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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

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

IEEE Electron Devices Society Newsletter

1999 International Reliability Physics Symposium (IRPS)



The 37th Annual International Reliability Physics Symposium (IRPS) will be held at the Town and Country Hotel in San Diego, CA from March 22 to 25, 1999. IRPS is the principal symposium dealing with the physical mechanisms that influence the performance or affect the reliability of integrated circuits and microelectronic devices in the users' environment.

The Symposium has its roots in the early 1960s, when a forum for interchange of information on the physical processes which caused electronic components to fail was established. Sponsorship was largely from the military, most notably from the U.S. Air Force Rome Air Development Center. In 1967 sponsorship moved to the Institute of Electrical and Electronics Engineers, with the Reliability Society and the Electron Devices Society agreeing to jointly sponsor the Symposium.

The conference aims to stimulate progress in these broad areas:

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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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A Message from the Editor-in-Chief



Krishna Shenai

By the time you read this Newsletter, many of us will be enjoying the winter snow and everything else that comes along with it. I wish you all a happy and prosperous 1999! As we approach the next millennium, electronics technology is becoming ever important in our day-to-day functions from education to business. I would encourage all EDS members to fully take advantage of the latest electronics technologies when submitting your inputs to the appropriate Newsletter Editor. As a reminder, each Newsletter Editor has been assigned to gather information from a certain geographic region as specified on the backside cover. It is important that information which is valuable to the EDS membership be communicated to the appropriate Editor in a timely manner. News originating in a certain specific region should not be reported to an Editor assigned to cover another region. This will not only create confusion, but also may result in a delay in its publication.

We are now going through a reorganization in the editorial staff of the Newsletter. Dr. Chennupati Jagadish has opted to resign whereas the terms of Drs. Savvas Chamberlain and Adrian Veron have expired. I would like to take this opportunity to thank all three of them for their dedicated service to the EDS membership during their tenure as Editors. Drs. Wee Kiong Choi, Arokia Nathan, and Ninoslav Stojadinovic have been selected to fill these positions. It is with great pleasure that I welcome these three outstanding additions to the editorial staff, and I am certain that they will serve the EDS membership with the best of their abilities.



Wee Kiong Choi

Wee Kiong Choi received his B.Sc. (Microelectronics) in 1982, Ph.D. in 1986 and MBA in 1991, all from the University of Edinburgh, Scotland, U.K. He worked as a research fellow in the Department of Electrical Engineering and the Edinburgh Microfabrication Facility from 1987 to 1991. He joined the Department of Electrical Engineering, National University of Singapore as a lecturer in 1991 and is currently an Associate Professor. He has published about 60 journal and conference papers. His research interests are: the electrical and structural properties of dielectrics (silicon carbide, silicon oxide and tantalum oxide), rapid thermal processing and micro-electromechanical systems. He served as Treasurer for the IEEE Singapore Section, and is

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EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

1998

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T.P. Chow (1)
M.A. Shibib (1)
R.D. Sivan (1)
J.M. Woodall (2)
C.Y. Yang (2)

1999

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B.F. Griffing (2)
R.P. Jindal (2)
J.B. Kuo (2)
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A. A. Santos (1)
S. C. Sun (1)
K. Tada (2)
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* Members elected 12/97

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Upcoming Technical Meetings

1999 International Conference on Microelectronic Test Structures (ICMTS)

The IEEE Electron Devices Society is sponsoring the 1999 International Conference on Microelectronic Test Structures (ICMTS'99), to be held at the Sheraton Goteborg Hotel and Tower, Goteborg, Sweden, March 15-18, 1999. The conference will be preceded by a one-day Tutorial Short Course on Microelectronic Test Structures on Monday, March 15.

The purpose of the conference is to bring together designers and users of test structures to discuss recent developments and future directions. The aim of the conference is to serve as a forum for discussions between test chip engineers in industry and researchers in academia. Original papers will be presented that address new developments in test structures for both silicon and GaAs technologies as well as for micro-electromechanical systems (MEMS). The emphasis of the meeting is on test structure research, implementation and application, as well as test structures aimed at material and device characterization.

The use of test structures for new process, device and circuit developments has become more and more important as feature size has been scaled down into the deep sub-micron regime. Furthermore, it is widely recognized that test structures play a key role in the rapid transfer of new VLSI technologies from R&D into mass production, as well as for yield improvement. The conference builds upon this by presenting the latest developments on measurement techniques and related device layouts that can be used to characterize the process and help identify process issues.

ICMTS is held on a three-year rotation scheme between the US, Asia and Europe. Following the last conferences in Monterey, CA, and Kanazawa, Japan, the conference will for the first time be held in Scandinavia. The conference is guided by an international steering committee and a technical committee with members from all over the world. However, the organization for each year's conference is arranged by a local committee giving each ICMTS conference a unique flavor of its host country.

The ICMTS'99 technical program committee is chaired by Dr. Alan Mathewson of NMRC in Cork, Ireland. The conference



will consist of nine oral sessions and one poster session. Session topics will include test structures for Material and Process Characterization, Device & Circuit Modeling, Replicated Features Metrology, Wafer Fabrication Process Control, Reliability and Product Failure Analysis, New Sensors and Devices, and Test Structure Measurement Utilization Strategies. A best paper for the 1999 meeting will be announced at the end of the conference and the formal award will be made at the ICMTS 2000. The ICMTS'98 best paper award will be presented during the dinner banquet.

The poster session will be preceded by a short oral presentation by the author to guide conference participants to topics of their specific interest. There will also be an Equipment Exhibition, organized by exhibition chairman Gerard Ghibaudo of ENSERG, Grenoble, France, relating to the latest means of employing test structures, measurement equipment, wafer probing equipment, computer software for data analysis, parameter extraction and measurement control.

The one-day tutorial short course, organized by tutorial chairman Hans Tuinhout of Philips Research in Eindhoven, NL, will provide participants with a guideline on good design and understanding of microelectronic test structures so that they can be applied in industry for improved process control, higher product yield and rapid product introduction. Participants will receive copies of all visual presentations.

The city of Goteborg is located on the west coast of southern Sweden. Goteborg is the second largest city of Sweden with a population of almost 500,000. The city was founded in 1621 by King Gustav II Adolf, the king who also built the big bat-

tle-ship Vasa, the world's oldest battle ship from 1628 which can be seen in the Vasa Museum in Stockholm. Goteborg has the largest port in Sweden with 20% of all Swedish export and import going through this harbor. Goteborg is also the headquarters of Volvo, with a major part of their family cars and trucks being manufactured here. Other well-known companies in the region are Ericsson, who has its microwave activities here and Hasselblad, the well-known camera manufacturer. Goteborg also houses two universities, both the University of Goteborg and Chalmers Technical University. Furthermore, Goteborg has a national Symphony Orchestra and the new opera house has become a new landmark of the city.

The conference will be held at the Sheraton Goteborg Hotel & Towers, conveniently located close to the railway station and the Drottningtorget airport bus-stop. The conference participants can easily slip out from the modern meeting place into the old part of the city where old fortifications still can be seen and modern shopping centers, pubs and restaurants are nearby. For those who prefer to stay indoors, the hotel has both a beautiful indoor winter garden and a well-equipped fitness center. Travelling to and from Goteborg is easy and the modern airport has non-stop connections to many big cities in Europe, like Stockholm, Copenhagen, London, Paris, Brussels, Amsterdam, Frankfurt and Zurich. This means that Goteborg can be reached from many places in the US and Japan with only one-stop flights.

For further information about the conference, please, visit our home page at <http://www.ee.ed.ac.uk/ICMTS/>, or contact the ICMTS 1999 Conference Secretariat, c/o Technoconsult, Dortheavej 7, DK-2400 Copenhagen NV, Denmark, TEL: +4538 880 600; FAX: +4538 880 611, E-Mail: technoconsult@technodata.dk.

Looking forward to seeing you in Goteborg in March 1999 - Kjell O. Jeppson, 1999 ICMTS General Chair, E-Mail: kjell.jeppson@ic.chalmers.se.

*Kjell Jeppson
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Goteborg, Sweden*

1999 International Symposium on Power Semiconductor Devices and ICs (ISPSD)

The 11th International Symposium on Power Semiconductor Devices and ICs (ISPSD), sponsored by the IEEE Electron Devices Society and the Institute of Electrical Engineers of Japan, will be held at the Crowne Plaza Hotel, Toronto, Canada from May 26 to 28, 1999.

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 eleven years to become the largest in the field, and regularly draws the foremost technical contributors from industry and academia worldwide. 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 days of the Symposium. It will open with a plenary session by respected international authors covering topics in power supply applications, power semiconductor modeling, and innovative new device technology. Most of the conference will consist of contributed oral presentations representing the most current work in the field. A poster session will also be included to provide expanded range of coverage of special topics of interest and to give opportunity for close interaction with authors as they discuss their work. The topics that will be covered are likely to include the following:

- Processes: Crystal Growth, Doping, Lifetime Control, Passivation, Characterization
- Materials: Si, GaAs, SiC, Diamond
- CAD/Simulation: Process, Device & Circuit Simulation, Thermal Modeling, Layout, Verification Tools
- Devices: Device Physics, Fast Switching Devices, High Power Devices, Intelligent Devices, Pulse Power Devices, GHz Power Devices, RF Power Devices, Device Reliability
- Power Integrated Circuits: High Voltage ICs, Low Voltage ICs, Isolation Techniques, SOI, Circuit Design, Device Technology, Monolithic vs. Hybrid
- Modules and Packaging: Novel Techniques, Stress and Thermal Simulation, Thermal Management, High Voltage, High Power Dissipation, Package Reliability



- Applications: Automotive Electronics, Telecommunications, Display, Power Systems, Power Supply, Motor Control, Battery Management, Evaluation Methods for Power Semiconductors

A short course on Power IC Design is planned for May 25 prior to the conference. This course will have state of the art coverage of topics in power device layout and design and power IC technology, as well as coverage of representative IC designs in automotive, industrial motor drive inverters, and telecommunications power supplies. It will be useful to any PIC engineer interested in staying current in the latest design methods.

The Symposium will also include several special events, including a reception and a banquet dinner with a renowned speaker in the area of automotive electronics. These events will be held in some of the most attractive locations Toronto has to offer. Visits to Niagara Falls and the wine country of Southern Ontario are also planned as optional tours on May 29, following the conference.

Toronto, as the venue of the conference, is one of North America's fastest growing cities and is a vibrant and exciting cosmopolitan city with a multitude of sights to see and places to go. The name Toronto, from a Huron word meaning "place of meeting," is just as appropriate today for this bustling metropolis as it was hundreds of years ago when Native Canadians

would gather here while traveling between the Upper and Lower lakes. The city is full of contrasts—the soaring glass and concrete towers of the commercial and financial microcosms of the lands recent immigrants to the city left behind. The city offers an excellent choice of restaurants and shopping amenities and is the home of two professional sports teams: the Toronto Blue Jays and the Toronto Raptors. The rich texture of Toronto's demographics is reflected in its active arts community. After New York and London, Toronto has more theaters than any other city in the world, and it has many outstanding museums and art galleries. In addition, it is one of the safest cities of its size—nearly 3 million people.

The Crowne Plaza (Toronto Centre) Hotel, where the conference will be held, is located in downtown Toronto and features 587 guest rooms and suites. The Hotel is in the heart of the business, shopping and theatre districts and offers excellent dining facilities, room service, valet parking, a complete recreation club with a heated indoor pool and outstanding conference facilities. In addition, the hotel is located within a block of the magnificent SkyDome sports and entertainment complex. As a point of interest, the Crowne Plaza Centre is also located steps from the CN Tower, the world's tallest freestanding structure with the world's highest observation galleries. The CN Tower offers a variety of activities for the whole family. Close to the hotel are many other popular local attractions including Harbourfront, the Hockey Hall of Fame, the O'Keefe Centre, Roy Thomson Hall, the Princess of Wales and Royal Alexandra Theater, the Fashion District and over 100 clubs and restaurants.

For further information on the conference, please visit the conference website at <http://www.utoronto.ca/ispsd99/>. The website will be updated regularly. On behalf of the Conference Committee, we would like to invite you to attend ISPSD '99 and are looking forward to welcoming you in Toronto.

*Andre T. Salama
University of Toronto
Toronto, Ontario, Canada*

*Dan Kinzer
International Rectifier
El Segundo, CA*

1999 International Conference on Indium Phosphide and Related Materials (IPRM)

IPRM'99 continues its interactive workshop tradition highlighting a wide variety of important developments focused on the latest advances in InP materials, devices and system applications. It is sponsored by: Swiss Section of IEEE, IEEE Lasers and Electro-Optics Society (LEOS), and IEEE Electron Devices Society (EDS).

The 1999 IPRM will be held May 16 to 20, 1999, and the venue is the Congress Center, DAVOS, Switzerland, a cultural and scientifically rich center in one of the largest resorts in the heart of spectacular Swiss alpine atmosphere. You can find all the amenities of a city in the middle of breathtaking mountain scenery, surrounded by the wonders of nature. This holiday corner of Switzerland has many faces. Every Davos day is different. Discerning guests are offered a wealth of entertainment that include cultural and culinary attractions. It is said of Davos that "our guests always return."

The cultural highlights of Davos are delightfully diverse, something special. The Young Artists in Concert Festival, for example, features the world's top up-and-coming musicians. A biennial Cartoon Festival excels in highlighting the humorous. And the new Kirchner Museum is renowned for the world's largest collection by expressionist artist Ernst Ludwig Kirchner. Also popular among visitors are Museums of Local History, Culture, Winter Sports, Dolls and Toys. Davos is an alpine paradise with a big-city heart where pleasures include night clubs and concerts as well as cinemas and superb shopping facilities.

Davos is delightful. For generations, the local people have called it quite simply "our country" reflecting the region's unique landscape. In the spring and summer, it is so easy to explore the captivating countryside around Davos and even further afield. A network of clearly signed and excellently-maintained mountain paths extends for 450 km. From leisurely trails to more testing terrain rising high above the woodlands. You will find: many mountain funiculars and cable cars in a variety of excursion areas; mountain trails; picnic places; riding school and riding hall; sailing and windsurfing on the Lake of DAVOS; hang gliding; an 18 hole golf course and many more exciting mountain



activities exclusive to the Davos lifestyle.

Post Deadline Paper and Conference Information: Please see the IPRM'99 website at <http://www.iqe.ethz.ch/iprm99>.

The following eight topical areas comprise the scope of the conference and papers are solicited in these areas:

- **Optoelectronics:** 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 and photodetectors will be presented. Photonic and optoelectronic integration is widely applied to discrete devices such as lasers for application to WDM, enhanced optical coupling, high performance modulators/lasers and high speed receivers. Other topics in optoelectronics include solar cells, new device approaches such as inter-subband transition lasers and superlattice APDs. New devices for optical switching, networking and signal processing. In total, a snapshot of the latest leading-edge research in compound semiconductor integrated optoelectronics and new OE device concepts will be presented.
- **Epitaxy:** Sessions will deal with improvements in growth methods, the enrichment of crystal physics and selective growth as well as strained quantum well structures now being used in real devices, such as PICs and DFB lasers. Topics on low dimensional structures are also included where substantial improvements in quality will be reported by various techniques including self-organization. In short, the epitaxy papers will be of interest to device and materials researchers and to advanced manufacturing engineers

since the presentations traverse the boundaries from cutting-edge device and advanced materials techniques to real production issues.

- **Electron Devices:** Papers are solicited that show strong on-going improvements in HEMT and HBT performance as well as performance of JFETs and HFETs. Pseudomorphic and lattice matched devices are of interest and sessions on HFETs, HEMTs, and HBTs will review microwave low noise and high power performance. Other potential subjects include development of electronic integration techniques using HEMTs, HBTs, and RTDs, quantum effect and mesoscopic devices.
- **New Materials** comprised of novel materials systems, which might include unique materials for photonic bandgap structures or new alloy systems for enhanced performance are anticipated. The New Materials session might include papers which describe how III-V compound materials with widely different bandgaps can be "lattice-matched" to binary substrates.
- **Nanostructures** such as low-dimensional quantum structures, quantum-wires, quantum-dots and photonic-bandgaps are solicited. Growth and characterization of lattice-mismatched materials, and other InP based and related materials like TlInGaP, GaInNAs, InGaAsSb, II-VI, rare earths and others. Sessions will also focus on novel methods such as self assembly for creating new materials. Of particular interest are techniques leading to ordered nanostructures for new devices and integration methods.
- **Bulk Crystal Technology** focuses on advances in bulk crystal growth technology and novel methods and new results on the characterization of these materials. Methods for in-situ and post growth defect and doping control. Wafer thermal stability and characteristics. New, non-destructive characterization methods for bulk impurity identification, improvements in homogeneity and purity in doped and semi-insulating crystals

(continued on page 6)

IPRM (continued from page 5)

and wafer annealing. Advances in 4-inch wafer technology, and the role of iron and hydrogen in the annealing process are of interest. The status of bulk ternary and quaternary wafers of uniform composition have significant appeal for strain-free epitaxy of long wavelength devices.

- Characterization: Sessions will focus on novel methods and new results on the characterization of materials (bulk and epi) and devices, in-situ control of growing layers and of processing steps with emphasis on quality control and reproducibility. Real-time, in-situ monitoring and control of epitaxial crystal growth processes are emphasized. MBE growth sensors utilize atomic optical absorption for flux determination and optical pyrometry and band edge absorption for substrate temperature measurement and

control. Spectroscopic ellipsometry aids control of composition, thickness and As/P interface diffusion while reflectance spectroscopy monitors surface structure. The benefits of sensor based control will be illustrated by device performance results. Papers addressing process and impurity effects on devices such as HEMTs and DFB lasers are expected. InP substrate defects can be correlated to channel mobility showing the need for high quality bulk InP.

- Processing is a synergy of epitaxy, lithography, etching, metallization and passivation techniques essential for manufacturing high performance, complex heterostructure lasers, HFETs and HBTs. Sessions include innovation in nanostructure fabrication for realization of quantum wires and boxes, in-situ processing and novel dry and wet etching methods for highly controlled selective processing, and

fabrication techniques. Advances include progress in ohmic and Schottky contacts, passivation, reliability, thin film deposition, interface control and stabilization and functional hybrid integration. Methodologies for integrating HBTs and HEMTs on the same substrate leading to high performance circuits are sought.

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Joe Lorenzo
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Hanscom AFB, MA

IRPS (continued from page 1)

- Reliability Implications of Transistor Scaling
- Modeling, Simulation, and Understanding of Failure Mechanisms and Circuit Reliability
- Correlation of Reliability to the Physical and Electrical Properties of Microelectronic Materials
- Reliability-Driven Circuit Design and Wafer Processing

IRPS affords attendees the opportunity to hear technical presentations on the latest developments in the rapidly changing field of semiconductor/microelectronic reliability in a relaxed professional environment. Scheduled activities also allow time for social contact so that attendees can network with other participants who share common interests.

The conference is a forum for presenting original work that identifies new microelectronic failure or degradation mechanisms; improves understanding of known failure mechanisms; demonstrates new or innovative analytical techniques; and demonstrates ways to build-in reliability.

Specific areas addressed at the symposium are: Failure and Yield Enhancement Analysis, which covers new or innovative analytical techniques and analysis of new failure mechanisms; Interconnect Reliability topics such as electromigration,

mechanical and stress-related reliability issues, and advanced metallization systems; and Device Dielectrics, which addresses oxide breakdown mechanisms and models and the effects of processing on MOS gate reliability.

Sessions are also scheduled on Channel Hot Carriers, including oxide degradation mechanisms and modeling and measurement techniques; analysis and modeling of Electrostatic Discharge and Latch-up damage; and effects of Process-Induced Damage on device reliability.

Sessions on Assembly and Packaging, Non-Silicon Device Reliability including GaAs devices, LEDs, micro-electro-mechanical systems, and flat panel displays, and Device and Process, which addresses the relationship between yield and infant mortality, particulate control, and techniques to build-in reliability, complete the program.

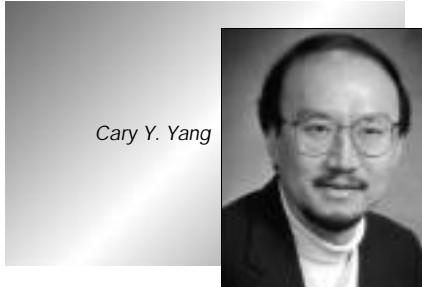
IRPS's Tutorial Program features a set of bound notes from all of the tutorials presented at the symposium. Seasoned attendees have the opportunity to learn new, challenging areas of interest, while new participants can gain familiarity in classic reliability methodologies. Past tutorial sessions have covered a wide variety of topics, such as Electromigration, Insulators, Defects, Testing, Noise, Electrostatic Discharge Damage, Reliability Tools and Modeling, Hot Carriers, and Surface Mount Technology.

The IRPS Workshops enhance the synergy of the Symposium by affording the attendees an opportunity to meet in informal groups to discuss key reliability physics topics with the guidance of experienced moderators. Some of the workshop topics are directly coupled to the Tutorial Program. This allows each attendee to learn more about a particular topic or field of interest in a Tutorial session during the day on Monday and then exchange ideas with other attendees having similar interests in an open moderated forum on Monday evening. Workshop topics will deal with electromigration, dielectrics, hot carriers, and several specialized sessions covering wafer-level reliability, dealing with random failures, low temperature reliability, ESD/latch-up, and micro-electromechanical systems.

A unique aspect of the Symposium is the Equipment Demonstration program held throughout the week. Manufacturers of state-of-the-art analytical and test equipment are on hand to demonstrate their products and systems to individuals and small groups. Some demonstrators will analyze attendees' samples by appointment. Equipment to be demonstrated includes: acoustic imaging, burn-in/device stressing, computer-aided navigation, confocal laser scanning microscopy, emission microscopy, and ESD testing. Demonstrations of focused ion beam and SEM systems, functional/parametric test

Society News

Summary of the 1998 IEEE Divisions I and IV Region 8 Chapters Meeting



Cary Y. Yang



Prof. Cary Y. Yang, Mr. William F. Van Der Vort and Dr. Bruce F. Griffing at the 1998 IEEE Divisions I & IV Region 8 Chapters Mtg. in Amsterdam.

The third annual joint Division I and IV Region 8 Chapters Meeting was held on 4 October 1998, in Amsterdam, The Netherlands in conjunction with the European Microwave Conference (EuMC). This Division level meeting evolved two years ago from the chapters meetings coordinated since 1994 by Mike Adler for the Electron Devices Society, with the goal being increased chapter formation and support in Region 8. At this year's meeting, there were 78 attendees representing 9 societies and 50 chapters, from 30 countries in Region 8. Of the 33 Region 8 ED Chapters, 31 were represented at this meeting. The meeting, which started at 8:30 a.m. and ended at 6:45 p.m., featured a series of presentations from the two Division Directors, the Region 8 past Director, society presidents and representatives, two workshops, and reports from chapters. The chapter reports highlight-

ed best practices as well as problems facing the chapters. The last hour of the meeting was devoted to an open discussion of chapter issues and concerns.

The meeting was co-chaired by Michael R. Lightner, Director of Division I, and William G. Duff, Director of Division IV. Division I includes the CAS, CPMT, ED, LEO, and SSC societies. Division IV includes AP, BT, CE, EMC, MAG, MTT, and NPS societies. 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 50 chapters present, 35 are joint chapters, with 23 of these involving societies in both divisions.

Mike Lightner chaired the morning ses-

sion and gave a brief introduction. He set the tone for the main themes of the day, namely, the dual-parent (Section vs. Society) system for chapters, and the globalization of IEEE. Bill Duff, Hans Noordanus, Benelux Section Chair, followed with brief welcoming speeches. Tony Davies, Region 8 Chapter Coordination Committee Chair, gave the next presentation on the state of the chapters in the Region. He raised concerns about the processes of funding a chapter by its Section and Society, respectively, and pointed out flaws in each process. Presentations from representatives of the nine societies were then given. Cary Yang gave an overview of EDS and a summary of chapter-related activities. For most societies, the statistics presented confirmed that Region 8 remained the fastest growing region during the past year.

The morning session concluded with a panel discussion on the globalization of IEEE, chaired by Mike Adler. Panel members consisted of Rolf Jansen, Wilhelm Leuschner, Jozef Modelski, Roger Pollard, Charles Turner, and Revaz Zaridze. Mike posed the questions, "Is IEEE perceived as a global organization?" and "Should IEEE be globalized?" Several comments from the panel were noted. Similar points were made in slightly different contexts throughout the day by both speakers and the audience.

- The most important asset of IEEE is the top quality of its publications and its technical meetings.
- Within the United States, IEEE serves as the national society for electrical and computer engineers, while national societies already exist in many countries.
- Partnership with national societies should be explored to avoid competition.

IRPS *(continued from page 6)*

equipment, IR imaging/thermal analysis, probing systems (including laser cutters) reliability simulation tools, and wafer-level reliability assessment systems are also planned.

A popular feature of the Symposium is the Companions' Program. The program offers daily activities such as tours of San Diego attractions for attendees' spouses and companions. Companions may obtain detailed information and register for the program either in advance or at the Companions Program booth located in the Symposium registration area.

The 1999 IRPS will be held at the Town and Country Resort and Convention Center in San Diego, California. The hotel is located on 34 acres adjacent to Interstate Highway 8. The San Diego Light Rail Tran-

sit System providing access to downtown attractions is a short walk from the hotel. Social events include a private reception on Tuesday evening at the Scripps Aquarium and the Symposium Awards Banquet on Wednesday evening.

For further 1999 IRPS information, contact: Alan Street, IRPS General Chair, Integrated Reliability, TEL: (619) 658-9770; FAX: (619) 550-9445; E-Mail: alan@irsi.com. Companions program information is available from: Sandy Barber, PO Box 2098, Banner Elk, NC 28604-2098, TEL: (704) 898-6375 (Monday-Friday, 10:00 AM to 4:30 PM EST). Information is also available on the IRPS Web Page at: <http://www.irps.org/>

Bernie Pietrucha
AT&T
Whippany, NJ

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Meeting Summary

(continued from page 7)

- Establish IEEE-Europe as a sister organization.
- IEEE-USA is an obstacle for globalizing IEEE. We need to better distinguish positions of the IEEE-USA from the IEEE. A suggestion was to make IEEE-USA membership voluntary.

The afternoon session, chaired by Bill Duff, was divided into a workshop on membership development and presentations by chapter representatives. The workshop was moderated by Charles Turner, with a presentation given by Peer Martin Larsen. The "4 R's" (recruitment, retention, recovery, recognition) and "4 I's" (information, identification, innovation, implementation) in relation to membership

development were introduced. The fact that IEEE loses over 10% of its members every year was pointed out in conjunction with suggested means for member retention. There was a consensus on the importance of recruiting student members and keeping them after they graduate. Proper utilization of resources available at IEEE Headquarters, from Regions/Section offices and Society AdComs was deemed critical in membership development. The usage of the Internet was also suggested.

Twenty chapter reports were given by chapter representatives. The majority of the presenters summarized the chapter's activities in the past year and discussed problems faced by the chapter. Most of the problems were related to funding of activities and the need for subsidy of membership dues. The difficulty in remitting funds to

the former Soviet Union (FSU) countries was underscored. Some concerns were raised about turnaround times of publications. In at least one instance, the chapter utilized the new Chapter Partners Program of EDS to increase networking for its members. The ensuing open discussion was devoted to issues related to chapter activities. Cary Yang attempted to solicit feedback from ED chapters on the Chapter Partners Program. Several suggestions were made about the transfer of funds to FSU countries.

Finally, from a show of hands, those present overwhelmingly favored the keeping of both Sections and Societies as "parents." They also favored continuing to hold this event annually, with the current one-day format.

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

1997 T-SM Best Paper Award

The Best Paper Award for the *IEEE Transactions on Semiconductor Manufacturing* is presented to the authors of that paper considered by the T-SM Editorial staff and reviewers 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 Award is also based on the immediate or potential impact that this work will have on the semiconductor manufacturing industry.

The IEEE Transactions on Semiconductor Manufacturing Best Paper Award, which was presented this past September at the annual Advanced Semiconductor Manufacturing Conference and Workshop, recognizes the ongoing partnership of this conference and the IEEE.

The Editorial staff is pleased to announce that the paper entitled "A General Equipment Diagnostic System and Its Application on Photolithographic Sequences," by S. Leang and C. J. Spanos, has been recognized as the best paper published in the 1997 *IEEE Transactions on Semiconductor Manufacturing*. This paper, which appeared in the August issue, has been selected because it represents a novel diagnostic system that can be applied to semiconductor equipment to assist operators in finding the causes of anomalous machine performance. The system was implemented on a real photolithography sequence to diagnose malfunctions and performance drifts with very encouraging experimental results.



Sovarong Leang

Sovarong Leang received the B.S. degree in mechanical engineering and electrical engineering from Rensselaer Polytechnic Institute, Troy, NY, in 1986, and the M.S. and Ph.D. degrees in electrical engineering and computer sciences from the University of California, Berkeley, in 1992 and 1995, respectively. His Ph.D. dissertation focused on developing a general control and diagnosis system for semiconductor process sequences. He is currently working for the management consulting firm Bain & Co., San Francisco, CA.



Costas J. Spanos

Costas J. Spanos (S'77-M'85-SM'96) was born in Piraeus, Greece, in 1957. He received the Electrical Engineering Diploma with honors from the National Technical University of Athens, Athens, Greece, in 1980 and the M.S. and Ph.D. degrees in electrical and computer engineering from Carnegie Mellon University, Pittsburgh, PA, in 1981 and 1985, respectively, working on the development of statistical technology CAD systems.

From June 1985 to July 1988, he was with the Advanced CAD Development group, Digital Equipment Corporation,

Hudson, MA, where he worked on the statistical characterization, simulation, and diagnosis of VLSI processes. In 1988, he joined the faculty of the Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, where he is now a Professor. He has been the Director of the Berkeley Microfabrication Laboratory since 1993. He has taught and published (more than 50 refereed papers) extensively in the area of applied statistical techniques for the improvement of semiconductor manufacturing technologies. His research interests included the development of flexible manufacturing systems, the application of statistical analysis in the design and fabrication of integrated circuits, and the application of computer-aided techniques in semiconductor manufacturing.

Dr. Spanos has served on the technical committees of the IEEE Symposium on VLSI Technology, the International Semiconductor Manufacturing Science Symposium, and the Advanced Semiconductor Manufacturing Conference and Workshop. He was the Editor of the *IEEE Transactions on Semiconductor Manufacturing* from 1991 to 1994. He received the Best Academic Paper Award from the International Semiconductor Manufacturing Science Symposium in 1992.

Gary S. May
Georgia Institute of Technology
Atlanta, GA

Call for Book Proposals

The IEEE Electron Devices Society, in conjunction with the IEEE Press, is soliciting proposals and original manuscripts for book publication relating to the theory, design and performance of electron and ion devices, solid-state devices, integrated electronic devices, optoelectronic devices and energy sources. It is intended that books sponsored by the Electron Devices Society will be published by the IEEE Press.

We are particularly interested in original single-author (or multi-author) books and original edited books with contributed chapters by experts in the field. Collections of papers in the form of reprint books will only be considered if substantial original material of a tutorial or background nature is included in order to illuminate the papers. New issues of classic and out-of-print books will also be considered.

Advantages of publishing a book through the IEEE Press include:

- Established advertisement and distribution network of IEEE
- Superior editorial support and production capabilities of the IEEE Press
- Competitive royalties and attractive pricing
- Peer review by leading experts in partnership with you
- The prestige of the IEEE and ED Society logos on your book

A basic proposal should include the following materials:

- A prospectus commenting on the rationale for your book, the targeted audience and the potential market, and the author's experience reflecting the ability to accomplish the project
- Table of contents
- Sample chapters, if available

For a complete set of IEEE Press Proposal Guidelines, or for any information about the IEEE Press, please contact:

Marilyn G. Catis, Assistant Editor
IEEE Press
445 Hoes Lane
Piscataway, NJ 08855-1331
E-Mail: m.g.catis@ieee.org

Electron Devices Society Liaison to the IEEE Press—Kwok Ng (k.ng@ieee.org)

Kwok K. Ng
Lucent Technologies, Inc.
Murray Hill, NJ

EDS Members Named Winners of the 1999 IEEE Technical Field Awards

Three EDS members were among the winners of the 1999 IEEE Technical Field Awards. They are:



Kensall D. Wise

Dr. Kensall D. Wise, professor in the Department of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor, won the Solid-State Circuits Award "For pioneering contributions to the development of solid-state sensors, circuits and integrated sensing systems." His early work included the first pressure sensor with on-chip readout electronics, silicon micromachined infrared detectors, and switched-capacitor charge integrators for capacitive sensors. Subsequently, he has developed process technology, device structures, and interface circuitry for a wide variety of applications in health care, semiconductor process control, and environmental monitoring.



Lester F. Eastman

Dr. Lester F. Eastman, professor in the Electrical Engineering Department of Cornell University, Ithaca, New York, won the IEEE Graduate Teaching Award "For inspirational teaching with an impact on semiconductor devices through interdisciplinary graduate education." His research group has been involved in molecular beam epitaxy, microwave transistors, quantum electron and optoelectronic devices. He has supervised 102 Ph.D. theses, over 50 MS theses, and over 50 post-doctoral studies. He has also been involved in the organization of numerous conferences and workshops.



Roger J. Van Overstraeten

Dr. Roger J. Van Overstraeten, founder and director of the Interuniversity Microelectronics Laboratory (IMEC) in Leuven, Belgium, won the IEEE Philips Award "For leadership in the creation and management of the Interuniversity Microelectronics Laboratory (IMEC)." The Philips Award is for engineering management. IMEC is an independent R&D laboratory, active in the development of design methodologies for VLSI systems, the development of submicron processes and interconnecting techniques, optoelectronic components, microsystems, sensors, solar cells and in the training of VLSI designers and processing engineers for industry. More than 800 people are employed in research and training. His technical contributions have been in the field of electronics such as secondary ionization rates in Si, MOSFET physics, heavy doping effects, and photovoltaics.

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

EDS/JSAP "Sister Society" Agreement

The Electron Devices Society (EDS) and the Japan Society of Applied Physics (JSAP) implemented an agreement in 1995 that allowed for "member" presentation of papers in the other society's meetings, reduced journal subscription rates, and "member rate" registration fees at either JSAP or EDS technical conferences.

The specifics of the publication portion of the agreement allows EDS members to subscribe to the Japanese Journal of Applied

Physics (JJAP) and JSAP members to subscribe to Electron Device Letters (EDL) and Transactions on Electron Devices (T-ED) at low "sister society" rates.

JJAP consists of two bound editions, Parts 1 and 2. Part 1 is divided into Part 1A and Part 1B and is published monthly. Part 1A is for the regular papers, short notes and review papers. Part 1B is for special issues which contain review and regular papers presented

(continued on page 10)

EDS/JSAP *(continued from page 9)*

at international conferences, symposia, etc., sponsored by JSAP and accepted according to the standard review process of JJAP. Part 2 is for letters, and is published semimonthly.

The fields of the contributed papers are as follows: superconductors, metals and conductors, semiconductors, magnetic materials, dielectrics, crystals, glasses and amorphous materials, polymers, liquid crystals and biological materials, thin films, surfaces and interfaces, liquids and solutions, and plasmas and gases, including their physics, characterization, preparation, production

and application to instrumentation and devices; electric, magnetic and optical properties, mechanical and acoustic properties, thermal properties, including their application to devices and instrumentation; optics and opto-electronics, X-rays and electron, neutron and ion beam including their optics, application and instrumentation; nuclear science, information science, low temperature physics, metrology and quantum phenomena including analysis and application to devices and instrumentation.

If you would like to obtain an order form for the JJAP for 1999, please contact the EDS Executive Office listed on page 2.

in hard copies, and on-line access can be regarded as a useful addition to the regular mail service.

Here in Yugoslavia we have a very active ED/SSC Chapter. I'm the chapter secretary and am engaged in many various chapter activities. Among these, I would mention our most important activity: organization of the MIEL Conference, which has now become an EDS co-sponsored meeting. By working on organizing such an event, I have learned a lot about organization skills and established many contacts with people from all over the world. I've been able to see that IEEE offers many valuable services for conference organizers, such as co-sponsorship support (including financial and publicity support, the Book Broker program, etc). The next edition of MIEL will be held in Nis, September 19-22, 1999. So, I'm very much looking forward to seeing you at the conference.

The organization of chapter meetings can also be very interesting and useful. These meetings are also an opportunity to meet colleagues, some of whom you wouldn't have met so often otherwise. We try to make our chapter meetings as interesting and informative as we can, and in this respect find the Distinguished Lecturer Program and IEDM Tapes Lending Library of much help. Finally, let me mention our very extensive STAR Program, which I'm coordinating. We have established this through the co-operation of two high school teachers and have more than 30 girls included in the program. Working with these girls is great fun. We try to encourage their interest in electronics through entertaining events. We invite them to visit our laboratories, take them to student competitions in sport and knowledge, organize picnics, and get their help for MIEL. We even invite the most active girls to diploma thesis exams at our department. Of course, they are too young to understand much, but are very impressed by the atmosphere at the exams. And it is very rewarding to see many of the girls who were engaged in STAR Program become our undergraduate students.

I would like to encourage you, particularly my young colleagues, to take part in various IEEE EDS activities. This can help you a lot in establishing valuable personal contacts, learning organization skills and gaining professional experience and recognition. Believe me, you won't regret it! TEL: +381 18 49 155; FAX: +381 18 46 180; E-Mail: jaksa@elfak.ni.ac.yu.

*Aleksandar Jaksic
University of Nis
Nis, Yugoslavia*

EDS/ES "Sister Society" Agreement

In 1996, EDS negotiated a "sister society" agreement with the Electronics Society (ES) of the Japanese Institute of Electronics, Information and Communication Engineers (IEICE). The agreement was approved and signed by both societies in the first quarter of 1997. The agreement allowed for "member" presentation of papers in the other society's meetings, reduced journal subscription rates, and "member rate" registration fees at either ES or EDS technical conferences.

The specifics of the publication portion of the agreement allows EDS members to subscribe to the IEICE Transactions on Electronics (TE) and ES members to subscribe to Electron Device Letters (EDL) and Transactions on Electron Devices (TED) at reduced "sister society" rates. The IEICE

Transaction on Electronics are monthly transactions composed of original research papers, letters and invited papers in the field of electronics, including the following areas: Integrated Electronics, Electronic Circuits, Semiconductor Materials and Devices, Quantum Electronics, Opto-Electronics, Superconductive Electronics, Ultrasonic Electronics, Electronics Display, Microwave and Millimeter Wave Technology, Vacuum and Beam Technologies, Electron Tubes, Recording and Memory Technologies, Instrumentation and Control and Electromagnetic Theory.

If you would like to obtain an order form for the TE for 1999, please contact the EDS Executive Office (contact information listed on page 2).

ED/SSC Yugoslavia Chapter Student/Young Engineer Article



Aleksandar Jaksic

I'm a Ph.D. student at the Department of Microelectronics, Faculty of Electronic Engineering, University of Nis, Yugoslavia. My field of research is radiation effects in MOS devices: basic mechanisms and characterization techniques.

I've been an IEEE EDS member for 7 years, since the beginning of my undergraduate studies. It is quite natural to join IEEE

and EDS when one is doing research in the field of electron devices. IEEE publications are of the highest quality and in my opinion unrivaled in this field. If you want your work to be really recognized within your research community, you have to publish it in IEEE journals. If you want to hear and meet the very best experts from your research field, you have to attend the IEEE conferences. Thus, quality is the main reason why I'm happy with IEEE services, although they might not always be quite fast. Namely, there were some problems with mail delivery to my part of the world, but the situation has recently improved considerably. And there is now an OPeRA program, which provides easy and fast on-line access to the publications. As far as I know, most people would still prefer to receive their publications

Regional and Chapter News

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

ED Mexico Chapter and ED Student Chapter CINVESTAV-IPN Activities —by Blanca Susana Soto

The second Workshop on Simulation and Characterization Techniques in Semiconductors was held during September 7-8, 1998, at the Section of Solid State Electronic, (SEES), CINVESTAV-IPN. This workshop was organized by the EDS Mexico Chapter and EDS Student Branch Chapter CINVESTAV-IPN in collaboration with the Section of Solid State Electronics, the University of Chicago at Illinois, the National Institute of Astronomy and Optics of Mexico (INAOE), and National Science Foundation. The First Workshop was held on June 2-3, 1997, after which we decided to continue organizing it yearly, due to its acceptance by our membership. This time, 5 lecturers and 1 invited paper from both academic and industrial institutions were invited. The Workshop was chaired and co-chaired by Dr. Magali Estrada and Dr. Krishna Shenai. The purpose of this yearly workshop is to discuss the state-of-the-art of simulation and characterization techniques in semiconductors from both the academic and industrial points of view. We had 37 participants and the activities included 5 Conferences, a Panel on the "Importance of the Interrelation between Simulation and Characterization Techniques in Semiconductor



Panelists at the 2nd Workshop on Simulation and Characterization Techniques included Drs. Iniguez, Shenai, Boyadzhyan, Lowell, Bulucea, and Estrada, and several students from CINVESTAV.

Research and Development," and 10 paper presentations. The proceedings of the workshop will be published by the University of Illinois at Chicago. Our EDS chapters are now discussing the activities for next year, one of which will be the organization of the third Workshop on Simulation and Characterization Techniques. For next year, we also plan to invite researchers and other EDS chapters members from Latin American countries. Another activity our chapters will support during next year is the organization of the International Conference ICCDS'2000, that will be held in Cancun.

For further information, contact the Chapter Chairs, Magali Estrada or Ramon Herrera, at CINVESTAV-IPN, Av. Instituto Politecnico Nacional #2508, Mexico City, TEL: (01 5) 747 70 00, ext.

3121; FAX: (01 5) 747 71 14; E-Mail: mestrada@mail.cinvestav.mx.

—Mark H. Weichold, Editor

Report to PELS AdCom on International Workshop on Integrated Power Packaging (IWIPP)

—by Robert Myers

The first International Workshop on Integrated Power Packaging (IWIPP) took place September 17-19 in Chicago, with papers presented by packaging specialists from North America and from several European countries and individual discussions involving an equally cosmopolitan audience. Total attendance was 35, with representatives from industry, government laboratories and academia.

(continued on page 12)



Attendees of the International Workshop on Integrated Power Packaging (IWIPP).

IWIPP (continued from page 11)

The two-day workshop featured 20 technical papers preceded by an opening morning short course on "Power Packaging—A Systems Perspective" led by Workshop Chair, Krishna Shenai of the University of Illinois at Chicago, and Technical Program Chair, Douglas Hopkins of the State University of New York at Buffalo. The session delved into developing power electronics technologies using various subsystems and components in power packaging. The instructors emphasized electrical, mechanical and thermal attributes of materials, components, circuits and interconnects into a fully integrated unit.

Three technical sessions occupied the next day and one-half, beginning with a plenary session featuring space power, high and low power and technology highlights. One second day session was concerned with electro-thermal interactions involving modeling and CAD tools as they relate to packaging designs. The final program was devoted to applications and the challenge of high density thermal management.

A special Saturday luncheon presentation reviewed the National Electronics Manufacturing Initiative, Inc. and its efforts to improve volume capabilities and competitiveness of North American electronics manufacturers. The presenter was Ron Gedney, Chief Operating Officer of NEMI.

Between sessions and at an opening reception and lunches and dinner, spirited dialog took place among attendees and presenters.

At the final lunch, Shenai and Hopkins were presented plaques saluting their roles in founding and organizing the first workshop sponsored by the three IEEE Societies—Components, Packaging and Manufacturing Technology, Industry Appli-

cations and Power Electronics—and by the University of Illinois at Chicago, with technical co-sponsorship by the IEEE Electron Devices Society and the Power Sources Manufacturers Association.

Plans are being formulated for a second power packaging workshop for late 1999 or early in the year 2000.

—Arokia Nathan,
Editor

AP/ED/MTT San Diego Chapter

—by Jon Roussos, Chair

The AP/ED/MTT San Diego chapter has held 5 technical meetings so far in 1998, and the topics presented are as follows. January 1998: "Recent Advances in Components for Analog Fiber Links" by Dr. Paul Yu from the University of California, San Diego, who is also the chapter's EDS partner; February: "Low Power Systems-on-a-Chip (SOC) Technologies" by Prof. Krishna Shenai from the University of Illinois at Chicago, who is the Editor-In-Chief of the EDS Newsletter; March: "Millimeter Wave Packaging and Interconnect" by Dr. Wolfgang Menzel from University of Ulm, Germany; May: "Microwave Active Filters: The Search for New Solutions to a Long-Standing Problem" by Christen Rauscher of the Naval Research Laboratory in Washington, D.C.; and September: "Low Voltage Microwave Electronics" by Mike Golio of Rockwell, Collins, Avionics and Communications Division, who is also the MTT Distinguished Lecturer. We are also planning on a meeting in November, topic and speaker will be announced.

The chapter also presented its first ever one-day workshop in November of 1997. The topic was RF/Microwave Computer Aided Engineering. The Coordinator was Paul Draxler, Qualcomm.

One lesson we learned during the last two years is that subjects directly applicable to the wireless phone industry are by far of the most interest. If the title can say something like "...for PCS Applications," we are likely to have a much better turn out.

—Paul Yu,
Editor

Europe, Middle East & Africa (Region 8)

Report of the Fourth International Seminar on Power Semiconductors (ISPS '98)

—by Vitezslav Benda

The International Seminar on Power Semiconductors (ISPS), organized every two years in Prague, has earned recognition from specialists in the area of power semiconductors.

The first International Seminar on Power Semiconductors ISPS'92 was organized in Prague in September 1992. The aim of this conference was to provide a relatively informal forum for presentation and discussion of a range of topics related to research and education in the field of power semiconductors, and keeping the conference fee to a level acceptable for specialists from Eastern Europe. ISPS'92 was a success, and the participants invited the organizer to continue organizing the event every two years.

ISPS'92 36 participants (12 countries)

ISPS'94 39 participants (9 countries)

ISPS'96 40 participants (12 countries)

The growing number of participants has been matched by the rising quality of the papers presented. Since 1994, papers have been rigorously reviewed by the International Programme Committee.

The 4th International Seminar on Power



Attendees of the Fourth International Seminar on Power Semiconductors (ISPS '98).

Semiconductors ISPS'98 took place in Prague from 2-4 September 1998. Altogether, 48 specialists in the field of power semiconductors from 13 countries and 3 continents participated. The technical sessions included two keynote papers, 18 oral presentations in 5 sessions dealing with device physics and technology, power bipolar devices and voltage controlled devices, and 18 papers presented in two dialogue sessions. The quality of the papers presented was very high, and 14 papers will be published in a special issue of the *Microelectronics Journal*. The paper, "A New Optimised Self-Firing MOS-Thyristor Device", by M. Brail, J.L. Sanchez, P. Austin and J.-P. Laur, was declared to be the best paper at ISPS'98.

Besides presentation of research results, attention was also paid to problems connected with education. The keynote lecture, "An Integrated Application-Driven Approach to Power Electronics Research and Education," by K. Shenai of the University of Illinois at Chicago, was followed by a round table discussion dealing with present-day problems of education in power electronics, involving representatives from academia and industry. Participants discussed both present-day problems and future trends toward a systems approach.

Participants appreciated the ISPS'98 conference as a very interesting meeting which provided a good opportunity to discuss important problems of present-day technology and to make contacts in both research and education. The 5th International Seminar on Power Semiconductors, ISPS'2000, is to be organized in Prague in September 2000.

MTT/ED/AP/LEO UKRI Joint Chapter —by *Terry Oxley*

The Chapter technical program for 1999 was finalized at the Chapter Administrative Committee held on October 28, 1998. The 1999 activities and reports on the major Chapter activities held during the last quarter of 1998 will be reported in the April issue of the EDS Newsletter. For more detailed information on the 1999 Chapter activities and any other queries, please contact the Chapter Chair, Neil Williams, ERA Technology Limited, Cleeve Road, Leatherhead, Surrey KT22 7SA, UK. TEL: +44 (0) 1372 367061; FAX: +44 (0) 1372 367099; E-Mail: neil.williams@era.co.uk.

ED/MTT Egypt Chapter —by *Ibrahim Salem*

A visit by Dr. M. Ayman Shibib (Middle East Partner) on July 27, 1998, provided a

useful discussion about the activities of our Chair, the upcoming workshop for teaching electron devices at Egyptian Engineering Faculties & Institutes, the 16th NRSC Conference, and student encouragement to join the IEEE and the EDS. Prof. Ahmed Khairy Abou-Elseoud (Alexandria Univ.) attended the IEEE Divisions I & IV Region 8 Chapters Meeting in Amsterdam on 8 October 1998 on behalf of our chapter. For more information please contact the Chapter Chair, Prof. Ibrahim A Salem, 17 Elqouba Street/3, Roxy Heliopolis, Cairo - 11341, Egypt. TEL: 202-349-8214; FAX: 202-263-6802.

ED Israel Chapter —by *Gady Golan*

Chapter activities have included:

- August 12, 1998—IEEE-EDS Technical Meeting in Tel Aviv University Faculty of Engineering. Prof. Nathan Croitoru and Dr. Gady Golan presented the videotape course: "The Entrepreneurial Skills Seminar" and part of the "Career for EE" videotape.
- AGIL'98, November 25-26, 1998—Preparations of this joint biannual meeting of 13 professional societies in the field of materials in Israel (jointly with IEEE-EDS). Conference Chairman: Prof. Natan Croitoru. Conference Secretary: Dr. Gady Golan.

For further information please contact the Chapter Secretary, Dr. Gady Golan by E-MAIL: gady@oumail.openu.ac.il, or, the Chapter Chair Professor Nathan Croitoru, Tel-Aviv University, Faculty of Engineering, Dept. of Physical Electronics, Tel-Aviv 69978, Israel, TEL: 972-3-640-8138; FAX: 972-3-642-3508; E-Mail: croitoru@eng.tau.ac.il.

—*Terry Oxley, Editor*

Asia & Pacific (Region 10)

Report of the Second International Vacuum Electron Sources Conference (IVESC'98)

—by *Masahiro Sasaki*

The Second International Vacuum Electron Sources Conference (IVESC'98), sponsored by the 158 Committee on Vacuum Microelectronics, Japan Society for the Promotion of Science, and technically co-sponsored by IEEE Electron Devices Society, IUVESTA, and the Vacuum Society of Japan, was held at the Auditorium, AIST Tsukuba Research Center, Tsukuba, Japan from July 7 to 10, 1998. The conference is

the continuation of IVESC'96 at Eindhoven, The Netherlands. More than 180 people participated from 12 countries and 80 papers selected from 130 submitted papers and 16 invited papers were presented. The IVESC 2000 will be held at the Disney Coronado Springs Resort, Orlando, Florida, USA, from July 10 to 13, 2000. For details, contact the Chairperson, Dr. E. G. Wintucky, NASA Lewis Research Center, E-Mail: edwin.g.wintucky@lerc.nasa.gov.

Report of the 1998 International Micro-Process and Nanotechnology Conference (MNC'98)

—by *Shinji Okazaki*

The 1998 International Micro-Process and Nanotechnology Conference was held in Kyoungju, Korea from July 13 to 16. This year, 330 people attended the conference from Japan, Korea, USA, Germany and other countries in the world. Twenty-five distinguished researchers were invited to present overviews of topics of current interest. The number of regular papers was 139 and there were 10 late news papers. It was the second occurrence of this conference in the Asian countries. The number of contributed papers was larger than other years, due to the efforts of the Korean committee. The paper entitled, "The Implementation of sub-150nm Contact Hole Pattern by Resist Flow Process", by J.-S. Kim, was voted by the attendees as the most impressive poster paper. The next conference will be held in Yokohama, Japan in July 1999. For details, please contact Mr. Hiroaki Masuko, Secretariat for MNC'99 c/o Business Center for Academic Societies Japan: TEL: +81-3-5814-5800; FAX: +81-3-5814-5823; E-Mail: config5@bcasj.or.jp.

Report of the 12th International Conference on Ion Implantation Technology (IIT'98)

—by *Gikan Takaoka*

The 12th International Conference on Ion Implantation Technology (IIT'98) was held June 22 to 26, 1998, at the Miyako Hotel, Kyoto, Japan. The aim of the conference was to stimulate and foster discussion of diverse aspects of ion implantation processing, from materials science and device manufacturing to ion beam system design. The theme was "The Renaissance of Ion Implantation". The number of registered attendees was 478, with 214 being from abroad (22 countries). In the technical program, both oral and poster sessions were

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The TWHM-ISA '98 committee members: (from left) Dr. B. Bayraktaroglu, Dr. T. Ishibashi, Prof. Y. Miyamoto, Dr. J. Zolper, Prof. D. Pavlidis, and Prof. T. Mizutani, at the excursion to Kamakura.



Prof Cary Y. Yang gives Distinguished Lecture at MICROS Research Center in KAIST.

III '98 (continued from page 13)

arranged. The number of the papers submitted to the conference was 413. After the opening remark, given by I. Yamada, Kyoto University (Conference Chairman), 4 plenary lectures were presented. As the first plenary lecture, P.H. Rose (Krytek Corp., USA) talked about "A History of Ion Implantation since 1984". Following this talk, I. Washizuka (Sharp Corp., Japan; "Liquid Crystal Display, the current appraisal and future expectations"), W. L. Brown (Bell Labs., USA; "Fifty Years with the Transistor and Ion Implantation") and H. Tsuchikawa (SELETE, Japan; "Semiconductor Technology Development Projects in Japan"), respectively, gave plenary talks. These lectures about the historical and advanced aspects of ion implantation technology attracted much interest. In the oral sessions, 11 keynote lectures were also included. Most of the papers were presented in the poster sessions. Among them, 20 papers were selected as Best Poster, and 6 papers won Student Awards. In addition, Young Scientist Awards were given to 6 presenters.

A manufacturer exhibition of ion beam, vacuum and other related ion implantation and processing equipment was also held at the conference site on June 24th and 25th. The participants exchanged a great deal of useful information with exhibitors. During this successful conference, it was announced that the next conference (the 13th International Conference on Ion Implantation Technology) will be held in September, 2000, at Alpbach in Austria. For more information, please contact Dr. Josef F. Gyulai at Res. Inst. Tech. Phys. and

Mat. Sci., Hungarian Academy of Sciences, P.O. Box 49, Budapest, H-1525, Hungary; TEL: +36-1-3959253; FAX: +36-1-3959284; E-Mail: gyulai@ra.atki.kfki.hu

Report of the 1998 Topical Workshop on Heterostructure Microelectronics for Information Systems Applications (TWHM-ISA '98)

—by Tadao Ishibashi

The 1998 Topical Workshop on Heterostructure Microelectronics for Information Systems Applications (TWHM-ISA '98) was held from August 30 to September 2, 1998 at the Shonan Village Center, Hayama-Machi, Kanagawa, Japan, co-chaired by Prof. Pavlidis (Univ. of Michigan) and Dr. Ishibashi (NTT). This year's workshop focused on HBT and HEMT technologies which have broad applications in the areas of wireless systems, global grid, communications, as well as signal and data processing. The discussion covered device technologies based on a range of heterostructure material systems including III-Vs, group IV and wide bandgap semiconductors. The next TWHM-ISA is scheduled in 2000 and will be co-chaired by Prof. Mizutani (Nagoya Univ.), Dr. Bayraktaroglu (Northrop Grumman) and Dr. Konig (Daimler-Benz).

Report of the 1998 International Conference on Solid State Devices and Materials (SSDM'98)

—by Makoto Yoshimi

The 1998 International Conference on Solid State Devices and Materials (SSDM'98) sponsored by the Japan Society

of Applied Physics and co-sponsored technically by the IEEE Electron Devices Society, was held at the International Conference Center, Hiroshima, Japan, from September 7 to 10, 1998. The number of participants was 565, with 18% being from overseas. There were 349 papers submitted, with 207 being presented orally together with 43 invited papers. To commemorate the 30th anniversary of SSDM, Dr. Shoji Tanaka, Professor Emeritus of the University of Tokyo, gave a talk at the plenary session. The SSDM Award was presented to Dr. Takashi Mimura, Fujitsu Laboratories Ltd., and his co-workers for their outstanding paper on HEMT (High Electron Mobility Transistor) technology, presented at SSDM'80. Moreover, SSDM held an exhibition on wafer technology at which SIMOX and bonded SOI wafers, ball semiconductor technology, and 400 mm diameter Si wafers were exhibited. SSDM'99 is scheduled to be held from September 21 to 24, 1999, at Nihon Toshi Kaikan in central Tokyo. (<http://www.bcasj.or.jp/conference/ssdm/>)

ED Korea Chapter

—by Kwyro Lee

This year, our Chapter hosted its 3rd Distinguished Lecture on September 4, 1998, at MICROS Research Center, KAIST in Taejeon. Prof. Cary Y. Yang, who is working at Santa Clara University in California, gave the lecture entitled "Ultra Thin Oxide Characterization". About 40 people attended this interesting DL, from local industries, research institutes and universities. On the evening before the lecture, we had a local chapter meeting as well as a



(From left) Dong-Wook Kim, Kyung-Sub Kwak, Jun-Dong Cho, Moon-Key Lee, Johannes M. Stork, Kwang-Sub Yoon, Il-Hun Son, and Chong-Gun Yu.

welcoming dinner with him. Nine ED Korea Chapter members attended and enjoyed a Korean traditional dinner course called, "Hanjungsik" together, which used to be served only for royal and noble people during the Yi Dynasty period (1392-1910). For more information, contact the chairman, Prof. Kwyro Lee, E-Mail: klee@ee.kaist.ac.kr.

SSC/ED Seoul Chapter

—by Chong-Gun Yu

The SSC/ED joint chapter of Seoul Section had the second opportunity in 1998 to host two IEEE Distinguished Lectures on October 1st in cooperation with the Korean Institute of Communication Sciences and the IEEE Seoul Section. Dr. Alfred C. Ipri from the David Sarnoff Research Center, USA, gave a technical talk on "Flat Panel Display Technologies for Multimedia Systems". Another excellent lecture was also given on "Low Power Image and Communication Chip Technologies", by Dr. Johannes M.

Stork from ULSI Research Lab, HP, USA. We had about 80 attendees from the Universities and Industries. After the meeting, we took a photograph with Dr. Johannes M. Stork. For further information on this article and our joint chapter, please contact: Prof. Moon-Key Lee, Chapter Chair; TEL: +82-2-361-2867; FAX: +82-2-312-4584; E-Mail: mkleebubble@yonsei.ac.kr; <http://ieeekorea.inha.ac.kr> or <http://www.ee.inha.ac.kr/sscs-eds-chapter>.

—Hiroshi Iwai, Editor

ED Taipei Chapter

—by S.C. Sun

On August 7, 1998, distinguished guests from the IEEE Headquarters visited the Taipei Section. They were Dr. Joseph Bordogna, 1998 IEEE President, and Mrs. Frances Bordogna, Dr. Kenneth Laker, 1999 IEEE President-Elect, Mr. Daniel Benigni, Vice President-Regional Activities, Mr. Daniel Senese, Executive Director, Mr. Sonny Barber, Corporate Communication



Prof. Cary Yang gave an invited speech.

Manager, and Ms. Laura Wolf, Manager, Meeting Services. From the Taipei Section, five officers (chair, vice chair, secretary, treasurer and professional activities), five board members and eleven chapter chairs also attended the dinner meeting. Prof. Hsiao-Chuan Wang of National Tsing Hua University, Chair of Taipei Section, presented the section summary and organization activities. Both sides exchanged ideas on a number of subjects, including membership development programs, student activities, chapter activities and financial issues. Prof. Cary Yang of Santa Clara University, Vice President of the ED Society, visited the Taipei Chapter on September 2, 1998 and gave a distinguished lecture on "Ultra-Thin Oxide Characterization". Eighty people attended his lecture.



(From right) S. C. Sun, Chair of Electron Devices Society of Taipei Chapter, Dr. Joseph Bordogna, 1998 IEEE President, and Mrs. Frances Bordogna, and Prof. H. C. Wang, Chair of IEEE Taipei Section.



(From left) Prof. S. C. Lee, IEEE Taipei Section Board Member, Dr. Kenneth Laker, 1999 IEEE President-Elect, and S. C. Sun, EDS Taipei Chapter Chair.

ED Hong Kong Chapter

—by Peter Lai

Our activities during the past six months are summarized as follows:

1. A distinguished lecture on "Wide Bandgap Power Semiconductor Devices" was given on June 1, 1998 by Prof. T. Paul Chow of Rensselaer Polytechnic Institute.
2. A dinner talk was held on April 17, 1998. The guest speaker was Prof. Wai Tung Ng of University of Toronto who addressed the recent developments on "RF Silicon Bipolar Power Transistors".
3. Two technical seminars were arranged: "Near Field Optics: New Eyes on the Nano-World" by Prof. Howard E. Jackson of University of Cincinnati on May 5, 1998; "Characterization of Flicker Noise in GaN Based MODFETs at Low Drain Bias" by Dr. Charles Surya of Polytechnic University of Hong Kong on May 19, 1998.
4. The chapter was organizing "The 15th International Conference on Noise in Physical Systems and 1/f Fluctuations," which will be held from August 23 to 26, 1999 in Hong Kong.

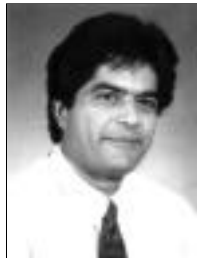
Details can be obtained from the conference chairman, Prof. Charles Surya, Department of Electronic Engineering, the Hong Kong Polytechnic University, Hong Kong; Tel: (852) 2766-6220; Fax: (852) 2362-8439; email: ensurya@polyu.edu.hk

For further information, please contact the chapter chair, Peter Lai, Department of EE Engineering, the University of Hong Kong, Pokfulam Rd., Hong Kong. TEL: (852) 2859-2691; FAX: (852) 2559-8738; E-Mail: laip@eee.hku.hk

—S. C. Sun, Editor

A Message from the Editor *(continued from page 2)*

currently the Finance Chair and a Chairman of the Technical Sub-Committee of the 7th International Symposium on the Physical and Failure Analysis of Integrated Circuits. He is a member of IEEE, IEE (U.K.), the Institute of Physics (U.K.) and a fellow of the Institute of Mathematics and its Applications.



Arokia Nathan (S'84-M'88) received his Ph.D. in Electrical Engineering from the University of Alberta, Edmonton, Alberta, Canada, in 1988, where he was

engaged in research related to the physics and numerical modeling of semiconductor microsensors. In 1987, he joined LSI Logic Corp., Santa Clara, CA, where he worked on advanced multichip packaging techniques and related issues. Subsequently, he was at the Institute of Quantum Electronics, ETH Zurich, Switzerland. In 1989, he joined the Department of Electrical and Computer Engineering, University of Waterloo, where he is currently a Professor. In 1995, he was a Visiting Professor at the Physical Electronics Laboratory, ETH Zurich. His present research interests lie in large area optical and X-ray imaging using amorphous and crystalline silicon technologies. He currently holds the DALSA/NSERC industrial research chair in sensor technology.

Ninoslav D. Stojadinovic (M'86-SM'98) was born in Nis, Yugoslavia, in 1950. He received the Dipl.Ing., M.Sc. and D.Sc. degrees, all in electrical engineering, from the Faculty of Electronic Engineering, University of Nis, in 1974,

1977 and 1980, respectively. In 1974 he joined the Ei-Semiconductors, Nis, where he worked in R&D of bipolar semiconductor devices, such as low-voltage zener diodes, hyper-abrupt varicap diodes and planar bipolar transistors. In 1976 he joined the Faculty of Electronic Engineering, University of Nis, where he is now Professor of Microelectronics and Head of the Department of Microelectronics. His current research interest involves various aspects of MOS devices and circuits, ranging



Ninoslav Stojadinovic

from device physics and modeling, process and device simulation, characterization, and reliability. He is author or co-author of 56 papers in refereed international journals and 108 papers for international and national conferences. He was supervisor of more than 40 Dipl.Ing. theses, 9 M.Sc. theses, and 9 D.Sc. theses in the field of microelectronics. Dr. Stojadinovic is Editor-in-Chief of "Microelectronics Reliability," and a member of the Editorial Board of "Microelectronics Journal." He was an Academic Editor of "Microelectronics Journal" from 1993 to 1996. He is also the Program Committee Chairman for the IEEE International Conference on Microelectronics (MIEL). He is Vice-Chair of the Yugoslavia IEEE Section and Chair of the Yugoslavia IEEE ED/SSC Chapter.

IEEE Fellow Kits Ready

The traditional (paper) and LaTeX versions of the IEEE Fellow Nomination Kit for the Year 2000 class of IEEE Fellows are now available. At the same time, IEEE offers nomination kits on the Web through a link to the IEEE home page (www.ieee.org). The deadline for receiving all nominations is March 15, 1999. (Users should note that the Fellow Committee has determined that only hard copy nominations will be accepted. Those returned over the Internet will not be processed.) The LaTeX form is a dummy nomination form that

may be edited using a LaTeX document processor in a Unix system. Those using the LaTeX version should note that no technical support is available from IEEE if the files do not work locally. For traditional and LaTeX versions of the kit, contact: IEEE Fellow Committee, 445 Hoes Lane, P. O. Box 1331, Piscataway, NJ USA 08855-1331; TEL: (732) 562-3840; FAX: (732) 981-9019; E-mail: "fellow-kit@ieee.org". Questions regarding the fellow process should be directed to "fellows@ieee.org".

EDS Meetings Calendar

(As of 2 December 1998)

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

January 21 - 22, 1999, T **IEEE INTERNATIONAL SYMPOSIUM/ WORKSHOP ON ADVANCED TECHNOLOGIES - (1) FUZZY HYBRID & FUZZY EXPERT SYSTEMS AND (2) KNOWLEDGE SYSTEMS**, Location: Swiss Federal Institute of Technology, Lausanne, Switzerland, Contact: Katharina Scheidegger, Swiss Federal Institute of Technology, EPFL DE C31, Ecublens, CH-1015 Lausanne, Switzerland, Tel: 41-21-693-33-70, Fax: 41-21-693-46-63, E-Mail: kathy@c319.epfl.ch, Deadline: Past Due, www: <http://c31www.epfl.ch/teaching>

February 15 - 17, 1999, **IEEE INTERNATIONAL SOLID-STATE CIRCUITS CONFERENCE**, Location: San Francisco Marriott Hotel, San Francisco, CA, Contact: Courtesy Associates, 655 Fifteenth St., N.W., Washington, D.C., Tel: (202) 973-8667, Fax: (202) 973-8722, E-Mail: isscc@courtesyassoc.com, Deadline: 9/11/98, www: <http://www.isscc.org>

Feb. 23 - 25, 1999, T **NATIONAL RADIO SCIENCE CONFERENCE**, Location: Ain Shams University, Cairo, Egypt, Contact: M.A. Sheirah, Faculty of Engineering Ain Shams University, Cairo, Egypt, Tel: (202) 2830947, Fax: (202) 2850617, E-Mail: sheirah@asunet.shams.eun.eg, Deadline: 10/10/98, www: Not Available

March 8 - 10, 1999, T **EUROPEAN WORKSHOP ON MATERIALS FOR ADVANCED METALLIZATION**, Location: Thermae Palace Hotel, Oostende, Belgium, Contact: Karen Maex, Timshel Conference Services, Roeselveld 7, B-3020 Herent, Belgium, Tel: 32-16-29-00-10, Fax: 32-16-29-05-10, E-Mail: info@timshel.be, Deadline: 10/23/98, www: <http://www.imec.be/6/MAM99>

March 16 - 18, 1999, * **IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES**, Location: Sheraton Goteborg Hotel & Towers, Goteborg, Sweden, Contact: Kjell Jeppson, Chalmers University of Technology, Dept. of Microelectronics ED, Solid-State Electronics Laboratory, S-412 96 Goteborg, Sweden, Tel: 46-31-772-1856, Fax: 46-31-772-3622, E-Mail: kjellj@ic.chalmers.se, Deadline: 8/21/98, www: <http://www.ee.ed.ac.uk/~ajw/ICMTSindex.html>

March 22 - 24, 1999, T **CONFERENCE ON ADVANCED RESEARCH IN VLSI**, Location: Georgia Center for Advanced Telecommunication Technology, Georgia Institute of Technology, Atlanta, GA, Contact: Stephen P. DeWeerth, School of Electrical & Computer Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0250, Tel: (404) 894-4738, Fax: (404) 894-9959, E-Mail: steve.deweerth@ece.gatech.edu, Deadline: 8/31/98, www: <http://www.arvlsi.org>

March 22 - 25, 1999, * **IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM**, Location:

Town & Country Hotel, San Diego, CA, Contact: Alan G. Street, c/o Integrated Reliability, 10225 Barnes Canyon Rd., Suite A100, San Diego, CA 92121, Tel: (619) 658-9770, Fax: (619) 550-9448, E-Mail: alan@irsi.com, Deadline: 9/11/98, www: <http://www.irps.org/>

April 12 - 16, 1999, T **ULTRAFAST ELECTRONICS & OPTOELECTRONICS TOPICAL MEETING**, Location: Snomass, CO, Contact: John Bowers, University of California Santa Barbara, ECE Dept., MOST Center, Engineering I, Room 4163, Santa Barbara, CA 93106-9560, Tel: (805) 893-8447, Fax: (805) 893-7990, E-Mail: bowers@ece.ucsb.edu, Deadline: Not Available, www: Not Available

April 19 - 21, 1999, T **INTERNATIONAL CONFERENCE ON MODELING & SIMULATION OF MICROSYSTEMS, SEMICONDUCTORS, SENSORS & ACTUATORS**, Location: San Juan Marriott Resort, San Juan, Puerto Rico, Contact: Sarah Wenning, 4847 Hopyard Road, Suite 3-381, Pleasanton, CA 94588, Tel: (510) 847-9152, Fax: (510) 847-9153, E-Mail: msm@dmtsun.epfl.ch, Deadline: 11/30/98, www: <http://www.iacm.org/MSM99>

May 9 - 11, 1999, T **INTERNATIONAL SYMPOSIUM ON PLASMA PROCESS-INDUCED DAMAGE**, Location: DoubleTree Hotel/Monterey Conference Center, Monterey, CA, Contact: Della Miller, Technical Marketing Programs, Northwestern California American Vacuum Society, 150 West Iowa Ave., Ste. 104, Sunnyvale, CA 94086, Tel: (408) 737-0767, Fax: (408) 737-2403, E-Mail: della@technicalmarketing.com, Deadline: 1/23/99, www: <http://www.vacuum.org/nccavs/p2id.html>

May 16 - 19, 1999, T **IEEE CUSTOM INTEGRATED CIRCUITS CONFERENCE**, Location: Town & Country Hotel, San Diego, CA, Contact: Melissa Widerkehr, Widerkehr and Associates, #270, 101 Lakeforest Blvd., Gaithersburg, MD 20877, Tel: (301) 527-0900, Fax: (301) 527-0994, E-Mail: widerkehr@aol.com, Deadline: 12/2/98, www: <http://www.ieee.org/conference/cicc>

May 16 - 20, 1999, @ **IEEE INTERNATIONAL CONFERENCE ON INDIUM PHOSPHIDE AND RELATED MATERIALS**, Location: Davos Congress Center, Davos, Switzerland, Contact: Samantha Padilla, IEEE/LEOS, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, Tel: (732) 562-3894, Fax: (732) 562-8434, E-Mail: s.padilla@ieee.org, Deadline: 12/5/98, www: <http://www.iqe.ethz.ch/iprm99/>

May 18 - 20, 1999, T **INTERNATIONAL SYMPOSIUM ON APPLICATION OF THE CONVERSION RESEARCH RESULTS FOR**

INTERNATIONAL COOPERATION, Location: Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia, Contact: O.V. Stoukatch, TUCSR, Lenin Ave., 40 Tomsk, 634050, Russia, Tel: 7-3822-233183, Fax: 7-3822-526969, E-Mail: office@tusur.ru or ird@main.tasur.edu.ru, Deadline: 2/25/99, www: <http://www.rts.tusur.ru/sibconverters99>

May 23 - 26, 1999, * **IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE**, Location: Hyatt Regency Hotel, San Francisco Airport, Burlingame, CA, Contact: Widerkehr & Associates, IITC/Suite 270, 101 Lakeforest Boulevard, Gaithersburg, MD 20877, Tel: (301) 527-0900, Fax: (301) 527-0994, E-Mail: iitc@his.com, Deadline: 1/8/99, www: <http://www.ieee.org/conference/iitc>

May 25 - 28, 1999, @ **IEEE INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & INTEGRATED CIRCUITS**, Location: Crown Plaza Hotel, Toronto, Canada, Contact: M. Ayman Shibib, Lucent Technologies, Inc. Bell laboratories 2525 N. 12th Street, P.O. Box 13396, Reading, PA 19612, Tel: (610) 939-6576, Fax: (610) 939-3796, E-Mail: a.shibib@ieee.org, Deadline: 10/15/98, www: <http://www.utoronto.ca/ispsd99/>

May 31 - June 4, 1999, T **ADVANCED WORKSHOP ON FRONTIERS IN ELECTRONICS**, Location: Hotel President, Lecce, Italy, Contact: Serge Luryi, Dept. of Electrical Engineering, State University of New York at Stony Brook, Stony Brook, NY 11794-2350, Tel: (516) 632-8420, Fax: (516) 632-8494, E-Mail: sluryi@sbee.sunysb.edu, Deadline: 12/31/98, www: <http://www.ee.sunysb.edu/~serge/WOFE/>

June 1 - 4, 1999, # **INTERNATIONAL CONFERENCE ON ELECTRON, ION & PHOTON BEAMS**, Location: Marriott Resort, Marco Island, FL, Contact: Mark Gesley, Etec Systems, Inc., 26460 Corporate Ave., Hayward, CA 94545, Tel: (510) 887-3312, Fax: (510) 786-9438, E-Mail: gesley@etec.com, Deadline: Not Available, www: Not Available

June 7 - 10, 1999, @ **IEEE TRANSDUCERS - INTERNATIONAL CONFERENCE ON SOLID-STATE SENSORS & ACTUATORS**, Location: Sendai International Center, Sendai, Japan, Contact: TRANSDUCERS '99, Attn: June Echizen, 103, Honcho 2-41-16, Nakano-ku, Tokyo, 164-0012, Japan, Tel: 81-3-3299-1371, Fax: 81-3-3299-1361, E-Mail: tr99@twics.com, Deadline: 11/30/98, www: <http://www.com.cas.uec.ac.jp/trans99.html>

June 8 - 10, 1999, T **INTERNATIONAL SYMPOSIUM ON VLSI TECHNOLOGY, SYS-**

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

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

TEMS & APPLICATIONS, Location: Taipei International Convention Center, Taipei, Taiwan, Contact: Rachel Huang, ERSO/ITRI, B400, Bldg. 11, 195-4, Sec. 4, Chung Hsing Rd., Chutung, Hsinchu, Taiwan 31015, Tel: 886-3-591-7232, Fax: 886-3-582-0056, E-Mail: rachel@erso.itri.org.tw, Deadline: 12/24/98, www: <http://surf.eng.yale.edu/~vlsi/>

June 10 - 11, 1999, **T ELECTRON DEVICES CONFERENCE**, Location: Consejo Superior de Investigaciones Cientificas Central Campus, Madrid, Spain, Contact: Jose Ignacio Robla Vilalba, Instituto de Fisica Aplicada CSIC, Serrano 144, Madrid 28006, Spain, Tel: 34-1-5618806, Fax: 34-1-4117651, E-Mail: jrobla@fresno.csic.es, Deadline: 3/15/99, www: <http://www.ifa.csic.es/cde99/cde99.htm>

June 10 - 12, 1999, * **IEEE INTERNATIONAL WORKSHOP ON CHARGE-COUPLED DEVICES & ADVANCED IMAGE SENSORS**, Location: Karuizawa Prince Hotel, Karuizawa, Nagano, Japan, Contact: Nobukazu Teranishi, NEC Corporation, Silicon Systems Research Laboratories, 1120 Simokuzawa, Sagami-hara, Kanagawa 229-1198, Tel: 81-427-71-0923, Fax: 81-427-71-0878, E-Mail: ccdws@mel.ci.nec.co.jp, Deadline: 1/18/99, www: Not Available

June 12, 1999, @ **IEEE INTERNATIONAL WORKSHOP ON STATISTICAL METROLOGY**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Naoyuki Shigyo, Technology Design System Group, DA Engineering Dept., Semiconductor DA & Test Engineering Dept., Toshiba Corporation, 1000-1, Kasama-cho, Sakae-ku, Yokohama 247-8585, Japan, Tel: 81-45-890-2801, Fax: 81-45-890-2890, E-Mail: shigyo@fdae.eec.toshiba.co.jp, Deadline: 1/29/99, www: <http://www.rcis.hiroshima-u.ac.jp/iwsm>

June 12 - 13, 1999, @ **IEEE SILICON NANOELECTRONICS WORKSHOP**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Toshiro Hiramoto, Institute of Industrial Science, University of Tokyo, 7-22-1 Roppongi, Minato-ku, Tokyo 106-8558, Japan, Tel: 81-3-3402-0873, Fax: 81-3-3402-0873, E-Mail: hiramoto@nano.iis.u-tokyo.ac.jp, Deadline: Not Available, www: Not Available

June 13 - 15, 1999, * **IEEE RADIO FREQUENCY INTEGRATED CIRCUITS SYMPOSIUM**, Location: Marriott Hotel, Anahiem, CA, Contact: Christian Kermairec, Analog Devices, Inc., 804 Woburn St., MS-114, Wilmington, MA 01887, Tel: (617) 937-1217, Fax: (617) 937-1051, E-Mail: christian.kermairec@analog.com, Deadline: 12/4/98, www: Not Available

June 14 - 16, 1999, @ **IEEE SYMPOSIUM ON VLSI TECHNOLOGY**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Secretariat for VLSI Symposia, c/o Business Center for Academic Societies Japan, 5-16-9, Honkomagome, Bunkyo-ku, Tokyo 113-8622, Japan, Tel: 81-3-5814-5800, Fax: 81-3-5814-5823, E-Mail: vlsisym@bcasj.or.jp, Deadline: 1/8/99, www: <http://www.rcis.hiroshima-u.ac.jp/vlsi99/>

June 16 - 19, 1999, # **CONFERENCE ON INSULATING FILMS ON SEMICONDUCTORS**, Location: Kloster Banz, Erlangen, Germany, Contact: Max Schultz, University of Erlangen, Institute of Applied Physics, Staudtstr. 7, D-91058 Erlangen, Germany, Tel: 49-0-9131-85-8421, Fax: 49-0-9131-85-8423, E-Mail: infos99.physik@rzmail.uni-erlangen.de, Deadline: 1/15/99, www: <http://www.physik.uni-erlangen.de/lap/Infos99/index.htm>

June 17 - 19, 1999, # **IEEE SYMPOSIUM ON VLSI CIRCUITS**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Secretariat for VLSI Symposia, c/o Business Center for Academic Societies Japan, 5-16-9, Honkomagome, Bunkyo-ku, Tokyo 113-8622, Japan, Tel: 81-3-5814-5800, Fax: 81-3-5814-5823, E-Mail: vlsisym@bcasj.or.jp, Deadline: 1/8/99, www: http://www.bcasj.or.jp/vlsi_sym/

June 20 - 23, 1999, * **IEEE UNIVERSITY/GOVERNMENT/INDUSTRY MICROELECTRONICS SYMPOSIUM**, Location: Radisson Metrodome, Minneapolis, MN, Contact: Greg T. Cibuzar, Microtechnology Lab., University of Minnesota, Room 1-165 EECS Bldg., 200 Union Street SE, Minneapolis, MN 55455, Tel: (612) 625-8079, Fax: (612) 625-5012, E-Mail: cibuzar@ee.umn.edu, Deadline: 1/22/99, www: Not Available

June 28 - 30, 1999, * **IEEE DEVICE RESEARCH CONFERENCE**, Location: University of California at Santa Barbara, Santa Barbara, CA, Contact: Mark Rodder, Texas Instruments, MS 461, 13536 N. Central Expressway, Dallas, TX 75243, Tel: (214) 995-2873, Fax: (214) 995-2770, E-Mail: rodder@spdc.ti.com, Deadline: 3/1/99, www: <http://ece-www.colorado.edu/~drc/>

July 4 - 8, 1999, **T INTERNATIONAL MULTI-CONFERENCE ON CIRCUITS, SYSTEMS, COMMUNICATIONS AND COMPUTERS**, Location: Conference Center of the Hellenic Telecommunications Company, Athens, Greece, Contact: Nikos E. Mastorakis, Director of the Chair of Computer Science & Computer Science Laboratory, Military Institutions of University Education, Hellenic Naval Academy, Terma Hatzikyriakou, 18539, Piraeus, Greece, Tel: 301-777-5660, Fax: 301-777-5660, E-Mail: mastor@ieee.org, Deadline: 3/15/99, www: <http://www.softlab.ece.ntua.gr/~mastor/CSCC99.htm>

July 5 - 9, 1999, **T INTERNATIONAL CONFERENCE ON NITRIDE SEMICONDUCTORS**, Location: Palace of Congress, Montpellier, France, Contact: Dr. Bernard Gil, Directeur de Recherche au CNRS Centre National de la Recherche Scientifique University de Montpellier II, Groupe d'Etude des Semiconducteurs Case courrier 074 34095, Montpellier Cedex 5, France, Tel: 33-4-67-14-39-24, Fax: 33-4-67-14-37-60, E-Mail: gil@ges.univ-montp2.fr, Deadline: 3/15/99, www: <http://bilbot.ges.univ-montp.fr/icns3.htm>

July 5 - 9, 1999, **T IEEE INTERNATIONAL SYMPOSIUM ON THE PHYSICAL & FAILURE ANALYSIS OF INTEGRATED CIRCUITS**, Location: Orchard Hotel, Singapore, Contact: M.K.

Radhakrishnan, Institute of Microelectronics (IME), 11 Science Park Road, Singapore 117685, Tel: (65) 770-5439, Fax: (65) 774-5747, E-Mail: radha@ime.org.sg, Deadline: 12/1/98, www: <http://cicfar.ee.nus.sg/ipfa/ipfa99.html>

July 6 - 8, 1999, **T INTERNATIONAL MICRO-PROCESS AND NANOTECHNOLOGY CONFERENCE**, Location: Yokohama-shi Ginou Bunka Kaikan, Yokohama-shi, Kanagawa, Japan, Contact: Hiroaki Masuko, Business Center for Academic Societies Japan, 5-16-9 Honkomagome, Bunkyo-ku, Tokyo 113-8622 Japan, Tel: 81-3-5814-5800, Fax: 81-3-5814-5823, E-Mail: confg5@bcasj.or.jp, Deadline: 3/15/99, www: <http://www.nano.ee.es.osaka-u.ac.jp/mnc/>

July 6 - 9, 1999, @ **IEEE INTERNATIONAL VACUUM MICROELECTRONICS CONFERENCE**, Location: Darmstadt, Germany, Contact: Hans W.P. Koops, FZ 254c, Deutsche Telekom Technologiezentrum, Am Kavalleriesand 3, D.64295 Darmstadt, Tel: Not Available, Fax: Not Available, E-Mail: koops@pop.tzd.telekom.de, Deadline: 2/28/99, www: Not Available

July 11 - 15, 1999, **T INTERNATIONAL CONFERENCE ON UNSOLVED PROBLEMS OF NOISE**, Location: University of Adelaide, North Terrace, Adelaide, Australia, Contact: Derek Abbott, Dept. of Electrical & Electronic Engineering, University of Adelaide, Australia, SA 5005, Tel: 618-8303-5748, Fax: 618-8303-4360, E-Mail: dabbott@eleceng.adelaide.edu.au, Deadline: 2/1/99, www: <http://www.eleceng.adelaide.edu.au/Personal/dabbott/UpoN/uponhome.html>

August 2 - 5, 1999, @ **INTER-SOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE**, Location: Hotel Vancouver, Vancouver, British Columbia, Canada, Contact: Karen E. Thomson, SAE, 400 Commonwealth Dr., Warrendale, PA 15096-0001, Tel: (724) 772-7120, Fax: (724) 776-1830, E-Mail: kthomson@sae.org, Deadline: 11/20/98, www: <http://www.sae.org/CALENDER/iec99cfp.htm>

August 23 - 26, 1999, **T INTERNATIONAL CONFERENCE ON NOISE IN PHYSICAL SYSTEMS & 1/F FLUCTUATIONS**, Location: Hong Kong, Contact: Charles Surya, Dept. of Electrical Engineering, Hong Kong Polytechnic University, Hung Hoom, Kowloon, Hong Kong, Tel: 81-2766-6220, Fax: 81-2362-8439, E-Mail: ensurya@en.polyu.edu.hk, Deadline: Not Available, www: Not Available

September, 1999, **T TRANS BLACK SEA REGION SYMPOSIUM ON APPLIED ELECTROMAGNETICS**, Location: Timovo, Bulgaria, Contact: Nikolaos K. Uzunoglu, National Technical University of Athens, Dept. of Electrical & Computer Engineering, Division of Electrosceince, Iroon Polytechniou 9, Zografos 15773, Athens, Greece, Tel: 30-1-7723556, Fax: 30-1-7723557, E-Mail: nuzu@cc.ece.ntua.gr, Deadline: Not Available, www: Not Available

September 6 - 8, 1999, @ **IEEE INTERNATIONAL CONFERENCE ON SIMULATION OF**

SEMICONDUCTOR PROCESSES AND DEVICES, Location: Kyoto Research Park, Kyoto, Japan, Contact: Secretariat, c/o Business Center for Academic Societies Japan, 5-16-9, Honkomagome, Bunkyo-ku, Tokyo 113-8622, Japan, Tel: 81-3-5814-5800, Fax: 81-3-5814-5823, E-Mail: confg5@bcasj.or.jp, Deadline: 3/1/99, www: <http://www-e7.ele.eng.osaka-u.ac.jp/SISPAD/>

September 8 - 10, 1999, * **IEEE/SEMI ADVANCED SEMICONDUCTOR MANUFACTURING CONFERENCE AND WORKSHOP**, Location: The Fairmont Copley Plaza, Boston, MA, Contact: Margaret M. Kindling, SEMI, 805 15th St. NW Suite 815, Washington, DC 20005, Tel: (202) 289-0440, Fax: (202) 289-0441, E-Mail: mkindling@semi.org, Deadline: 1/15/99, www: Not Available

September 12 - 17, 1999, # **DIAMOND CONFERENCE**, Location: Prague Hilton Atrium, Prague, Czechoslovakia, Contact: Gill Heaton, Hillside Cottages, Wheatley Road, Islip, Oxford, OX5 2TF, UK, Tel: 44-0-1865-373625, Fax: 44-0-1865-375855, E-Mail: gill.heaton@virgin.net, Deadline: Not Available, www: Not Available

September 13 - 15, 1999, T **EUROPEAN SOLID-STATE DEVICE RESEARCH CONFERENCE**, Location: City Campus of the Katholieke Universiteit, Leuven, Belgium, Contact: Herbert Gruenbacher, Carinthia TECH Institute, R. Wagner-Strasse 19, A-9500 Villach, Austria, Tel: 43-4242-2004-120, Fax: 43-4242-2004-179, E-Mail: hg@cti.ac.at, Deadline: 4/9/99, www: <http://www.essdrc.org>

September 13 - 17, 1999, T **INTERNATIONAL CONFERENCE ON ELECTROMAGNETICS IN ADVANCED APPLICATIONS**, Location: Torino Incontra Congress Center, Torino, Italy, Contact: P.L.E. Uslenghi, University of Illinois at Chicago, Dept. of Electrical Engineering and Computer Science, 851 S. Morgan Street (M/C 154), Chicago, IL 60607, Tel: (312) 996-6059, Fax: (312) 413-0024, E-Mail: ushenghi@eecs.uic.edu, Deadline: 2/26/99, www: <http://www.polito.it/iceaa99>

September 19 - 22, 1999, * **INTERNATIONAL CONFERENCE ON MICROELECTRONICS (MIEL)**, Location: University of Nis, Nis, Yugoslavia, Contact: Aneta Trajkovic, Faculty of Electronic Engineering, University of Nis, Beogradska 14, 18000 Nis, Yugoslavia, Tel: 381-18-529-326, Fax: 381-18-46-180, E-Mail: miel@unitop.elfak.ni.ac.yu, Deadline: 1/30/99, www: <http://unitop.elfak.ni.ac.yu/miel/welcome.html>

September 20 - 24, 1999, # **INTERNATIONAL PHOTOVOLTAIC SCIENCE & ENGINEERING CONFERENCE**, Location: Royton Sapporo, Sapporo, Hokkaido, Japan, Contact: Toshiyuki Sameshima, Faculty of Technology, Tokyo University of Agriculture & Technology, 2-24-16 Naka-cho, Koganei, Tokyo 184-8588, Japan, Tel: 81-423-88-7109, Fax: 81-423-85-9055, E-Mail: tsamesin@cc.tuat.ac.jp, Deadline: 3/19/99, www: Not Available

September 21 - 23, 1999, T **HIGH POWER MICROWAVE ELECTRONICS: MEASUREMENTS, IDENTIFICATIONS, APPLICATIONS**

CONFERENCE, Location: Novosibirsk State Technical University, