations and to discuss how EDS could help the Malaysia Chapter. Professor Burhanuddin Yeop Majlis the Chapter Chairman, Dr. Sahbudin Shaari, Technical Program Chairman, Mr. Ibrahim Ahmad, the Treasurer, Mrs. Badariah Bais, the Secretary, Mr. Rahman Wagiran, Mr. Bambang Sunaryo Suparjo, Farizah Saharil, and Hiroshi Iwai attended the meeting. The meeting began with an overview of EDS given by Professor Iwai followed by a summary of the Malaysia Chapters activities by the Chairman of the ED Malaysia Chapter, Professor Burhanuddin Yeop Majlis. There are two main activities organized by the ED Malaysia Chapter every year: on the odd years it is the National Symposium on Microelectronics (NSM) and on the even years it is the International Conference on Semiconductor Electronics (ICSE). For the year 2000, the ED Malaysia Chapter took advantage of the



From left: Badariah Bais, Farizah Saharil, Prof. Hiroshi Iwai, Prof. Burhanuddin Yeop Majlis, Rahman, Dr. Sahbudin Shaari, Ibrahim Ahmad and Dr. Bambang Sunaryo Suparjo.

EDS Video Tape Lending Library Program, by showing the two IEDM video short courses, MBE and MOCVD: New Structures and Devices and Advance Device Characterization and Test Methodologies. Both short courses were held at the Faculty of Engineering, Universiti Kebangsaan Malaysia and attended by more than 24 participants. The ICSE 2000 attracted 82 participants and 52 paper presenters.

Three main program issues highlighted in the meeting were the distinguished lec-

turer program, the EDS subsidy, and IEEE membership. There are not a sufficient number of distinguished lecturers in the Asian region who can visit Malaysia. Iwai told of his plan to increase the number of lecturers in the Asian countries. The Malaysia Chapter proposed to Professor Iwai that the annual EDS subsidy be increased to US \$2000, especially to a chapter which has proven active in running a conference. With a membership promotion, it is difficult to attract an engineer to become an IEEE member due to the high membership fees. The reduction of the fees for electronic subscription should be seriously considered for Asian countries with low average incomes. These items were reported and discussed at the Regions/Chapters Committee Meeting held this past December in San Francisco.

*Hiroshi Iwai
Tokyo Institute of Technology
Yokohama, Japan*

*Burhanuddin Yeop Majlis
University Kebangsaan Malaysia
Selangor, Malaysia*

2000 EDS Regions 1-7 & 9 (US, Canada & Latin America) Chapters Meeting

The Electron Devices Society held its 5th Annual Regions 1-7 & 9 (US, Canada & Latin America) Chapters Meeting on Sunday, December 10, 2000, in conjunction with the International Electron Devices Meeting (IEDM) in San Francisco, CA. This meeting provides a forum for EDS chapter chairs to meet one another as well as the IEEE staff and EDS AdCom members. It is an opportunity for the chapters to share their experiences and practices, as well as express their needs and concerns to the AdCom members. This year's meeting was co-hosted by Hiroshi Iwai, EDS Regions/Chapters Committee Chair, and Paul Yu, EDS AdCom elected member. Fifty-six representatives from 21 chapters attended.

After the opening remarks, Hiroshi Iwai announced the new Subcommittees of Regions/Chapters Committee (SRC) and their goals. Emily Sopensky, the EDS Short Course Manager, then gave an overview of the EDS Short Course Program, followed by James Kuo's presentation about the new Senior Member and new Membership Fee Subsidy programs. Arlene Santos gave a brief presentation informing meeting attendees of all the chapter resources available on the web at <http://www.ieee.org/organizations/society/eds/chapter.html>. The ED/SSC Yugoslavia EDS Chapter of the Year was announced and the Chapter Chair, Ninoslav Stojadinovic, gave a

detailed account of the chapter activities. A series of chapter reports was then given: ED/LEO University of California, San Diego Student Branch Chapter by Rebecca Welty, C/ED Maine Chapter by David Potts, CAS/ED/CPMT/LEO Toronto Chapter by Ted Sargent, and ED C/INVESTAV-IPN Student Branch Chapter by Jose Luis Dominguez.

After the chapter reports, Paul Yu moderated an open discussion among the participants. The discussion centered on how to support and promote chapter activities. Although the attendees expressed that they were very pleased with the EDS Videotape Lending Library, it was mentioned that it would be good if some additional materials were made available, e.g. the newly established videos from the EDS Independent Short Courses Program. The Distinguished Lecturer Program (DL), though popular, is not being utilized by a significant number of chapters, especially those located in regions that have fewer DLs. It was recommended that chapters physically located near each other make joint arrangements for a DL to present talks and also to take advantage of the DL travel funding available. It was commented that the DLs should request the society overview presentation currently available from the EDS Executive Office, so that

during their chapter visits, they can brief the chapter about the Society and its various benefits to the members.

To enhance chapter meeting attendance, it was suggested that joint activities with other chapters or societies should be encouraged which will also serve as a networking opportunity for members. The general consensus among the attendees was that the selection of the topic of the lecture was vital to the meeting attendance. Current topics such as devices related to wireless and fiber optics communications can attract a large audience. Realizing that membership growth is closely linked to student membership development, there were many suggestions made to attract new students to join IEEE and attend student chapter meetings and to encourage non-student members to come to their respective chapter meetings as well. The suggested ideas included giving students academic credit for attending DL lectures, inviting DLs to act as guest lecturers for scheduled seminars, and setting chapter meeting times to be convenient for local members.

*Hiroshi Iwai
Tokyo Institute of Technology
Yokohama, Japan*

*Paul K.L. Yu
University of California
San Diego, CA*

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

| | | | |
|----------------------|-----------------|--------------------------------|-------------------|
| Barry R. Allen | Arturo A. Ayon | Henry Baltes | Mohammed M. Banat |
| Patricia Beck | Romuald B. Beck | Kristin M. de Meyer | Numan Sadi Dogan |
| Monuko M. du Plessis | Klaus Frank | Minka D. Gospodinova-Daltchena | Cynthia M. Hanson |
| Todd Hiemer | Richard Hornsey | James Irvine | * Kinam Kim |
| Can E. Korman | Byoungcho Lee | Chewee Liu | Chun Ting Liu |
| Jan M. Lysko | Chris A. Mack | Karen E. Moore | Tadahiro Ohmi |
| Willem J. Perold | Yuri Poplavko | James A. Power | Elyse Rosenbaum |
| Jerzy Ruzyllo | Peter Sandborn | Jong-in Song | Zoran Stamenkovic |
| Oleg V. Stoukatch | Pieter L. Swart | Kazuo Yano | Isao Yoshida |

* = 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 upon request, a letter will be sent to employers, recognizing the new status. For more information on senior member status, visit <http://www.ieee.org/membership/gradescats.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)

Vacuum Electronics Alive and Well - A Summary of the First International Vacuum Electronics Conference (IVEC)

With nearly 400 participants from industry, government and academia from almost 20 countries, the first International Vacuum Electronics Conference (IVEC) burst into life in Monterey, CA, on May 2, 3 and 4, 2000. IVEC 2000, sponsored by the IEEE Electron Devices Society (EDS), attracted the largest vacuum electronics audience in decades. While the explosive growth of electronics in the last half century has been in the area of solid state devices, vacuum devices are still widely used for displays and for high power and high frequency applications, such as satellite communications, radar and electronic countermeasures (ECM). "The response to IVEC 2000 is a clear indication of the continued vitality of vacuum electronics," said Jim Dayton, Director of Technology for Hughes Electron Dynamics (HED), Torrance, CA, who served as General Chair of IVEC 2000.

The conference commenced with a Plenary Session led by Dayton, who welcomed the participants to Monterey and introduced the members of the IEEE EDS Technical Committee on Vacuum Devices, who had organized the conference. Three speakers who focused on "The Status of the Vacuum Electronics Industry" followed. Jon Christensen of HED, representing the US Electronic Industry Association, spoke for the United States. Takao Kageyama of NEC followed by giving an overview of the industry in Asia. Georges Faillon of Thomson Tubes Electroniques (TTE) concluded with a description of the situation in Europe. All three described an industry that is experiencing nearly flat military sales, but dynamic growth in commercial opportunities.

The next three speakers addressed more specifically "New Commercial Opportunities in Vacuum Electronics." Ivor Brodie of SRI International spoke on what has become the most ubiquitous vacuum device today, the display tube. Brodie particularly emphasized the prospects for conventional

cathode ray tube (CRT) technology to be overtaken by thin panel displays, many of which will continue to be comprised of vacuum tubes using field emission cathodes. Walter Wood of Xicom Technology described growing markets for vacuum devices in terrestrial communications both for satellite uplinks and for wireless telephony and communications systems. The final speaker on this topic, Kevin Mallon of Loral Space Systems, described how the traveling wave tube (TWT) has become the dominant amplifier for commercial space communications because of its reliability, efficiency and power handling capabilities. With the assistance of the TWT, he forecasted that with the implementation of digital radio in the near future, a traveler driving from Los Angeles to New York City could listen to the same radio station for the duration of the trip!

The final topic in the Plenary Session was a panel discussion on "Training the Next Generation," moderated by Neville Luhmann of the University of California (UC), Davis. The panelists described successful programs merging the needs of academic institutions, industry and government to provide students with credible training and realistic career opportunities. The audience reaction to the panel discussion indicated that the hiring outlook in the vacuum electronics industry parallels its recent dynamic growth.

The highly successful IVEC is scheduled to repeat every other year in the USA, rotating to Europe and Asia in every fourth year. IVEC 2001 will be held in Noordwijk, The Netherlands, on April 2, 3 and 4, sponsored by the European Space Agency (ESA). In 2002, IVEC will return to Monterey and in 2003 it will be held in Korea. IVEC evolved from the Monterey Power Tube Conference, which had been sponsored by the US Department of Defense since 1978 and formerly had been restricted to U.S. participants.

