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## Contributions Welcome

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

### Newsletter Deadlines

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

# IEEE Electron Devices Society Newsletter

## 2000 Symposium on VLSI Technology



The Symposium on VLSI Technology will be held June 13 - 15, 2000 at the Hilton Hawaiian Village, Honolulu, HI. It began in 1981 as an international conference on current semiconductor research and developments. Its sponsors continue to be the IEEE Electron Devices Society and the Japan Society of Applied Physics, in cooperation with the Institute of Electronics, Information and Communication Engineers. Its intent has been to provide an intense but limited size meeting place for U.S. and Japanese researchers and engineers to more openly discuss and exchange new ideas and directions.

The Symposium on VLSI Technology has alternated each year between sites in the U.S. and Japan. In 1987, the first Symposium on VLSI Circuits was held in conjunction with the Technology Symposium in recognition of the growing interest in providing the same small but intense and open forum for discussing circuit and system implementations.

For many reasons, these meetings have remained linked for the past years to provide opportunities for technology people and circuit and system designers to interact with each other. These interactions are augmented with workshops, invited speakers and several evening rump sessions. In recognition of the efforts of organizers, authors and participants to make the Symposia successful, there are ample prearranged banquets and entertainment. Further, in an effort to involve promising new engineers, partial travel expense support for students who are presenting papers is available upon request.

The Hilton Hawaiian Village is a lush 22-acre resort on Waikiki's premier beach, conveniently located near Iolani Palace, Pearl Harbor, Waikiki Aquarium, Honolulu Zoo and Bishop Museum. Guests can enjoy snorkeling, sailing,

*(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.

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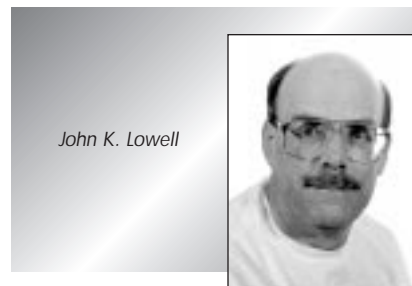
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## December 1999 AdCom Meeting Summary



John K. Lowell

The last Electron Devices Society Administrative Committee (AdCom) meeting of the Millennium was opened by President Bruce Griffing at 8:00 a.m. on Sunday December 5th at the Washington (D.C.) Hilton prior to the start of the annual International Electron Devices Meeting (IEDM). Following his welcome, and approval of the minutes to the June 1999 AdCom meeting, Bruce proceeded to recognize members of AdCom whose terms are expiring. Elected members Renuka Jindal, Bruce Griffing, James Kuo, Imre Mojzes and John Lowell have all completed two three-year stints. Cary Yang (Chapters Chair), Paul Chow (Membership), Arlene Santos (Semiconductor Manufacturing Technical Committee), and Jerry Woodall (Education) depart as chairs of their respective committees. Lisa McClrath received commendation for her work on the EDS Home Page and will be stepping down as the Home Page Editor. Special recognition was given to Lucian Kasprzak who leaves his post as EDS Treasurer after twelve years. Junior Past President Lou Parrillo presented a special award to President Griffing who is vacating his office this year as well.

The biggest single issue facing EDS at present is the financial position of the IEEE as a whole. IEEE's budget for 2000 approved by the Board of Directors has a deficit of \$5M which is almost certain to be covered by funds from technical societies. A new financial model approved by the Technical Activities Board (TAB) to impose more fiscal responsibility and to protect societies' funds was not approved by the Board. His opening remarks closed with the approval of all ex-officio AdCom appointments.

Vice President, Cary Yang, reported on a number of items that were discussed at the 5 December EDS Executive Committee Meeting (ExCom). He advised that a new Technical Committees Coordinator position will be added next year, with the EDS Vice President filling this role. Hiroshi Iwai, Regions/Chapters Chair, announced that the ED/SSC Seoul Chapter has been selected as the 1999 "Chapter of the Year," to be formally announced at the opening session of the IEDM. His committee proposed to have a Region 9 Chapters meeting every other year (odd numbered years) in Region 9. In addition, in even numbered years, the Region 9 chapters would be invited to attend a Regions 1 - 7 and 9 Chapters Meeting that would be held at the site of the IEDM (San Francisco, CA). The motion was approved. Paul Chow's membership report indicated that EDS (as of October 99) stood at 12,747 members, a new record. This repre-

(continued on page 6)

### EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

#### 2000

I. Adesida (1)  
H. S. Bennett (2)  
H. Iwai (2)  
A. A. Santos (1)  
S. C. Sun (1)  
K. Tada (2)  
P. K. L. Yu (1)

#### 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)

Number in parenthesis represents term.

\* Members elected 12/99

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# Upcoming Technical Meetings

## VLSI *(continued from page 1)*

surfing, windsurfing, scuba diving and more. Atlantis Submarines offers dives daily. Other amenities include exceptional dining at Bali-by-the-Sea, Golden Dragon and 13 other restaurants and lounges, plus a business center. The Rainbow Express Children's Program provides supervised activities for young people.

The scope of the 2000 Symposium on VLSI Technology covers all aspects of VLSI Technology, such as:

- 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 modelling and VLSI manufacturing control
- Packaging and reliability of VLSI devices
- Theories and fundamentals related to the above devices.

Approximately 90 papers will be presented. The program committees for the Symposium strive to ensure that all papers describe original work with specific results from experiments or simulations. Further, every effort is made to ensure that the content of all papers presented at the Symposium has not been announced or published prior to the Symposium. The allowed paper length is two pages.

In addition to the formal paper presentations during the day, the Symposium also features informal evening Rump Sessions. Each of these sessions is organized around a controversial topic selected by the Program Committee. The Rump Organizers select and recruit experts from the field to present their views. Usually these views are divergent and a spirited discussion ensues. The key feature is that all aspects of the issue are explored through the diverse opinions. The Rump Organizers also actively encourage audience participation in the discussion, so come prepared!

This year the Rump Session topics for the Technology Symposium are:

- DRAM storage cell scaling - how far can it go?
- Lithography for 50nm, optical vs non-optical
- Channel and S/D Technologies for sub-100nm MOSFET Design

A special feature of this Symposia is the one day overlap in the schedules for the Technology and Circuits meetings. This is an excellent opportunity to meet with members of the opposite discipline to share experiences, frustrations and ideas for future improvements. In addition to these chance meetings, there is also a Joint Rump Session which is organized by members from both the Circuits and Technology committees. This year the topic of the Joint Rump is: "Circuit and System Technology in the Year 2010"

In addition to the Symposium, there are also several auxiliary educational programs to be held at the same location in the days before the meetings. These pro-

grams include several short courses and workshops. The Workshops are:

- June 10, 2000 Fifth International Workshop on Statistical Metrology
- June 10-11, 2000 Silicon Nanoelectronics Workshop

A one day short course will be held on Sunday, June 11, 2000. The topic of this short course is "Process Technologies for the 100-130nm Technology Node". A detailed agenda for this short course will be given in the VLSI Technology Symposium Advance Program which will be issued toward the end of March 2000.

For registration and other information, visit the VLSI SYMPOSIA home page at: <http://vlsisymposium.org> or contact the Conference Managers at: Secretariat (USA), Widerkehr and Associates, 101 Lakeforest Boulevard, Suite 400B, Gaithersburg, MD 20877; TEL: +1 301 527 0900; FAX: +1 301 527 0994; E-MAIL: [vlsi98@aol.com](mailto:vlsi98@aol.com) or Secretariat (Japan), c/o Business Center for Academic Societies Japan, Conference Dept., 5-16-9 Honkomagome, Bunkyo-ku, Tokyo 113, Japan; TEL: +81 3 5814 5800; FAX: +81 3 5814 5823; E-MAIL: [vlsisym@bcasj.or.jp](mailto:vlsisym@bcasj.or.jp).

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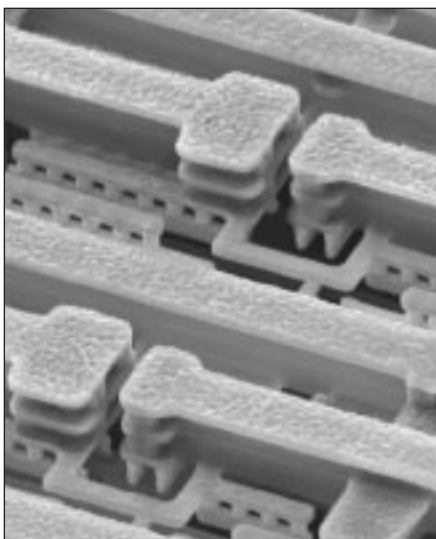


Photo courtesy of IBM

## 2000 International Interconnect Technology Conference (IITC)

The third annual International Interconnect Technology Conference (IITC), an exciting new conference dedicated to advanced interconnect technology, will be held June 5-7, 2000 at the San Francisco Airport Hyatt Regency Hotel, conveniently located 20 minutes from Silicon Valley or downtown San Francisco. The IITC provides a unique forum for professionals in the semiconductor industry and academia to present and discuss new technology supporting the fabrication of integrated circuit interconnects and packaging. The conference provides several venues for intercon-

nect-related topics, including short course lectures, oral and poster presentations, supplier exhibits (materials, fabrication and process characterization equipment, simulation tools, etc.) and exhibitor seminars describing the latest equipment and materials technology.

The IITC was established to provide an international forum for addressing interconnect issues from a system level viewpoint. The ever-increasing demand for higher integrated circuit density and performance

*(continued on page 4)*

## IITC *(continued from page 3)*

has led to a crisis in connectivity, and has shifted the design, cost, performance and reliability focus to interconnects. New materials, architectures and process technologies have arisen to meet this challenge, and no other semiconductor technology sector has been growing and changing more rapidly. The IITC will serve a unique role as the only IEEE conference dedicated to the interconnect community.

The international stature of the IITC is reflected by the broadbase support of its organizing committee, which consists of three subcommittees from North America, the Far East, and Europe. Committee members are well-known researchers and R&D professionals from universities, national labs and industrial labs throughout the world. The committee will rate all submitted papers based on rigorous standards; in addition to invited talks on emerging technologies, approximately 40 papers will be accepted for oral presentation and a similar number for poster presentation during the three day conference program.

A short course addressing advanced interconnect process, design and reliability issues will once again be offered on the day preceding the conference (June 4). The cost and performance of ULSI circuits strongly depend on the capability and productivity of interconnect fabrication equipment. In recognition of this critical role,

equipment supplier exhibits and seminars are an integral part of the IITC technical program and will be held on the first and second days of the conference.

With a vision of being the premier conference for leading edge interconnect technology as well as future interconnect needs, the IITC includes papers from a broad range of interconnect technology topics. Examples include:

- Silicide/Salicide: silicide materials, deposition and formation processes; novel gate and source/drain structures; contact silicidation, etc.
- Dielectrics: dielectric materials (low-k, high-k, liners, ARCs, etc.) and deposition processes (vapor, CVD, spin-on, etc.); dry etch and dry cleaning techniques
- Planarization: dielectric/metal CMP processes, equipment and metrology issues; alternative planarization techniques
- Metallization: metal deposition processes/equipment (PVD, CVD, electroplating) and materials characterization; metal etch/cleaning processes
- Process Integration: multilevel interconnect processes; clustered processes; novel interconnect structures; contact/via integration; metal barrier and materials interface issues
- Process Control/Modeling: CMP, metal/dielectric deposition and etch, PVD, CVD, electroplating

- Reliability: metal electromigration and stress voiding; dielectric integrity and mechanical stability; thermal effects; passivation issues; interconnect reliability prediction and modeling; plasma damage
- Interconnect Systems: interconnect performance modeling and high frequency characterization; interconnect system integration, including system-on-a-chip and advanced packaging concepts (flip-chip, chip-on-chip, MCM); novel device architectures; advanced interconnect concepts (rf, optical, superconductors, etc.)

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

Professionals involved in interconnect-related activities are strongly encouraged to participate in this exciting new conference. Detailed information can be obtained from the IITC website: <http://www.ieee.org/conference/iitc>. For additional information or inquiries regarding supplier exhibits and seminars please contact Wendy Walker, IITC Administrator, Widerkehr & Associates; TEL: 301-527-0900; FAX: 301-527-0994; E-MAIL: [iitc@his.com](mailto:iitc@his.com).

*Robert Havemann  
Sematech  
Austin, TX*



## 2000 International Vacuum Electron Sources Conference (IVESC)

The 2000 IEEE International Vacuum Electron Sources Conference (IVESC 2000) will be held at the Coronado Springs Resort at Walt Disney World in Orlando, Florida, July 10-13, 2000. This conference is the outgrowth of the former biennial Tri-Service/NASA Cathode Workshop held in the United States, which in 1996 evolved into an international conference. The first conference was held in Eindhoven, The Netherlands, with over 100 international attendees. The second conference was held in 1998 in Tsukuba, Japan, with more than 180 attendees from around the world. The third conference in this series marks the

return to the United States and is financially sponsored by the IEEE Electron Devices Society. Proceedings of IVESC 2000 will be published in a special issue of Applied Surface Science, as has been done for the previous two conferences. The compilation of these articles into a single resource represents a valuable overview of the state of electron source technology internationally.

