

January 2000 Vol. 7, No. 1 ISSN:1074 1879

Editor-in-Chief: Krishna Shenai

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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.

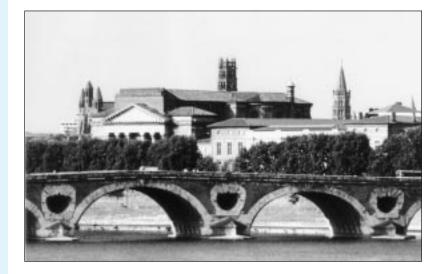
#### **Newsletter Deadlines**

<u>Issue</u>	
January	
April	
July	
October	

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

# IEEE Electron Devices Society Newsletter

2000 International Symposium on Power Semiconductor Devices and ICs (ISPSD)



The 12th International Symposium on Power Semiconductor Devices and ICs (ISPSD), sponsored by the IEEE Electron Devices Society, the Institute of Electrical Engineers of Japan and the European Power Electronics Association, will be held at the Pierre Baudis Congress Centre, Toulouse, France from May 22 to 25, 2000.

The purpose of the Symposium is to provide a forum for presentations and discussions on power semiconductor devices and ICs. This forum has grown in twelve years to become the largest in the field, and regularly draws the foremost technical contributors from industry and academia world-wide. ISPSD is held each year in a different location, rotating between Europe, Asia and North America. A large number of high quality contributed and invited papers will cover a broad range of state of the art topics over the three and a half days of the Symposium. Most of the conference will consist of contributed oral presentations representing the most current work in the field. An extended poster session will also be included to provide an expanded range of coverage on special topics of interest and provide an opportunity for close interaction with authors as they discuss their work. The topics that will be covered are likely to include the following:

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### **Your Comments Solicited**

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

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#### EDS ADCOM ELECTED MEMBERS-AT-LARGE

#### Term Expires:

<u>1999</u>	<u>2000</u>	<u>*2001</u>
R.G. Adde (1) J.T. Clemens (1) B.F. Griffing (2) R.P. Jindal (2) J.B. Kuo (2) J.K. Lowell (2) I. Mojzes (2) K. Shenai (1)	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)	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)

Number in parenthesis represents term.

#### \* Members elected 12/98

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

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# Summary of the 1999 IEEE Divisions I & IV Region 8 Chapters Meeting

Cary Y. Yang

The fourth annual joint IEEE Divisions I and IV Region 8 Chapters Meeting was held on 12 September, 1999 in Leuven, Belgium in conjunction with the European Solid-State Device Research Conference (ESSDERC). This Division level meeting evolved three years ago from the chapters meeting first coordinated in 1994 by Mike Adler and Rolf Jansen for the Electron Devices and Microwave Theory and Techniques societies. The goal of the meeting was increased chapter formation and support for Region 8, particularly Eastern Europe and the Former Soviet Union. At this year's meeting, there were 60 attendees representing 9 societies and 43 chapters from 25 different countries in Region 8. EDS had 26 of its 35 Region 8 Chapters attend this year's event.

This joint Division meeting was co-chaired by the Division I Director, Mike Lightner, and the Division IV Director, Bill Gjertson. Division I includes the CAS, CPMT, ED, LEO and SSC societies, while the AP, BT, CE, EMC, MAG, MTT and NPS societies comprise Division IV. The idea of a combined Division I and IV Chapters Meeting was a fairly natural occurrence, since many chapters in Region 8 are joint ones involving the two divisions. Of the 43 chapters present, 25 are joint chapters, with 18 involving societies in both divisions.

The meeting began at 8:30 a.m. with a welcome and review of the agenda by Mike Lightner, followed by self-introductions by all participants. Bill Gjertson then gave his welcome, while Cor Claeys, the ESSDERC Organizing Committee Chair, continued with a welcome from ESSDERC and provided information concerning the conference.

The Region 8 Director, Rolf Remshardt, followed with some Region 8 statistics as well as information concerning the Region 8 Help Desk and Voluntary Contribution Fund. Antonio Bastos, the RAB/TAB Section/Chapter Support Chair, outlined the responsibilities and strategic objectives of his committee. The Benelux Section Chair, Cor Claeys, welcomed the attendees to Leuven. Region 8 membership development and chapter co-ordination activities and plans were presented by the Region 8 Membership Development Chair, Peer Martin Larsen, and Region 8 Chapter Coordination Chair, Tony Davies, respectively.

# **Upcoming Technical Meetings**

### **ISPSD** (continued from page 1)

- Materials and Processes: Crystal Growth, Doping, Lifetime Control, Passivation, Thick Film Metallization, Semiconductor Materials, Characterization
- CAD and Simulation: Process, Device, Circuit, Thermal, Electrothermal, Electromechanical Aspects
- Devices: Device Physics, Modeling, Characterization, Reliability, Fast Switching, High Frequency Power, Discrete and Integrated Power
- Monolithic and Hybrid Power Integration: Technology, Isolation Techniques, Design, Smart Power IC's, High Voltage IC's, Hybrid Modules
- Packaging: Thermal Management, Novel Techniques, Stress and Reliability, Electrothermal Cycling
- Applications: all discrete and integrated power areas, device design and optimization for specific application

A proceedings and a CD ROM, including all accepted contributions, will be published and handed out at the conference. The Symposium will also include several special events, such as a reception in the famous "Salle des Illustres" located inside the Capitol building and a banquet dinner in a famous French life-style place.

Toulouse is situated in south-west France, 680 km from Paris, between the Atlantic Ocean and the Mediterranean Sea. Toulouse is the Capital of the Midi-PyrÈnÈes Region, the largest French province. With a population of 700,000, Toulouse is also nicknamed "The Pink Town" due to its numerous old pink brick walls, but it is also a green town with many gardens, pretty fountains and even barges going trough the "Canal du Midi". Already bustling 2,000 years ago, the city boasts a rare architectural and artistic heritage including in particular the Basilica Saint-Sernin (11th century), Saint-Etienne's Cathedral (12th century), the Church and Cloister of the Jacobins (13th century), the Capitol (18th century) and the Augustins Museum (18th century). The quality lifestyle, varied gastronomic dishes, chanting southern-accent, etc., all make Toulouse a pleasant town to live and work in.

Toulouse is the European Capital of aeronautics and space, and a leading centre in industry, technology and research. With a wealth of educational institutions that include universities and several research laboratories covering all spheres of knowledge, Toulouse has the second largest university in France and ranks among the top university cities in Europe. Toulouse University was founded in 1229, so it has had time to form its own personality and its own specific characteristics. Today, over 115,000 students attend courses in its three major faculties, its institutes and 'grandes Ecoles'.

Don't worry about the weather: the climate in Toulouse is usually temperate around the time of the conference. However, there is no special arrangement about it, as it is outside the competence of the organizing committee!

For further information on the conference, please visit the conference website at http://www.laas.fr/ISPSD2000. On behalf of the Conference Committee, we would like to invite you to attend ISPSD'2000 and are looking forward to welcoming you in Toulouse.

> Georges Charitat LAAS-CNRS Toulouse, France

### 2000 International Conference on Microelectronic Test Structures (ICMTS)



Fisherman's Wharf, Monterey

The 2000 IEEE International Conference on Microelectronic Test Structures (ICMTS) will convene for the final time in the twentieth century, March 14-16, 2000, when it returns to the Doubletree Hotel in Monterey, California. It will be preceded by a one day Tutorial Short Course on microelectronic test structures on March 13, 2000.

The ICMTS is the preeminent meeting of test structure creators and consumers. It provides an annual forum for discussing the latest innovations in microelectronic test structure design and characterization. Original papers presenting new developments in silicon and gallium arsenide microelectronic test structure research, implementation, and applications as well as test structures aimed at new

materials and devices will be presented. Topics include test structures for use in the following areas:

- Material and process characterization
- · Replicated feature metrology
- Device and circuit modeling
- Wafer fabrication process control

- · Reliability and product failure analysis
- New sensors and devices
- Statistical data analysis

The conference format provides for a single program track (without parallel sessions). This allows all participants to attend all presentations. A majority of the presentations are oral. The oral presentation format provides traditional fifteen-minute presentations with ample time for questions and answers both immediately following presentations and informally during coffee breaks. In addition, a poster session allows less formal and more in-depth interaction with poster authors. Poster authors also provide brief oral presentations to provoke interest in and attendance at their posters.

Both poster presentations and oral presentations are eligible for the ICMTS Best Paper Award. This award is deter-

### ICMTS (continued from page 3)

mined by the Technical Committee at the conference and awarded the following year. The ICMTS 1999 Best Paper Award for "A Thermal van der Pauw Test Structure" by O. Paul, L. Plattner, and H. Baltes will be presented during ICMTS 2000. In addition, in the past selections of the most appropriate ICMTS papers have been included in a special section of the *IEEE Transactions on Semiconductor Manufacturing*.

The Tutorial Short Course, which immediately precedes the conference, offers a blend of tutorial and advanced topics. Test structure creation and characterization basics are always included. Furthermore, the ICMTS 2000 will include tutorials on test structures for SOI characterization as well as yield modeling.

In addition to the technical presentations, ICMTS 2000 will, once again, include an equipment exhibition. Vendors providing measurement equipment, data analysis software, and other test structure related wares will have their latest versions available for evaluation.

While still a small conference, ICMTS attendance has been steadily increasing.

The compact size of the conference is conducive to both social and professional interaction. Many first-time attendees are enthusiastic to interact with so many others working in the field of test chips and test structures. Once discovering ICMTS, they return regularly.

To encourage international participation, the ICMTS rotates between North America, Asia, and Europe. The 1998 and 1999 meetings were held in Kanazawa, Japan and Gothenburg, Sweden, respectively. Past conferences have attracted papers from nearly every continent, guaranteeing an international flavor. Submissions include a broad cross-section of industry, university, and government-sponsored work.

Monterey, California provides an ideal location for ICMTS 2000. The Monterey Peninsula has been called the perfect meeting of land, sea and sky. This beautiful seaside community provides the charm of small town America and an endless variety of recreational and cultural activities. Monterey's rich history, the saga of California's Mission Trail, historic Fisherman's Wharf and Cannery Row, the world's best aquarium, a unique variety of shops and galleries and a spectacular assortment of parks and natural areas combine to provide a truly unrivaled back drop for ICMTS 2000.

For additional information regarding the technical sessions, please contact ICMTS 2000 Technical Chair, Christopher Hess, PDF Solutions, 333 W. San Carlos Street, Suite 700, San Jose, CA 95110, USA; TEL: 1-408-938-6436; FAX: 1-408-280-7915; E-MAIL: hess@pdf.com.

For information regarding the tutorial short course, please contact ICMTS 2000 Tutorial Chair Ellen Piccioli, Compaq Computer Corporation, 334 South Street, Shrewsbury, MA 01545, USA; TEL: 1-508-841-2856; FAX: 1-508-841-3576; E-MAIL: ellen.piccioli@compaq.com.

For information regarding the equipment exhibition, please contact ICMTS 2000 Equipment Exhibition Chairperson, James Reedholm, Reedholm Instruments, Four Sierra Way, Georgetown, TX 78626, USA; TEL: 1-512-869-1935; FAX: 1-512-869-0992; E-MAIL: jimr@reedholm.com.

In addition, general information may be found at our website at http://www.ee.ed.ac.uk/ICMTS/.