Additional technical highlights are summarized at www.ewh.ieee.org/soc/eds/ivec. Selected extended articles from IVEC 2000 will be published in January 2001 in a Special Issue of the *IEEE Transactions on Electron Devices*.

—Ayman Shibib, Editor

CAS/ED Pikes Peak Chapter by Gerald Oleszek

The CAS/ED Chapter of IEEE Pikes Peak Section 5 held two technical meetings during the 4th quarter, 2000. The first presentation, on October 24, was entitled "SiGe HBT Technology and Applications: An Overview" and was presented by Mr. Don Herman, Senior Design Engineer, Linear Technology Corporation, Colorado Springs, CO. The talk was well received with over 25 people in attendance.

The second presentation, on November 7, was entitled "The Evolution of Capacitor Technology" and was presented by Dr. Elliott Philoosflky, former president of Teagal Corp. and former vice-president of AUX and Ramtron Corporations. The presentation traced the evolution of capacitor technology to its current use in advanced microelectronic technologies as ferroelectric nonvolatile memory devices. The CAS/ED Chapter is also planning future meetings focused on emerging areas in Solid State Microelectronics. The Chapter is also organizing a Solid State Session for the Region 5 Technical Conference 2001 to be held in April 2001.

—Charles Yarling, Editor

Colloquium Entitled "Future Trends in Microelectronics"

There will be a colloquium entitled "Future Trends in Microelectronics" to be held in Guadalajara, Mexico, on November 17, 2001. It is organized by the EDS chapter of Mexico DF and the student chapters of CINVSTAV DF and CINVSTAV Guadalajara. Three topics will be presented: CMOS Technological problems for downsizing by Dr. Hiroshi Iwai from the Tokyo Institute of Technology; State of the Art and perspectives of power devices and IC by Dr. Ayman Shibib from Agere Systems; and Trends in Low Cost Electronics by Dr. Sigur Wagner from Princeton University. Inscription is free for EDS chapter members. For other attendees, the registration fees are as follows: IEEE Members \$150 U.S.; IEEE Student Members \$50 U.S.; Non-IEEE Members \$3000 U.S.; and Non-IEEE Student Members \$100 U.S. Notes will be provided for all attendees. For additional information, contact: Dr. Magali Estrada,

Sección de Electrónica del Estado Sólido (SEES), Departamento de Ingeniería Eléctrica, CINVESTAV IPN, Av. IPN No. 2508, Apto. Postal 14-740, 07300 DF, México. TEL: 52-5 7473800 ext. 3121, FAX: 52-5 747 2114, E-Mail: mestrada@mail.cinvestav.mx

—Adelmo Ortiz-Conde, Editor

Europe, Middle East & Africa (Region 8)

ED/MTT/AP St. Petersburg Chapter

by Sergei Zagriadski

The Chapter activities during the second half of 2000 were as stated below.

Two seminars were organized by the St. Petersburg State Technical University in July: Dr. V. V. Yatsenko reported on "Electromagnetic diffraction by double arrays of dipole scatterers" and Dr. A. G. Rezvanov reported on "Space filtering of microwave signals using magnetostatic waves".

Under the Distinguished Lecturer Program, an invited lecture by IEEE Fellow Dr. Saj Durranin on Satellite Communications was held on October 2, 2000. The lecture was organized by the St. Petersburg State Electrotechnical University and was dedicated to communication systems, technologies, and services available through satellites at domestic, regional and international levels and to new systems for personal communications.

An all-Russia student conference in radiophysics was held in Peterhoff on December 5-7, 2000. It was organized by the St. Petersburg State University and the St. Petersburg State Technical University (see conference Web page <http://radio.stu.neva.ru/studconf.htm>). Over 60 participants attended the conference including 45 students from 10 universities and higher-education institutes of 8 cities of Russia. Nine students received best paper monetary awards from the St. Petersburg ED/MTT/AP Chapter. Three participants—Yuri Antonov (St. Petersburg State Electrotechnical University), Victor Sdobnjakov (Nizhny Novgorod State University) and Stanislav Voinich (St. Petersburg State Technical University)—were also awarded free IEEE membership for the year 2001 and diplomas from the ED/MTT/AP St. Petersburg Chapter.

The traditional student conference "Week of Science" was held on December 7, 2000, at the St. Petersburg State Technical University, where also a moving exhibition of IEEE materials was organized.

For further information about confer-

ences annually organized in St. Petersburg and its region, please contact Prof. Sergei Zagriadski (E-Mail: zagriadski@ieee.org).

MTT/ED/AP/CPMT Saratov-Penza Chapter

by Michael Davidovich

The end of 2000 in Saratov was rich in scientific events and has been marked by several big technical meetings. The main event was the Fourth International Conference, "Actual Problems of Electron Device Engineering" (APEDE 2000), held at Saratov State Technical University (SSTU), September 20-22. This Conference is biennial, and the next one will be held in 2002. More than 130 papers were submitted and more than 150 participants have attended the Conference. The Conference Proceedings have been published in Russian with the Abstracts in English. It was organized by Saratov State Technical University, Ministry of Full and Professional Education of Russia, Ministry of Education of Saratov Region, IEEE MTT/ED/AP/CPMT Saratov-Penza Chapter, and sponsored by IEEE EDS, Enterprise TORY (Moscow), and Enterprise CONTACT (Saratov). The Scientific Program included papers on Microwave Electronics, Microwave Theory and Technique, Implementation, Technology, Manufacture for Microwave, Electron Devices and Instruments Application and Technology, and Education in Electronics.

The second event was the Fifth Chapter Workshop "CAD and Numerical Methods in Applied Electrodynamics and Electronics," which was held day after the APEDE'2000 at SSTU (September 23, 2000). There were about 45 participants and 22 reported papers as oral presentations. The Workshop was solely organized by the Chapter and chaired by Prof. M.V. Davidovich.

The International Conference, "Problems of Communication and Control" (PCC'2000, September 20-22, 2000, SSTU), chaired by Prof. V.A. Kolomeyev, was organized in conjunction with APEDE'2000. There were 55 participants. The Conference was co-organized by the Chapter.

The fourth action was the School-Conference, "Nonlinear Days in Saratov for Young Scientists" (NDSYS 2000, October 16-20, 2000). The conference was organized by Saratov State University and supported by the Chapter. Conference Chairman was Prof. D. I. Trubetskov, rector of Saratov State University. The goal of this School-Conference was to involve the graduate and post-graduate students and scholars into the problems of nonlinear

dynamics. There were 86 participants.

Finally, the Second International Conference, "Fundamental Problems of Physics," was held at Saratov State University, October 9-14, 2000. About 240 reports have been presented and more than 250 participants have attended the conference. The conference was organized by the Ministry of Education of Russian Federation, Saratov State University, Program "Universities of Russia" Scientific center "College", under the support of the Russian Foundation of Fundamental Research and IEEE MTT/ED/AP/CPMT Saratov-Penza Chapter.

All reported events were very successful, useful for personal contacts, and aimed at improvement of cooperation and scientific exchange in different areas. For further information, please contact Prof. Michael Davidovich (E-Mail: DavidovichMV@info.sgu.ru).

ED/COM/AP/MTT/EMC Tomsk Chapter

by Oleg Stoukatch

The IEEE activity in the Siberia Region is characterized by the words "slow progress". International conferences have been held since 1995 for motivation of scientists and specialists and to attract them to join IEEE. The last, the Sixth International Scientific and Practical Conference of Students and Young Researchers "Modern Techniques and Technology" (MTT-2000), was held at Tomsk Polytechnic University February 28–March 3, 2000. This conference, co-sponsored by EDS and supported by the Novosibirsk Joint Chapter, offered the opportunities to learn and share information on the latest advances in techniques and technology.

An increased interest in the Tomsk conferences has been clearly observed. While the SIBCONVERS-1995 conference hosted about 50 participants, MTT-2000 attendance was about 300 from 5 countries. The invited and regular papers were presented in 6 oral sessions, each session addressing key problems of modern electronic devices, radar, and modern manufacturing technologies, as well as some related topics about photo-refractive effects in crystalline media. These papers were published in a Proceedings, officially registered as an IEEE edition. Several active conference participants, both engineers and students, have been awarded for the best papers.

The workshop on ultra-wide band radar was held at the SIBCONVERS symposium. At the workshop, Professor James Taylor, well-known American spe-

cialist in the radar field, editor and co-author of the book "Introduction to Ultra-Wideband Radar Systems", gave a short course for students, post-graduate students, and young researchers. The course was very successful.

On the 1st of October, Oleg Stoukatch, the Tomsk Chapter Chair, took an active part in the 2000 IEEE Divisions I & IV Region 8 Chapters Meeting in Paris. It was an excellent opportunity to get acquainted with chapter activity in Region 8 and to meet colleagues.

This year, our Chapter held two technical meetings with the Student Branch, which was established on June 14, 2000. Our common aim is to attract new IEEE student members. Complete information on our activities is available at the web site <http://me.tusur.ru/~tieee/index.htm>, created by Victor Sidorenko—the best web master in Tomsk. For further information please contact the Chapter Chair, Oleg Stoukatch, (E-Mail: tomsk@ieee.org).

MTT/ED/AP/CPMT/SSC West Ukraine Chapter

by *Mykhaylo I. Andriychuk*

For its current activities the West Ukraine Chapter in 2000 won the IEEE CPMT Society 1999 Chapter of the Year Award. Mrs. Olga F. Zamorska, Chapter Secretary, received the special banner from the CPMT Society at the IEEE Division I & IV Region 8 Chapters Meeting in Paris, France, on October 1, 2000. Recently our Chapter organized 8 meetings with technical and scientific subjects of interests to its members. The most interesting of them were:

- September 25, 2000: "The antenna synthesis according to the prescribed power directivity pattern," Dr. Petro O. Savenko, Institute for Applied Problems of Mechanics and Mathematics of NASU, Lviv, Ukraine.
- October 3, 2000: "Numerical analysis of AC losses in transmission lines composed of round wires," a Distinguished Lecturer Program presentation given at the Physico-Mechanical Institute of NASU, Lviv, Ukraine, by Prof. Akira Matsushima, Dept. of Electronics and Computer Engineering, Kumamoto University, Kumamoto, Japan.
- October 11, 2000: "Modeling the multi-layered contacts for integrated schemes," Dr. R. Korzh (speaker), L. Zakalyk, I. Danchyshyn, National University; "Lvivska Politehnika," Lviv, Ukraine.
- December 13, 2000: "Analysis of

reflection of electromagnetic waves by multi-layered arrays of complex shaped elements. Application to electronically controllable PBG", Prof. Sergey L. Prosvirnin, Institute of Radioastronomy of NASU, Kharkiv, Ukraine.

In addition, the educational course "Reactive Laser Technologies" was given by Dr. Dmytro I. Popovych, Institute for Applied Problems of Mechanics and Mathematics of NASU. Topics of the course were fundamentals of reactive pulsed technology; mechanics of reactive pulse laser sputtering; diagnostic and characteristic of laser-produced plasmas; process characteristics and film properties in reactive laser plasma deposition.

Among the other activities, the most important was the Fifth International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory (DIPED-2000), organized together with the IEEE MTT/ED/AP/EMC Republic of Georgia Chapter on October 3-6, 2000, at Tbilisi State University, Tbilisi, Georgia. A total of 26 papers from Georgia, Germany, Poland, Russia, Taiwan, Ukraine, and USA were presented at the Seminar in five oral sessions. The most interesting presentations were following: G. Sh. Kevanishvili, "On the theory of Hallen integral equation"; B. Z. Katsenelenbaum "The antenna shape in the line for the microwave power transmission by a long beam"; P. O. Savenko "About structure of solution of the nonlinear synthesis problem of linear antenna according to the prescribed power directivity pattern". The DIPED-2000 Proceedings were published before the event and included in the IEEE Book Broker Program. The DIPED-2000 traditional awards for young speakers recognized A. Geonjian for the "Non-uniform conforming mesh generator for FDTD scheme in 3D cylindrical coordinate system", K. Tavzarashvili for the "The method of acoustic and EM waves field visualization and based on it experimental setup for ultrasonic tomography", and Yu. V. Kasyanyuk for the "Calculation of singular and hypersingular integrals in scalar diffraction problem". The next DIPED will be organized at Institute of Applied Problems of Mechanics and Mathematics, Lviv, Ukraine, on September 18-20, 2001.

Our plan for future activities include financial support from the Chapter budget for 15 IEEE Student Members and the recruitment of 3-4 new IEEE members, organization of 10-15 technical meetings

with scientific subjects of interest to Chapter members and 3 educational courses as a special lecture series, organization of the 6th International Conference on the Experience of Designing and Application of CAD Systems in Microelectronics (CADSM-2001) at National University "Lvivska Politehnika" (NULP) Lviv, Ukraine, on February 12-17, 2001, web site: <http://www.polynet.lviv.ua/CADSM200/>, etc.

For further information on the MTT/ED/AP/CPMT/SSC West Ukraine Chapter, please visit <http://www.ewh.ieee.org/soc/cpmt/ukraine>.

ED/MTT/CPMT/SSC Central Ukraine Chapter

by *Yuri Poplavko*

Our Chapter was organized in the year 1996 due to the EDS and MTT initiative to include the countries of Former Soviet Union in the IEEE. It was the second IEEE Chapter in the Ukraine, and we started from 16 members from Ukrainian cities of Kiev, Odessa, Kharkov, Donetsk and Sevastopol. Later our Chapter was associated with other IEEE societies: CPMTS (1998) and SSCS (2000), and we now have 34 IEEE members. Historically, in the Ukraine there was a remarkable success in the area of telecommunication. That is why we now work with the IEEE ComSoc in order to add 7 new IEEE members to the Central Ukraine Chapter.

The Central Ukraine Chapter is located at the National Technical University of Ukraine (NTUU). Previously, it was Kiev Polytechnic Institute which was founded in 1898 by a famous Russian scientist Dmitriy Mendeleev who invented the periodic table of chemical elements. Currently, NTUU has more than 30,000 students and about 100 departments that cover the Ukrainian industry interests. The electronic faculty of NTUU has 12 departments and institutes in the area close to EDS (departments of Electronic Devices, Microelectronics, Semiconductor Devices, CAD in Electronics, Biomedical Electronics, Institute of Applied Electronics, etc.).

It is worth mentioning that, nowadays, most Ukrainian technical universities have to use old scientific and technological equipment, and that is why we have a decreased possibility in practical applications of their elaboration. It is well known that Ukraine now is in a deep economic and political crisis, and the Ukrainian education system faces great difficulties. However, in spite of this, Ukrainian education in electronics is directed to the expected



From the left: Mr. Vojkan Davidovic, Chapter Treasurer, Prof. Ninoslav Stojadinovic, Chapter Chair, Prof. Baldomir Zajc, Region 8 Conference Coordinator, Prof. Krishna Shenai, EDS AdCom Member, Prof. Zoran Prijic, Chapter Vice-Chair, and Mr. Ivica Manic, Chapter Secretary, at the meeting opening.

future progress. This is one of the reasons that basic points of teaching in microelectronics are fundamental mathematics and physics, computer simulations of electronics devices, and foreign language (English), of course. Present and future sophisticated electronic systems will require engineers with a higher degree of fundamental knowledge. The stage for fundamental knowledge in Ukraine was historically set on good school education as well as on high level and experience of the teaching staff in the fundamental knowledge of the electronics area.

We see the goals of the Central Ukrainian Chapter in the propagation of technical and scientific information as well as in the organization of technical meetings and conferences in accordance to interests of chapter members. IEEE societies are supporting us by the latest journal issues, conferences information, CD-ROMs, etc. This support is extremely useful because our universities cannot afford the foreign literature.

Electronic Devices is one of the major topics in Ukrainian electronics. The international workshop, "Progress in Semiconductor-on-Insulator Structures and Devices Operating at Extreme Conditions," was organized in Kiev, Ukraine, October 15-18, 2000. The meeting was announced in IEEE *Electron Device Letters*. The host was the Institute of Semiconductor Physics, National Academy of Sciences of Ukraine. More than 100 scientists from various countries took part in this Workshop.



Jack Kilby looking into the future after his historical expose during his ED Sweden seminar.



Professor Alferov during an excited explanation of his early heterojunction experiments.

One month before, in September 2000, our Chapter organized the International Conference "Microwave Telecommunication Technology" with the Workshop "Integrated Microwave Telecommunication Systems" in the Southern part of Ukraine (Crimea, town of Sevastopol). This conference was established last year as well, and it will be annual. More than 150 participants from Russia, Ukraine, Byelorussia, USA, England, South Korea, Turkey, etc., took part in this conference. The two-volume Conference Proceedings contained more than 250 reports.

In 2000, several members of the Central Ukraine Chapter took part in other International Electronics and Microwave conferences in Germany, South Korea, Poland, and Russia. The Chapter provided partial support to its members for conference participation. Two distinguished lectures were given by members of Central Ukraine Chapter in May 2000, at universities in the USA. For other information, please contact Chapter Chair, Prof. Dr. Yuri Poplavko (E-Mail: poplav@in.ec.kiev.ua), or Vice-Chair, Dr. Yuri Prokopenko (E-Mail: prok@phbme.ntu-kpi.kiev.ua).

—Ninoslav Stojadinovic, Editor

ED/SSC Yugoslavia Chapter

by Ivica Manic

The ED/SSC Yugoslavia Chapter held a regular meeting on the 23rd of November in conjunction with a celebration of 40th Anniversary of the Faculty of Electronic Engineering, University of Nis. Distinguished Lecturer presentations by Prof. Baldomir Zajc, Region 8 Conference

Coordinator, entitled "Rapid Prototyping Technology in Digital Circuit Design Education", and by Prof. Krishna Shenai, EDS AdCom member, entitled "Powering the Information Age" were given at the meeting. Furthermore, Prof. Ninoslav Stojadinovic, Distinguished Lecturer and Chapter Chair, gave a joint promotional lecture entitled "IEEE: Why Students and Engineers Should Join?". Finally, Prof. Krishna Shenai announced that our chapter had been selected as a recipient of the prestigious EDS Chapter of the Year Award, and gave a short affirmative speech on chapter activities and accomplishments over the past year. A reception for the Distinguished Lecturers hosted by the Faculty Dean, Prof. Zivko Tosic, preceded the dinner. The chapter meeting ended by a cocktail party for a large audience from both industrial and academia environments.

ED Sweden Chapter

by Mikael Östling

The ED Sweden Chapter hosted its most successful meetings ever during December last year. Together with the IEEE Sweden Section and Royal Institute of Technology, we arranged two meetings with two of the Nobel Laureates in physics 2000, Professor Zhores Alferov and Jack Kilby. On the 11th of December, Jack Kilby gave a most interesting expose of the work that paved the way for the invention of the integrated circuit. The seminar had a record high attendance of about 350 people. We counted more than 50 IEEE members. On December 13, Professor Alferov gave a seminar covering the development of the institute, the funding situation in Russia, and of course the important experimental development on the growth of heterojunction structures for laser applications. This seminar also attracted a large crowd of close to 200 people. Preceding both seminars, the Nobel Laureates were invited to a luncheon where university people and people from the telecom industry had the opportunity for informal discussions. For more information, contact Mikael Östling Professor, Head of Department of Microelectronics and Information Technology Device Technol-

ogy Laboratory KTH, Royal Institute of Technology E229 SE-164 40 Kista, Sweden. TEL: +46-8-7521402, FAX: +46-8-7527850, CELL: +46-70- 5658007 Secretary Zandra Lundberg TEL: +46-8-7521348.