The conference chronicles the rapid development of electron source science and technology in the past decade. Thermionic cathodes have long been the workhorses of many devices, from cathode ray tubes for displays to high current sources used in microwave power tube amplifiers for radar, communications, and accelerators. Thermionic emission results from heating the cathode to give electrons

sufficient kinetic energy to overcome the potential barrier (work function) at the surface and escape into vacuum. Techniques for increasing electron emission are varied: heating the cathode directly to higher temperatures to increase the proportion of electrons in the Maxwellian tail of the electron distribution with energies greater than the barrier height; thermal-field emission in which the application of an electric field conspires with the image charge (Schottky effect) so that a greater proportion of the electrons have energies above the barrier height; and lowering the work function of the top-most layer by coating with alkaline or alkaline-earth materials, e.g., barium. While widely used and rugged, thermionic cathodes have their limitations. To name a few: the high cur-

rent density needed in vacuum electronic devices such as Klystrons and TWT's can be obtained by operating the cathode at higher temperature, but to the significant detriment of cathode lifetime; cathodes can become poisoned; transit time limitations (time of flight of the electron to the extraction grid) set upper bounds on modulation or pulse repetition frequency; and comparatively large grid or anode voltage swings are needed to turn the emission "off."

Advances in cathode technology have taken many guises. The IVESC 2000 conference encompasses many of the salient contenders as well as issues related to their operation and performance. Presentations in the conference deal with basic emission physics from thermionic, field, secondary, photoelectric, and ferroelectric electron sources. Scandate cathodes, field emitters, diamond and carbon, wide band-gap materials and negative/low-electron affinity materials are among those covered. Noise, degradation, failure mechanisms and other issues related to emission performance are also in the conference's scope.

Electron source technology has advanced considerably in recent years. Thermionic cathodes now come in oxide, dispenser, scandate, thoriated tungsten and other varieties. Field emission from single tips, arrays, edges, nanotubes and nanostructures, rely on an applied field such that electrons quantum-mechanically tunnel through the surface barrier into the vacuum. Field emitter arrays have achieved record current densities of up to 2400 Amps per square centimeter. Wide band gap materials, such as diamond,

DLC and GaN, operate by injecting electrons into the conduction band of the low or negative-electron-affinity material and transporting them to the surface where they encounter little or no opposition to their injection into vacuum, and thereby offering potentially low voltage operation. A variety of other cathodes exploit other mechanisms, from gas discharge electrodes such as thoriated tungsten alternatives with applications in electric propulsion, lamps & lighting, to photo-cathodes, ferroelectrics, and secondary emitters composed of oxide, metal alloy, and cermet materials.

The diversification of emitter technology has been explosive. In many cases, the capabilities offered by these new or greatly improved electron emissive materials can or will have dramatic impact, or even be device-enabling, for a variety of critical commercial and military applications. Potential benefits include reducing the physical dimensions or power consumption (or both) while increasing lifetime, ruggedness, current density, beam brightness, or combinations thereof.

Applications of vacuum electron sources are legion. They are used in power devices such as microwave amplifiers, TWTs, Klystrons, magnetrons, gyrotrons, and microwave power modules. Display uses include traditional and thin CRTs, field emission displays and plasma panels. Plasma devices include lasers, switches, lighting and arc lamps, electron sources for electric propulsion ion thrusters (e.g., Hall thrusters) for satellites and spacecraft, plasma contactors, hollow cathodes, arcjets, and thermionic converters, and electron sources for satellite charge neutralization.

Specialized applications include x-ray sources, electron beam instrumentation, low heater power and fast warm-up cathodes. Open issues in the application of electron sources involve reliability, noise, emission characteristics, and lifetime, which are often affected by the operating environment of the cathode. Consequently, emission sensitivity to plasmas, inert gases, halides, residual gas, absorbates, or even damage due to ion bombardment are all topics of special interest.

Information on IVESC 2000, such as conference scope, calendar of events, location and accommodations, and special events are posted on the continually updated IVESC 2000 Web Site at [http://ctd.lerc.nasa.gov/5620/IVESC\\_2000.htm](http://ctd.lerc.nasa.gov/5620/IVESC_2000.htm). Information on the Coronado Springs Resort and a preview of the all year New Millennium Celebration planned for Disney World, as well as other activities and features, are available on the Disney World Web Site <http://disney.go.com/disney-world/index1.html>.

The Conference and Organizing Committee Chair is Mr. Edwin G. Wintucky of the NASA Glenn Research Center in Cleveland, Ohio. He is assisted by (Program Committee) Dr. D. Norman Hill of Georgia Tech in Atlanta, Georgia, (Publicity Committee) Dr. Kevin L. Jensen of the Naval Research Laboratory in Washington D.C., and (Finance Committee) Mr. Louis Falce, a private consultant on electronic materials in San Jose, California.

*Kevin L. Jensen  
Naval Research Laboratory  
Washington, DC.*



## 11<sup>th</sup> International Semiconducting and Insulating Materials Conference (SIMC-XI)

The 11<sup>th</sup> International Semiconducting and Insulating Materials Conference (SIMC) will be held in the Research School of Physical Sciences and Engineering (Huxley Lecture Theatre), The Australian National University, Canberra, July 3-7, 2000. SIMC has traditionally been the leading meeting for fundamental materials problems of compound semiconductors of relevance for electronic and optoelectronic devices. In its early years, the conference focused on defect problems in semi-insulating substrates used for device fabrication.

Later, following the decision of the International Advisory Committee, the scope of the conference was extended to include other device relevant issues in compound semiconductor materials. The conference brings together specialists from various fields, including materials science, solid-state physics, device and process engineering. The purpose of the meeting is to discuss growth, characterization, theory, device applications, and materials problems related to semiconducting and insulating materials.

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## IPRM *(continued from page 5)*

ing compounds such as GaAs, InP, III-nitrides, III-V-Nitrides, II-VI, IV-IV compounds. Participants in the conference will have an opportunity to exchange ideas and to discuss future directions in the development of this expanding field. The conference program consists of invited and contributed oral and poster papers with no parallel sessions, providing an informal setting for lively discussions.

Novel Systems of Special Interest for this Conference are: III-nitrides, III-oxides, Non-stoichiometric III-Vs (e.g. LT-GaAs), Low Dimensional Structures (e.g. quantum dots, wires, wells), Quantum Well Intermixing, Long Wavelength Nitrides, (e.g. GaNAs, InGaAsN), SiGe, SiC.

- Growth: Bulk and epitaxial growth (molecular-beam epitaxy and metal-organic chemical vapour deposition, chemical beam epitaxy); control of stoichiometry; defect control and growth of nanostructures such as quantum dots; wires

- Characterization: Electrical and optical evaluation; deep level analysis; structure of point and extended defects; interface studies
- Processing: Processing using ion beams for doping and isolation; plasma processing for etching; deposition
- Theory: Heat and mass transport in technological processes; surface and interface states; identification of defects and impurities; compensation processes.
- Applications: Electronic and optoelectronic devices; the role of point and extended defects; reliability and processing issues; application of wide-gap materials; aluminium based oxides; and nonstoichiometric III-Vs

The social program includes a welcome reception on Sunday, 2 July 2000 in the evening, a conference outing to see Australian Wildlife/Wineries/Canberra attractions is scheduled on Wednesday, 5 July 2000, and the conference dinner will be held in the historic Old Parliament House on Thursday, 6 July 2000. Though Canberra is

cooler in July, this is the ideal time to visit the Great Barrier Reef (Cairns), Kakadu National Park, Katherine Gorge (Darwin) and we encourage participants to explore beautiful Australia during their trip to Down Under. Canberra's attractions are the old and new Parliament House, the Australian War Memorial, national gallery, science and technology museum, deep space centre and Tidbinbilla nature reserve.

For registration information and general inquiries about SIMC, please contact Ms. Laura Walmsley, Conference Administrator, Department of Electronic Materials Engineering, Research School of Physical Sciences and Engineering, Australian National University, Canberra, ACT 0200, Australia; TEL: 61-2-6249-0020; FAX: 61-2-6249-0511; E-MAIL: [Laura.Walmsley@anu.edu.au](mailto:Laura.Walmsley@anu.edu.au). Also, we encourage you to visit our web site at: <http://rsphysse.anu.edu.au/admin/simc2000>.

*Chennupati Jagadish  
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Canberra, Australia*

## Summary *(continued from page 2)*

sents a 3.9% increase from last year's number. The society now has 3,434 permanent members, having doubled over the last two years. Incoming chair, James Kuo, will set a steady 3% per year growth rate, and increased student and "early career" members as goals for his committee. A major part of Paul's presentation was the preliminary results from the EDS Membership Survey, which was taken during 1999. There were 835 respondees, or about 41% of the total, who returned the questionnaires. Once the full report of the survey is received from IEEE, Paul will write an article for a future issue of the Newsletter and the results will be posted on the EDS Home Page.

The report by the EDS Treasurer, Lu Kasprzak, showed that EDS continues to enjoy sound fiscal health. For 1999, \$57.8K is projected from membership fees, while net income from T-ED and EDL is estimated to be \$100K and \$290K, respectively. Additional income from Semiconductor Manufacturing Transactions (\$44.4K), Circuits and Devices Magazine (\$20K), Book Broker (\$261), and the MEMS Journal (\$60.8K) is also expected. Conference revenues are estimated to be \$350K (net) and \$562.2K will be coming from interest on EDS investments. Total 1999 income should be about \$4,724.7K

with total expenses coming in around \$3,840.1K with \$6.5M in reserves.

The Executive Office under Bill Van Der Vort continues to be busy and productive. Since the June AdCom meeting, some of the items Bill and his staff (Amanda Papasso, Carrie Lin, Marlene James, Laura Riello, & Barbara Weinbaum) completed are: went "live" with new changes to the EDS Home Page, cooperated with the EDS 50th Anniversary Committee, EDS President, and Vice-President to finalize nominations for the IEEE Millennium Medals; completed implementing a manuscript tracking system simultaneously with the change to have the EDS Office provide support for all EDL editors. As EDS goes into 2000, some of the items the Executive office will be involved in include: continuing to work with the IEEE History Center and EDS Advisory Board to coordinate the development of an oral histories booklet and technical display in honor of EDS' 50th Anniversary, and working to develop a manuscript tracking system to provide centralized administrative support at the Executive Office for *Transactions on Electron Devices*.

The Education Committee Chair, Jerry Woodall, mentioned that there were 38 EDS Distinguished Lectures (DL) given this year with 27 lecturers participating. Twenty-one of the lectures were given in the US and 17 outside the country, with the average cost of each talk about \$700. For 1999, there

were 17 videotapes borrowed from the EDS Library by 13 different chapters. Incoming Education Chair, Ilesanmi Adesida, will work on getting reports on EDS Educational activity to be included in forthcoming DL talks as well as looking at existing models for developing and giving short courses for EDS members. It was decided at the AdCom meeting that the Education Committee would now be responsible for short courses. Chair of Publications, Steve Hillenius, gave his report which extolled how well EDS publications are doing. Archival journals are often measured by an "impact factor" [Note: the impact factor is the result of dividing the number of all citations of items published (in a single journal) over the last two years divided by the number of articles published by that journal in the same two years]. The impact factor for EDL and T-ED is 1.9 and 1.5 respectively, which ranks them 4th and 14th of all 205 journals included in the Engineering, Electrical and Electronic category. Aside from journal quality, the biggest factor for publications in 1999 has been the successful installation of the support system for EDL editors under the Executive Office that went "live" in October. Both Steve and the Executive Office staff will be turning their attention to installing a similar system for T-ED support which is expected to be in place by October 2000. AdCom approved an

*(continued on page 11)*

## Society News

### 1999 EDS Regions 1-7 (U.S. & Canada) Chapters Meeting

The Electron Devices Society held its 4th Annual Regions 1-7 (U.S. & Canada) Chapters Meeting on Sunday, December 5, 1999, in conjunction with the International Electron Devices Meeting (IEDM) in Washington, DC. 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 to share learnings and express their needs and concerns to the Adcom members. This year's meeting was co-hosted by Dr. Hiroshi Iwai, EDS Regions/Chapters Standing Committee Chair, and Ms. Arlene Santos, EDS Regions/Chapters Standing Committee member. Sixteen EDS Chapter representatives and 18 Chapter partners were in attendance.

Dr. Iwai opened the meeting with welcoming remarks and the announcement of the 1999 Chapter of the Year Award Winner, ED/SSC Seoul. The Chapter Chair, Dr. Moon Key Lee, gave a presentation on their current and planned activities. The meeting continued with four chapter reports by: Gabriel Cueva, ED University of Illinois at Urbana-Champaign Student Branch Chapter; David Burnell, ED/SSC Baltimore; Mohamed Osman, SP/AP/CAS/ED Pull-

mann-Moscow; and Ted Sargent, CAS/ED/CPMT/LEOS Toronto.

Arlene Santos led an open forum on best practices and issues of concern. This highly interactive discussion enabled the chapters' representatives to discuss specific challenges that they encounter and have their counterparts offer solutions that worked for them.

The meeting handouts, chapter presentations, and notes from the open discussions can be accessed at <http://www.ieee.org/organizations/society/eds/1-7.html>.

In order to assist in improving methods to disseminate chapter meeting information to its constituents, the EDS Executive Office is now providing a new service of publicizing upcoming chapter meetings on the EDS Home Page. The requesting chapter will be responsible for submitting the announcement text (maximum of 300 words or 1K) electronically to Carrie Lin ([c.lin@ieee.org](mailto:c.lin@ieee.org)) of the EDS Executive Office. A web page will be created by using the IEEE web template to maintain the look and feel of the IEEE Home Page (<http://www.ieee.org>). Once the meeting announcement is posted on the web, it can be accessed through links from:

- EDS Home Page (<http://www.ieee.org/eds/>)

- EDS Chapters Home Page <http://www.ieee.org/organizations/society/eds/chapter.html>)
- Upcoming Activities (<http://www.ieee.org/organizations/society/eds/upcoming.html>)

A sample of an on-line chapters meeting announcement can be viewed at [http://www.ieee.org/organizations/society/eds/nva\\_meet.html](http://www.ieee.org/organizations/society/eds/nva_meet.html).

We would like to thank everyone for their enthusiastic participation that made this meeting a success. We look forward to seeing you this December at the next EDS Regions 1-7 & 9 Chapters meeting will be held in conjunction with the International Electron Devices Meeting (IEDM) on Sunday, 10 December 2000 at the San Francisco Hilton & Towers Hotel, San Francisco, USA. We will advise you in mid-September as to the specific location and time of the meeting.

*Hiroshi Iwai  
Tokyo Institute of Technology  
Yokohama, Japan*

*Arlene A. Santos  
National Semiconductor Corp.  
Ellicott City, MD*

### 1999 EDS Meeting Organizers Workshop

Immediately following the Winter meeting of the EDS Administrative Committee (AdCom) on 5 December 1999, the Meetings Committee held its annual Meeting Organizers Workshop to review and explain IEEE policies concerning technical meetings and also to share experiences among volunteer meeting organizers. The objective of this meeting is to improve the overall quality of the meetings that are sponsored by the IEEE EDS.

Opening remarks were presented by the Meetings Chair and then a program followed, where five technical meetings officers (Achim Burghartz, BCTM; Mark Wilson, GaAs IC; John Benner, PVSC; Stephen Parke, UGIM; Bart Van Zegbroeck, DRC) gave a brief description of the interesting experiences they encountered while putting their technical meetings together. The subjects ranged from technical programs, poster sessions, hotel requirements and arrangements, to audiovisual and catering services. The material was

extremely interesting and not usually found in the normal "how to" manuals.

The second half of the meeting consisted of a free discussion among the members of the audience. About 30 conference people attended and tips were exchanged on how to handle mailing lists, paper selection process, officer rotation and many other topics. Each attendee received a copy of a new binder that the Meetings Committee developed to supplement the information that is usually received from the IEEE. After the meeting, a buffet dinner was held in conjunction with the AdCom Meeting.

In summary, the Workshop was a great success and well attended. And every year we also learn how to better help the managers of technical meetings. Looking forward to seeing you at the next Meeting in December 2000 in San Francisco.

*James T. Clemens  
Athena Consulting  
Watchung, NJ*

### EDS Chapter of the Year Award

At its December 1997 meeting, the EDS AdCom approved a "Chapter of the Year" Award. It is given each year based on the quality and quantity of the activities and programs implemented by the nominated chapters during the prior July 1 - June 30 period. Nominations for the award can only be made by EDS Chapter Partners.

At the IEDM held in Washington, D.C. in December 1999, the Chapter of the Year Award was given to the ED/SSC Seoul Chapter. The chapter received a certificate and check for \$1,000. The Seoul Chapter was among seven chapters nominated to compete for this year's award. The chapter was nominated by its Partner, S.C. Sun.

*Hiroshi Iwai  
Tokyo Institute of Technology  
Yokohama, Japan*

# EDS Semiconductor Manufacturing Technical Committee Report



Arlene A. Santos

The EDS Semiconductor Manufacturing Technical Committee has just completed its second year of operation. The committee was chaired by Arlene Santos of the National Semiconductor Corporation, and was composed of ten individuals that provide a wide range of both global and functional perspectives of issues of semiconductor manufacturing.

The 1998-1999 Semiconductor Manufacturing Committee Members are:

- Chair Arlene Santos, National Semiconductor
- Robert Bachrach, Applied Materials
- David Burnell, Cadence Spectrum Design
- Hidetoshi Koike, Toshiba
- David Kyser, Advanced Micro Devices
- Gary May, Georgia Institute of Technology
- Chris Seams, Cypress Semiconductor
- Rajendra Singh, Clemson University
- Court Skinner, SRC
- Bruce Sohn, Intel
- S. C. Sun, Wafertech

The committee spent the first year defining its position as well as identifying and planning projects. During the second year, the committee focused on the implementation of several key projects. Throughout this time, it was critical to maintain awareness of common interests with other technical and standing committees, as well as other groups. Joint cooperative efforts were launched when appropriate.

Among its major accomplishments was a successful one-day 300mm Workshop held on October 13, 1999. This project was jointly sponsored by Semiconductor Manufacturing and VLSI Technical Committees, and held in conjunction with the International Symposium on Semiconductor Manufacturing. John Lowell, Rajendra Singh, Kamal Rajkanan were co-chairs of the event. Thirteen speakers presented papers on Factory Design, Process and Equipment Technologies and Yield Enhancement, and a panel discussion

closed out the day. One hundred fifty-four people attended the Workshop.

In addition, committee discussions helped launch an EDS Graduate Fellowship Initiative that is now being driven by the EDS Educational Activities Committee. Key members of the committee also influenced the beginning of a dialogue between the IEEE/SEMI Advanced Semiconductor Manufacturing Conference (ASMC) and the International Symposium on Semiconductor Manufacturing (ISSM) to ensure that the EDS manufacturing conferences compliment rather than conflict with one another. Both conferences are providing joint technical sponsorship of a one-day Semiconductor Manufacturing mini-conference in Europe, Spring 2000.

Under the new leadership of Dr. Rajendra Singh, Clemson University, the 2000 committee plans to continue to work

toward a goal of having the two major semiconductor manufacturing conferences be held six months apart and continue support of the Graduate Fellowship initiative. They will identify and propose Special Issues on manufacturing-related topics in *Transactions on Semiconductor Manufacturing (T-SM)* or *Transactions on Electron Devices (T-ED)* and a feature article in *IEEE Spectrum* as well as recommend the addition of senior semiconductor manufacturing experts as EDS DLs. One of the major concerns of the committee members is the issue of manpower in semiconductor manufacturing. Future discussions will focus on how to best prepare people to enter this field and how to continuously develop those who are already there. Projects to address these issues will be identified.

Arlene A. Santos

National Semiconductor Corporation  
Ellicott City, MD

## 1999 EDS Distinguished Service Award



John R. Brews

John R. Brews received the Electron Devices Society Distinguished Service Award at the International Electron Devices Meeting (IEDM) on December 6, 1999 in Washington, DC. John was recognized for 15 years of outstanding service to the IEEE *Electron Device Letters*. He began as a reviewer while the founding Editor, George E. Smith, still managed it. During this start-up period, the *Letters* was largely handled within AT&T Bell Laboratories, where exceedingly short review times were obtained by simply walking down the hall to the reviewers. In 1985, when George handed editorship to Simon M. Sze, John became an Associate Editor of the *Electron Device Letters*. In 1990, he was appointed Editor and served until late in 1999.

John extended editorial representation to variety of institutions and included female associate editors. Late in 1990, John left Bell Laboratories for the Electri-

cal Engineering Department at the University of Arizona, Tucson, bringing the editorial office with him in a seamless transition.

He began his technical career by joining Bell Laboratories after completing his Ph.D. in solid-state physics at McGill University in Montreal, Canada in 1965. As metal-oxide-semiconductor devices became more important, he worked on the basic analysis of the MOSFET and the MOS capacitor. His best known work in MOS devices is the technical reference book, entitled *MOS Physics and Technology*, co-authored with E.H. Nicollian, published by Wiley in 1980. He also developed the charge-sheet model for MOSFETs. This work on MOS devices was recognized by his selection as a Fellow of the IEEE.

John is currently on his first sabbatical and he is spending this time in Santa Fe with his wife, Joanne. She works at the Museum of New Mexico Press. He will return to the University of Arizona for the 2000 Fall semester.

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



## 1999 J. J. Ebers Award



James T. Clemens

The 1999 J. J. Ebers Award, the prestigious Electron Devices Society award that recognizes excellence in contributions to electron devices, was presented to James T. Clemens at the International Electron Devices Meeting in Washington, DC on December 6, 1999. This award recognizes his "Fundamental contributions to MOS VLSI Electron Devices." Jim was born in Brooklyn, New York in 1943, attended Brooklyn Technical High School and the Polytechnic Institute of New York where he obtained his B.S. in Physics in 1965 and a Ph.D. in Theoretical Nuclear Physics, Elementary Particles and Mathematics in 1969. He joined the Bell Labs integrated circuit organization in Allentown, PA in 1969; and in 1971 supervised the research, development and introduction to manufacture of Si-Gate integrated circuits. From 1969 to 1979, Dr. Clemens performed extensive research in such diverse fields as: insulator physics; semiconductor materials; radiation physics; semiconductor device structures and physics; CCD, DRAM and logic design; DRAM redundancy; IC fabrication processes; plasma technology; manufacturing statistical quality control; SIC yield analysis; and SIC Failure Mode Analysis. During this period, he developed the Universal Mobility Curve for MOSFETs and resolved the dynamics of hydrogen and passivation materials on MOSFET hot carrier aging. In 1980 he became Department

Head for research, development and the introduction to manufacture of VLSI CMOS technology and associated circuit designs. In 1984, he assumed technical leadership for advanced lithographic R&D activities. Jim and his team produced the DUV excimer laser stepper, which is presently the leading lithographic tool for the manufacture of all advanced VLSI. Other activities included research in: photoresist technology and photon damage in optical materials; x-ray masks, sources and exposure tools; e-beam systems development (EBES IV) for mask-making and direct write applications; and various applications of focused ion beam technology, including IC photo-mask repair and FMA. With the restructuring of the Bell System, his corporate activities expanded into research in management theory and corporate cultures, which led to studies at the MIT Sloan School in 1987 and the University of Tokyo in 1989. In 1990 he assumed responsibility for the VLSI Research Department at Murray Hill, including management of the AT&T-NEC Cooperative VLSI program. In addition to his numerous technical papers, he has published papers on the managerial and career

development styles within the Japanese microelectronics industry, and associated international diplomatic and financial relationships. His technical honors and awards include: Best Paper-International Reliability Symposia (1980); AT&T Clinton J. Davisson Trophy-Outstanding Commercial Patent (1993); Polytechnic Distinguished Alumni Award (1994); Bell Labs President Quality Award-Gold Level (1997). He is a Fellow of the IEEE (1987) and has been active in the Electron Devices Society, serving on its AdCom and aiding in its globalization effort in Asia. He negotiated the EDS "sister society" agreements with the JSAP and IEICE Societies of Japan. He presently serves as the IEEE Executive Chair for the International VLSI Symposia. Jim and his wife, Dianna Beck, are parents of a son James, an MIT graduate, and a daughter Amanda, who is a graduate of the Mason Gross School of Fine Arts. He has numerous hobbies, including participation in community volunteer activities. Jim and Dianna also are experienced ocean sailors.

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

### 2000 EDS J.J. Ebers Award Call For Nominations

The IEEE Electron Devices Society invites the submission of nominations for the 2000 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 the submission of nominations for the 2000 award is 14 July 2000.

## Obituaries

### Greg Stillman



This past summer, we lost a distinguished researcher, educator, and leader. Gregory Eugene Stillman died of cancer on 30 July 1999 in Urbana, Illinois. He was a professor of electrical engineering at the University of Illinois at Urbana-Champaign. He was internationally recognized for his contributions to the field of compound semiconductor materials and devices.

Stillman was born in Scotia, Nebraska in 1936 and received his B.S. in electrical engineering from the University of Nebraska. He served in the US Air Force after graduation as an officer and a pilot. In 1963, he entered the University of Illinois' graduate school, where he earned a MS in 1965 and a Ph.D. in 1967, both in electrical engineering. He began his study of III-V semiconductors during this time. Stillman spent eight years at MIT's Lincoln Laboratory after completion of his Ph.D. in the applied physics group. In 1975, he returned to the University of Illinois. Over the years, Stillman's contributions helped

build Urbana's reputation as a leading center of compound semiconductor research.

Stillman's technical contributions were many, and centered on the growth and characterization of semiconductor materials for devices. A few examples are given below. He was involved in the first study and identification of DX centers in compound semiconductors, and the early synthesis of ultra high purity GaAs. He contributed to the development of advanced characterization techniques for carrier mobility, far infrared emission, low-temperature selection rules, photoconductivity, and

(continued on page 10)

## Obituaries *(continued from page 9)*

the photothermal method for studying impurities. He made fundamental measurements on avalanche photodiode physics. In addition, he first identified and exploited carbon as a dopant in GaAs and AlGaAs. These studies have had direct impact on the advancement of compound semiconductor electronic and photonic devices. Stillman published over 300 papers, including a textbook, *Physical Properties of Semiconductors* (Prentice-Hall, 1989), which he wrote with Wolfe and Holonyak.