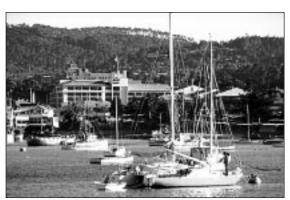
Lawrence A. Bair Compaq Computer Corporation Shrewsbury, MA

# **2000 International Vacuum Electronics Conference (IVEC)**

With an agenda that includes virtually all aspects of vacuum electron devices and their applications, the First International Vacuum Electronics Conference (IVEC) will meet at the Doubletree Hotel in Monterey, CA, May 2-4, 2000. The conference is being organized by the Technical Committee on Vacuum Devices of the IEEE Electron Devices Society (EDS). IVEC is being sponsored by EDS, and has drawn numerous technical co-sponsors. IVEC will welcome contributions from the many sub-disciplines of vacuum elec-

tronics, hoping to stimulate the growth of technology and emphasize enhanced support for applications.

The format planned for IVEC will begin with a half day Plenary Session followed by two days with three parallel Oral Sessions and a half day for a Poster Session. Abstracts for IVEC 2000 should be submitted electronically (Microsoft Word preferred) to Ralph Nadell at Rnadell@ newyork.palisades.org by January 14, 2000. Further details regarding IVEC



2000 are available on the web at www.ewh.ieee.org/soc/eds/ivec, from IVEC General Chair, James A. Dayton, Jr., at James.Dayton@hughesed.com or from Publicity Chair, Carol L. Kory at Carol.L.Kory@grc.nasa.gov.

IVEC will meet annually, rotating between the USA, Europe and Asia. In planning IVEC, care has been taken not simply to add additional conference dates to an already crowded calendar. While IVEC is new, the vacuum electronics community has been meeting in Monterey every two years since 1978 at the Microwave Power Tube Conference, known informally as the Monterey Conference. Sponsored by the US DoD Advisory Group on Electron Devices, attendance at the Monterey Conference had been by invitation and restricted to US citizens and permanent residents. The Monterey Conference has become the US leg of IVEC and will now be open to participation, regardless of nationality.

In Europe in April 2001, the Space TWTA Workshop, sponsored by the European Space Agency (ESA), will be expanded in scope to become the European leg of IVEC. The ESA Workshops have previously been held in 1989, 1991, 1994 and 1997 and have always been open to all nationalities. IVEC will return to the USA in 2002 and will meet in Asia in 2003.

The principal subject categories for IVEC 2000 are Devices, Vacuum Microelectronics, Systems and Subsystems, Technologies, and Applications; for complete details, see the conference announcement or refer to the website. IVEC will seek papers on a wide range of Vacuum Devices, including traveling wave tubes, crossed field devices, klystrons, inductive output tubes, fast wave devices, free electron lasers, pulse compression devices, high pulsed power devices, plasma filled amplifiers, triodes, tetrodes, pentodes and switches. In the area of Vacuum Microelectronics, IVEC is seeking papers on displays, sensors, field emitter arrays and microwave devices. Under Systems and Subsystems, IVEC is including microwave power modules, electronic power conditioners, linearizers, device integration, reliability and component parts (guns, collectors etc.). Under the heading of Technologies, IVEC is seeking papers on computer modeling, materials, electron emission, RF breakdown, linearity, intermodulation, noise, measurement techniques, miniaturization and thermal control. It is intended to intersperse papers on all aspects of the applications of vacuum electronics throughout the conference.

IVEC had its origins in the Fall of 1997 when EDS organized the Technical Committee on Vacuum Devices. The purpose of the committee is to advise EDS on publication and conference policies and on trends in technology. Because of its geographic diversity, the committee has made use of teleconferencing and e-mail to transact its business through virtual meetings. From the beginning, there was a strong sentiment within the committee to create an international conference focused exclusively on vacuum electronics. Dayton, formerly of NASA Glenn Research Center and now with Hughes Electron Dynamics in Torrance, CA, organized the Technical Committee and serves as its Chair. Dayton will also serve as the General Chair of IVEC 2000. Meeting Arrangements for IVEC 2000 are being managed by Ralph Nadell of Palisades Institute for Research Services. Francesco Emma, of ESA ESTEC in Noordwijk, The Netherlands, will serve as General Chair in 2001. The other members of the committee, their affiliations and their roles within IVEC follows:

- Ivor Brodie, SRI International, Menlo Park, CA, USA
- B. N. Basu, Banaras Hindu University, Varanasi, India
- Richard G. Carter, Lancaster University, Lancaster, United Kingdom
- Jon A. Christensen, Hughes Electron Dynamics, Torrance, CA, USA, Local Organizing Chair
- Kwo Ray Chu, National Tsing Hua University, Hsinchu, Taiwan
- Georges J. Faillon, Thomson Tubes Electroniques, Velizy, France
- Takao Kageyama, NEC Corporation, Kanagawa, Japan
- Gunter Kornfeld, TTE GmbH, Ulm, Germany

- Carol L. Kory, NASA Glenn/Analex, Cleveland, OH, USA, Publicity Chair
- Sheng Gang Liu, University of Electronic Science and Technology, Chengdu, China
- Neville C. Luhmann, Jr., University of California, Davis, CA, USA
- W. Devereux Palmer, Microelectronics Center of North Carolina, Research Triangle Park, NC, USA, Publications Chair
- Gun-Sik Park, Seoul National University, Seoul, Korea
- Robert K. Parker, Naval Research Laboratory, Washington, DC, USA, Finance Committee Chair
- Vladimir Savvin, Moscow State University, Moscow, Russia
- Armand Staprans, Communications and Power Industries, Palo Alto, CA, USA
- Richard B. True, Litton Systems Inc., San Carlos, CA, USA, Technical Program Chair

Technical co-sponsors of IVEC 2000 include the US DoD Advisory Group on Electron Devices, the US Electronics Industries Association, NASA Glenn Research Center and the European Space Agency.

> James A. Dayton, Jr. Hughes Electron Dynamic Division Torrance, CA

### 2000 International Conference on Indium Phosphide and Related Materials (IPRM)

The IEEE International Conference on Indium Phosphide and Related Materials (IPRM) will be held 14 - 18 May 2000 in Williamsburg, VA. IPRM will continue its tradition of highlighting a wide variety of important developments in InP-related materials, devices, processing, and system applications. The venue for the millennial IPRM meeting is Williamsburg, the culturally and historically rich Tidewater region of eastern Virginia.

An important feature of this meeting will be the participation of many of the leading purveyors of equip-



ment, materials, and substrates showcasing their latest products. As has been the tradition, several of the important conference events will be sponsored or hosted by these companies. A conference banquet is being organized which promises to be a unique and entertaining Y2K event that you will not want to miss!

The following five topical areas comprise the scope of the Conference and papers:

 Optoelectronics - Sessions will highlight new levels of performance improvements in traditional edge-emitting and VCSEL lasers. Advances in optical modulators and amplifiers, waveguide-based devices, quantum structures, photodetectors, photonic and optoelectronic integration of devices, and high-speed receivers are also solicited. New devices for optical switching, networking and signal processing are of interest as well as papers describing the properties and performance of photonic-bandgap structures for enhanced optical signal processing.

 Electron Devices - Papers are solicited that show marked improvements in HEMT, PHEMT, JFET, HFET, HBT, or RTD device and circuit performance. Topics include low-noise, low-voltage, power, and switching characteristics as well as scaling issues and the develop-

(continued on page 6)

### **IPRM** (continued from page 5)

ment of integration techniques employing HEMTs, HBTs, RTDs, etc. Contributions describing unique electron-device concepts based on tunneling, quantumconfinement, mesoscopic, or singleelectron phenomena are encouraged.

- · Epitaxy Sessions will deal with advances in growth methods, the understanding of epitaxial and heteroepitaxial growth processes, and selective-area growth. Topics related to the growth of low-dimensional structures including quantum dots are also encouraged. Papers describing growth and characterization of lattice-mismatched heteroepitaxial materials, and other InP-based and related materials, e.g. TlInGaP, GalnNAs, InGaAsSb are of interest. Sessions will also focus on methods of monitoring, self-assembly processes, and growthmode control.
- · Processing and Materials Integration -Sessions will highlight advances in

etching, lithography, metallization, dielectrics, and planarization, as well as wafer-bonding, compliant-substrate and transferred-substrate techniques. Topics include Schottky and ohmic contacts, low-damage deposition processes, passivation, and reliability issues. Papers are also solicited describing innovations in nanostructure fabrication techniques for realization of arrays of quantum wires and boxes, harmonized processing for integration of heterogeneous devices, in-situ processing, and novel selective etching methods.

· Characterization and Bulk Materials -Papers will focus on novel methods and new results on the characterization of materials (both bulk and epitaxial) and devices as well as in-situ control of processing steps with emphasis on quality control and reproducibility. Sessions will also focus on advances in bulk crystal growth technology. New characterization methods for impurity identification, improvements in homogeneity and purity in crystals, and wafer annealing are of interest.

The IRPM will also offer three Short Courses:

- Integration of Dissimilar Materials, Theresa Mayer, Penn State University
- InP-Based Electronics and Systems Insertions, Dwight C. Streit, TRW
- · Recent Developments in InP-based Laser Diodes, Gary Wicks, University of Rochester

The IEEE Lasers and Electro-Optics Society (LEOS) and IEEE Electron Devices Society (EDS) are the sponsors of the conference. For additional conference program and registration information, please website at: http:// view our www.ieee.org/leos or contact IEEE LEOS at: TEL: 732-562-3898; FAX: 732-562-8434; E-MAIL: s.blodgett@ieee.org.

> Wendy Rochelle **IEEE LEOS Executive Office** Piscataway, NJ

### **Summary** (continued from page 2)

Status reports concerning the MTT, ED, AP, CAS, CPMT, SSC, LEO and NPS societies were then given by their respective representatives. The morning session concluded with a presentation by Mike Lightner on the visions and goals of IEEE electronic products. He capsulized the former under the categories "publish once, render many", added value, and continuity, while stating the IEEE goals of putting all products on-line.

The afternoon opened with reports by chapter representatives concerning membership counts, events and attendances financial information and one best practice to share. This session was followed by a 'Best Practice' Open Forum whereby chapter representatives who had not reported had a chance to share their best practices with the attendees. Bill Gjertson then presented material concerning IEEE Products and Services and Member Survey results. He continued with an open discussion to obtain the attendees' opinions as to the products and services they value the most and what they would like to have included with their IEEE membership. Mike Lightner followed with a series of questions (a 'live'

survey) concerning the electronic access of publications with regards to IEEE and society memberships.

The afternoon ended with an open discussion regarding the site of the next Division I and IV Chapters Meeting. In the past years, this meeting had always alternated its site between the location of ESSDERC and the European Microwave Conference (EuMC). Since planning to stay for this Chapters Meeting in Leuven year's ESSDERC, it was felt

that the chapters meeting may not need to be held in conjunction with a technical meeting. On the other hand it was pointed out that quite a few chapter meeting participants did attend the EuMC in 1998.

Thus, it was proposed to hold the 2000 chapters meeting in October at the EuMC in Paris. Most attendees were in agreement with this proposal, but the attendees were asked to send any other suggestions to the meeting organizer, Bill Van Der Vort. It was also suggested that attendees send any suggestions for the 2001 site, so



very few attendees were Attendees listen to the reports given at the Divisions I & IV Region 8

that plans could be made far enough in advance to at least allow for the possibility of a change in the time of the year the meeting would be held. Immediately following the meeting, all meeting participants attended a dinner, which afforded the attendees a further opportunity to get to know each other and to share their knowledge and experiences.

> Cary Y. Yang Santa Clara University Santa Clara, CA

# **Society News**

### **Report of the IEEE EDS Meetings Committee**





Technical meetings are a key element in the continuing education and career development of the members of the IEEE. Thus, during the Spring of 1999, the Meetings Committee was restructured to align its membership with the activities that the committee is chartered to perform in order to support its mission and to improve its operational efficiency.