—Mikael Ostling, Editor

ED Israel Chapter

by Gady Golan

Two meetings were held at the Holon Inst. of Technology (HAIT) - Holon. On November 15, 2000, the subject of the meeting was "Neural Computing of Effective Properties in Random Composites," with the guest lecturer being Prof. Abraham Beltzer from HAIT. Twenty people (mostly students and academic staff) attended the meeting in Holon. On December 20, 2000, the subject of the meeting was "Microwave Radiation Hazards to Biological Tissues" and the lecturer was Dr. Gady Golan from HAIT. Fifty people (mostly students and some academic staff) attended the meeting in Holon. The Chairman of both meetings was Dr. Gady Golan - ED Israel Chapter Secretary.

Report of the 12th International Conference on Microelectronics (ICM)

by Ali Khakifirooz and Azad Shademan

The 12th International Conference on Microelectronics (ICM 2000) was held October 31–November 2, 2000, in Tehran, Iran. This conference was organized by the Electrical and Computer Engineering Department, University of Tehran, and technically co-sponsored by IEEE EDS. For the first time in ICM's history, most of the paper submissions were conducted electronically and the conference proceedings were also distributed in CD. The conference had more than 550 attendees from 19 countries and 69 contributed papers accepted from more than 120 submitted papers. Six invited papers were also presented, including Prof. Meindl of Georgia Institute of Technology on "Advanced Interconnect Technology"; Dr. Shahidi of IBM on "Challenges of CMOS Scaling at below 0.1micron" (presented by Dr. Assaderaghi); Prof. Elmasry of the University of Waterloo on "Low Power VLSI CMOS Circuit Design"; Dr. Assaderaghi of IBM on "DTMOS: Its Derivatives and Variations, and Their Potential Applications"; and Prof. Nathan

of the University of Waterloo on "Thin Film Imaging Technology on Glass and Plastic". While we regret that Prof. Mertens could not attend the conference to present his invited talk on "Research in the Field of System-in-a-Package at the Interuniversity Microelectronics Center (IMEC)", this talk was replaced by Dr. Mohajerzadeh's lecture on "Research on Microsensor Technology at the Thin Film Laboratory of the University of Tehran". Reporting the rapid progress of the laboratory since its establishment in 1997, Dr. Mohajerzadeh emphasized that the main factor in research is outstanding students and novel ideas and not necessarily sophisticated facilities.

One of the main features of this year's conference was the spectacular participation of the students, which gave a vivacious spirit to this academic event. More than 300 students attended, with 30 of them as authors or co-authors. Also a group of 35 members of the University of Tehran IEEE Student Branch contributed in organizing the conference. During the conference, a great deal of effort was devoted to promote IEEE and EDS membership. Having proposed to establish the EDS student chapter at the University of Tehran, this idea was strongly encouraged by Prof. Nathan. We are looking forward to having more participation in EDS activities in the near future.

On October 30, a day before the conference, Prof. Meindl was kind enough to visit our department and deliver a tutorial on "XXI Century Opportunities for Giga Scale Integration". The tutorial addressed fundamental, material, physical, circuit, and system limitations based on theoretical and practical aspects of the issue.

—Gady Golan, Editor

ED Spain Chapter

by Ramon Alcubilla

The CDE 01 (Electron Device Confer-



Prof. Nathan among the student members of ICM 2000 Organizing Committee.

ence) was held in Granada on February 15-16. It was the third edition of this conference with the important participation of researchers from universities, industries, and research centers. For more information, contact Prof. Ramon Alcubilla, TEL: 34-934016757 or FAX: 34-934016756.

—Christian Zardini, Editor

Asia & Pacific (Region 10)

ED/LEO Australia Chapter

by Chennupati Jagadish

- Professor Kent Choquette from the University of Illinois at Urbana-Champaign, LEOS Distinguished Lecturer, visited the Chapter in December 2000, and gave a seminar on "Vertical Cavity Lasers".
- Assoc. Professor Fouad Karouta from Eindhoven University of Technology, EDS Distinguished Lecturer, visited the Chapter in December 2000, and gave a seminar on "Reactive Ion Etching of Gallium Nitride".
- Prof. Vijay Arora from Wilkes University, Nanyang Technological University, EDS Distinguished Lecturer, visited the Chapter in November 2000, and gave a seminar on "High Field Effects in Nanostructures".

The Chapter has been actively involved and technically co-sponsored the 2000 Conference on Optoelectronic and Microelectronic Materials and Devices (COM-MAD) held in LaTrobe University, Melbourne, during December 6-8, 2000. The Conference attracted 150 participants from more than 20 countries and the technical program contained 20 invited talks, 40 contributed oral papers and more than 100 poster papers.

For further information about chapter activities, please contact the Chapter Chair: Professor Chennupati Jagadish, Department of Electronic Materials Engineering, Research School of Physical Sciences and Engineering, Australian National University, Canberra, ACT 0200. TEL: 61-2-6125-0363, FAX: 61-2-6125-0511, E-Mail: chennupati.jagadish@anu.edu.au.

AP/ED Bombay Chapter

by Juzer Vasi

The most important event of this quarter was the seminar "VLSI: Systems, Design and Technology" held



EDS Distinguished Lecturer Xing Zhou and Bombay Chapter Chair Juzer Vasi at the IEEE booth during the seminar "VLSI: Systems, Design and Technology" held in Bombay.

during December 9–11, 2000. This was co-sponsored by the AP/ED Bombay Chapter. The seminar attracted about 350 participants from the microelectronics and VLSI industry in India, as well as researchers and students from academic and R&D institutions. There was a tutorial short course on "DSP Architectures for VLSI" presented by Dr. Mahesh Mehendale of Texas Instruments, India Ltd. The seminar consisted of a total of 18 invited papers and 20 contributed papers. One of the highlights of the technical sessions was the paper by the EDS Distinguished Lecturer, Dr. Xing Zhou of Nanyang Technological University (Singapore), on "Mixed-signal multi-level circuit simulation: An implicit mixed-mode solution". An IEEE booth was set up during the seminar to highlight the advantages of IEEE membership which attracted a great deal of attention.

Dr. Xing Zhou also gave another DL talk on "MOSFET compact I-V modeling for

deep-submicron technology development" on December 9, 2000, to an audience of IEEE members and students.

In addition to the major seminar in December, the following lectures were arranged under the auspices of the AP/ED Bombay Section:

- October 17, 2000: A talk by Dr. Piyas Samanta, Jadavpur University, Calcutta, on "Fowler-Nordheim stressing of MOS capacitors in accumulation and inversion."
- October 20, 2000: A talk by Dr. Tapas Datta, Sr. Design Manager, Intel Bangalore, on "Front End Design Methodology for multi-million gate ASICs."
- October 30, 2000: A talk by Dr. K. L. Narasimhan, Tata Institute of Fundamental Research, Bombay, on "Organic Semiconductors."
- November 6, 2000: A talk by Prof. B. P. Sinha, Memorial University of Newfoundland, Canada, on "Electromagnetic scattering by coated conducting prolate spheroids."
- December 19, 2000: A talk by Prof. J. N. Dahiya, Southeast Missouri State University, USA, on "Microwave dielectric relaxation of selected materials using a computerized resonant cavity."

All these talks attracted large audiences ranging from 50 to 150, including many students.

For further information, please contact Juzer Vasi, Electrical Engineering Department, IIT Bombay, Powai, Mumbai 4000076 India. FAX: +91-22-5723480, E-Mail: j.vasi@ieee.org.

ED/MTT India Chapter
by K.S. Chari



Attendees at workshop on broadband photonic links, NCRA-TIFR, Pune.

Three invited lectures were delivered in December. The first one on "R&D Profile of Nokia Research Centre in Germany" was delivered by Dr. Dirk Friebel of Nokia at the Indian Institute of Technology, Delhi, on December 6, 2000. The lecture highlighted the functionality of real-time systems, internet telephony and data transmission, embedded systems, and object oriented programming for devices for better utilization of bandwidth. The talk covered the present 0.18 micron technology products and the probable quantum jump to 0.08 micron technology for high speed communication etc. It was attended by 50 participants from the R&D groups and students. Prof. Bharathi Bhat and Dr. B.S. Panwar coordinated the interactions at IIT, Delhi. The second talk entitled, "Fiber Optical Sensors for Disaster Monitoring," was delivered by Prof. Brian Culshaw of Strathclyde University on December 15, 2000. The basic techniques of fiber sensors for a variety of applications such as gas sensing, hydrocarbon spillage, and flooding were illustrated. The event was organized by the Chapter in association with CRR I and about 80 scientists attended the talk. After the talk, Prof. Culshaw had a separate session with the Chapter Chair, Dr. Rao, Mr. Jaspreet Singh of CRR I to discuss issues related to early warning system for landslides and earthquakes detection using the hydrogel based optical sensors. The third lecture was delivered by Prof. Bruce Eisenstein on "New Educational Paradigms: Role of IEEE Societies in Education and Lifelong learning" at IIT Delhi on December 19, 2000. Dr. Eisenstein touched on the various educational programs, the innovative services and products offered from IEEE, the initiatives from IEEE to encourage graduates to obtain knowledge of contemporary issues, and also the various life long educational programs. The talk was followed by an interactive session where issues such as speeding up of the IEEE publication review process, better methodology of review, IEEE life membership, freedom to members for on-line access to other IEEE society publications, increasing IEEE on-line magazine support, etc., were discussed. The meeting was attended by the Chapter Chair, Mr. Asthana (IEEE Delhi Section Chair), Prof. H. M. Gupta, Prof. S. S. Jamuar and Dr. B. S. Panwar. The event was attended by about 40 participants.