Stillman was elected an IEEE Fellow in 1977 "For contributions to the characterization of ultra-pure gallium arsenide, to the extension of the long wavelength range of extrinsic photoconductors, and to the development of avalanche photodetectors." He was also awarded the IEEE Morton Award in 1990 (with Charles Wolfe), "For growth and characterization of ultra-high purity gallium arsenide and related compounds". He was elected to the

National Academy of Engineering in 1985 and received the GaAsIC Symposium Welker Medal in 1990.

Stillman made significant service contributions to the IEEE and other professional societies, i.e. TMS and APS. He was an elected EDS AdCom member from 1980-1985, was Vice-President from 1982-1983, and President from 1984-1985. He was Chairman of the IEEE Device Research Conference in 1988. In addition, he was a member of the Electronic Materials Committee (EMC) from 1979-1999. He was on the Editorial Board of the *Journal of Electronic Materials* (1988-1999) and was instrumental in making JEM a joint publication of both TMS and IEEE.

*April S. Brown  
Georgia Institute of Technology  
Atlanta, GA*

### Fabrizio Galluzzi

Fabrizio Galluzzi, Full Professor of Electronic Materials and Technologies at the University of Roma Tre, died on 13 June



in Ascoli Piceno, Italy. He was born in Rome in 1945 and received the "Laurea" degree in Solid State Physics in 1969. Initially, he worked as a Research Associate at the Snam Progetti Laboratories in Monterotondo, Rome. From 1977 to 1992 he was at ENI Association for the Scientific Research as Energy Materials Group Leader, Solid State Physics Department Head and finally Materials Science Department Head. In 1992 he became an Associate and then Full Professor in 1993 at the University of Rome Tre. His widely spread research activities, covering both fundamental matter and applied research, were particularly focused on optoelectronic devices based on crystalline and amorphous semiconductors. Fabrizio Galluzzi was an IEEE, MRS and SPIE member, authored more than hundred papers, and held several international patents.

*Stefano Salvatori*

## EDS Members Named Winners of the 2000 IEEE Technical Field Awards

Four EDS Members were among the winners of the 2000 IEEE Technical Field Awards. They are:



*Wolfgang Fichtner*

Dr. Wolfgang Fichtner, professor in the Department of Electrical Engineering at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland, won the Andrew S. Grove Award (formerly the Jack A. Morton Award). His citation

states, "For outstanding contributions to semiconductor device simulations."

He obtained his Ph.D. in Electrical Engineering at the Technical University in Vienna, Austria and joined Bell Laboratories in Murray Hill, NJ in 1979. In 1985, he joined ETH, and for most of his career, Dr. Fichtner has worked in the area of technology CAD (TCAD) and semiconductor device development. Since October 1999, he has served as Head of the Electrical Engineering Department at ETH. Professor Fichtner is a Fellow of the IEEE and a member of the Swiss National Academy of Engineering.

Dr. James S. Harris, Jr., professor of Electrical Engineering at Stanford University, won the Morris N. Liebmann Memorial Award "for contributions to technology



*James S. Harris, Jr.*

enabling commercialization of gallium arsenide devices and circuits."

He obtained his Ph.D. in Electrical Engineering from Stanford University in 1969 and joined the Rockwell International Science Center in Thousand Oaks, California.

In 1982, Dr. Harris joined the Solid State Laboratory, Stanford University, as Professor of Electrical Engineering. He currently is the James and Ellenor Chesebrough Professor of Electrical Engineering and Professor of Applied Physics and Materials Science.

Dr. Harris pioneered several technologies which have been enabling in the realization of GaAs devices and making their fabrication more reliable and reproducible, particularly the heterojunction bipolar transistor (HBT). He is a Fellow of the IEEE and the American Physical Society.

Dr. Gerald M. Borsuk, Superintendent of the Electronics Science and Technology Division, Naval Research Laboratory (NRL), Washington, D.C., won the Fredrik Philips Award "for managerial and technical leadership in directing the creation and transition of new materials and devices into electronic systems."



*Gerald M. Borsuk*

He obtained his Ph.D. in physics from Georgetown University in Washington, D.C. in 1973. Dr. Borsuk joined the ITT Electro-Physics Laboratory in Columbia, MD and worked on the application of charge-coupled

devices for imaging and signal processing. In 1976, he joined the Westinghouse Advanced Technology Laboratory in Baltimore, MD. He left Westinghouse in 1983 to join the Naval Research Laboratory as Superintendent of the Electronics Science and Technology Division.

Dr. Borsuk is a Fellow of the IEEE and serves on technical panels for conferences and numerous government panels. He is the Navy's Deputy Member to the Advisory Group on Electron Devices (AGED).



*Marvin H. White*

Dr. Marvin H. White, professor of Electrical Engineering at Lehigh University, won the Masaru Ibuka Consumer Electronics Award "for pioneering and innovative contributions to the development of low-light,

solid-state imagers used in consumer products." He obtained his Ph.D. in Electrical Engineering from Ohio State University in 1969 and returned to the Westinghouse Solid-State Laboratory in Baltimore, MD. Dr. White and his colleagues developed the concept of correlated double sampling (CDS) to remove the reset noise and filter

1/f noise in CCD and photodiode imaging arrays and analog signal processing circuits. CDS solved the critical problem of the application of low-light level imagers and this technique is widely applied in consumer electronics which use CCD imagers.

In 1981, he joined Lehigh University in Bethlehem, PA as the Sherman Fairchild

Professor of Solid-State Studies in Electrical Engineering. He is a Fellow of the IEEE and was the recipient of the 1997 Electron Devices Society J. J. Ebers Award.

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

## Summary *(continued from page 6)*

additional \$125K in funds to have an outside firm develop and program the system for T-ED. In addition, Steve will also be looking for a replacement for T-ED Editor R.P. Jindal who is stepping down.

Jim Clemens, Meetings Chair, indicated that EDS now provides support for a total of 126 meetings of which 34 are sponsored, 81 are technically co-sponsored, and 11 are cooperatively sponsored. Following approval of the meetings list for the first half of 2001, Jim's final comments were about the penalties now being assigned by the IEEE for conferences that do not close (their books) on time. For 1999, delinquent conferences resulted in EDS paying \$5,288.00 in penalty fees. In a separate vote later in the meeting, AdCom approved to change the support given to the Device Research Conference for 2001 from co-sponsorship to technical co-sponsorship. Fellows Chair, Lou Parrillo, summarized that this year EDS received 43 nominations for IEEE Fellow with 18 being elected (42%). In other business, Arlene Santos proposed establishing an EDS graduate fellowship. Her Semiconductor Manufacturing Technical Committee, and the Education Committee, are joining to propose it for AdCom approval. The initial idea is to be in-line with what other societies (MTT, LEOS, SSCS) are currently doing which is the awarding of scholarships around \$3-5K. A specific proposal will be worked on in early 2000 with a formal proposal to AdCom to follow.

In the report of the June 1999 AdCom, a proposal for a new, all-electronic journal for the reliability of electronic materials and devices was noted. The Device Reliability Physics Technical Committee Chair, Lu Kasprzak, reports that since then his group has selected an editor (Anthony Oates of Lucent), associate editors, and have presented interim proposals to committees of IEEE TAB. The committee is working with the IEEE staff to finalize its proposal for presentation and approval at the February 2000 TAB meeting series. Outgoing EDS Home Page editor, Lisa McIlrath discussed the revamping of the society website (URL: <http://www.ieee.org/eds/>) that is now under the maintenance of the Executive Office. She

also mentioned that she would be stepping down as Home Page Editor and that Arlene Santos would be taking over.

Herb Bennett standing in for Steve Knight, EDS Representative on the IEEE New Technology Directions Committee, indicated that the committee is looking into a possible special issue on the topic "Possible Disruptive Technologies". Krishna Shenai and Emily Sopensky detailed the background of the Intelligent Transportation Systems Council that looks at theoretical and operational aspects of electronics and electrical engineering in the transportation community. The ITS 2000 conference of this group is particularly interested in EDS submissions. Arlene Santos is also the EDS PACE liaison. Current PACE (Professional Activities & Career Enhancement) activities include panel discussions, STAR projects, and E-participation. There is also room for Distinguished Lecturer topics on PACE issues in the Education program. As discussed by EDS representative, Kwok Ng, the IEEE Press will publish two new titles in 1999 on EDS topics. Five new book proposals were received this year with one already in the contract stage. Two other titles are in development. Jerry Woodall of the Electronic Materials Committee indicates that his group is looking at developing a new conference. The new meeting is suggested as a "Fall EMC" and would be held as a satellite meeting after IEDM to concentrate on the theme "materials for devices". The existing ISDRS conference has expressed interest. H.S. Philip Wong's VLSI Technology Committee had two highly successful workshops on "RF Passive Components" (at the ISSCC conference) and "300mm Manufacturing" (at the ISSM meeting), respectively in 1999. An "Emerging Memory & Storage Technologies" workshop is being planned, but no conference association is available. They have also launched two Special Issues of T-ED, one on Computational Electronics scheduled for June 2000, and one on Interconnect in 2001.

The Power Devices Committee under Ayman Shibib has been busy looking at the promotion of new device technologies such as low voltage (<60 V) devices, RF Power devices, High Voltage Power MOSFETS, SiC Power Devices, high voltage ICs, and

high power devices in books, papers, and conferences worldwide in 1999 & 2000. Herb Bennett, chair of the Compound Semiconductor and Devices Technical Committee, has developed a website (with the Optoelectronic Devices Technical Committee) on the COBRA server at Eindhoven University, the Netherlands. They have composed a new slogan and logo for their group, and have scheduled several promotional talks in Region 2. Complementary to this activity is that of the Optoelectronic Devices Technical Committee (Chennupati Jagadish, chair) which, in addition to the webpage previously mentioned, have been tracking developments in nitride-based optoelectronic devices, long wavelength As/N, P/N & As/P/N devices, flat panel displays, organic/polymer OE devices, optical interconnects, optical MEMS, and microwave photonics. Arlene Santos' Semiconductor Manufacturing Technical Committee co-sponsored the 300mm Manufacturing workshop with the VLSI Technology and Circuits Committee, and sponsored the EDS graduate Fellowship initiative previously mentioned. Raj Singh, the incoming chair, plans to sponsor several 1-day manufacturing seminars in Europe in 2000. He is also resolving the problem of having the two major conferences in this area (ISSM and ASMC) being held each year within a couple months of each other.

Gary Bronner, the 1999 IEDM General Chair, reported that the two short courses, Sub-100nm CMOS, and System-on-a-Chip were sellouts with 500 and 250 attendees, respectively. He is also expecting an attendance at IEDM this year between 1,700-1,800. Awards Chair, Craig Casey, announced Jim Clemens, formerly of Lucent Technologies, as the 1999 Ebers award recipient, and John Brews of the University of Arizona as this year's Distinguished Service Award winner. His group has been active in identifying and soliciting 12-15 individuals for the EDS Oral Histories Booklet, which is part of EDS' 50th Anniversary celebration. An exhibit of "50 Years of Electron Devices" will be shown at the IEEE Operations Center. Bill Holton is responsible

*(continued on page 17)*

## Regional and Chapter News

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

#### 2000 GaAs MANTECH Conference

by Wes Mickanin

In its 15th year serving the compound semiconductor community, the 2000 GaAs MANTECH Conference will address "Compound Semiconductor Manufacturing into the New Millennium," with sessions including manufacturing, processing, test & reliability, device technologies, materials and packaging as well as a look at technology and business trends in the industry.

Our host city will be Washington, D.C., where we will again sponsor a Workshop on the day before the conference, covering topics ranging from HBT reliability and failure analysis techniques to DOE and SPC basics. The popular Interactive Forum will promote one-on-one exchanges and debates between conference participants and authors.

The 2000 Exhibits Session, a one-day event, will allow first-hand discussions with wafer, equipment, materials, and packaging manufacturers. More than 45 exhibitors are expected to participate in MANTECH for 2000. The Ugly Picture Contest, introduced last year, gives everyone a chance to benefit from their problems by winning a prize for the worst examples of manufacturing problems and their solutions. The contest turned out to be both enjoyable and informative, so we are going to run it again at the 2000 Conference.

Social events, including the Exhibits Reception, the International Reception, and the Awards Luncheon provide opportunities for attendees to network and develop business contacts.

Conference sessions will cover the following areas: manufacturing, processing, test & reliability, device technologies, materials, packaging, component technologies, and future trends and business outlook. The conference offers financial assistance to students and university professors. For more information look at the web site : <http://www.gaasmantech.org/> or contact: Wes Mickanin, 2000 GaAs MANTECH Publicity Chair; TEL:(503) 615-9253; FAX: (503) 615-8903; E-MAIL: [wesm@tqs.com](mailto:wesm@tqs.com).

#### ED Northern Virginia Chapter

by Murty Polavarapu and Michael Hurt

The IEEE ED Northern Virginia Chapter has been reactivated and hosted two meetings recently. Both meetings were held at the George Mason University in Fairfax, VA and were well attended.