The Meetings Committee focuses on several key items, including: the technical, administrative and financial quality of our sponsored meetings; supporting the EDS efforts in globalization; and ensuring that sponsored meetings adhere to the required IEEE accounting practices of a non-profit organization. Additionally, the IEEE is a major publisher of technical material, and IEEE sponsored meetings coordinate the publication of their proceedings with the IEEE Book Broker Program. This Program supports a meeting's proceedings by fulfilling individual "after conference" sales requests and also the dissemination of conference proceedings to many libraries throughout the world.

The EDS is a sound, healthy society with more than 12,000 members and, as such, we are constantly being requested to provide either cooperation, technical co-sponsorship, or sponsorship/co-sponsorship support to both newly proposed meetings and existing meetings. At present, the EDS has sponsorship/co-sponsorship of 34 meetings, technical co-sponsorship of 81 meetings and co-operation support of 11 meetings.

With respect to the issue of generating new meetings, whether they are small work-

shops or major conferences, the various EDS technical committees and the membership of the EDS, in general, are VERY creative in this effort. The science and technology of electron devices is growing at a rapid rate. As a result, the EDS is constantly being requested for various types of new sponsorships. During the last year we have handled 12 requests for new sponsorship.

With respect to new sponsorship, the first function that the Meetings Committee performs is to determine whether the subject matter of a new meeting is generally consistent with the field of interest of the EDS. Then formal sponsorship is voted upon by the membership of the Administrative Committee (AdCom).

Once sponsorship is granted, it is the responsibility of the Meetings Committee to provide the many types of support requested and/or required by the meeting organizers. These include administrative programs, budget review, financial advances, publicity and various other forms of logistical support and recommendations. During the meeting, there is coordination with the Membership Committee. And finally, at the close of the conference, the Meetings Committee helps with the completion of the IEEE financial reports.

While many of these activities may seem rather administrative, the Meetings Committee must deal with major issues, which at times, we have either little or no control of. For example, the EDS was a technical co-sponsor for the 1999 International Conference on Microelectronics (MIEL), which was scheduled to be held in October in Nis, Yugoslavia. Unfortunately, military action destroyed the city and the meeting had to be cancelled. However, it was decided that the MIEL proceedings would be published and handled by the Book Broker Program.

In other cases, the Committee has had to face the issue of "sunsetting" meetings that have lost their vitality and attendance. This is difficult when the volunteer organizers have been successful for many years, but the superhighway of technology evolution has left their meeting on the less traveled side road. And finally, the Meetings Committee, at times, must mediate major scheduling and conflicting issues to other technical entities. It is these activities that challenge the talents and skills of the Meetings Committee. In fact, there is never a dull moment.

Every year, the Meetings Committee holds its own workshop, in conjunction with the Winter AdCom Meeting, where EDS sponsored meeting organizers gather together and discuss evolving "best practices" and unique occurrences. By doing so, we are able to continuously improve the quality of our Meetings Committee activities, our sponsored technical meetings and our educational efforts for the EDS membership.

In addition to myself, the Meetings Committee consists of Lucian Kasprzak, W. Dexter Johnston, Amanda Papasso, and Wiliam Van Der Vort. Their extraordinary efforts enable the Meetings Committee to fulfill its vital role within the EDS.

> James T. Clemens Meetings Committee Chair

### Revamped EDS Home Page!

The EDS Home Page has recently been totally revamped, i.e., enhanced content, new format and style, numerous links and the look and feel of the IEEE Home Page. The new web pages were created using the IEEE templates and are compliant with all IEEE design regulations.

Please check out the enhanced/new look EDS site at: http://www.ieee.org/eds.

Please let Carrie Lin (c.lin@ieee.org) of the EDS Executive Office know of any suggestions you may have for additional information and/or links you would like to see.

# Compound Semiconductor Devices and Circuits Technical Committee (CSDCTC) Report

Herbert S. Bennett



The Compound Semiconductor Devices and Circuits Technical Committee (CSDCTC) was formed in early 1998 to provide a global forum on devices and circuits containing compound semiconductors. It thereby provides additional benefits to EDS members interested in exchanging knowledge about this rapidly developing field. The CSDCTC seeks answers to questions like: What are the exciting new technologies?, Which of those technologies will enable new applications?, Where are the new markets?, Who are the players today and tomorrow?, and What is the appropriate role for the EDS and other IEEE societies.

To answer such questions as those above, the CSDCTC acts as liaison to technically-related societies such as LEOS and MTTS; identifies "hot" technical areas; considers existing and new technology roadmaps; and works to insure that EDS has appropriate coverage of compound semiconductors in its publications, conferences, and workshops.

This year the CSDCTC members discussed the three main trends that together offer challenging technical opportunities for compound semiconductors. These trends are: merging digital audio, video, and other multimedia forms with digital data at the device and networks level - that is the digitization of everything; converging networks to seamless and packet switched digital architectures; and demanding more and more bandwidth due to the digitization of everything and to adding more and more subscribers who use multimedia forms and dislike latency.

Considering such trends, we identified "hot" technical areas that have the potential for commercial significance. The areas of great interest include: heterojunction bipolar transistors (HBTs) for wireless communications and perhaps for advanced analog-to-digital converters (ADCs) if suitably high count circuits can be fabricated; quantum dot lasers that emit in the blue and blue-green; millimeter wave circuits for intelligent cruise control in cars, trucks, and buses; high power and high temperature SiC and GaN devices; and magnetic semiconductors or spintronics.

We also discussed candidate technologies that are beginning to mature and for which consensus based planning or technology roadmaps would enable more competitive products for the marketplace. Such frequently cited technologies are very high frequency III-V and SiGe HBTs and driver amplifiers operating at 3V for optical modulators at 10 Gbps and 40 Gbps.

We established a joint WWW site with the Optoelectronics Devices Technical Committee on a server provided by the Inter-University Research Institute's COBRA (Communication Technology: Basic Research and Applications), Eindhoven University of Technology, The Netherlands. CSDCTC's URL is http://www.cobra.tue.nl/eds/compoundsemiconductors. html. The 11 members of the CSDCTC, most of whom are also members of either LEOS or MTTS, welcome your comments and suggestions by E-MAIL: hs.bennett@ieee.org.

> Herbert S. Bennett National Institute of Standards and Technology Gaithersburg, MD

# **First EDS Region 9 Chapters Meeting**



Attendees of the EDS Region 9 Chapters Meeting

The first Electron Devices Society Region 9 Chapters Meeting was held on September 5, 1999 at hotel El Ejecutivo, Mexico D.F. The meeting was attended by the chairs of 5 of the 6 chapters in the region, Paul K. Yu representing EDS AdCom and Krishna Shenai as the partner of the EDS chapters in Mexico and Brazil. Although the chair of the joint AP/ED/MTT Rio de Janeiro Chapter did not attend, representatives from Brazil, Ines Pereyra and Marcelo Paez, were present and expressed their intention to start a new chapter at the University of Sao Paulo.

The meeting started with a presentation by Dr. Arturo Escobosa, Head of the Department of Electrical Engineering at the Center of Research and Advanced Studies (CINVESTAV), followed by Dr. Alfredo Reyes, Head of

the Section of Solid State Electronics, (SEES). They welcomed attendees and explained main activities of the Institution where the host chapter is located. Afterwards, Yu and Shenai made the explanation of the various resources and services available to EDS chapters and activities of the partner.

The chairs from Cuba, Maria M. Sanchez, from Venezuela, Francisco García, from the two student chapters in Mexico, Salomón Ledezma and Jose Luis Dominguez, and Magali Estrada from the Mexico Chapter, explained the different activities developed by their respective chapters and discussed problems that must be solved in the region to increase membership and activities. Of special interest among participants was the presentation by Salomon Ledezma concerning the experience of postgraduate students of CINVES-TAV as a student chapter at On Semiconductor (formerly Motorola). A special report of these activities will be prepared for publication in the EDS Newsletter. The Cuba chapter reported

their support to the organization of the International Optoelectronic Conference held in Havana. The three chapters in Mexico, in addition to videos and distinguished lecturers, are organizing a yearly (this was the third issue) Workshop on Simulation and Characterization Techniques that has become a way of exchanging experience among specialists in Region 9 and North America working in this field. The Region Meeting was organized the day before this Workshop started. All chairs expressed their intention to strengthen relations among chapters in the region, and decided to organize a Region 9 meeting at least biennially.

Other issues discussed were the biennial organization of an Electron Devices Interna-

tional Conference in Region 9. The attendees asked for the cooperation of EDS and encouraged ED members from the U.S. to actively participate in it, as well as look for industrial participation in Region 9 activities. Chapters will encourage the submission of more IEEE papers from our region and suggested the nomination of an editor from the region for Transactions on Electron Devices. They will also suggest experienced members to present their nomination for Senior members. Among the problems to be solved for Region 9, the most important deals with the membership inscription fee, which is the same as for USA members and is therefore too high when compared to salaries in the region. Until this is solved, it appears difficult to increase the membership in the region. Chairs were asked to contact their partners, since a number of partners have never gotten in touch with their chapters.

Attendees were quite satisfied with the meeting and considered it very fruitful and a good start for future work in the region, expressing their congratulations to the organizers. The work done by the Mexico Chapter was recognized, not only for its internal activities, but also for its effort to join the technical activities of chapters in the region. The Mexico chapter was recommended for proposition as chapter of the year.

Magali Estrada SEES, CINVESTAV-IPN México D.F.

# **ED Student Branch Chapter CINVESTAV-IPN, MEXICO**

José Luis Domínguez Rodríguez



I am a student at the Solid State Electronics Section (SEES) working on my M.S. degree in the Electrical Engineering Department, CINVESTAV-IPN from México City. My field of research is VLSI design: neural networks. I am the new chair of EDS Student Branch Chapter CINVESTAV-IPN. E-Mail: jldguez@sees.cinvestav.mx

Our ED Chapter was formed by 38 students. This year, we organized the "First IEEE/EDS Region 9 Chapter Meeting", September 5, 1999 in México City, with the assistance of Venezuela, Cuba, CIN-VESTAV-IPN México and Guadalajara México chapters. We organized the "Third Workshop on Simulation and Characterization Techniques in Semiconductors", September 6-7, 1999 at the Solid State Electronics Section (SEES), CINVESTAV-IPN in collaboration with the EDS México Chapter, SEES, the University of Illinois at Chicago, and the National Institute of Astronomy and Optics of México (INAOE). The workshop had 50 participants and the activities included 4 tutorials, 9 paper presentations, and a panel discussion on "State of the Art of Simulation Technics in Latin America"

> José Luis Domínguez Rodríguez CINVESTAV-IPN México City, Mexico

# **1998 T-SM Best Paper Award Winners**

The IEEE Transactions on Semiconductor Manufacturing (T-SM) Best Paper Award is presented annually to the authors of that paper considered by the T-SM Editorial Board to be the most outstanding paper published during the year. The Award is based on the accuracy, originality, and importance of the technical concept, as well as the quality and readability of the manuscript. The Best Paper is also based on the potential or immediate impact that this work could have on the semiconductor manufacturing industry. This award, presented at the annual Advanced Semiconductor Manufacturing Conference, recognizes the ongoing partnership of this conference and the IEEE.

The Editorial Board is pleased to announce that the paper entitled "A Novel In-Situ Monitoring Technique for Reactive Ion Etching Using a Surface Micromachined Sensor" by M. Baker, F. Williams, and G. May has been recognized as the best paper published in the 1998 Transactions. This paper, which appeared in the May issue, has been selected because it describes a unique and innovative technique for monitoring film thickness in reactive ion etching (RIE) by incorporating a micromachined sensor. The sensor was tested in an RIE system and was shown to offer high resolution, potentially permitting accurate in-situ monitoring of etch rate or uniformity at a nominal cost.