A follow-up meeting on the national workshop on "Broadband Photonics" was held at NCRA Pune on November 13, 2000. It was decided at the meeting to

make the event a regular feature to serve as a forum for the photonics/opto-electronic community.

A national Workshop on "Microwave and Millimeter Wave Active Devices and Their Application" was co-sponsored by the Chapter and was held at the Central Electronics & Engineering Research Institute (CEERI) on December 15–16, 2000. It consisted of presentations by experts on areas of high power microwave tubes, semiconductor devices, MEMS and their latest developments and trends. The workshop was attended by 100 participants and was a very successful forum for discussing the trends in microwave and millimeter wave devices and applications. Dr. S. Ahmad, Shri S. N. Joshi from CEERI, Dr. Govind from Ministry of Information Technology took a leading role in organizing the event.

Under the IEEE STAR program, the Chapter Chair had diversified these efforts to different regions in the country. For the current year, schools in Andhra Pradesh (Eluru) and Delhi were identified to extend the efforts currently underway at Kurukshetra.

Consequent to the Chapter completing 25 years of its existence, a silver jubilee celebration is underway and likely to be inaugurated by the IEEE President in December 2000. A series of initiatives concerning the practices and procedures of chapter administration were proposed. As part of these initiatives, the Chapter Committee meeting was held outside Delhi at Kurukshetra University, to provide opportunities for interaction with chapter members at Kurukshetra. Several issues, such as rotation of chapter committee



Lecture by IEEE President to students and faculty of IIT, Delhi

meetings, all-India election process for chapter positions, organizing more workshops/short courses/seminars, national science and technology exhibitions/fares for student etc. were discussed. In view of the need to meet the request of regional members, it was decided that next year's chapter committee meeting will be held in other regions in the country.

For further information, please contact Dr. K. S. Chari, Director, Micro Electronics & Photonics Division, Department of Electronics, C.G.O. Complex, New Delhi, India, TEL: 91-11-436 1464; FAX: 91-11-436 3082; E-Mail: chariks@hotmail.com.

2000 International Conference on Semiconductor Electronics (ICSE2000)

ED Malaysia has successfully organized the 2000 IEEE International Conference on Semiconductor Electronics (ICSE2000) on Nov 13-15, 2000 at Guoman Port Dickson, in the state of Negeri Sembilan. The conference was technically co-sponsored by the Electron Devices Society and financially sponsored by MIMOS Semiconductor(M) Sdn. Bhd, ON Semiconductor(M) Sdn. Bhd and State Government of Negeri Sembilan. This is the fourth ICSE organized by

the Electron Devices Chapter of IEEE Malaysia Section every two years since 1996. The scope of the conference covers 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.

The participants represented ten countries: Malaysia; Singapore; Taiwan; Indonesia; USA; UK; Australia; France; Thailand; and India. A total of 52 papers were presented with two of them being invited papers. Prof. Hiroshi Iwai, IEEE EDS Regions/Chapters Chair/Distinguished Lecturer, spoke on Problems and solutions for downsizing CMOS below 0.1 mm and Prof C.I.M. Beenakker from Delft Institute of Microelectronics and Submicrontechnology, Netherlands spoke on New Developments in Silicon Technology. All papers were published in the Proceedings ICSE2000 which will be distributed by IEEE under the Book Broker Program.

REL/CPMT/ED Singapore Chapter

by Y. C. Ng

The Chapter successfully organized the Third Electronic Packaging Technology Conference (EPTC 2000) on December 5-7, 2000, in Sheraton Towers. The attendees totaled 270, from 18 countries. The Chapter also played host for the Region 10 CPMT Society Chapter Chairs along with the EPTC week. Overseas delegations (that includes the Board of Governors) attended this Region 10 CPMT Chapters Meeting in Singapore. The ED/CPMT/REL Chapter for the year 2001 will be headed by Dr. M. K. Radhakrishnan as Chairman and Dr. S. H. Ong as Vice-Chairman.

For further information, please contact Dr. S. H. Ong, TEL: 65-5595-452, E-Mail: soon.huat.ong@nsc.com.

—W. K. Choi, Editor

Report on the First International Workshop on Junction Technology (IWJT2000)

by Hiroshi Iwai

The First International Workshop on Junction Technology (IWJT2000) was held at the Makuhari Prince Hotel, Makuhari, Chiba, Japan, on December 6. The conference is sponsored/co-spon-



Singapore Chapter EPTC 2000.



IWJT during session.

sored by the Japan Society of Applied Physics and EDS and several other organizations. This workshop was founded in order to offer an opportunity to engineers and scientists participating in junction technologies to meet together, present their works, and exchange their ideas for possible collaborations. Junction technology specialists were invited from around the world and more than 100 researchers attended the workshop. Prof. M. Koyanagi of Tohoku Univ, gave a plenary talk regarding the requirement of ultra-shallow junction technologies from a device point of view. Then, Dr. L. Larson of Sematech delivered a perspective on ultra-shallow junction technology from the viewpoint of ITRS '99. The workshop was concluded by a panel discussion moderated by H. Iwai of Tokyo Inst. of Tech., regarding new junction technologies for sub-100 devices. IWJT 2001 will be held in Tokyo, Japan, on November 29 and 30, 2001. For further information, please access <http://home.hiroshima-u.ac.jp/iwjt> or contact Dr. B. Mizuno at mizuno@mrq.csdd.mei.co.jp.

Foundation of Kansai Chapter

by Hiroshi Nozawa and Hiroshi Iwai

The ED Kansai Chapter has been newly founded under the IEEE Kansai Section, Japan. Kansai is a geographical region in Japan, including Kyoto, Osaka, Kobe, and Nara. Kansai had been the political and cultural center of Japan for a very long period. In fact, old Japanese capitols had been located in this region for more than 15 hundred years until only 130 years ago. The number of EDS members in the Kansai Chapter is about 170. Now, the Japan Chapter has been divided into two chapters, the Japan Chapter under the Japan Council and the Kansai Chapter under the Kansai Section. The Japan Chapter covers the 7 remaining section areas under the Japan Council, including

Tokyo, Sendai, Hiroshima, Fukuoka, and so on. The opening ceremony was held at the Renaissance Building in front of the Kyoto station on December 25. Hiroshi Nozawa, Chair, Masaru Kazumura, Vice Chair, Yasushi Yamamoto, Secretary, Tatsuo Otsuki, Treasurer, and other key members of the chapter attended the ceremony to discuss its new activity. The EDS Regions/Chapters Committee Chair, Hiroshi Iwai, and Japan Chapter Chair, Kazuo Tsubouchi, were invited to give congratulatory speeches on behalf of the EDS and the Japan Chapter, respectively.

—*Hisayo Momose, Editor*

ED Beijing Chapter

by Jin-Jun Feng

The following are the activities of the ED Beijing Chapter for last three months:

- On July 30, 2000, Dr. Dieter M. Gruen (from Argonne National Lab, USA), visited the ED Beijing Chapter, and gave a lecture titled "Application

of diamond film in vacuum microelectronics and MEMS". About twenty researchers from the Beijing Vacuum Electronics Research Institute and the Beijing Artificial Crystal Institute attended the meeting.

- From August 1 to 4, the ED Beijing Chapter held its working meeting in WeiHai City of ShanDong Province. Chapter Chair, Prof. Fu-Jiang Liao, Chapter Vice-Chair, Prof. Shan-Hong Xia, Chapter Treasurer, Dr. Jin-Jun Feng, and Secretary, Qing-An Huang, attended the meeting as well as the Southwest Area Liaison and Northwest Liaison. In this meeting, we discussed the present status of the Chapter, promotion of a new Student Branch and members, and also the academic activities in the future.
- On September 8, 2000, Dr. Zhou Xing (EDS DL) from Nanyang Technological University of Singapore, visited the ED Beijing Chapter and talked to our members. His speech title was "Subpicosecond Electrical Pulse Generation by Nonuniform Gap Illumination".

2001 International Symposium on VLSI Technology, Systems, and Applications (VLSI-TSA)

by Ran Yan, J-M Shyu, and Tak Ning

The 2001 International Symposium on VLSI Technology, Systems, and Applications will be held in April, during the beautiful Spring season in Taiwan. The conference location, Hsinchu, is the center of advanced integrated circuit manufacturing in Taiwan. The purpose of the



Standing (left to right) Tatsuo Otsuki, Yasushi Yamamoto, Akira Suzuki, Kenji Taniguchi, Masaru Kazumura, Masaaki Kuzuhara, and Takashi Nakamura. Sitting (left to right): Kazuo Tsubouchi, Hiroshi Nozawa, and Hiroshi Iwai.



Dr. Dieter M. Gruen lecturing at ED Beijing Chapter.



Dr. Zhou Xing (EDS Distinguished Lecturer) lecturing at ED Beijing Chapter.

Symposium is to bring together scientists and engineers actively engaged in research and development on VLSI technology, systems, and applications from all over the world to discuss the current progress in this field with the subject experts from Taiwan's local industry.

This year, the conference has attracted more than 110 excellent contributed papers from all over the world, representing original works on the latest advances in the area of VLSI technology, circuits, and applications. In addition, the conference has invited 15 world experts to present reviews on the state of the art in their

respective area of expertise. Furthermore, the Symposium is very proud to have three plenary presentations by distinguished speakers from around the world, including "Systems on a Chip from a System's Perspective" by Gene Frantz (Senior Fellow, Texas Instruments, USA), "Future is in Wireless" by Heikki Huomo (Vice President, Research and Technology Access, Nokia, Finland), and "Joint Activity for Semiconductor R&D and Role of Semiconductor Technology Academic Research Center (STARC)" by Toyoki Takemoto (Executive Vice President, STARC, Japan).

The conference site this year is the Lakeshore Hotel in Hsinchu (see attached photo). It has relaxing and elegant surroundings, in addition to being close to the science park of Hsinchu, where most of Taiwan's IC manufacturing is located. Please visit our Symposium web site at <http://www.erso.itri.org.tw/VLSI-TSA>.

The 2001 VLSI-TSA, sponsored by the Industrial Technology Research Institute of

Taiwan, ROC, will take place in Hsinchu, Taiwan, April 18-20, 2001. Technical co-sponsors include the Chinese Institute of Engineers, ROC, Taiwan Semiconductor Industry Association, IEEE Electron Devices Society, IEEE Solid-State Circuits Society, IEEE Circuits and Systems Society, IEEE Taipei Section, and IEEE Electron Devices Society Taipei Chapter.

Please contact the Symposium secretariat for further details: Ms. Annie Lee, Secretariat of 2001 VLSI-TSA; A5300 ERSO/ITRI; BLD. 11, Sec. 4, 195-4, Chung-Hsing Road; Chutung, Hsinchu, Taiwan 31015, R. O. C.; TEL: +886-3-5913478; FAX: +886-3-5820257; E-Mail: annielee@itri.org.tw.

ED Taipei Chapter offers IEEE EDS Educational Series for Academic Researchers and Industrial Engineers in Taiwan

by Steve Chung

Instructed by Prof. Jack C. Lee, University of Texas, a short course on Dielectrics will be offered on April 12 in Santa Clara and April 26 in Taiwan. Part of the Vanguard Series, the course offered in Taiwan will be the first outside the U.S. It will be held at the Hsinchu Science-Based Industrial Park, Hsinchu, Taiwan. For more information, contact the EDS Short Course Manager, Emily Sopensky, The Iris Company, 923 East 39th Street, Austin, Texas, TEL: +1 512 452 2448, FAX: +1 512 452 8950, Email: e.sopensky@ieee.org, or Prof. Steve S. Chung, Department of Electronic Engineering, National Chiao Tung University, Taiwan. TEL: 886-3-573 1830, FAX: 886-3-572 4361, E-Mail: schung@cc.nctu.edu.tw.

—Tahui Wang, Editor



VLSI-TSA.

December AdCom

continued from page 7

articles, and educational activities, but no vote was taken pending a financial assessment of the request.

The Compound Semiconductor and ICS Technical Committee (TC) has joined with the Opto-Electronic Devices TC in several projects and meetings. Herb Bennett, chairman, listed several conference-related satellite workshops on SiGe technology and Compound Semiconductor Physics given within the last year. Both groups will promote new areas embracing SiGe technology for wireless applications, magnetic

semiconductors, InP & GaAlAs HEMTs & HBTs, new photonic materials, nitride-based devices, and larger wafers. Raj Singh's Semiconductor Manufacturing TC has worked on conferences, journal special issues, 300mm manufacturing, interactions with Sematech (and related international groups), and the role of foundries in 2000. Philip Wong has gotten his VLSI Technology TC to sponsor an "Emerging Technologies" panel discussion at IEDM 2000, and a special issue of T-ED on computational electronics.

In closing the meeting, all current EDS officers were re-elected to their positions, four AdCom members were re-elected for a second term (Ilesanmi Adesida, Arlene A. Santos, S.C. Sun and Paul K. L. Yu), and three new AdCom members, H. S. Philip Wong, Leda Lunardi, and Toshiro Hiramoto were elected. The next meeting of AdCom will be in Singapore on July 8, 2001.

John K. Lowell
PDS Solutions
Richardson, TX

39 EDS Members Elected to the IEEE Grade of Fellow

Effective 1 January 2001

- Richard Keith Ahrenkiel:** For contributions to measurement of minority carrier lifetimes in semiconductor materials
- Barry E. Burke:** For contributions to the technology development of charge-coupled devices for imaging and signal processing
- Sethumadhavan Chandrasekhar:** For contributions to the design and development of 1.55 μm opto-electronic integrated circuits for wide-spectrum application in optical communications
- Ih-Chin Chen:** For leadership in the development of advanced CMOS technologies
- John D. Cressler:** For contributions to the understanding and optimization of silicon and silicon-germanium bipolar transistors
- Sorin Cristoloveanu:** For contributions to Silicon-on-Insulator device physics, technology, and characterization
- Rik W.A.A. de Doncker:** For contributions to the development of high-power resonant soft-switching converters and high-performance digital control of induction machines
- Sang H. Dhong:** For contribution to high speed processor and memory chip design
- Samir M. El-Ghazaly:** For contributions to the analysis and simulations of microwave devices and circuits
- Arthur Charles:** For contributions to semiconductor microstructure fabrication
- Aditya Kumar Gupta:** For contributions to the advancement of microwave monolithic integrated circuit technology and leadership in the development of manufacturable processes
- Yoshiaki Daimon Hagiwara:** For pioneering work on, and development of, solid-state imagers
- Takeo Hattori:** For his contributions to the studies on the formation and the characterization of ultrathin gate oxides for ULSI devices
- James N. Hollenhorst:** For contributions to ultra-high performance avalanche photodiodes.
- Wei Hwang:** For contributions to high density cell technology and high speed Dynamic Random Access Memory design.
- Hiroshi Ishiwara:** For contributions to Si-based heterostructure devices and ferroelectric memories
- Dieter Stefan Jager:** For contributions to the development of device concepts in microwaves and photonics
- Robert Forrest Kwasnick:** For contributions to the development of amorphous silicon flat panel x-ray imager technology
- Kei May Lau:** For contributions to III-V compound semiconductor heterostructure materials and devices
- Chin Chung Lee:** For pioneering research in fluxless bonding technology and contributions to thermal design tools for electronic devices and packages
- Baruch Levush:** For leadership in the development of theoretical and computational models of free electron radiation sources
- Bernard S. Meyerson:** For the invention of ultra high vacuum chemical vapor deposition and its application to low temperature epitaxy of SiGe for the fabrication of heterojunction bipolar integrated circuits for telecommunications
- Akihiko Morino:** For contributions to the development of System-on-a-Chip for multimedia applications
- Kenji Nishi:** For contributions to semiconductor process and device modeling and the development of software for their simulation
- Jon Harris Orloff:** For contributions to Focussed Ion Beam Technology
- Stephen John Pearton:** For development of advanced semiconductor processing techniques and their application to compound semiconductor devices
- John Xavier Przybysz:** For contributions in the development and application of Josephson digital circuits to electronic systems, especially radars, communication satellites and data switching networks
- Hans-Martin Rein:** For contributions to the design of high-speed silicon and silicon/germanium bipolar circuits, especially as applied to fiber-optic systems
- Edward Anthony Rezek:** For contributions to GaAs and InP monolithic microwave integrated circuits and optoelectronic devices
- Arvind Kumar Sharma:** For contributions to active device and passive component modeling, and design of high power monolithic millimeter-wave integrated circuits
- Krishna Shenai:** For contributions to the understanding, development and application of power semiconductor devices and circuits
- Ritu Shrivastava:** For contributions to high performance CMOS memory technology and product development
- James C. Sturm:** For contributions to novel silicon-based semiconductor devices, large-area electronics, and engineering education
- Peter Vettiger:** For contributions to, and leadership in, the development of microfabrication processes for electronic, optoelectronic, and microelectromechanical devices, circuits, and systems
- Yang Yuan Wang:** For leadership in China's semiconductor research and education
- Isamu Washizuka:** For contributions to the technology and applications of liquid crystal displays
- Andrew B. Wittkower:** For contributions and leadership in the development and advancement of ion implantation techniques, equipment and companies
- Hon-Sum Philip Wong:** For contributions to solid-state image sensors and nanoscale CMOS devices
- Max Neil Yoder:** For leadership of government sponsored development of microwave integrated circuits

The Nominations of the Following Individuals Were Evaluated by EDS But They Are Not Current Members of EDS

- Karl W. Boer:** For contributions to research, development, and commercialization of thin film solar cells
- Satoshi Hiyamizu:** For contributions to the realization of the first high electron mobility transistor (HEMT)

EDS Meetings Calendar

(As of 26 February 2001)

The complete EDS Calendar can be found at our web site:
<http://www.ieee.org/organizations/society/eds/EDSCal.html>. Please visit!