On October 19, Dr. Herbert S. Bennett of National Institute of Science and Technology and a Distinguished Lecturer of EDS, gave an impressive talk entitled, "Implications of Trends in the Silicon Industry on the Compound Semiconductor Industry: Do We Need a Technology Roadmap for Compound Semiconductors?". Dr. Bennett provided a historical context for the development of silicon industry and its coexistence with compound semiconductors for some applications. He went on to highlight the recent emergence of the compound semiconductor industry that is distinct from that of the silicon. The lecture also covered the roles envisaged for the compound semiconductors in various versions of the optoelectronics and high frequency roadmaps. Dr. Bennett presented convincing arguments for the development of a consensus-based technology roadmap for compound semiconductors, but it appeared that the industry, faced with the exploding short term market demands, is not investing resources in long range planning. Being mostly from the silicon industry, the audience was grateful to Dr. Bennett for providing a very educational overview of the issues of a 'sister' industry.

On December 14, Dr. Stuart A. Wolf of the Defense Sciences Office of Defense Advanced Research Projects Agency presented a stimulating lecture on magnetic memory and sensor devices entitled, "Spintronics- Electronics for the New Millennium." Nonvolatile, radiation-hard magnetic memory (MRAM) provides the potential for a low cost, low power technology with the circuit density of DRAM and the high-speed performance of SRAM. Magnetic sensor devices may be used for motion and rotation control, as well as high sensitivity magnetometers in defense applications. Dr. Wolf presented speculative discussions on new spin devices that may have a large impact on future microelectronics, including spin tunneling and spin injected devices. The lecture covered a wide range of topics, including a quick tutorial on the funda-

mentals of spin tunneling devices, an overview of basic research on the Giant Magneto-Resistance (GMR) ratio, scaling issues of MRAM circuits, and fundamental challenges of the physics of spin scattering at interfaces. Dr. Wolf's exciting presentation provided for a lively debate among the audience.

— M. Ayman Shibib, Editor

#### ED Boise Chapter

by Kunal R. Parekh

Over the past 6 months, the Boise Chapter has held three technical presentation meetings, and participated in an Annual Christmas Banquet that was hosted by the IEEE/EDS/SWE/EE Club at Boise State University. We had the pleasure of inviting Prof. Micaela Serra (Univ. of Victoria), who presented strategies for Built In Self Test (BIST) of digital circuits, Prof. Stephen Parke (Boise State Univ.), who talked about Silicon On Insulator (SOI) technology for RF Communications, and Prof. Jack Lee (Univ. of Texas, Austin), who presented research results from his work on High K gate dielectric films Zirconium Oxide and Hafnium Oxide. We would like to express our gratitude to the presenters and attendees, as well as to Micron Technology, which has provided meeting facilities and opened their campus to those interested in attending these presentations. These meetings have been a great success and have had approximately seventy five attendees at each meeting. Future meetings include a talk in the Spring by Dr. Jeffrey Bokor (U Cal., Berkeley) on EUV Lithography.

— Paul Yu, Editor

### Europe, Middle East & Africa (Region 8)

#### ED Romania Chapter

by Gheorghe Brezeanu

During the last several months, the ED Romania Chapter's activities included some interesting events.

In May 1999, the annual professional student contest "Tudor Tanasescu" was organized at "Politehnica" University, Bucharest. A total of 57 undergraduate students from all Romanian technical universities took part in two sections of this event: Analog Integrated Circuits and Signals, Circuits and Systems. Ten students were awarded with PC main-

boards and peripherals, technical books and magazines, IEEE/EDS membership vouchers and cash. The contest was sponsored by IEEE EDS and Romanian microelectronics firms. Because of the strong student impact and the significant number of chapter members involved in the contest preparation, we consider the "Tudor Tanasescu" professional contest as the best practice of our chapter.

In July, a video tape presentation was organized at Microtechnology Institute in Bucharest. The 1998 IEDM short course tape "Next Generation TCAD: Models and Methods" from the EDS lending library was shown to an audience of 37, including 20 chapter members.

The 22nd edition of the International Semiconductor Conference (CAS'99) was held in Sinaia, Romania, during October 5-9, 1999. The conference, sponsored by EDS, included 125 papers delivered in 2 plenary and 15 regular sessions. A special student paper session was also included in the program. This meeting brought together more than 200 scientists and technologists from all over the world to discuss the most recent developments and future directions in the field of microelectronics. During the years, the CAS has established itself as an important Conference of Eastern and Central Europe for engineers and researchers both in academia and industry.

In conjunction with CAS'99, a Workshop entitled "MOS Controlled Power Devices" featuring 6 invited speakers from CNM Barcelona, Spain and INSA de Lyon, France, was held on October 4 at "Politehnica" University, Bucharest. The workshop attracted 28 participants (11 chapter members).

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

*by Mykhailo Andriychuk*

Our joint chapter, which has a total of 35 members (including 10 student members), organized five professional meetings in the first three quarters of 1999. Our main activity was the 4th International Seminar/Workshop "Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory (DIPED-99)", which was organized by our chapter together with the MTT/ED/AP/EMC Republic of Georgia Chapter, and held September 20-23 in Lviv, Ukraine. The Seminar/Workshop was dedicated to the 80th Anniversary of Professor B.Z. Katsenelenbaum. Thirty-six papers from Ukraine, Georgia, Russia, USA, Canada, Japan, and Poland were included in the program. The Workshop

Proceedings were published and included in the IEEE Book Broker Program. The Workshop was organized with the technical co-sponsorship of EDS, and financial and technical support of the MTT, AP, CPMT societies, as well as the Region 8 Chapter Coordination Committee.

The chapter also participated in the organization of the Conference "Experience and Application of CAD Systems in Microelectronics" (CADSM'99), held in February 1999 in Slavsko, Ukraine. Owing to the efforts of the chapter and with support of Dr. Charles Turner, Region 8 Activities Vice-Chair, the Lviv Scientific Library has been included into the IEEE Library Project. The library obtains IEEE journals which are actively used by IEEE members, as well as by the scientific and engineering community and students of the region.

#### **MTT/ED/AP/CPMT/SSC Nizhny Novgorod Chapter**

*by Yuri Belov*

Our joint chapter has organized several successful events during the previous period. These include chapter patronage of the regular Seminary on the Microwaves and Electrodynamics of the Nizhny Novgorod State Technical University and the co-sponsorship of the Summer Students Space School, held near Nizhny Novgorod, from July 15 to August 3, 1999. Especially interesting for EDS Newsletter readers would be the following two activities.

This year, two faculties of Nizhny Novgorod State Technical University announced a contest of Master of Science Dissertations. We increased the prize given to the winner by the Nizhny Novgorod Chapter to US \$100. Two MS theses were selected, "Development of facility for phone stations interconnection control", by A.Zakharov; and "Development and investigation of filtering algorithm for speech recognizing", by K. Nikashov. The new Masters of Science recipients got their prizes together with their MS diplomas.

The second activity was an international workshop entitled "Probe Microscopy-99", held 9-12 March 1999 at the Institute for Physics of Microstructures RAS, Nizhny Novgorod. Organization of the Workshop was supported by the Russian Foundation for Basic Research, the Ministry for Science and the Ministry for Education of the Russian Federation. The workshop was organized with the aim of disseminating the results of the leading research groups and exchanging experiences in the solid surface research by the means of scanning probe microscopes. The scope of the meeting

included presentations in the following areas: scanning tunneling microscopy and spectroscopy, probe microscopes as applied to development and study of nanostructures properties, atomic-force microscopy, optical near-field microscopy, physics of microcontacts, emission electronics, original microscope designs and novel methods of surface research. More detailed information is available at: [www.ipm.sci-nnov.ru](http://www.ipm.sci-nnov.ru) and [www.nanoworld.org/russian/sem\\_conf.htm](http://www.nanoworld.org/russian/sem_conf.htm).

#### **ED Novosibirsk State Technical University Student Branch Chapter**

*by Alexander Gridchin*

The IEEE Student Branch at Novosibirsk State Technical University was founded on March 8, 1999. It is the first IEEE Student Branch in Novosibirsk and second IEEE Student Branch in Russia. Currently we have 28 student members and two Student Branch Chapters (ED and SSC). The Branch has had a growth in membership during the summer of 1999 - eight new students have joined IEEE and we have received new applications.

One of our students took part in the 3rd Korean-Russian Symposium (KORUS'99) in June 1999, and five members took part in the 2nd IEEE-Russia Conference 1999 High Power Microwave Electronics: Measurements, Identification, Applications" (MIA-ME'99). Next year we plan to hold the 1st Siberian IEEE-Russia Student Workshop on Electron Devices and Materials (EDM'2000) 23-26 September 2000. For this Workshop, we plan to invite some speakers from the EDS Distinguished Lecturers Program. We have had much cooperation with the joint ED/MTT/CPMT/COM/SSC Novosibirsk Chapter. The Workshop will be organized with the support of this chapter and in conjunction with the 5th International Conference on Actual Problems of Electron Instrument Engineering (APEIE-2000).

Up until October 1999, we have held three student technical meetings (one each month during the semester) and we plan to hold another three meetings by the end of 1999. We presented the 1993 IEDM Videotape Course in May 1999, and plan to extend our usage of the EDS Videotape Library. During October-November, we plan to organize language courses for our student members to increase the English knowledge level of students. We have sent papers to the program "IEEE Student Branch Center of Excellence" and want to establish the first student Open Design Laboratory. We will continue to make all efforts to include our students into the scien-

tific, educational and technological process worldwide and in this respect count on further precious help of IEEE EDS.

### **ED/SSC Yugoslavia Chapter**

by *Aleksandar Jaksic*

The war in Yugoslavia has somewhat disturbed YU ED/SSC Chapter activities planned for 1999. However, it hasn't disturbed at all our relations with IEEE and EDS, so that with an understanding and valuable support of these entities the chapter has already held or is going to hold all activities postponed because of the war. We have just finished an IEEE membership promotional campaign for the year 2000 and are surprised to see that the chapter membership has increased (we have expected to see rather sharp drop in membership as a consequence of war and post-war economic crisis). We have put an emphasis on recruiting new members among students and will share some of our new practices in forthcoming issues of the Newsletter.

Among major chapter activities was the organization of a Session on Microelectronics and Optoelectronics during the Yugoslav Conference ETRAN'99. ETRAN'99 had originally been scheduled for June 1999, but was postponed because of the war and held 20-22 September 1999 in the resort of Zlatibor. The session featured 20 high quality papers and about 40 participants actively took part in the session. The most important chapter activity is indeed the organization of the International Conference on Microelectronics (MIEL). MIEL is a biannual event providing the forum for discussion of the new developments in the broad range of topics in the field of microelectronics. MIEL'2000 will be held 14-17 May 2000 at the Faculty of Electronic Engineering, University of Nis. MIEL'2000 is organized by our chapter and has received co-sponsorship support from IEEE EDS. Funds from IEEE Region 8 have also helped the organization of the conference in the critical moment. Proceedings of the conference, containing about 140 high quality papers, have already been published under the IEEE BookBroker Program. MIEL provides an almost unique forum for scientists from East Europe and the Third World to meet the world leading authorities from the field of microelectronics. Since major conferences organized in developed countries are for financial reasons still out of reach of many valuable researchers from developing and countries in transition, it is the idea of MIEL to gather 20-25 world leading experts for various topics and present their latest research to their colleagues

from all over the world. In practice, this is achieved by covering local expenses for invited lecturers and very heavily subsidizing the attendance from the so called low income countries. We do hope MIEL'2000 will be a success and very much look forward to seeing you in May in Nis.

For further information, please contact Chapter Chair, Prof. Ninoslav Stojadinovic (nino@unitop.elfak.ni.ac.yu).

### **MTT/ED Moscow Chapter**

by *Vadim Kaloshin*

The joint IEEE MTT/ED Moscow Chapter was founded in 1996 as first Russian IEEE chapter. The chapter currently has 35 members. Chapter Chair is Vadim Kaloshin (vak@mail.cplire.ru) and Vice-Chair Vladimir Cherepenin (cher@cplire.ru).

The main activity of the chapter is the organization of workshops and recruiting of new IEEE members. The chapter is a technical sponsor of four monthly workshops: Solid State Electronics (Chair Prof. Vladimir Mokerov), Electromagnetism and Materials (Chair Dr. Alexey Vonogradov), Electrodynamics (Co-Chair Prof. Victor Shevchenko) and Computational Electromagnetism (Co-Chair Prof. Yuri. Shestopalov). The level of chapter activities has been steadily increasing during the recent years. In 1999, the chapter has held 2 administrative and 12 technical meetings. Technical meetings are usually held in the form of seminars with several 30-45 minute reports.

The first Russian electronic journal in the field of Radio Engineering and Electronics - *Journal of Radio Electronics* (<http://jre.cplire.ru/>) was founded in 1999. This was a joint project of our chapter with the Russian Academy of Sciences and Russian Foundation for Basic Research.

### **ED/MTT/AP St. Petersburg Chapter**

by *Sergei Zagriadski*

On November 5, 1999, Prof. Sieghann Kai, Nobel Prize winner, presented an invited lecture "Spectroscopy: state-of-the-art and future tendencies" at St. Petersburg State Technical University. He was nominated for the Honored Doctor Degree of the St. Petersburg State Technical University.

An all-Russia student conference in Radiophysics (Electromagnetics) was held from November 30 to December 2, 1999. It was organized by the St. Petersburg State University and St. Petersburg State Technical University. Over 70 participants attended the conference, including 50 students from 12 universities and higher-education institutes of 10 cities. Three students received best paper awards, which includ-

ed diplomas from the ED/MTT/AP St. Petersburg Chapter and free IEEE membership for the year 2000.

The traditional student conference "Week of Science" was held on December 7, 1999 at the St. Petersburg State Technical University, where also a moving exhibition of IEEE materials was organized.

For further information about conferences annually organized in St. Petersburg and its region, please contact Prof. Sergei Zagriadski (zagr@radio.stu.neva.ru).

### **MTT/ED/CPMT/COM/SSC Novosibirsk Chapter**

by *Boris Kapilevich*

The joint MTT/ED/CPMT/COM/SSC Novosibirsk Chapter was established in May 1996, originally including members of only the MTT and ED societies. Then it was expanded to include CPMTS (1997), COMS (1998) and SSCS (1999). At present, the Chapter consists of about 60 members, including student ones. The chapter interacts with local universities, research organizations and industry. The communication among the members is done via e-mail and regular meetings, 2-3 times in a year.

The most important events in 1999 held with active chapter involvement were:

- Presentation of new chapter members, March 26, 1999 (attendance: 25, 7 Non-members);
- Third Int. Symposium "Application of the Conversion Research Results for International Cooperation" (SibConvers-99), May 18-20, 1999, organized in cooperation with Tomsk University of Control Systems and Radioelectronics (TUCSR) and Siberian Physical and Technical Institute (SPTI). Available from this symposium are proceedings (560 pages, 147 speakers, including 18 Ph.D. students; IEEE Catalog Number: 99EX246);
- Third Russian-Korean Int. Symposium on Science and Technology (KORUS'99), June 22-25, 1999, organized in cooperation with Novosibirsk State Technical University, University of Ulsan, Korea, and Tomsk Polytechnical University. Vol. 2 of Conference Proceedings features Section Electronics (85 pages, 25 papers, 74 speakers, including 14 Ph.D. students; IEEE Catalog Number: 99EX362).
- Second IEEE-Russia Int. Conf. "High Power Microwave Electronics: Measurements, Identification, Applications" (MIA-ME'99), September 21-23, 1999, with the Conference Proceedings (337 pages, 77 papers, 130

speakers, including 16 Ph.D. students; IEEE Catalog Number 99EX89). The chapter has also been actively involved into organizing new chapters and student branches in Siberia Region: Novosibirsk LEOS Chapter, Novosibirsk Student Branch, Tomsk ED/MTT Chapter and Tomsk Student Branch.

The chapter's representatives are regularly taking part in the basic events of Region 8, such as Chapter Chair meetings.

### **MTT/ED/AP/CPMT Saratov-Penza Chapter**

by *Michael Davidovich*

The 4th IEEE MTT/ED/AP/CPMT Saratov-Penza Chapter Workshop "CAD and Numerical Methods in Applied Electrodynamics and Electronics" was held on October 25, 1999, at the Saratov State Technical University. It is the traditional annual Chapter event. There were more than 60 participants and 41 presented papers with different topics including electromagnetics, electronics, manufacturing technology in electronics, wave theory, etc. It was a low-cost event without any registration fee, so it was very attractive for graduate and post-graduate students. The Workshop Proceedings are currently in press. The Workshop was sponsored by ED and CPMT societies.

The next event was the "Nonlinear Days for Young People", which has been aimed to attract scholars researching nonlinear dynamics. In the last days of December 1999, the final actions for celebration of 90 years of Saratov State University have been taking place, involving the scientists and administration of Saratov city.

For further information, please contact Chapter Chair, Associate Professor Michael V. Davidovich, Saratov State Technical University, Polytechnic Street 77, Saratov 10054, Russia. TEL: 7-8452-525562; FAX: 7-8452-507563; E-MAIL: david@star.sstu.runnet.ru.

### **MTT/ED/CPMT Central Ukraine Chapter**

by *Yuri Poplavko*

Nowadays the members of the Central Ukrainian Chapter have great difficulties due to a deep economic crisis in the country, and especially in the Ukrainian electronics. That is why we concentrate our efforts on the education in electronics, expecting future progress. However, today most of the Ukrainian Technical Universities have to use comparatively old scientific and technological equipment, and have decreased possibilities in practical applica-

tions of their work. This is one of the reasons that basic points of microelectronics teaching are fundamental mathematics and physics, physical processes and computer simulations of microelectronics devices, as well as English language. Members of the Central Ukraine Chapter regularly receive several periodical IEEE editions free of charge. Strong support in current scientific journals and compact discs with scientific reports (as well as the information about current conferences) that we regularly obtain from the IEEE is very important for our professors, scientists and students.

In the joint MTT/ED/CPMT Central Ukrainian Chapter, it is given much attention to the young Ukrainian specialists in electronics: five new young members (ages 23 - 28) were recommended to our Chapter, and their memberships will start for the year 2000. In the Ukraine, there are strong scientific schools in solid state physics and its applications. This is the reason for our chapter expansion in this direction: it is expected that the Central Ukraine Chapter will be expanded in 2000 to include SSCS as well.

In 1999, Members of the Central Ukraine Chapter took part in several International Microwave and Electronics conferences in Germany, South Korea, Ukraine and Russia. Moreover, in September 1999 the Central Ukraine Chapter organized the International Conference "Microwave Telecommunication Technology" in Sevastopol, Crimea (CriMiCo'99) together with the Workshop "Integrated Microwave Telecommunication Systems". The CriMiCo'99 Conference was strongly supported by the EDS and MTTs. There were more than 100 participants from Russia, Ukraine, Belorussia, South Korea, Turkey, the Emirates, etc. More than 150 reports were published in the CriMiCo'99 Proceedings. Similarly the Microwave & Electronics conference "CriMiCo'2000" will again be organized in Crimea in September 15-17, 2000. Another scientific meeting, the Workshop "Progress in Semiconductor-On-Insulator Structures and Devices Operating at Extreme Conditions" will be organized in Kiev October 15-20, 2000. The purpose of this Workshop is to assess the opportunities for employing SOI technologies to achieve novel devices and circuits.

For further information, please contact Chapter Chair: Prof. Yuri Poplavko, Microelectronics Department, National Technical University of Ukraine, 37, Peremogi Ave., Kiev, Ukraine 252056, E-MAIL: poplav@inec.kiev.ua.

— *Ninoslav Stojadinovic, Editor*

### **European Solid-State Device Research Conference (ESSDERC)**

by *Gady Golan*

The 30th European Solid-State Device Research Conference (ESSDERC) will take place 11 - 13 September 2000, in Cork, The Republic of Ireland. The aim of the ESSDERC series of conferences is to provide an annual European forum for the presentation and discussion of recent advances in solid-state devices and technologies. For further information, contact: ESSDERC 2000 Secretariat, NMRC University College Lee Maltings, Prospect Row, CORK/REPUBLIC OF IRELAND, TEL: +353 21 904398; FAX: +353 21 270271; E-MAIL: [essderc2000@nmrc.ucc.ie](mailto:essderc2000@nmrc.ucc.ie). The conference language is English.

The main themes for ESSDERC 2000 will be:

- CMOS Devices and Reliability
- Compound Semiconductors and Quantum Devices
- Microsystems and Packaging
- Interconnect and Integrated Passives
- Process and Device Modeling And Simulation
- Silicon Based Solid State Devices
- Silicon Integrated Technology and Manufacturing

Two short courses are planned for the Sunday before ESSDERC 2000: 1. Integrated Passives, 2. Nanoscale Technology. More ESSDERC Information is available on the www at <http://www.essderc.org>.

### **ED Israel**

by *Gady Golan*

The 18th Annual Conference of the Israel Vacuum Society (IVS), was held on November 17, 1999, in Weizmann Inst. Rehovot. The sessions were: Nanocrystals and Vacuum Dots; Surface Interactions in Biosystems; Nano-Characterization; Integrated Microsystems; and MEMS.

The "Giga scale CMOS technology" workshop was held at the Technological Academic Inst. Holon on Sunday, November 21, 1999. Dr. Gady Golan delivered the opening lecture entitled: "Application of Atomic Force Microscopy and Scanning Tunnel Microscopy For Microstructure Investigation of Neutron Irradiated Silicon Detectors". Proceedings of Giga Scale CMOS Technology are available on video. A best presentation contest was held at the workshop. Five pairs of students presented their final projects. The best presentation won a \$50 prize and a formal letter from the IEEE-EDS Israel Chapter.

— *Gady Golan, Editor*



Prof. Hermann Schumacher (right) during the Q&A period after his talk assisted by the Sweden Chair, Mikael Ostling.

### ED Sweden Chapter

by Mikael Ostling

The ED Sweden Chapter arranged some technical seminars during the Fall, and we would like to mention some of the talks presented.

In November, Prof. Hans-Peter Nee, Royal Institute of Technology, Stockholm, Sweden, gave a lecture on "Electric Power Engineering with SiC Electronics". Many new possible solutions where power dissipation could be minimized with the implementation of SiC devices in motor drives and power rectifiers were announced. The Swedish chapter also co-arranged a workshop in December on "Electrical Contacts for SiC". About 25 researchers attended the workshop.

In December, Prof. Hermann Schumacher, University of Ulm, Ulm, Germany gave a highly appreciated presentation on "SiGe/Si Transistors for Cost-Efficient Wideband Communications Systems."

Upcoming activities include the sponsoring of two best paper awards: In March, the GigaHertz 2000 conference will be held in Gothenburg and the Swedish chapter has sponsored the best paper award. The conference is a bi-annual meeting with the emphasis on high frequency devices, circuits and systems.

In September, ESSCIRC 2000 will be organized by the Royal Institute of Technology in the research center Electrum, Kista and the ED Sweden chapter is sponsoring the best student paper award.

— Mikael Ostling, Editor

## Asia & Pacific (Region 10)

### LEO/ED Victorian Chapter, Australia

by Dalma Novak

The last quarter of 1999 has been a very busy one for the LEO/ED Victorian Chapter, with the organization of five technical activities. On November 15, an EDS Distinguished Lecturer, Professor Paul Yu from the

University of California, San Diego, CA, USA, gave a very interesting seminar at the University of Melbourne on the topic of "Recent Advances in Photonic Devices for RF/Wireless Communication Applications". Over 35 people attended this talk.

The Chapter has also hosted a number of activities, organized in collaboration with the MTT/AP Victorian Chapter and the COM Victorian Chapter. These seminars were:

- 4th November 1999, "How Telecommunications is Making it a Small World After All" by Dr. Mark Summerfield, Australian Photonics Cooperative Research Centre, Melbourne
- 12th November 1999: "Optical-Microwave Interactions: Prospect of New Applications" by Professor Peter Herczfeld (MTS Distinguished Lecturer), Drexel University, USA
- 22nd November 1999: "Photonics Technology at Naval Research Laboratory" by Dr. Ronald Esman, Naval Research Laboratory, USA
- 23rd November 1999: "Technologies for Terabits" by Dr John Sitch, Nortel Networks, Canada

All of the seminars were very well attended. For further information, please contact Dr. Dalma Novak, Department of Electrical and Electronic Engineering, The university of Melbourne, Parkville VIC 3052, Australia, TEL: +61 3 9344 5789; FAX: + 61 3 9344 7412; E-MAIL: d.novak@ee.mu.oz.au.

### ED/MTT India Chapter

by K.S. Chari

The Chapter has actively promoted international conferences/workshops, national seminars, conference awards, EDS Distinguished Lecturer talks, STAR program activities and a new membership drive. A summary of the events follows:

The Chapter has co-sponsored three international workshops:

- "Indo British Workshop on Fibre Technology for Civil Structure Applications", held at IIT Delhi during 29-30 November 1999. This Workshop brought to India renowned British experts like Prof. Brian Culshaw, Dr. A. Maclean and Dr. G. Pierce, and highlighted the emerging fiber optic sensor applications.
- "6th International Conference and Workshop on Electromagnetic Interference and Compatibility", held at IETE and India Habitat Centre, Delhi during 2-8 December 1999. The EMIC conference was preceded by a workshop on Electromagnetic Interference and Com-

patibility. Dr. VP Kodali, Fellow IEEE, inaugurated and addressed the opening session of the EMIC-99 conference.

- "Xth International Workshop on Physics of Semiconductor Devices", held at IIT Delhi during 13-18 December 1999. The IWPSD-99 hosted four one day workshops on IR Devices, Heterojunction Devices, FET and MEMS Technology.

These premier events brought together national and international experts and facilitated interactions between researchers and students. The three events attracted participant levels of 100, 500 and 450, respectively. About 200 delegates from 20 countries participated and presented their works in the last two conference deliberations. All the events also provided exhibits from industry in the related fields giving hands-on information to the delegates. These activities saw wide participation by EDS/MTT members.

The chapter instituted travel fellowships for graduate/PG students for attending the Fiber Optics Workshop and Semiconductor Devices Workshop. The chapter also instituted six "Best Paper Awards" for the poster papers presented at the later conference. The chapter instituted awards consisting of a cash award and a certificate which were won by the following authors: V. K. Dixit, B. V. Rodrigues and H. L. Bhat, M. H. Rais, C. A. Musca, J. M. Dell, J. Antoszewski, B. D. Nener, L. Faraone, S. Anand, C. F. Carlstrom, A. Patel, E. Niemi, B. Stalnacke, G. Landgren, Shoulik Datta, B. M. Arora, R. Venkataraghavan, Shailendra Kumar, Guy Beaucarne, Jeff Poortmans, O. S. Panwar, Sushil Kumar, S. S. Rajput, Rajanish Sharma, R. Bhattacharyya.

Two EDS Distinguished Lectures were given by (i) Prof. VK Arora, Dept. of Electrical Engrg. and Computer Science, Wilkes University (USA) on "Drift and Diffusion in High Electric Fields" at IIT Madras on 9 December 99 and (ii) "Study of Failure Mechanisms in Sub-micron Devices and Effects of ESD" at the Dept. of Electronics, Delhi on 16 December 1999 by Dr. Radhakrishnan from the Institute of Microelectronics (IME). These talks were attended by industry, academia and students with participation exceeding 50. The second talk also brought requests for a detailed 2-3 day workshop concerning ESD and other techniques to be coordinated by the chapter. Dr. Radhakrishnan agreed to revisit the Chapter for this purpose.

The chapter had held two STAR events for its STAR participants. The first event was held at the Regional Engineering College (REC), Krurukshetra wherein participants



from three schools were informed by the faculties on the issues of various branches of engineering and career prospects. The female students visited the workshops and laboratories of the departments of Civil, Mechanical and Electrical Engineering. Prof. George, Ms. Anurekha Sharma (local STAR coordinator) and Dr. Dinesh Kumar from Kurukshetra University jointly organized the event with the Chapter Chair. The RECK faculty, consisting of Mr. S. N. Sachdeva (Civil Engrg.), Prof. Khanduja (Mechanical Engrg.) and Dr. A. Swarup, Ms. Shaily and Ms. Namrata (Electrical Engrg.). The second event was held at the Science Centre Delhi on 28 December 99. This event covered the cyber school of the centre, giving hands-on exposure to students on the Internet and multimedia usage and applications, science demos, brief lectures, a visit to Robotics Exhibition and finally a screening of educational movies. The Chapter chair coordinated the event and Mr. Shiva Prasad Khened of Science Centre was the local host. These events were attended by 40 STAR students and 8 STAR teachers from the three schools. The events were very successful, with the students requesting more events of this type in the future.

The Chapter Chair pursued a membership drive by visiting the campuses of the School of Instrumentation and Physics, Andhra University, Waltair and Solid State Physics Lab at Delhi.

For more 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: Chari@xm.doe.ernet.in.



DL Lecture by Dr. Radhakrishnan, IME Singapore

### REL/ED/CPMT Singapore Chapter by Y. N. Ng

The REL/ED/CPMT Singapore Chapter organized one technical talk and one short course in the last quarter of 1999. The technical talk was presented by Dr. E. Suhir, Distinguished Member of the Technical Staff, Physical Sciences and Engineering Research Division, Bell Laboratories, Lucent Technologies, Inc., entitled "Modeling of the Mechanical Behavior of Materials in "High-Tech" Systems: Attributes and Review". There were 11 participants. The one-day short course was conducted by Dr. E. Suhir, entitled "Modeling of Thermal Stress in Electronic Packaging". This short course was especially tailored for packaging engineers and there were 11 participants.

The Committee for the Singapore Chapter for the year 2000 was chosen. The line up is: Dr. S. H. Ong (Chairman), Dr. Radha (Assistant Chairman), Y. C. Ng (Secretary), Dr. W. K. Chim (Treasurer), and Committee Members - Wilson Tan, Dr. K. L. Pey and Bernard Chin. For further information, please con-

tact Dr. S. H. Ong, E-MAIL: soon.huat.ong@nsc.com.

— W. K. Choi, Editor

### New officers for Japan Chapter

by Kazuya Masu and Hiroshi Iwai

The chair and secretary of the ED Japan Chapter (formerly the ED Tokyo Chapter), Dr. Hisatsune Watanabe (NEC) and Dr. Masao Fukuma (NEC), respectively, retired at the termination of their 2 year term and new officers were elected on January 24, 2000. The new chair is Professor Kazuo Tsubouchi (Tohoku Univ.), Vice Chair Naoki Yokoyama (Fujitsu), Secretary, Kazuya Masu (Tohoku Univ.), and Treasurer, Yuu Watanabe (Fujitsu). We would like to thank Drs. Watanabe and Fukuma for their great contribution to the ED Tokyo Chapter and welcome the new officers to the ED Japan Chapter.

— Hiroshi Iwai, Editor



Sitting: From left to right S. Asai (Regions/Chapters Committee Member) K. Tsubouchi (New Chair), H. Watanabe (Former Chair), H. Iwai (Regions/Chapters Committee Chair) Standing: From left to right Y. Watanabe (New Treasurer), N. Yokoyama (New Secretary), M. Fukuma (Former Secretary), K. Masu (New Secretary)

## Summary *(continued from page 11)*

for enlarging the presence and influence of all IEEE societies within the IEEE Technical Field Awards and Medals. This may include defining new medals as well as getting more EDS members into the consideration and eligibility process. In particular, the Brunetti, Grove, Liebmann, Phillips, Sarnoff, Ibuka, and Johnson awards are open and attractive to good EDS candidates. AdCom voted its wholehearted support for getting more EDS presence into this process. AdCom also heard progress reports from the ED/SSC Seoul, Northern Virginia, Benelux, Sweden, and Mexico chapters.

The EDS Newsletter under Editor-in-Chief Krishna Shenai, added several new features in 1999. There are now more chapter reports, summaries of EDS Standing and Technical Committee activities, and student articles. Krishna welcomed Christian Zardini (Western Europe) and Gady Golan (UK-Middle East-Africa) to his group of Editors, and will be looking for a candidate for a newly-created Region 9 (Latin America) editor position. He is also developing new areas for his editors to solicit news and reports including conferences, sections, and Distinguished Lecturers. *Electron Device Letters* Editor-in-Chief, Yuan Taur, received 420 manuscripts and published 186 of them in 1999. After

going "live" with the new editorial support system, the time to first decision on manuscripts has been cut to five weeks which should improve the time-to-publication rate for EDL authors significantly. His goal is to reduce the current overall 8.4 month time to publication to 4 months. *Transactions on Electron Devices* Editor-in-Chief, Renuka Jindal, published 300 of 600 submissions this year. He will be helping Steve Hillenius to find a worthy replacement. The new Editor-in-Chief will see a transition to a similar Executive Office-based system for T-ED by October 2000. Mark Law, Editor of the all-electronic *Journal of Technology Computer Aided Design* (TCAD), reported that *(continued on page 19)*

# EDS Meetings Calendar

(As of 18 February 2000)

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

April 2 – 3, 2000, T **EUROPEAN IEEE/SEMI ADVANCED SEMICONDUCTOR MANUFACTURING CONFERENCE**, Location: Maritim Hotel, Munich, Germany, Contact: Margaret Kindling, Tel: (202) 289-0440, Fax: (202) 289-0441, E-Mail: [mkindling@semi.org](mailto:mkindling@semi.org), Deadline: Not Applicable, www: <http://www.semi.org>

April 10 – 13, 2000, \* **IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM**, Location: Fairmont Hotel, San Jose, CA, Contact: Jon Klema, Tel: (512) 933-6428, Fax: (512) 933-7662, E-Mail: [rdpm70@email.sps.mot.com](mailto:rdpm70@email.sps.mot.com), Deadline: Past Due, www: <http://www.irps.org>

April 10 – 14, 2000, T **SYMPOSIUM ON OPTO AND MICROELECTRONIC DEVICES AND CIRCUITS**, Location: Southeast University, Njing, China, Contact: Zhi-Gong Wang, Tel: 86-25-3793303, Fax: 86-25-7712719, E-Mail: [zgwang@seu.edu.cn](mailto:zgwang@seu.edu.cn), Deadline: Past Due www: [http://www.uni-karlsruhe.de/~ihq/main/conferences/SODC2000\\_Call.htm](http://www.uni-karlsruhe.de/~ihq/main/conferences/SODC2000_Call.htm)

May 1 – 5, 2000, T **EUROPEAN PHOTOVOLTAIC SOLAR ENERGY CONFERENCE & EXHIBITION**, Location: Scottish Exhibition & Conference Centre, Glasgow, Scotland, Contact: Bettina Kaisa, Tel: 49-89-720 1235, Fax: 49-89-720 1291, E-Mail: [renewables@tinet.de](mailto:renewables@tinet.de), Deadline: Past Due, www: <http://www.wip.tinet.de>

May 2 – 4, 2000, @ **IEEE INTERNATIONAL VACUUM ELECTRONICS CONFERENCE**, Location: Doubletree Hotel, Monterey, CA, Contact: Carol L. Kory, Tel: (216) 433-3512, Fax: (216) 433-8705, E-Mail: [carol.kory@grc.nasa.gov](mailto:carol.kory@grc.nasa.gov), Deadline: Past Due, www: <http://www.ewh.ieee.org/soc/eds/ivec>

May 14 – 17, 2000 \* **INTERNATIONAL CONFERENCE ON MICROELECTRONICS**, Location: University of Nis, Nis, Yugoslavia, Contact: Ninoslav Stojadinovic, Tel: 381-18-529-326, Fax: 381-18-46-180, E-Mail: [nino@unitop.elfak.ni.ac.yu](mailto:nino@unitop.elfak.ni.ac.yu), Deadline: Past Due, www: <http://europa.elfak.ni.ac.yu/miel>

May 14 – 18, 2000 @ **IEEE INTERNATIONAL CONFERENCE ON INDIUM PHOSPHIDE AND RELATED MATERIALS**, Location: Williams-

burg Marriott, Williamsburg, VA, Contact: Samantha Padilla, Tel: (732) 562-3894, Fax: (732) 562-8434, E-Mail: [s.padilla@ieee.org](mailto:s.padilla@ieee.org), Deadline: Past Due, www: <http://www.ieee.org/leos>

May 21 – 24, 2000 T **IEEE CUSTOM INTEGRATED CIRCUITS CONFERENCE**, Location: Caribe Royale, Lake Buena Vista, FL, Contact: Melissa Widerkehr, Tel: (301) 527-0900, Fax: (301) 527-0994, E-Mail: [cicc@his.com](mailto:cicc@his.com), Deadline: Past Due, www: <http://www.ieee.org/conference/cicc>

May 21 – 24, 2000, T **EXPERT EVALUATION & CONTROL OF COMPOUND SEMICONDUCTOR MATERIALS AND TECHNOLOGIES**, Location: The Foundation for Research and Technology, Hellas, Heraklion, Crete, Greece, Contact: Paul Panayotatos, Tel: (732) 445-3382, Fax: (732) 445-2820, E-Mail: [panayot@ece.rutgers.edu](mailto:panayot@ece.rutgers.edu), Deadline: Past Due, www: <http://www.ece.rutgers.edu/~panayot/exmatec.html>

May 21 – 25, 2000, T **INTERNATIONAL WORKSHOP ON COMPUTATIONAL ELECTRONICS**, Location: University of Glasgow, Glasgow, Scotland, UK, Contact: John R. Barker, Tel: 44-141-330-4792, Fax: 44-141-330-4907, E-Mail: [iwce7@elec.gla.ac.uk](mailto:iwce7@elec.gla.ac.uk), Deadline: Past Due, www: [http://elec.gla.ac.uk/groups/dev\\_mcd/iwce7/](http://elec.gla.ac.uk/groups/dev_mcd/iwce7/)

May 22 – 24, 2000, T **INTERNATIONAL SYMPOSIUM ON PLASMA PROCESS INDUCED DAMAGE**, Location: Westin Hotel, Santa Clara, CA, Contact: Della Miller, Tel: (408) 246-3600, Fax: Not Available, E-Mail: [della@vacuum.org](mailto:della@vacuum.org), Deadline: Past Due, www: <http://www.vacuum.org/nccavs/p2id.html>

May 22 – 24, 2000, T **INTERNATIONAL CONFERENCE ON MICROWAVES, RADAR AND WIRELESS COMMUNICATIONS**, Location: Wroclaw, Poland, Contact: Edward J. Sedek, Tel: 48-22-810-25-71, Fax: 48-22-810-25-71, E-Mail: [sabok@pit.edu.pl](mailto:sabok@pit.edu.pl), Deadline: Past Due, www: <http://www.pit.edu.pl/MIKON-2000>

May 22 – 25, 2000, @ **INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & ICS**, Location: Pierre Baudis Congress

Centre, Toulouse, France, Contact: M. Ayman Shibib, Tel: (610) 939-6576, Fax: (610) 939-3769, E-Mail: [a.shibib@ieee.org](mailto:a.shibib@ieee.org), Deadline: Past Due, www: <http://www.laas.fr/ISPSD2000/>

May 30 – June 2, 2000, T **ELECTROMAGNETICS CONFERENCE (EUROEM)**, Location: Edinburgh International Conference Centre, Edinburgh, Scotland, Contact: Concorde Services, Tel: 44-141-221-5411, Fax: 44-141-221-2411, E-Mail: [euroem@concorde-uk.com](mailto:euroem@concorde-uk.com), Deadline: Past Due, www: <http://www.mcs.dundee.ac.uk:8080/~euroem>

May 30 – June 2, 2000, # **INTERNATIONAL CONFERENCE ON ELECTRON, ION & PHOTON BEAM TECHNOLOGY AND NANOFABRICATION**, Location: Las Palmas Resort, Palm Springs, CA, Contact: John Melngailis, Tel: (301) 405-4916, Fax: (301) 314-9437, E-Mail: [melng@glue.umd.edu](mailto:melng@glue.umd.edu), Deadline: Not Available, www: <http://www.eipbn.org>

June 5 – 7, 2000 \* **IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE**, Location: Hyatt Regency Hotel at the San Francisco Airport, Burlingame, CA, Contact: Wendy Walker, Tel: (301) 527-0900 ext. 104, Fax: (301) 527-0994, E-Mail: [wendyw@widerkehr.com](mailto:wendyw@widerkehr.com), Deadline: Past Due, www: <http://www.ieee.org/conference/iitc>

June 10, 2000, @ **IEEE INTERNATIONAL WORKSHOP ON STATISTICAL METROLOGY**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: [phyllism@widerkehr.com](mailto:phyllism@widerkehr.com), Deadline: Past Due, www: <http://www.ieee.org/conference/vlsi>

June 10 – 11, 2000, @ **IEEE SILICON NANOELECTRONICS WORKSHOP**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: [phyllism@widerkehr.com](mailto:phyllism@widerkehr.com), Deadline: Past Due, www: <http://www.eas.asu.edu/~nano/snw/snw.htm>

June 10 – 13, 2000, \* **IEEE RADIO FREQUENCY INTEGRATED CIRCUITS SYMPOSIUM**, Location: Boston Copley Place Convention Center,

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

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

Boston, MA, Contact: Fazal Ali, Tel: Not Available, Fax: Not Available, E-Mail: fazal.ali@nmp.nokia.com, Deadline: Past Due, www: <http://www.ims2000.org/rfic.htm>

June 12 – 14, 2000, @ **IEEE INTERNATIONAL SYMPOSIUM ON VLSI TECHNOLOGY**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: phyllism@widerkehr.com, Deadline: Past Due, www: <http://www.ieee.org/conference/vlsi>

June 14 – 15, 2000, T **SEMICONDUCTOR MANUFACTURING TECHNOLOGY WORKSHOP**, Location: Chinatrust Hotel, Hsinchu, Taiwan, Contact: Judy Chang, Tel: 886-3-591-7092, Fax: 886-3-582-0056, E-Mail: judy@tsia.org.tw, Deadline: Not Available, www: <http://www.tsia.org.tw>

June 15 - 17, 2000, # **IEEE INTERNATIONAL SYMPOSIUM ON VLSI CIRCUITS**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: phyllism@widerkehr.com, Deadline: Past Due, www: <http://www.ieee.org/conference/vlsi>

June 19 – 21, 2000, \* **IEEE DEVICE RESEARCH CONFERENCE**, Location: Denver University, Denver, CO, Contact: Mark Rodder, Tel: (972) 995-2873, Fax: (972) 995-2770, E-Mail: m-rodder@ti.com, Deadline: Not Available, www: Not Available

June 21 – 23, 2000 T **EUROPEAN WORKSHOP ON LOW TEMPERATURE ELECTRONICS**, Location: European Space Research and Technology Center, Noordwijk, The Netherlands, Contact: Errico Armandillo, Tel: 31-565-3742, Fax: 31-565-4999, E-Mail: earmandi@estec.esa.nl, Deadline: Past Due, www: <http://www.estec.esa.nl/CONFANNOUN/Wolte4>

June 24, 2000, T **HONG KONG ELECTRON DEVICES MEETING**, Location: The University of Hong Kong, Hong Kong, Contact: Peter T. Lai, Tel: 852-2859-2691, Fax: 852-2559-8738, E-Mail: laip@eee.hku.hk, Deadline: Past Due, www: <http://www.ee.ust.hk/ieee.eds/hkedm/>

June 25 – 30, 2000, T **INTERNATIONAL CONFERENCE ON HIGH-POWER PARTICLE BEAMS**, Location: Hotel New Otani Nagaoka, Nagaoka, Niigata, Japan, Contact: Kiyoshi Yatsui, Tel: 81-258-47-9891, Fax: 81-258-47-9890, E-Mail: beams@etigo.nagaokaut.ac.jp, Deadline: Past Due, www: <http://etigo.nagaokaut.ac.jp/beams>

June 26 – 29, 2000, T **INTERNATIONAL POWER MODULATOR SYMPOSIUM**, Location: Sheraton, Newport News, VA, Contact: Janice Brooks, Tel: (703) 413-3882, Fax: (703) 413-1315, E-Mail: jbrooks@washington.palisades.org, Deadline: Past Due, www: <http://hvw.usc.edu/pms>

June 27 – 29, 2000, T **TRANS BLACK SEA REGION SYMPOSIUM ON APPLIED ELEC-**

**TROMAGNETICS**, Location: Xanthi, Greece, Contact: Nikolaos K. Uzunoglu, Tel: 30-1-7723556, Fax: 30-1-7723557, E-Mail: nuzu@cc.ece.ntua.gr, Deadline: Past Due, www: Not Available

July 3 – 7, 2000, \* **IEEE SEMICONDUCTING AND INSULATING MATERIALS CONFERENCE**, Location: Australian National University, Canberra, Australia, Contact: Chennupati Jagadish, Tel: 61-2-6249-0363, Fax: 61-2-6249-0511, E-Mail: c.jagadish@ieee.org, Deadline: Past Due www: <http://rsphysse.anu.edu.au/admin/simc2000/>

July 10 – 13, 2000, @ **IEEE INTERNATIONAL VACUUM ELECTRON SOURCES CONFERENCE**, Location: Disney's Coronado Springs Resort, Orlando, FL, Contact: Vita Feuerstein, Tel: (732) 562-6826, Fax: (732) 981-1203, E-Mail: vita@ieee.org, Deadline: Past Due, www: [http://ctd.grc.nasa.gov/5620/IVESC\\_2000.html](http://ctd.grc.nasa.gov/5620/IVESC_2000.html)

July 11 – 13, 2000, T **INTERNATIONAL MICROPROCESSES & NANOTECHNOLOGY CONFERENCE**, Location: University of Tokyo, Tokyo, Japan, Contact: Hiroaki Masuko, Tel: 81-3-5814-5800, Fax: 81-3-5814-5823, E-Mail: hmasuko@bcasj.or.jp, Deadline: Past Due, www: <http://www.nano.ee.es.osaka-u.ac.jp/mnc/>

July 14 – 15, 2000, T **IEEE INTERNATIONAL WORKSHOP ON INTEGRATED POWER PACKAGING**, Location: Westin Hotel, Waltham, MA, Contact: Bob Alongi, Tel: (607) 729-9949, Fax: (607) 729-7129, E-Mail: boston.ieee@ieee.org, Deadline: Not Available, www: Not Available

## New Videos Offered by EDS

EDS has joined forces with the Reliability Society and IEEE Educational Activities in sponsoring two new video tutorials: MEMS Performance & Reliability and Oxide Wearout, Breakdown & Reliability. These new tutorials are now available through IEEE Customer Service by TEL: +1 880 678 IEEE (outside the USA and Canada, +1 732 981 0060); E-MAIL: customer-service@ieee.org, or via the web at <http://www.ieee.org/ieeestore>. More information will be provided in the July issue of the EDS Newsletter.

## Summary (continued from page 17)

the lack of an archival system and no paper version have discouraged authors from submitting to this publication. He will be working on alternative ways to make this journal more attractive and viable to authors in the coming year. April Brown represented both the *Electrochemical & Solid-State Letters* (ESL), and the *Journal of Electronic Materials*. The ESL published about 300 papers this year with a "time-to-publish" (since it is an electronic journal) of 8-10 weeks. Its 50% acceptance rate is close to that of other EDS publications. JEM has been busy adding new editors and adopting new procedures. The meeting closed with an address by former Division I Director, and new IEEE VP of Publications, Mike Adler, on society issues. Mike's comments included: the finances are the biggest topic and will receive con-

siderable attention in 2000; former EDS President Lew Terman is the new VP-elect of TAB; and IEEE will be looking at ways of getting more meeting and conference proceedings to be available through OPeRA. Following the meeting, Cary Yang was elected as incoming EDS President, Steve Hillenius as Vice President, April Brown as Treasurer, and J.K. Lowell as Secretary. Cor Claeys, James Dayton, Masao Fukuma, Kei May Lau, Mikael Ostling, David Pulfrey, and Krishna Shenai were elected as AdCom Members-at-Large.

The next meeting of the EDS AdCom will be on Sunday, May 21, 2000 in Toulouse, France at the Hotel Mercure ATRIA in conjunction with the International Symposium on Power Semiconductor Devices and ICs (ISPSD).

John K. Lowell  
Oracle Corporation  
Irving, TX



# 33 EDS Members Elected to the IEEE Grade of Fellow

Effective 1 January 2000



**Peter M. Asbeck, University of California, San Diego**

*For development of heterostructure bipolar transistors and applications*

**Werner Bachtold, Swiss Federal Institute of Technology**

*For contributions to the development of microwave semiconductor devices and circuits*

**Jeffrey Bokor, University of California, Berkeley**

*For contributions to EUV optical lithography and deep-submicron MOSFETs*

**Elliott Rave Brown, University of California, Los Angeles**

*For contributions to microwave and millimeter-wave solid-state antennas and sources*

**Stephen Y. Chou, Princeton University**

*For contributions to the development of nanoscale electronic devices and nanotechnology*

**Michael J. Declercq, Swiss Federal Institute of Technology**

*For contributions to innovate design of mixed signal integrated circuits*

**Steven W. Depp, IBM T.J. Watson Research Center**

*For contributions to thin film transistor/liquid crystal display technology*

**Sverre T. Eng, Jet Propulsion Laboratory**

*For contributions to optical communications, applied laser spectroscopy, and low-noise mixer diode technology*

**Tor Arne Fjeldly, Norwegian University of Science & Technology**

*For contributions to semiconductor device modeling and the development of AIM spice*

**Eby Gershon Friedman, University of Rochester**

*For contributions to high performance circuit design and VLSI-based synchronous systems*

**Daniel Charles Guterman, SanDisk Corporation**

*For leadership in the development of non-volatile, solid-state memory technologies*

**Ronald W. Knepper, IBM Microelectronics, SRDC**

*For contributions to semiconductor device design, modeling, and circuits*

**Robert Michael Kolbas, North Carolina State University**

*For contributions to understanding and development of quantum well heterostructure laser and light emitters*

**James B. Kuo, National Taiwan University**

*For contributions to modeling CMOS VLSI devices*

**Lawrence Ernest Larson, University of California**

*For contributions to development and applications of high-speed integrated circuits and devices.*

**Chien-Ping Lee, National Chiao Tung University**

*For contributions to optoelectronic integrated circuits and compound semiconductor devices and technology*

**John Haig Marsh, University of Glasgow**

*For contributions to development of integrated optics based on semiconductor quantum well devices*

**Masatoshi Migitaka, Toyota Technological Institute**

*For contributions to research and development of silicon high temperature integrated circuits*

**Vijay K. Nair, Motorola Research Labs**

*For contributions to development of low-power device and integrated circuits*

**Khalil Najafi, University of Michigan**

*For contributions to biomedical microelectromechanical systems technology*

**Yi-Ching Pao, Filtronic Solid State, Inc.**

*For contributions to the development and manufacturing of molecular beam epitaxial based microwave and millimeter-wave devices and integrated circuits*

**David L. Pulfrey, University of British Columbia**

*For contributions to the modeling of heterojunction bipolar semiconductor devices*

**Conor S. Rafferty, Lucent Technologies**

*For the development of pioneering simulation tools and models for technology computer aided design*

**Ronald D. Schrimpf, Vanderbilt University**

*For contributions to the understanding and the modeling of physical mechanisms governing the response of semiconductor devices to radiation exposure*

**Eric Fred Schubert, Boston University**

*For contributions to semiconductor doping and resonant-cavity devices*

**Joannes M.J. Sevenhans, Alcatel**

*For contributions to the design of solid-state telecommunications transceivers*

**Rainee Navin Simons, Nasa Lewis Research Center**

*For contributions to development of microwave coplanar transmission lines and circuits*

**Costas John Spanos, University of California, Berkeley**

*For contributions and leadership in semiconductor manufacturing*

**Yuan-Chen Sun, Taiwan Semiconductor Manufacturing Company**

*For contributions to advanced CMOS technology*

**Federico Tosco, CSELT**

*For contributions and leadership in technologies and international standards for optical and wireless communications*

**Sigurd Wagner, Princeton University**

*For contributions to copper indium selenide and amorphous silicon thin-film solar cells and contributions to engineering education*

**Bogdan Maciej Wilamowski, University of Wyoming**

*For contributions to industrial electronics and static induction devices*

**Naoki Yokoyama, Fujitsu Laboratories, Ltd.**

*For contributions to the development of self-aligned gallium arsenide MES-FET integrated circuit*