Michael D. Baker

Georgia Institute of Technology, Atlanta, in 1992 and 1996, respectively. He is currently a Hardware Design Engineer in the Ink Jet Supplies Business Unit, Advanced

(continued on page 10)

Michael D. Baker

received a B.S.

degree in electrical

engineering from Flori-

da Agricultural and

Mechanical University, Tallahassee, in 1990,

and M.S. and Ph.D.

degrees in electrical

engineering from the

### Best Papers (continued from page 9)

Research Lab, Hewlett Packard, Corvallis, OR. He has worked at several divisions of Honeywell, including Space and Strategic Defense, Sensors Research Center, and Commercial Flights. He has also conducted research at the University of Michigan, Ann Arbor, in electromagnetics. His research interests include in-situ monitoring techniques for plasma-based processes and microsensors.



Frances R. Williams (S'94) received B.S. and M.S. degrees in electrical engineering from the North Carolina Agricultural and Technical State University, Greensboro, in 1994 and 1996,

Frances R. Williams

respectively. She is currently pursuing a Ph.D degree at the School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, where she is an Alfred P. Sloan Foundation Fellow. She is a National Science Foundation and an Office of Naval Research Graduate Fellow. She has interned at Fermi National Accelerator Laboratory, Batavia, IL, as well as several divisions of NASA Goddard Space Flight Center, Greenbelt, MD. Her research interests include microelectronic acoustic sensors and in-situ monitoring techniques of plasma-based processes.



Gary S. May (S'85-M'90-SM'97) received a B.S. degree in electrical engineering from the Georgia Institute of Technology, Atlanta, in 1985 and M.S. and Ph.D degrees in electrical engineering

Gary S. May

and computer science from the University of California at Berkeley in 1987 and

### CD ROM Packages Available to EDS Members

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

Currently, EDS has three CD ROMs available to EDS members. Each is available for US \$25.00 (US \$19.00 for students).

- 1997 EDS CD ROM Package
- 1998 EDS CD ROM Package
- 1999 EDS CD ROM Package
- (expected shipping date is May 2000)

If you would like to receive an order form for any of these products, please contact the EDS Executive Office (contact information provided on page 2).

#### 1991, respectively. He is currently an Associate Professor at the School of Electrical and Computer Engineering and Microelectronics Research Center at the Georgia Institute of Technology. He has worked as a Member of Technical Staff at AT&T Bell Laboratories, Murray Hill, NJ. His research is in the field of computer-aided manufacturing of integrated circuits, and his interests include semiconductor process and equipment modeling, process simulation and control, automated process and equipment diagnosis, and yield modeling. Dr. May is a National science Foundation "National Young Investigator" and is Editor-in-Chief of IEEE Transactions on Semiconductor Manufacturing. He was a National Science Foundation and an AT&T Bell Laboratories graduate fellow. He is Chairperson of the National Advisory Board of the National Society of Black Engineers (NSBE).

Gary S. May Georgia Institute of Technology Atlanta, GA

# Announcement of the Availability of IEEE Fellow Kits

The Fellow nomination process is relatively straight-forward, but requires some forethought and planning preceding the 15 March 2000 deadline. Both a nominator and at least five, but no more than eight references from current Fellows are required.

Fellow kits can be requested in hard copy format or downloaded from the Web.

Fax: (732) 981-9019; E-MAIL: fellow-kit@ieee.org; URL: http://www. ieee.org/about/awards/table1.htm

# **EDS 'Permanent' Membership Option**

EDS members have available the option of making a one-time payment of \$25 to become a 'permanent' member of EDS. The only requirement to become a permanent EDS member (besides the \$25 fee) is to maintain your IEEE membership. Current IEEE and EDS members are able to request this option via their 2000 IEEE membership renewal bill. IEEE members who are not members of EDS can also use their 2000 renewal bill to request permanent EDS membership. In addition, non-members of the IEEE are also able to request this option by completing the 2000 IEEE/EDS membership application form. We encourage you to take advantage of this EDS offering and benefit. The option is not available to IEEE student or EDS affiliate members.

# Regional and Chapter News

### USA, Canada and Latin America (Regions 1-6, 7 & 9) Report of the International Workshop on Simulation and

### Characterization Technique

by Magali Estrada

Simulation and characterization techniques each day become more important tools in semiconductor physics and technology research and development. Today it is not conceivable to develop a technological process or a new device, or even study a physical structure without them. For these reasons, these matters have been introduced as part of the graduate and undergraduate curricula in all prestigious academic institutions.

Academic institutions in Mexico and other Latin American countries have also introduced these techniques in their curricula and now have the possibility of analyzing results and discussing perspective work in this field. In Mexico, the National Council for Science and Technology (CONA-CYT) has been supporting the introduction of these techniques in universities as well as in research and development projects.

During the last three years, the Center of Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV-IPN), in Mexico City has organized the International Workshop on Simulation and Characterization Technique to provide a forum to present and discuss activities, ideas and results. This year we invited 4 lecturers, Dr. Ines Pereyra from the University of Sao Paulo, Brazil, Dr. Adelmo Ortiz from the University Simon Bolivar in Venezuela, Dr. Jiun Liou from the University of Central Florida and Dr. Krishna Shenai from the University of Illinois at Chicago. As



Attendees of the International Workshop on Simulation and Characterization Technique.

it has become standard practice for our Workshops, all contributions have been gathered in a digest which contains the main aspects in which academia and researchers are working to apply and develop simulation and characterization techniques in the semiconductor field. The number of contributions has increased from year to year both in number and in quality as a result of the development this field of research is achieving. The panel in this occasion dealt with the state of the art of simulation and characterization techniques in Latin America and it was really interesting to notice the results obtained in just a few years.

This third Workshop was developed quite successfully and gave us again the possibility to bring together researchers and students from different institutions and to strengthen international collaboration in this field of research. We hope this Workshop will continue in the next years, increasing the number of participants as well as inviting lecturers and receiving contributions from other countries. It is also a proposal to increase the participation of students.

We want to thank the support given by the IEEE Electron Devices Society (EDS), CONACYT, and the Section of Solid State Electronics at CINVESTAV for the organization of this Workshop. We also want to thank the Technical Committee for its work in selecting the papers for presentation. Thanks to the speakers and participants for their excellent presentations and interest.

#### International Conference on Microelectronics and Packaging by Nelson Braga

The XV SBMicro - International Conference on Microelectronics and Packaging will be held at the Hotel Tropical in Man-

aus, the capital city of the Amazon State, Brazil, in the heart of the Rain Forest, September 18 – 23, 2000. This conference offers a unique blend of microelectronics and packaging and serves as an instrument to gather scientists working on both topics. The multi-disciplinary nature of SBMicro conferences is intended to emphasize the interactions among processing and packaging technologies, devices, CAD and circuit design, through a variety of formats, such as oral presentations, poster sessions, exhibits, panel discussions, and tutorial sessions. The XV SBMicro Conference will maintain its tradition to offer two-day tutorial courses taught by prominent scientists from around the world who will also present their invited papers at the conference itself.

Calendar: September 18 - 23, 2000 XV SBMicro - International Conference on Microelectronics and Packaging, Location: Hotel Tropical, Manaus, AM, Brazil, Contact: Nelson Braga, Tel: (+5511) 818-5257, Fax: (+5511) 818-5585, E-MAIL: nbraga@lme. usp.br, Deadline: 04/28/2000, URL: http:// www.lme.usp.br/~sbm2000

- Mark Weichold, Editor

### Europe, Middle East & Africa (Region 8) MTT/ED/AP/LEO UK&RI Chapter Says Thank You to Terry Oxley by Ali Rezazadeh

The MTT/ED/AP/LEO UK & RI Chapter meeting held at Leeds University on Thursday, 16 September 1999 was an appropriate occasion for a presentation to Terry Oxley, a Life Member of IEEE. Terry was there to receive an official vote of thanks from all IEEE fellow members on behalf of the association and was presented with a beautiful crystal glass bowl. The meeting was chaired by Dr. Ali Rezazadeh (King's College London), the Chair of the UK and Northern Ireland Chapter, and the vote of thanks given by Professor Carson Stewart of the University of Belfast, Northern Ireland, the Secretary of the Chapter.

Terry Oxley's contribution to the Chapter, industry and education is well recognized internationally. He has received many awards during a lifetime of dedicated service, including Her Majesty's Silver Jubilee Medal in 1977 for his contribution to advancements to microwave components, and in 1989, the GEC Nelson Gold Medal for Company technical achievement. His long career started during the second World War, when for four years he served as an HO (Hostilities Only) Electrical Artificer, after which, in 1946, he joined GEC Hirst Research Centre, (HRC) retiring in 1988 after 42 years of service. Terry's record at HRC was one



Vote of thanks given by Professor Carson Stewart of the University of Belfast, Northern Ireland (and Chapter Secretary) to Terry Oxley.

of outstanding achievement in Research and Development in the field of microwave/millimeter-wave solid state devices and circuits, as he progressed through the HRC management structure to the position of Microwave Research Coordinator for GEC Research Ltd., reporting to the Managing Director. Some of his many professional activities over the past eleven years since his retirement from GEC have included: Chair (then member) of the MTT/ ED/AP/LEO UK& RI Chapter Administrative Committee; Editor for the EDS Newsletter; European liaison for the MTT-S IMS & AdCom; and TPC service for the Military Microwaves and Microwave & RF Conference events. During this period he received the IEEE Region 8 Section Volunteer Award and the MTT-S Meritorious Service Award. Terry was also one of the founders of the successful Workshop, EDMO (Electron Devices for Microwave & Optoelectronics).

We thank you, Terry, for an outstanding contribution to the industry, Engineering profession and Education, and wish you well in your second retirement.

#### MTT/ED/AP/LEO UK& RI Joint Chapter

by Ali Rezazadeh

The highlights for our Chapter are as follows:

- The Chapter, in cooperation with The University of Surrey and technical cosponsorship by the IEE, organized a Workshop 5-6 July 1999 at The University of Surrey, UK on "Non-linear Device Characterization and Use in RFIC and MMIC Power Amplifier Design". The meeting was very successful and about 55 delegates attended this meeting.
- The "IEEE 1999 Fourth Postgraduate Student High Frequency Workshop"

was held 16-17 September 1999 at the University of Leeds, UK and the Chairman was Dr. Stavros lezekiel of University of Leeds. In the evening of 16th September the Workshop dinner was arranged and many postgraduate students and other delegates had an enjoyable, friendly gathering. The main Workshop was on 17 September and 15 oral and 11 poster papers were presented. An IEEE proceedings was prepared and this is now available via the IEEE (IEEE Catalog Number: 99TH8409; ISBN: 0-

7803-5577-6 Softbound Edition; Library of Congress: 99-61881). My sincere congratulations must go to the Workshop Chairman, Dr. lezekiel, who had done an excellent job of organizing such a successful event.

- An afternoon lecture was jointly organized with the UK&RI Communications Society Chapter on Monday 20 September 1999. In this event, Prof. Fred Harris, San Diego State University, USA, gave a popular seminar on "DSP Techniques for Digital Radio Design" at King's College London, UK.
- The "7th IEEE International Workshop on Electron Devices for Microwave and Optoelectronic Applications -EDMO'99", jointly organized by the Chapter and King's College London, and with technical co-sponsorship by EDS, is planned for 22-23 November 1999 at King's College London. Details of this event are available from the Chapter Chairman, Ali Rezazadeh. EDMO'99 web: www.kcl. ac.uk/eleceng/edmo99.
- An evening Lecture is planned for the14th December 1999 at King's College London, on "Passive Radiometry", by Roger Appley.