April 2 - 4, 2001, @ **IEEE International Vacuum Electronics Conference** Location: Grand Hotel Huis ter Duin, Noordwijk, The Netherlands Contact: Marco Guglielmi, P.O. Box 299, Noordwijk, The Netherlands 2200AG Tel: +011 31 71 565 3493 Fax: 011 31 71 565 4596 E-Mail: mgugliel@estec.esa.nl Deadline: 11/10/00 www: <http://www.estec.esa.int/CONFANNOUN/IVEC2001/index.html>

April 12, 2001, * **IEEE Independent Short Course on Ultra-Thin Gate Oxide and High-K Dielectrics** Location: Marriott Hotel, Santa Clara, CA, USA Contact: Emily Sopensky, 923 East 39th Street, Austin, Texas, USA 78751 Tel: +1 512 451 4333 Fax: +1 512 452 8950 E-Mail: emily@iriscompany.com Deadline: Not Available www: <http://www.ieee.org/eds/short-courses>

April 18 - 20, 2001, T **International Symposium on VLSI Technology, Systems and Applications** Location: Taipei International Convention Center, Taipei, Taiwan Contact: Daniel Chen, B300, No. 195-4, Sec. 4, Chang Hsin Rd., Chutung, Hsinchu, Taiwan 310 Tel: +886 3 5417232 Fax: +886 3 582 0257 E-Mail: daniel.chen@itri.org.tw Deadline: 10/20/00 www: <http://www.erso.itri.org.tw/VLSI-TSA/>

April 23 - 24, 2001, * **IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop** Location: International Congress Center Munich, Munich, Germany Contact: Margaret Kindling, SEMI, 805 15th St. NW - Suite 810, Washington, D.C., USA 20005 Tel: +1 202 289 0440 Fax: +1 202 289 0441 E-Mail: mkindling@semi.org Deadline: 9/11/00 www: <http://www.semi.org/web/wevents.nsf/url/E01CFPA>

April 26, 2001, * **IEEE Independent Short Course on Ultra-Thin Gate Oxide and High-K Dielectrics** Location: National Chiao Tung University, Hsinchu, Taiwan Contact: Emily Sopensky, 923 East 39th Street, Austin, Texas, USA 78751 Tel: +1 512 451 4333 Fax: +1 512 452 8950 E-Mail: emily@iriscompany.com Deadline: Not Available www: <http://www.ieee.org/eds/shortcourses>

April 30 - May 3, 2001, * **IEEE International Reliability Physics Symposium** Location:

Wyndham Palace Resort and Spa, Orlando, FL, USA Contact: Anthony Oates, Agere Systems, 9333 S. John Young Parkway, Orlando, FL, USA 32819 Tel: +1 407 371 7536 Fax: +1 407 371 7639 E-Mail: aoates@agere.com Deadline: 9/15/00 www: <http://www.irps.org/>

May 6 - 9, 2001, T **IEEE Custom Integrated Circuits Conference** Location: Town and Country Hotel, San Diego, CA, USA Contact: Melissa Widerkehr, Widerkehr & Associates, 101 Lakeforest Blvd., Suite 400B, GaitHERSburg, MD, USA 20877 Tel: +1 301 527 0900 ext. 101 Fax: +1 301 527 0994 E-Mail: melissaw@widerkehr.com Deadline: 11/29/00 www: <http://www.ieee-cicc.org>

May 13 - 15, 2001, T **International Symposium on Plasma Process Induced Damage** Location: Doubletree Hotel/Monterey Conference Center, Monterey, CA, USA Contact: Della Miller, AVS West, 1265 El Camino Real, Suite 109, Santa Clara, CA, USA 95050 Tel: +1 408 246 3600 Fax: +1 408 246 7700 E-Mail: della@vacuum.org Deadline: 2/2/01 www: <http://www.p2id.org>

May 14 - 18, 2001, @ **IEEE International Conference on Indium Phosphide and Related Materials** Location: Nara New Public Hall 101, Kasugano-cho, Nara, Japan Contact: Hajime Asahi, Osaka University, The Inst. of Scientific & Indus. Research, 8-1 Mihogaoka, Ibaraki, Osaka, Japan 567-0047 Tel: +81 6 6879 8407 Fax: +81 6 6879 8509 E-Mail: asahi@sanken.osaka-u.ac.jp Deadline: 11/28/00 www: www.kntec.com/IPRM01

May 20 - 22, 2001, T **IEEE Radio Frequency Integrated Circuits Symposium** Location: Phoenix Civic Plaza, Phoenix, AZ, USA Contact: David Lovelace, Gain Technology, 3930 East Ray Road, Suite 200, Phoenix, AZ, USA 85044 Tel: +1 480 759 0200 ext. 213 Fax: +1 480 704 1500 E-Mail: d.k.lovelace@ieee.org Deadline: 11/27/00 www: <http://www.ims2001.org/rfic>

May 27 - 30, 2001, T **International Semiconductor Technology Conference** Location: Shanghai Pudong Shanfri-La Hotel, Shanghai, China Contact: Brian Rounsavill, The Electrochemical Society, 65 South Main Street, Pennington, NJ,

USA 08534-2839 Tel: +1 609 737 1902 ext. 108 Fax: +1 609 737 2743 E-Mail: brian@electrochem.org Deadline: 11/1/00 www: <http://www.electrochem.org/ecstasi/>

May 29 - June 1, 2001, # **International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication** Location: JW Marriott Hotel, Washington, D.C., USA Contact: Doug Resnick, Motorola, 77 South River Parkway MD: ML 26, Tempe, AZ, USA 85284 Tel: +1 480 755 5315 Fax: +1 755 5389 E-Mail: ayv150@email.sps.mot.com, EIPBN01@email.mot.com Deadline: Not Available www: <http://www.eipbn.org>

June 3 - 6, 2001, * **IEEE International Interconnect Technology Conference** Location: Hyatt Regency San Francisco Airport Hotel, Burlingame, CA, USA Contact: Wendy Walker, Widerkehr & Associates, 101 Lakeforest Blvd., Suite 400B, GaitHERSburg, MD, USA 20877 Tel: +1 301 527 0900 ext. 104 Fax: +1 301 527 0994 E-Mail: wendyw@widerkehr.com Deadline: 1/19/01 www: www.ieee.org/conference/iitc

June 4 - 8, 2001, @ **IEEE International Symposium on Power Semiconductor Devices & Integrated Circuits** Location: Osaka International Convention Center, Osaka, Japan Contact: Toshiaki Yachi, NTT Telecommunications Energy Laboratories, Room 1-4W, 3-9-11, Midori-cho, Musashino-shi, Tokyo, Japan 180-8585 Tel: +81 422 59 3129 Fax: +81 422 60 7386 E-Mail: yachi.toshiaki@lab.ntt.co.jp Deadline: 10/15/00 www: <http://www.rdd.kepco.co.jp/ispsd>

June 5 - 8, 2001, T **European Conference on High Temperature Electronics** Location: Grand Hotel, Oslo, Norway Contact: Ovidiu Vermesan, SINTEF, Forskningsvn. 1, PO Box 124 Blindern, Oslo, Norway N-0314 Tel: +47 22 06 75 06 Fax: +47 22 06 73 50 E-Mail: ovidiu.vermesan@ecy.sintef.no Deadline: 1/15/01 www: www.oslo.sintef.no/hiten01

June 7 - 9, 2001, * **IEEE Workshop on Charge-Coupled Devices & Advanced Image Sensors** Location: Cal-Neva Resort, Crystal Bay, Nevada, USA Contact: Eric Fossum, Photobit Corp., 135 N. Los Robles Ave., Pasadena, CA, USA 91101 Tel: +1 626 683 2200

* = Sponsorship or Co-Sponsorship Support

T = Technical Co-Sponsorship Support

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

= Cooperation Support

Fax: +1 626 683 2220 **E-Mail:** fossum@photobit.com **Deadline:** Not Available **www:** http://www.calnevaressort.com

June 10, 2001, @ **IEEE International Workshop on Statistical Methodology for VLSI Design and Fabrication** **Location:** Righa Royal Hotel Kyoto, Kyoto, Japan **Contact:** Kenji Maeguchi, Toshiba Corporation, Semiconductor Co. (Yokohama Complex), Memory LSI R&D Ctr., Memory Division, 8, Shinsugita-cho, Isogo-ku, Yokohama, Japan 235-8522 **Tel:** +81 45 770 3601 **Fax:** +81 770 3573 **E-Mail:** kenji.maeguchi@toshiba.co.jp **Deadline:** 1/26/01 **www:** http://www.ic.nec.co.jp/iwsm2001

June 10 - 11, 2001, @ **IEEE Silicon Nanoelectronics Workshop** **Location:** Rihga Royal Hotel, Kyoto, Japan **Contact:** Toshiro Hiramoto, University of Tokyo, Institute of Industrial Science, 7-22-1 Roppongi, Minato-ku, Tokyo, Japan 106-8558 **Tel:** +81 3 3402 0873 **Fax:** +81 3402 0873 **E-Mail:** hiramoto@nano.iis.u-tokyo.ac.jp **Deadline:** Not Available **www:** http://www.eas.asu.edu/~nano/SNW/SNW.htm

June 10 - 14, 2001, @ **IEEE TRANSDUCERS - International Conference on Solid-State Sensors and Actuators** **Location:** Gasteig Cultural, Educational & Conference Cntr, Munich, Germany **Contact:** Conference Secretariat, CSM, Industriestr.35 -, Grobenzell/Munich, Germany D-82194 **Tel:** +49 8142 570183 **Fax:** +49 8142 54735 **E-Mail:** transducers@csm-congress.de **Deadline:** 12/1/00 **www:** http://www.transducers01.de

June 11 - 15, 2001, # **International Photovoltaic Science & Engineering Conference** **Location:** Lotte Hotel, Cheju Island, Korea **Contact:** Jinsoo Song, Korea Institute of Energy Research, 71-2 Jang-dong, Yusong-gu, Taejon, Korea 304-343 **Tel:** +82 42 860 3738 **Fax:** +82 42 860 3739 **E-Mail:** jsong@kier.re.kr **Deadline:** 12/31/00 **www:** http://www.solarpv.or.kr/pvsec-12

June 12 - 14, 2001, @ **IEEE Symposium on VLSI Technology** **Location:** Rihga Royal Hotel, Kyoto, Japan **Contact:** Phyllis Mahoney, Widerkehr & Associates, 101 Lakeforest Blvd., Suite 400 B, Gaithersburg, MD, USA 20877 **Tel:** +1 301 527 0900 ext. 103 **Fax:** +1 301 527 0994 **E-Mail:** phyllism@widerkehr.com **Deadline:** 1/10/01 **www:** http://www.vlssymposium.org

June 12 - 15, 2001, T **International Symposium on Physics & Engineering of Millimeter & Sub-Millimeter Waves** **Location:**

Kharkov State University, Kharkov, Ukraine **Contact:** Alexey Kostenko, IRE NASU, Ul. Proskury 12, Kharkov, Ukraine 310085 **Tel:** Not Available **Fax:** +380 572 441105 **E-Mail:** kostenko@ire.kharkov.ua **Deadline:** Not Available **www:** http://www.ire.kharkov.ua

June 14 - 16, 2001, @ **IEEE International Symposium on VLSI Circuits** **Location:** Righa Royal Hotel, Kyoto, Japan **Contact:** Phyllis Mahoney, Widerkehr & Associates, 101 Lakeforest Blvd., Suite 400 B, Gaithersburg, MD, USA 20877 **Tel:** +1 301 527 0900 ext. 103 **Fax:** +1 301 527 0994 **E-Mail:** phyllism@widerkehr.com **Deadline:** 1/10/01 **www:** http://www.vlssymposium.org

June 17 - 20, 2001, * **IEEE University/Government/Industry Microelectronics Symposium** **Location:** Virginia Commonwealth University, Richmond, VA, USA **Contact:** Robert Pearson, Virginia Commonwealth University, 601 West Main St., PO Box 843072, Richmond, VA, USA 23284-3072 **Tel:** +1 804 827 7627 **Fax:** +1 804 828 4269 **E-Mail:** repearso@vcu.edu **Deadline:** 2/2/01 **www:** http://www.vcu.edu/egrweb/ugim2001

June 20 - 23, 2001, T **Conference on Insulating Films on Semiconductors** **Location:** University of Udine, Udine, Italy **Contact:** Enrico Sangiorgi, DIEGM, University of Udine, Via delle Scienze 203, Udine, Italy 33100 **Tel:** +39 0432 558284 **Fax:** +39 0432 558251 **E-Mail:** sangiorgi@uniud.it **Deadline:** Not Available **www:** http://www.uniud.it/infos2001

June 25 - 27, 2001, T **Device Research Conference** **Location:** University of Notre Dame, Notre Dame, IN, USA **Contact:** Sanjay Banerjee, University of Texas, MER 1.606B/R9900, Austin, TX, USA 78712 **Tel:** +1 512 471 6730 **Fax:** +1 512 471 8420 **E-Mail:** banerjee@ece.utexas.edu **Deadline:** 2/15/01 **www:** http://www.tms.org/Meetings/ Specialty/DRC/2001/DRC-2001-Home.html

June 30, 2001, T **Hong Kong Electron Devices Meeting** **Location:** Hong Kong Polytechnic University, Hung Hoom, Kowloon, Hong Kong **Contact:** Charles Surya, Hong Kong Polytechnic University, Dept. of Elec & Info Engineering, Hung Hoom, Kowloon, Hong Kong **Tel:** +852 2766 6220 **Fax:** +852 2362 8439 **E-Mail:** ensurya@polyu.edu.hk **Deadline:** Not Available **www:** http://www.ee.ust.hk/ieeeds/hkedm

July 3 - 7, 2001, T **Siberian Russian Student Workshop on Electron Devices and Materi-**

als **Location:** Novosibirsk State Technical University, Novosibirsk, Russia **Contact:** Alexander Gridchin, Novosibirsk State Technical University, 20 Karl Marx Prospect, Dept. of Applied & Theoretical Physics, Novosibirsk, Russia 630092 **Tel:** +7 3832 46 0877 **Fax:** +7 3832 46 0209 **E-Mail:** algrid@ref.nstu.ru **Deadline:** Not Available **www:** Not Available

July 9 - 13, 2001, T **International Symposium on the Physical and Failure Analysis of Integrated Circuits** **Location:** Westin Stamford & Westin Plaza Hotels, Singapore, Singapore **Contact:** Kin-Leong Pey, National University of Singapore, Dept. of Elec. Engrg., 4 Engineering Drive 3, Singapore, Singapore 117576 **Tel:** +65 874 6918 **Fax:** +65 779 7703 **E-Mail:** elepeykl@nus.edu.sg **Deadline:** 12/1/00 **www:** http://www.ehw.ieee.org/reg10/ipfa/submission.html

July 15 - 20, 2001, T **International Conference on Nitride Semiconductors** **Location:** Adam's Mark Hotel, Denver, CO, USA **Contact:** Patricia Hastings, Materials Research Society, 506 Keystone Dr., Warrendale, PA, USA 15086 **Tel:** +1 724 779 3003 **Fax:** Not Available **E-Mail:** hastings@mrs.org **Deadline:** Not Available **www:** http://www.mrs.org/meetings/icns4/

July 29 - August 2, 2001, T **Intersociety Energy Conversion Engineering Conference** **Location:** Westin Hotel, Savannah, GA, USA **Contact:** William Turner, Energy Systems Lab, 215 Wisenbaker Eng. Research Center, College Station, TX, USA 77843 **Tel:** +1 979 862 8480 **Fax:** +1 979 862 8687 **E-Mail:** wdt5451@esl.tamu.edu **Deadline:** 12/31/01 **www:** Not Available

August 6 - 7, 2001, T **International Symposium on Low Power Electronics and Design** **Location:** Hilton Waterfront Beach Resort, Huntington Beach, CA, USA **Contact:** Enrico Macii, Politecnico di Torino Dip. Di Automatica e Informatica, Corso Duca degli Abruzzi 24, Torino, Italy 10129 **Tel:** +39 011 564 7074 **Fax:** +39 011 564 7099 **E-Mail:** enrico@athena.polito.it **Deadline:** 2/9/01 **www:** http://www.cse.psu.edu/~islpd

August 13 - 16, 2001, * **International Vacuum Microelectronics Conference** **Location:** University of California at Davis, Davis, CA, USA **Contact:** Julie Sheehan, 423 First Street, Davis, CA, USA 95616-8766 **Tel:** Not Available **Fax:** Not Available **E-Mail:** jasheehan@ucdavis.edu **Deadline:** Not Available **www:** http://www.cevs.ucdavis.edu/Cofred/Public/aca/

* = Sponsorship or Co-Sponsorship Support
T = Technical Co-Sponsorship Support

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



NEWSLETTER EDITORIAL STAFF



EDITOR-IN-CHIEF

Krishna Shenai
EECS Department (M/C 154), 1135 SEO
The Univ. of Illinois at Chicago
851 South Morgan Street
Chicago, IL 60607-7053

Tel: +1 312 996 2633
Fax: +1 312 996 0763
E-Mail: k.shenai@ieee.org

EDITORS

REGIONS 1-6, 7 & 9

Eastern and Northeastern USA (Regions 1 & 2)

M. Ayman Shibib
Agere Systems
Bell Laboratories
2525 N. 12th Street
P.O. Box 13396
Reading, PA 19612
Tel: +1 610 939-6576
Fax: +1 610 939-3769
E-Mail: a.shibib@ieee.org

Southeastern and Southwestern USA (Regions 3 & 5)

Charles B. Yarling
201 W. Stassney, #506
Austin, TX 78745-3144
Tel: +1 512 306 1493
Fax: +1 512 306 0384
E-Mail: cby@io.com

Central USA & Canada (Regions 4 & 7)

Arokia Nathan
DALSA/NSERC Industrial Research Chair
Electrical & Computer Engineering
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada
Tel: +1 519 888 4803
Fax: +1 519 746 6321
E-Mail: a.nathan@ieee.org

Western USA (Region 6)

Stephen A. Parke
Boise State University
1910 University Dr.
Boise, ID 83725
USA
Tel: +1 208 426 3842
Fax: +1 208 426 4800
E-Mail: sparke@boisestate.edu

Latin America (Region 9)

Adelmo Ortiz-Conde
Universidad Simon Bolivar
Apdo. 89000
Caracas 1080-A
Venezuela
Tel: +582 906 4010
Fax: +582 906 4025
E-Mail: ortizc@ieee.org

REGION 8

Eastern Europe & The Former Soviet Union

Ninoslav D. Stojadinovic
Faculty of Electronic Engineering
University of Nis
Beogradska 14, 18000 Nis
Yugoslavia
Tel: +381 18 529 326
Fax: +381 18 46 180
E-Mail: nino@unitop.elfak.ni.ac.yu

Scandinavia & Central Europe

Mikael L. Ostling
Royal Institute of Technology
Department of Electronics, FTE
P.O. Box Electrum 229
Royal Institute of Technology
S-164 40 Kista
Sweden
Tel: +46 8 752 1402
Fax: +46 8 752 7850
E-Mail: m.ostling@ieee.org

UK, Middle East & Africa

Gady Golan
Center for Technical Education and
The Open University
PO Box 39328
16 Klauzner St.
Tel Aviv 61392, Israel
Tel: +972 3 646 0329
Fax: +972 3 646 5465
E-Mail: gady@oumail.openu.ac.il

Western Europe

Christian Zardini
Laboratoire IXL
Universite Bordeaux I
351 Cours de la Liberation
33405 Talence
France
Tel: +33 5 56 84 65 46
Fax: +33 5 56 37 15 45
E-Mail: zardini@ixl.u-bordeaux.fr

REGION 10

Australia, New Zealand & South Asia

Wee Kiong Choi
Dept. of Electrical Engineering
National University of Singapore
10 Kent Ridge Crescent
Singapore 119260
Tel: +65 874 6473
Fax: +65 779 1103
E-Mail: elechoi@nus.edu.sg

Northeast Asia

Hisayo Sasaki Momose
Microelectronics Engineering Laboratory
Toshiba Corporation
8, Shin-Sugita-cho, Isogo-ku
Yokohama, 235-8522 Japan
Tel: +81 45 770 3628
Fax: +81 45 770 3575
E-Mail: hisayo.momose@toshiba.co.jp

East Asia

Tahui Wang
National Chiao-Tung University
Institute of Electronics
1001 TA Hsueh Rd.
Hsin-Chu 30049 Taiwan
Tel: +886 3 5712121, ext. 54143
Fax: +886 3 5724361
E-Mail: wang@jekyll.ee.nctu.edu.tw