For further information, please contact the Chapter Chair: Dr. Ali A Rezazadeh, Department of Electronic Engineering, King's College London, Strand, London WC2R 2LS, UK. TEL/FAX: +44 171 848 2879; E-MAIL: ali.rezazadeh@kcl.ac.uk.

#### ED/MTT Egypt Section

Ibrahim Salem

The ED/MTT Egypt Chapter organized a Workshop on Teaching Photonics at the Egyptian Faculties and Institutes on May 18, 1999. This workshop was held at the National Institute of Laser Enhanced Science, Cairo University, Giza. Thirteen papers were presented and the authors were from the following Universities: Cairo; Alexandria; Ain Shams; Menoufia; Zagazig; Higher Technological Institute; Ramadan 10th City; and the National Telecommunication Institute. The workshop record has an IEEE catalog Number: 99EX285. The second such workshop will be held on Oct. 12th, 2000.

— Gady Golan, Editor

#### **ED Romania Chapter**

by Gheorghe Brezeanu

During the last several months the ED Romania Chapter's activities included some interesting events, the main of which was the CAS'99 conference. In May 1999, the annual professional student contest "Tudor Tanasescu" was organised at "Politehnica" University, Bucharest. A total of 57 undergraduate students from all Romanian techinal universities took part in two sections of this event: Analog Integrated Circuits and Signals as well as Circuits and Systems. Ten students were awarded with PC mainboards 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 videotape projection was organized at the Microtechnology Institute in Bucharest. The 1998 IEDM 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 Controled Power Devices" with 6 invited speakers from CNM Barcelona, Spain and INSA de Lyon, France was held on October 4 at "Politechnica" University, Bucharest. The workshop attracted 28 participants (11 chapter members).

# MTT/ED/AP/CPMT West Ukraine Chapter

#### by Mykhailo Andriychuk

Our joint chapter, with 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 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 technical co-sponsorship of EDS, and financial and technical support of the MTT, ED, 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 the support of Dr. Charles Turner, Region 8 Activities Vice-Chair, the Lviv Scientific Library has been included in 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 co-sponsorship of 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. Thus, we raised the level of the IEEE Nizhny Novgorod Chapter prize in comparison with previous years and planned a US \$100 prize for the awardee. 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 candidates received their prizes together with MS diplomas.

The second activity was the International Workshop, "Probe Microscopy-99", which was 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 experience in the solid surface research by 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 the study of nanostructures properties, atomicforce 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 and www.nanoworld. org/russian/sem\_conf.htm.

#### ED Novosibirsk State Technical University Student Branch Chapter by Alexander Gridchin

The IEEE Student Branch in the Novosibirsk State Technical University was founded on March 8, 1999. It is the first IEEE Student Branch in Novosibirsk and the 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 1999 - eight new students have joined IEEE and we have 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). In 2000, 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 good cooperation with the joint IEEE 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 to 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 this direction of our activity by borrowing more tapes from 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 scientific, educational and technological process worldwide and in this respect count on further precious help of IEEE EDS.

> Ninoslav Stojadinovic, Editor

### Asia & Pacific (Region 10) IEEE LEO/ED Victorian Chapter

— by Dalma Novak

A joint LEO/ED Chapter located in the IEEE Victorian Section of Australia, was formed in November 1998 with Dr. Dalma Novak as the incumbent chair. There are now two EDS Chapters in Australia with the original chapter located in Canberra, chaired by Professor Jagadish, initially representing all IEEE EDS members. The LEO/ED Victorian Chapter participated in the Workshop on Semiconductor Optoelectronics organized by the LEO/ED Australia Chapter in March 1999. Recently, the Chapter held a video technical seminar on Trends in RF Devices for Wireless Applications. In November, 1999, Professor Paul Yu from the University of California, San Diego, will be giving a presentation for the Chapter in his capacity as an EDS Distinguished Lecturer.

For more information about Chapter activities, please contact the Chapter Chair, Dalma Novak: 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

During July-September 99, the Chapter focused efforts on the STAR Program, encouraging more conferences, initiating a new membership drive, enlisting more volunteers for chapter efforts and completing the election process.

Through detailed interactions with neighboring states, the Chapter had identified Kurukshetra forming part of Haryana State as the venue for carrying out the STAR Program for the year 1999-2000. The Chapter has purposely launched the STAR Program outside the national capital to promote the awareness to this scheme and involve more regional beneficiaries. Preliminary screening identified three higher secondary schools, i.e. D.A.V. Public School, Aggrasain Public School and Maharana Pratap Public School in Kurukshetra. The teacher co-ordinators from these schools are Ms. Geetika Jasuja, Ms. Indu Sabharwal, Ms. Monica Gupta, Mrs. Kavita Mahajan and Mrs. Betty Gregory. As in previous years, the Chapter received overwhelming response to the STAR enrollment and a total of 40 female candidates drawn from 10th to 12th standard grades were finally selected. Ms. Anurekha Sharma from Electronic Science Department, Kurukshetra University, volunteered as the Chapter's local STAR coordinator.

The first STAR event was held on the 25th of September at Aggrasain Public School. STAR related videos obtained from the EDS lending library, i.e. Who are Engineers and Careers for Electrical Engineers and Scientists, etc., were screened to the STAR participants. The Chapter Chair addressed the meeting and clarified many queries in detail. Mrs. P. Singh, Principal of the Aggarsain Public School, Mrs. A.Philip, Principal of the Maharana Pratap Public School and the STAR Teacher Coordinators attended this gathering. The Chapter Chair received substantial support from Prof. PJ George, Head, Electronic Science Department at Kurukshetra University and Mrs. George for seeding the STAR activity at Kurukshetra.

Plans for the Chapter to support and cosponsor various International/National workshops in ED/MTT areas were finalized. The Sixth International Conference and workshop on Electromagnetic Interference and Compatibility, is to be held in New Delhi during 2-8 December, 1999. The Tenth International Workshop on Physics of Semiconductor Devices (IWPSD-99) is to be held 14-18 December 1999. The Workshop on Millimeter Wave Components and National Conference on Communication (NCC-2000) are planned to be held in December 1999 and January 2000, respectively.

A special student membership drive was launched at Kurukshetra University, Indian Institute of Technology (Delhi) and the Department of Electronics (Delhi campuses). A total of 6 new EDS/MTTS members were enrolled. Several strategies for further increase in student participation in Chapter activities and membership are identified and pursued.

The Chapter Chair and Secretary had a very useful meeting on Chapter efforts in India with the IEEE TAB Colloquia members on 19 and 20 September 1999. The TAB committee consisted of IEEE President Prof. Kenneth R. Laker, TAB Vice President Dr. Michael S. Adler, MD of Technical Activities Ms. Mary Ward-Callan, Chair of TAB Colloquia Dr. Peter W. Wes Spencer and IEEE



EDS STAR meeting at Aggrasain Public School, Kurkshetra.

Manager of the Asia Pacific Operations Centre, Ms. Fanny Su Beh Noi. Chapter Executives discussed the best ways of drawing more active volunteers for the chapter efforts and restructuring the past office bearer and executive teams. From this exercise, the Chapter has elected fresh teams for the year 1999-2000.

For more information on Chapter activities, please contact Chapter Chair, Dr. K.S. Chari: TEL: 91-11-4361464; FAX: 91-11-4363082; E-MAIL: chari@xm.doe.ernet.in.

#### **REL/CPMT/ED Chapter Singapore** by Dr. Ong Soon Huat

The Chapter Secretary, Mr. Y. C. Ng, represented the IEEE RL/CPMT/ED Singapore Chapter in the 3rd biennial EDS Region 10 Chapters Meeting that was held on 13 June, 1999 in Kyoto, Japan. Ten of the 13 EDS Chapters from Region 10 were represented in Kyoto to share their chapters' activities and exchange of ideas.

The 7th International Symposium on the Physical & Failure Analysis of Integrated Circuits (IPFA'99) was organized by the IEEE RL/CPMT/ED Singapore Chapter 5-7 July, 1999 at the Orchard Hotel, Singapore. The symposium drew 160 participants from 16 countries from Asia, Europe and America. There were 42 papers (three of which are invited papers) presented in the symposium from participants of 15 countries across Asia, Europe and America. The papers were selected by peer review from among more than 90 papers received. Along with the Symposium, four tutorials were conducted by experts in each area of failure analysis and reliability. The tutorials were attended by more than 120 participants. The equipment exhibition arranged along with IPFA has attracted a number of personnel from industry.

The IEEE RL/CPMT/ED Singapore Chapter donated S\$15,000 (\$8,700 USD) to the National University of Singapore as an Endowment Fund. The interest generated from this Fund will be used to sponsor an award of an annual Book Prize to the best student in the "Integrated Circuit Reliability Physics and Failure Analysis" course, offered at the Masters level at the University of Singapore. The book prize is set at S\$300 plus one year IEEE membership fee. This award is an encouragement of academic excellence and professional development in the area of Integrated Circuit Reliability Physics and Failure Analysis, which is in line with the objectives of the Singapore RL/CPMT/ED Chapter. It will also be useful as a means of membership



Dr. Ong presenting the IEEE Singapore Reliability Book Prize Award to Prof. Chan.

development in promoting awareness of IEEE and its activities. The "IEEE Singapore Reliability Book Prize Award" presentation was held on July 24th, 1999. Dr. SH Ong, the Chapter's Chairman, presented the check to Prof. Daniel Chan, Departmental Head for Electrical Engineering Department, National University of Singapore (see Picture). The invited guests at the presentation ceremony included Prof. Cary Yang, EDS Vice President.

For more information on Chapter activities, please contact the Chapter Chair, Dr. Ong Soon Huat: E-MAIL: soon.huat.ong@ nsc.com.

- W.K. Choi, Editor

#### Report of the 7th International Workshop on Advanced LSIs and Devices

#### —by Kwyro Lee

The 7th International Workshop on Advanced LSIs and Devices, organized by The Institute of Electronics Engineers of Korea (IEEK), The Institute of Electronics, Information and Communications Engineers (IEICE) of Japan, and IEEE Electron Devices Tokyo Chapter and sponsored by Hyundai Electronics Industries, Samsung Electronics, Yang Electronic Systems, and Ansoft Korea, was held at Phoenix Park, Pyungchang, Korea, during July 22-24, 1999. This annual workshop started in 1993 to bring together the engineers and scientists in Korea and Japan to discuss the present and future LSI processing and device technologies and alternates between Korea and Japan every year. This year's topics were: i) 0.1 micron technologies, ii) memory devices and circuits, iii) silicon RF devices and circuits, iv) Ferroelectric technologies, and v) IP based design. This year, the IEEE ED Korea Chapter became involved as one of the supporting organizations as a counter part of the IEEE ED Tokyo Chapter.

At the workshop, 112 participants (90 Korean and 22 Japanese) registered, and 64 selected papers (49 from Korea and 15 from Japan) were presented, including 7 invited papers. The Conference Chairman was Dr. Hyung-Moo Park of ETRI, and the General Secretary was Prof. Kwang-Ho Kim at Dept. of Semiconductor Engineering, Cheongju Univ. Next year, the conference will be held in Japan. For more information, contact Prof. Kwang-Ho Kim: TEL: +82-431-229-8465; FAX: +82-431-229-8432; E-MAIL: khkim@ alpha94.chongju.ac.kr.

#### Report of the 1999 International Conference on Simulation of Semiconductor Processes and Devices (SISPAD'99)

by Noriaki Nakayama

The 1999 International Conference on Simulation of Semiconductor Processes and Devices (SISPAD'99) (co-sponsored by the IEEE Electron Devices Society and the Japan Society of Applied Physics) was held at Kyoto Research Park, Kyoto, Japan September 6 - 8, 1999. The purpose of the Conference was to provide an opportunity for the presentation and discussion of the latest topics in process, device and circuit modeling for Semiconductors. One hundred seventy-four people from 16 countries attended the Conference and 62 papers, selected from the 103 papers submitted, were presented. There were two features in the SISPAD'99: one was increased contributions from Europe; the other was the significant advance in the atomistic simulation, the three dimensional grid generation and the gate tunneling simulation. SISPAD 2000 is scheduled to be held September 6-8, 2000 at Sheraton Seattle Hotel and Towers, Seattle, WA, USA. Further information can be obtained at http://wwwtcad.stanford.edu/sispad2000.html.

#### Report of the 1999 International Conference on Solid State Devices and Materials (SSDM'99)

- by Hisatsune Watanabe

The 1999 International Conference on Solid State Devices and Materials (SSDM99), sponsored by The Japan Society of Applied Physics, was held September 21-24, 1999 at Nihon Toshi Center Kaikan, Japan. The purpose of this conference is to bring together scientists and engineers actively engaged in the forefront of



SISPAD reception: Standing from right to left, Odanaka, K. Taniguchi, M.K. Orlowski, R. Dutton, J.B. Kuo, and H. Iwai, Front: Ishikawa.

solid-state devices and materials. From the 1999 conference, fifteen program-subcommittees have been established for covering circuit and system areas as well as device and materials areas. In addition, 3 short courses (in Japanese) were held on September 20. The number of participants of the conference was 666 from 19 countries and regions. The following 3 plenary papers were presented: "Japanese Management in an Era of Change" by Mr. J. Ushio (Chiarman and CEO, Ushio Inc., Japan), "Interconnection Limits on XXI Century Gigascale Integration (GSI)" by Prof. J.D. Meindl (Georgia Inst. of Technology, USA), and "R&D Challenges and Chance in Today's Japan" by Dr. S. Ogura (Halo LSI Design & Device Technology Inc., USA). Forty-five invited papers, 240 contributed papers and 9 late news papers were presented at the conference. SSDM 2000 is scheduled to be held August 28-31, 2000, at Sendai International Center. A one day short course will be held prior to the conference, on August 27, 2000. Detailed information is available via E-MAIL: ssdm@bcasj.or.jp or URL: http://ssdm.bcasj.or.jp/.



Attendees of SSDM'99 Prof. J. Miendl (center, one of the plenary speakers of the conference, Prof. T. Ohmi (right, Chair of SSDM2000).





Hisatsune Watanabe

#### Announcement from Tokyo Chapter

by Hisatsune Watanabe and Masao Fukuma

As usual, an annual Briefing Session for the 1998 IEDM was held in Tokyo on January 20, 1999. This year, five speakers were invited to deliver summary talks on highlights of the 1998 IEDM. Topics covered were Silicon Process and Wiring, Silicon Devices, Silicon Integrated Circuits and Sensors, Modeling and Simulation, and Compound Semiconductor and Quantum Devices. The number of participants was about 120, including non-EDS members. In addition to the briefing session, the Tokyo Chapter provides several activities both on technical and non-technical events. The Chapter technically supported several international meetings including the 1999 International Conference on Simulation of Semiconductor Process and Devices (SISPAD '99) held in Kyoto and the 1999 International Conference on Solid State Devices and Materials (SSDM '99) held in Tokyo, both sponsored by the Japan Society of Applied Physics and the IEEE Electron Devices Society. The Chapter also supports domestic workshops sponsored by the Institute of Electronics, Information and Communications Engineers. The workshops, which are held monthly, are organized by two technical groups of the Institute, the Silicon Devices and Materials and the Integrated Circuits and Devices groups. To increase the EDS Tokyo Chapter membership, a Japanese version of the EDS membership information brochures has been prepared. These brochures have been distributed at several meetings such as the 1998 IEDM and 1999 Symposia on VLSI Technology and VLSI Circuits.

#### Meeting with Singapore Chapter

by Hiroshi Iwai

A meeting between the Singapore Chapter and its partner was held at the Shangrila Hotel 6:30 - 9:00 p.m. on July 6, 1999 in conjunction with the IPFA'99 (7th International Symposium on the Physical & Failure Analysis of Integrated Circuits) held in Singapore. This was the 2nd meeting; the previous one was held in January 1998. S.H. Ong (Chapter Chair), Y.C. Ng (Chapter



Singapore chapter meeting: Seated (Left to Right): Y.S. Gan, M.K. Radhakrishnan, H. Iwai, S.H. Ong, K.L. Pey, Standing (Left to Right): Y.K. Swee, Bernard Chin, W.K. Chim, Y.C. Ng.

Secretary), Y.S. Gan, K.L. Pey, Y.K. Swee, Bernard Chin, W.K. Chim, M.K. Radhakrishnan (chapter members) and H. Iwai (chapter partner) attended the meeting. One of the major activities of the chapter is to organize two international conferences -IPFA and EPTC (Electronic Packaging Technology Conference). The chapter wants the conferences to be more international such that IPFA would move outside of Singapore every two years. As a first step, the chapter requested the partner to help invite more Far East distinguished speakers to the conferences and to Singapore in general. The partner promised the support. It was recommended to invite more foreign people to the program committee of the conferences to make them more international. Application for a special issue of the IEEE Transactions on Electron Devices for reliability was one of the desires of the chapter in the previous meeting held in 1998. It was agreed to prepare to apply a special issue of IEEE Transactions on Electron Devices for IPFA 2001. It was also agreed for the chapter to make an effort to increase the number of members by setting-up an IEEE registration desk at the Singapore conferences. The population of the Fellow and Senior members in the chapter is very small despite its relatively large number of members (more than 200). The chapter will make an effort to increase the Fellow and Senior members with their partners help. The meeting was held in a very friendly atmosphere and the discussions were fruitful.

#### Report from the 11th International **Photovoltaic Science and** Engineering Conference (PVSEC-11, http//www.tuat.ac.jp/ pvsec11) by Tadashi Saitoh

The 11th International Photovoltaic Science and Engineering Conference was held in Sapporo, Hokkaido, Japan, on September 20-24, 1999. The conference, co-sponsored by the IEEE and the Japan

Society of Applied Physics, brought together 705 scientists and engineers from 38 countries to discuss about recent scientific and technological developments.

At the opening ceremony, the PVSEC Award was given to Prof. Makoto Konagai (Tokyo Institute of Technology) and the PVSEC Special Award to Dr. Kazuo Inamori, founder of Kyocera Corp. The technical program was organized in 8 categories from fundamentals, crystalline Si, amorphous Si, CIGS & CdTe, III-V, modules & system components, terrestrial systems and national programs.

Three hundred and ninety-one contributed papers and 62 invited papers were presented at oral and poster sessions, which are record numbers in the PVSEC history due to the recent growth of the photovoltaic market for residential applications.

The topics of the presented papers included: 24.7%-efficient, monocrystalline Si cells, stable Ga-doped Si CZ cells, multicrystalline cell technology, amorphous cell mass-production technology, 30.9% InGaP/InGaAs tandem cells on Ge substrates, 14.7% CulinGaSe mini-module, building integrated PV modules, inverters for AC modules, PV in urban environment and remote applications in Asian countries. Two workshops highlighted the conference, including the Informal Workshop on Light Degradation of Minority-Carrier Lifetimes in CZ-Si Solar Cells and IEA Workshop on Value-added PV Systems.

The conference also included an Exhibition of commercial modules and systems as well as newly developed products. Two thousand seven hundred and fifty people visited the Exhibition to look at the advanced products displayed at 34 booths. The next conference will be held in Cheju Island, Korea, in June, 2001. For more information, please contact the General Chair, Dr. Jinsoo Song, Korean Institute of Energy Research, e-mail: pvjsong@sun330.kier.re.kr

— Hiroshi Iwai, Editor



PVSC special award winner Dr. Kazuo Inamori, founder of Kyocera Corp. (left) and General Chair Prof. Tadashi Saitoh (right) at the opening ceremony.

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# **EDS Meetings Calendar**

(As of 8 December 1999)

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

February 7 – 9, 2000, **IEEE INTERNATIONAL SOLID-STATE CIRCUITS CONFERENCE**, <u>Loca-</u> tion: San Francisco Marriott Hotel, San Francisco, CA, <u>Contact:</u> Nicole Rath, <u>Tel</u>: (202) 973-8667, <u>Fax:</u> (202) 973-8722, <u>E-Mail</u>: ISSCC@courtesyassoc.com, <u>Deadline</u>: Past Due, <u>www</u>: http:// www.isscc.org

February 13 – 17, 2000, \* **IEEE NON-VOLATILE SEMICONDUCTOR MEMORY WORKSHOP**, <u>Location:</u> Hyatt Regency, Monterey, CA, <u>Contact:</u> Michael Fliesler, <u>Tel:</u> (408) 749-5561, <u>Fax:</u> (408) 749-3718, <u>E-Mail:</u> michael.fliesler@amd.com, <u>Deadline:</u> Past Due, <u>www:</u> http://www.hea.com/ hean2/flash/ nvsm/index. html

February 22 – 24, 2000, T NATIONAL RADIO SCIENCE CONFERENCE, Location: Minufiya University, Menouf, Egypt, <u>Contact</u>: Ibrahim A. Salem, <u>Tel:</u> 20-2-258-0256, <u>Fax:</u> 20-2-594-1270, <u>E-Mail:</u> ia.salem@ieee.org, <u>Deadline:</u> Past Due, <u>www:</u> Not Available

February 28 – March 3, 2000, T RUSSIAN SCI-ENTIFIC-PRACTICAL CONFERENCE OF STU-DENTS, YOUNG SCIENTISTS AND SPECIALISTS "MODERN TECHNIQUE AND TECHNOLOGY", Location: Tomsk Polytechnic University, Tomsk, Russia, <u>Contact</u>: Oleg V. Stoukatch, <u>Tel</u>: 7-3822-233183, <u>Fax</u>: 7-3822-223262, <u>E-Mail</u>: ird@tusur.ru, <u>Deadline</u>: Not Available, <u>www</u>: Not Available

March 13 – 16, 2000, \* IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES, Location: DoubleTree Hotel, Monterey, CA, <u>Contact</u>: Wendy Walker, <u>Tel</u>: (301) 527-0900 ext. 104, <u>Fax</u>: (301) 527-0994, <u>E-Mail</u>: wendyw@widerkehr.com, <u>Deadline</u>: Past Due, <u>www</u>: http://www.ee.ed.ac.uk/ICMTS

March 15, 2000, T **SARNOFF SYMPOSIUM ON ADVANCES IN WIRED AND WIRELESS COMMUNICATIONS**, <u>Location</u>: The College of New Jersey, Ewing, NJ, <u>Contact</u>: Jennifer Semanchik, <u>Tel</u>: (609) 734-3168, <u>Fax</u>: (609) 734-2050, <u>E-Mail</u>: jsemanchik@sarnoff.com, <u>Deadline</u>: Not Applicable, <u>www</u>: Not Available

### March 15 – 17, 2000, T INTERNATIONAL CARACAS CONFERENCE ON DEVICES, CIR-

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CUITS AND SYSTEMS, Location: Camino Real, Cancun, Mexico, <u>Contact</u>: ICCDCS, <u>Tel</u>: 58-2-9064010, <u>Fax</u>: 58-2-9064025, <u>E-Mail</u>: iccdcs@ usb.ve, <u>Deadline</u>: Past Due, <u>www</u>: http:// pancho.labc.usb.ve/iccdcs2000

March 27 – 29, 2000 T INTERNATIONAL CONFERENCE ON MODELING & SIMULA-TION OF MICROSYSTEMS, SEMICONDUC-TORS, SENOSRS AND ACTUATORS, Location: U.S. Grant Hotel, San Diego, CA, <u>Contact</u>: Sarah Wenning, <u>Tel</u>: (925) 847-9152, <u>Fax</u>: (925) 847-9153, <u>E-Mail</u>: wenning@dnai.com, <u>Deadline</u>: Past Due <u>www</u>: http://www.cr.org/MSM2000

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

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

April 10 – 14, 2000, T **SYMPOSIUM ON OPTO AND MICROELECTRONIC DEVICES AND CIRCUITS**, <u>Location</u>: Southeast University, Najing, China, <u>Contact</u>: Wolfgang Freude, <u>Tel</u>: 49-721- 608-2492, <u>Fax</u>: 49-721-608-2786, <u>E-Mail</u>: w.freude@ihq.uni-karlsruhe.de, <u>Deadline</u>: Not Available <u>www</u>: http://www.uni-karlsruhe.de/ ~ihq/main/conferences/SODC2000\_Call.htm

May 1 – 5, 2000, T EUROPEAN PHOTO-VOLTAIC SOLAR ENERGY CONFERENCE & EXHIBITION, Location: Scottish Exhibition & Conference Centre, Glasgow, Scotland, <u>Contact</u>: Bettina Kaisa, <u>Tel</u>: 49-89-720 1235, <u>Fax</u>: 49-89-720 1291, <u>E-Mail</u>: renewables@tnet.de, <u>Deadline</u>: Past Due, <u>www</u>: http://www.wip.tnet.de

May 2 – 4, 2000, @ **IEEE INTERNATIONAL** VACUUM ELECTRONICS CONFERENCE, Location: Doubletree Hotel, Monterey, CA, <u>Contact:</u> Carol L. Kory, <u>Tel:</u> (216) 433-3512, <u>Fax:</u> (216) 433-8705, <u>E-Mail</u>: carol.kory@grc.nasa.gov, <u>Deadline</u>: 1/14/00, <u>www</u>: http://www. ewh.ieee.org/soc/eds/ivec

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

May 14 – 18, 2000 @ IEEE INTERNATIONAL CONFERENCE ON INDIUM PHOSPHIDE AND RELATED MATERIALS, Location: Williamsburg Marriott, Williamsburg, VA, <u>Contact</u>: Samantha Padilla, <u>Tel</u>: (732) 562-3894, <u>Fax</u>: (732) 562-8434, <u>E-Mail</u>: s.padilla@ieee.org, <u>Deadline</u>: Past Due, <u>www</u>: http://www.ieee.org/leos

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

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

May 21 – 25, 2000 T **INTERNATIONAL** WORKSHOP ON COMPUATIONAL ELEC-TRONICS, Location: University of Glasgow, Glasgow, Scotland, UK, <u>Contact</u>: John R. Barker, <u>Tel</u>: 44-141-330-4792, <u>Fax</u>: 44-141-330-4907, <u>E</u>-<u>Mail</u>: iwce7@elec.gla.ac.uk, Deadline: 2/14/00, <u>www</u>: http://elec.gla.ac.uk/groups/dev\_mcd/ iwce.7/

May 22 – 24, 2000, T **INTERNATIONAL SYM-POSIUM ON PLASMA PROCESS INDUCED DAMAGE**, <u>Location</u>: Westin Hotel, Santa Clara, CA, <u>Contact</u>: Della Miller, <u>Tel</u>: (408) 246-3600,

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

Fax: Not Available, E-Mail: della@vacuum.org, Deadline: 2/4/00, www: http://www.vacuum. org/nccavs/p2id.html

May 22 – 24, 2000, T INTERNATIONAL CON-FERENCE ON MICROWAVES, RADAR AND WIRELESS COMMUNICATIONS, Location: Wroclaw, Poland, <u>Contact</u>: Edward J. Sedek, <u>Tel</u>: 48-22-810-25-71, <u>Eax</u>: 48-22-810-25-71, <u>E-Mail</u>: sabok@pit.edu.pl, <u>Deadline:Past</u> Due, <u>www</u>: http://www.pit.edu.pl/MIKON-2000

May 24, 2000, T **HONG KONG ELECTRON DEVICES MEETING**, <u>Location</u>: The University of Hong Kong, Hong Kong, <u>Contact</u>: Peter T. Lai, <u>Tel</u>: 852-2859-2691, <u>Fax</u>: 852-2559-8738, <u>E-Mail</u>: laip@eee.hku.hk, <u>Deadline</u>: 3/15/00, <u>www</u>: http://www.ee.ust.hk/ieee\_eds/hkedm/

May 22 – 25, 2000, *@* **INTERNATIONAL SYM-POSIUM ON POWER SEMICONDUCTOR DEVICES & ICS**, <u>Location</u>: Pierre Baudis Congress Centre, Toulouse, France, <u>Contact</u>: M. Ayman Shibib, <u>Tel</u>: (610) 939-6576, <u>Fax</u>: (610) 939-3769, <u>E-Mail</u>: a.shibib@ieee.org, <u>Deadline</u>: Past Due, <u>www</u>: http://www.laas.fr/ISPSD2000/

May 30 – June 2, 2000, T **ELECTROMAGNETICS CONFERENCE (EUROEM)**, <u>Location</u>: Edinburgh International Conference Centre, Edinburgh, Scotland, <u>Contact</u>: Concorde Services, <u>Tel</u>: 44-141-221-5411, <u>Fax</u>: 44-141-221-2411, <u>E-Mail</u>: euroem@concordeuk.com, <u>Deadline</u>: 1/14/00, <u>www</u>: http://www.mcs. dundee.ac.uk:8080/~euroem

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

June 5 – 7, 2000 \* **IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFER-ENCE**, <u>Location</u>: Hyatt Regency Hotel at the San Francisco Airport, Burlingame, CA, <u>Contact</u>: Wendy Walker, <u>Tel</u>: (301) 527-0900 ext. 104, <u>Eax</u>: (301) 527-0994, <u>E-Mail</u>: wendyw@ widerkehr.com, <u>Deadline</u>: 1/14/00, <u>www</u>: http://www.ieee.org/conference/iitc

June 10, 2000, @ IEEE INTERNATIONAL WORKSHOP ON STATISTICAL METROLOGY, Location: Hilton Hawaiian Village, Honolulu, HI, <u>Contact</u>: Phyllis Mahoney, <u>Tel</u>: (301) 527-0900 ext. 103, <u>Fax</u>: (301) 527-0994, <u>E-Mail</u>: phyllism@

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widerkehr.com, <u>Deadline</u>: 1/28/00, <u>www</u>: http://www.ieee.org/conference/vlsi

June 10 – 11, 2000, @ IEEE SILICON NANO-ELECTRONICS WORKSHOP, Location: Hilton Hawaiian Village, Honolulu, HI, <u>Contact</u>: Phyllis Mahoney, <u>Tel</u>: (301) 527-0900 ext. 103, <u>Fax</u>: (301) 527-0994, <u>E-Mail</u>: phyllism@widerkehr.com, <u>Deadline</u>: 3/1/00, <u>www</u>: http://www.eas.asu. edu/~nano/snw/snw.htm

June 10 – 13, 2000, \* **IEEE RADIO FREQUEN-CY INTEGRATED CIRCUITS SYMPOSIUM**, <u>Location</u> Boston Copley Place Convention Center, Boston, MA, <u>Contact</u>: Fazal Ali, <u>Tel</u>: Not Available, <u>Eax</u>: Not Available, <u>E-Mail</u>: fazal.ali@ nmp.nokia.com, <u>Deadline</u>: Past Due, <u>www</u>: http://www.ims2000.org/rfic.htm

June 12 – 14, 2000, @ IEEE INTERNATIONAL SYMPOSIUM ON VLSI TECHNOLOGY, Location: Hilton Hawaiian Village, Honolulu, HI, <u>Contact</u>: Phyllis Mahoney, <u>Tel</u>: (301) 527-0900 ext. 103, <u>Fax</u>: (301) 527-0994, <u>E-Mail</u>: phyllism@ widerkehr.com, <u>Deadline</u>: 1/7/00, <u>www</u>: http:// www.ieee.org/conference/vlsi

June 15 - 17, 2000, # **IEEE INTERNATIONAL** SYMPOSIUM ON VLSI CIRCUITS, Location: Hilton Hawaiian Village, Honolulu, HI, <u>Contact</u>: Phyllis Mahoney, <u>Tel</u>: (301) 527-0900 ext. 103, <u>Fax</u>: (301) 527-0994, <u>E-Mail</u>: phyllism@ widerkehr.com, <u>Deadline</u>: 1/7/00, <u>www</u>: http://www.ieee.org/ conference/vlsi

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

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

June 25 – 30, 2000, T **INTERNATIONAL CON-FERENCE ON HIGH-POWER PARTICLE BEAMS**, <u>Location</u>: Hotel New Otani Nagaoka, Nagaoka, Niigata, Japan, <u>Contact</u>: Kiyoshi Yatsui, <u>Tel</u>: 81-258-47-9891, <u>Fax</u>: 81-258-47-9890, <u>E-Mail</u>: beams@etigo.nagaokaut.ac.jp, <u>Deadline</u>: Past Due, <u>www</u>: http://etigo.nagaokaut.ac.jp/ beams June 26 – 29, 2000, T **INTERNATIONAL POW-ER MODULATOR SYMPOSIUM**, <u>Location</u>: Sheraton, Newport News, VA, <u>Contact</u>: Janice Brooks, <u>Tel</u>: (703) 413-3882, <u>Fax</u>: (703) 413-1315, <u>E-Mail</u>: jbrooks@washington.palisades. org, <u>Deadline</u>: 2/14/00, <u>www</u>: http://hvw.usc.edu/pms

July 3 – 7, 2000, \* **IEEE SEMICONDUCTING AND INSULATING MATERIALS CONFERENCE**, <u>Location</u>: Australian National University, Canberra, Australia, <u>Contact</u>: Chennupati Jagadish, <u>Tel</u>: 61-2-6249-0363, <u>Fax</u>: 61-2-6249-0511, <u>E-Mail</u>: c.jagadish@ieee.org, <u>Deadline</u>: 1/17/00, <u>www</u>: http://rsphysse.anu.edu.au/admin/simc2000/

July 10 – 13, 2000, @ IEEE INTERNATIONAL VACUUM ELECTRON SOURCES CONFER-ENCE, Location: Disney's Coronado Springs Resort, Orlando, FL, <u>Contact</u>: Vita Feuerstein, <u>Tel</u>: (732) 562-6826, <u>Fax</u>: (732) 981-1203, <u>E-Mail</u>: vita@ieee.org, <u>Deadline</u>: 2/29/00, <u>www</u>: http://ctd.grc.nasa.gov/5620/IVESC\_2000

July 11 – 13, 2000, T **INTERNATIONAL MICROPROCESSES & NANOTECHNOLOGY CONFERENCE**, <u>Location</u>: University of Tokyo, Tokyo, Japan, <u>Contact</u>: Hiroaki Masuko, <u>Tel</u>: 81-3-5814-5800, <u>Fax</u>: 81-3-5814-5823, <u>E-Mail</u>: hmasuko@bcasj.or.jp, <u>Deadline</u>: 3/15/00, <u>www</u>: http://www.nano.ee.es.osaka-u.ac.jp/mnc/

July 14 – 15, 2000 T **INTERNATIONAL WORK-SHOP ON INTEGRATED POWER PACKAG-ING**, <u>Location</u>: Waltham, MA, <u>Contact</u>: Douglas C. Hopkins, <u>Tel</u>: (607) 729-9949, <u>Fax</u>: (607) 729-7129, <u>E-Mail</u>: d.hopkins@ieee.org, <u>Deadline</u>: Not Available, <u>www</u>: Not Available

July 24 – 28, 2000, T **INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE**, Location: The Riviera, Las Vegas, NV, <u>Contact</u>: Jean Riley, <u>Tel</u>: (703) 264-7553, <u>Fax</u>: (703) 264-7551, <u>E-Mail</u>: jeanr@aiaa.org, <u>Deadline</u>: Past Due, <u>www</u>: http://www.aiaa.org

July 25 – 27, 2000 T **INTERNATIONAL SYM-POSIUM ON LOW POWER ELECTRONICS & DESIGN**, <u>Location</u>: Hotel Excelsior Palace, Rapallo/Portofino Coast, Italy, <u>Contact</u>: David Blaauw, <u>Tel</u>: (512) 794-4356, <u>Fax</u>: (512) 794-4793, <u>E-</u> <u>Mail</u>: david\_blaauw@email.mot.com, <u>Deadline</u>: 1/28/00, www: http://eda.polito.it/ispled-00

August 7 – 9, 2000 \* IEEE CORNELL CONFER-ENCE ON ADVANCED CONCEPTS IN HIGH SPEED SEMICONDUCTOR DEVICES AND CIRCUITS, Location: Cornell University, Ithica, NY, Contact: Elke Schofield, <u>Tel</u>: (607) 255-3409, <u>Fax</u>:

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(607) 255-4742, <u>E-Mail</u>: schofield@iiiv.tn. cornell.edu, <u>Deadline</u>: Not Available, <u>www</u>: Not Available

August 20 – 23, 2000, T **TOPICAL WORK-SHOP ON HETERSTRUCTURE MICRO-ELEC-TRONICS**, <u>Location</u>: Kyoto Research Park, Kyoto, Japan, <u>Contact</u>: Takashi Mizutani, <u>Tel</u>: 81-52-789-5230, <u>Fax</u>: 81-52-789-5232, <u>E-Mail</u>: tmizu@ nuee.nagoya-u.ac.jp, <u>Deadline</u>: 4/3/00, <u>www</u>: http://www.nuee.nagoya-u.ac.jp/institute/ TWHM00/

August 28 – 31, 2000, T **INTERNATIONAL CONFERENCE ON SOLID STATE DEVICES AND MATERIALS**, <u>Location</u>: Sendai International Center, Sendai, Japan, <u>Contact</u>: Hiroaki Masuko, <u>Tel</u>: 81-3-5814-5800, <u>Fax</u>: 1-3-5814-5823, <u>E-Mail</u>: hmasuko@bcasj.or.jp, <u>Deadline</u>: 7/7/00, <u>www</u>: http://ssdm.bcasj.or.jp

September 6 – 8, 2000, \* **IEEE INTERNATION-AL CONFERENCE ON SIMULATION OF SEMICONDUCTOR PROCESSES AND DEVICES**, <u>Location</u>: Sheraton Hotel, Seattle, WA, <u>Contact</u>: Fely Barrera, <u>Tel</u>: (650) 723-1349, <u>Fax</u>: (650) 725-7731, <u>E-Mail</u>: fely@gloworm. stanford.edu, <u>Deadline</u>: 3/30/00, <u>www</u>: http:// www.tcad.stanford.edu/sispad2000.html

September 11 – 13, 2000, T **EUROPEAN SOLID STATE DEVICES RESEARCH CONFERENCE**, <u>Location</u>: University College, Cork, Ireland, <u>Contact</u>: Conference Secretary, <u>Tel</u>: 353-21-904398, <u>Fax</u>: 353-21-270271, <u>E-Mail</u>: essderc 2000@nmrc.ucc.ie, <u>Deadline</u>: 4/7/00, <u>www</u>: http://www.essderc.org

September 12 – 14, 2000, \* IEEE/SEMI ADVANCED SEMICONDUCTOR MANUFAC-TURING CONFERENCE AND WORKSHOP, Location: Fairmont Copely Plaza, Boston, MA, Contact: Margaret Kindling, <u>Tel</u>: (202) 289-0440, <u>Fax</u>: (202) 289-0441, <u>E-Mail</u>: mkindling@ semi.org, <u>Deadline</u>: 1/26/00, <u>www</u>: http:// www.semi.org

September 12 – 14, 2000, T EUROPEAN SOLID-STATE DEVICE RESEARCH CONFERENCE, Location: University College of Cork, Cork, Ireland, <u>Contact</u>: Herbert Grunbacher, <u>Tel</u>: 43-4242-2004-123, <u>Fax</u>: 43-4242-2004-179, <u>E-Mail</u>: hg@cti.ac.at, <u>Deadline</u>: 4/7/00, <u>www</u>: http:// www.essderc.org/

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tion: Kharkov State University, Kharkov, Ukraine, Contact: MMET'2000, <u>Tel</u>: 380-572-448595, <u>Fax</u>: 380-572-441105, <u>E-Mail</u>: mybox@public. kharkov.ua, <u>Deadline</u>: Not Available, <u>www</u>: Not Available

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September 17 – 22, 2000, \* **IEEE PHOTO-VOLTAIC SPECIALISTS CONFERENCE**, <u>Location</u>: Anchorage Hilton and William A. Egan Civic & Convention Center, Anchorage, AK, <u>Con-</u> tact: Americo F. Forestieri, <u>Tel</u>: (440) 234-1574, <u>Fax</u>: (440) 234-1574, <u>E-Mail</u>: moeforestieri@worldnet.att.net, <u>Deadline</u>: 3/31/00, <u>www</u>: http:// ieeepvsc.nrel.gov

September 17 – 22, 2000 T **INTERNATIONAL CONFERENCE ON ION IMPLANTATION TECHNOLOGY**, <u>Location</u>: Alpbach Conference Center, Tyrol, Austria, <u>Contact</u>: IIT 2000, <u>Tel</u>: 49-9131-761-100, <u>Fax</u>: 49-9131-761-102, <u>E-Mail</u>: iit2000@iis-b.fhg.de, <u>Deadline</u>: 3/17/00, <u>www</u>: http://www.mfa.kfki.hu/IIT2000

September 20 – 22, 2000 T **INTERNATIONAL CONFERENCE ON ADVANCED THERMAL PROCESSING OF SEMICONDUCTORS**, <u>Loca-</u> <u>tion</u>: Gaithersburg, MD, <u>Contact</u>: Bob Lojek, <u>Tel</u>: (719) 540-1737, <u>Fax</u>: (719) 579-8082, <u>E-Mail</u>: blojek@amtel.com, <u>Deadline</u>: Not Available, <u>www</u>: http://www.rtp-conference.org

September 20 – 22, 2000, T **INTERNATIONAL CONFERENCE "ACTUAL PROBLEMS OF ELECTRON DEVICE ENGINEERING",** Location: Saratov, Russia, <u>Contact</u>: A.A. Zakharov, <u>Tel</u>: 7-8452-257744, <u>Fax</u>: 7-8452-507563, <u>E-Mail</u>: aaz@star.sstu.runnet.ru, <u>Deadline</u>: Not Available, <u>www</u>: http://sstu.runnet.ru/ apede2000.html

September 23 – 26, 2000, T **SIBERIAN RUSSIA STUDENT WORKSHOP ON ELECTRON DEVICES AND MATERIALS**, <u>Location</u>: Novosibirsk State Technical University, Novosibirsk, Russia, <u>Contact</u>: Alexander V. Gridchin, <u>Tel</u>: 7-383-246-0877, <u>Fax</u>: 7-383-246-0209, <u>E-Mail</u>: algrid@ref.nstu.ru, <u>Deadline</u>: 4/20/00, <u>www</u>: http://www.ref.nstu.ru/edm September 24 – 26, 2000, \* IEEE BIPOLAR/ BIC-MOS CIRCUITS AND TECHNOLOGY MEETING, Location: Minneapolis Marriott City Center Hotel, Minneapolis, MN, <u>Contact</u>: Janice V. Jopke, <u>Tel</u>: (612) 934-5082, <u>Fax</u>: (612) 934-6741, <u>E-Mail:</u> jjopke@aol.com, <u>Deadline</u>: 3/15/00, <u>www</u>: http://www.snf.stanford.edu/ conferences/BCTM/

September 25 – 28, 2000, T IEEE INTERNA-TIONAL DISPLAY RESEARCH CONFERENCE, Location: Breakers Hotel, Palm Beach, FL, <u>Contact</u>: Ralph Nadell, <u>Tel</u>: (212) 460-8090 ext. 203, <u>Fax</u>: (212) 460-8090, <u>E-Mail</u>: rnadell@newyork. palisades.org, <u>Deadline</u>: 4/30/00, <u>www</u>: http:// www.sid.org

September 26 – 28, 2000, T **ELECTRICAL OVER-STRESS/ELECTROSTATIC DISCHARGE SYM-POSIUM**, <u>Location</u>: Disneyland Hotel, Anaheim, CA, <u>Contact</u>: ESD Association, <u>Tel</u>: (315) 339-6937, <u>Fax</u>: (315) 339-6793, <u>E-Mail</u>: eosesd@ borg.com, <u>Deadline</u>: 1/20/00, <u>www</u>: http:// www.eosesd. org

September 26 – 29, 2000 T **INTERNATIONAL CONFERENCE ON ACTUAL PROBLEMS OF ELECTRONIC INSTRUMENT ENGINEERING**, <u>Location</u>: Novosibirsk State Technical University, Novosibirsk, Russia, <u>Contact</u>: L.I. Lisitsyna, <u>Tel</u>: 7 (383-2) 46-06-19, <u>Fax</u>: 7 (383-2) 46-50-61, <u>E-</u> <u>Mail</u>: nrec@first.ntsu.nsk.su, <u>Deadline</u>: 4/15/00, <u>www</u>: Not Available

September 27 – 29, 2000, T INTERNATIONAL CONFERENCE & WORKSHOP ON ELEC-TROMAGNETICS OF COMPLEX MEDIA – BIANISOTROPICS, Location: Congress Center, Instituto Superior Tecnico, Lisbon, Portugal, <u>Contact</u>: Afonso M. Barbosa, <u>Tel</u>: 351-1-8418482, <u>Fax</u>: 351-1-8417284, <u>E-Mail</u>: afonso.barbosa@ Ix.it.pt, <u>Deadline</u>: 4/22/00, <u>www</u>: http:// www.ix.it.pt/bian2000

September 27 – 29, 2000, *@* **INTERNATIONAL** SYMPOSIUM ON SEMICONDUCTOR MAN-UFACTURING, Location: Hotel East 21st Tokyo, Tokyo, Japan, <u>Contact</u>: Sumitomo Hirota, <u>Tel</u>: 81-3-3815-8775, <u>Fax</u>: 81-3-3815-8529, <u>E-Mail</u>: issm@blue.ocn.ne.jp, <u>Deadline</u>: 4/21/00, <u>www</u>: http://www.issm.com

October 2, 2000, T MANUFACTURING SCI-ENCE AND TECHNOLOGY GROUP PRO-GRAM, Location: Boston, MA, Contact: Alain Diebold, <u>Tel</u>: (512) 356-3146, <u>Fax</u>: (512) 356-7640, <u>E-Mail</u>: alain\_diebold@sematech.org, <u>Deadline</u>: 5/00, <u>www</u>: Not Available

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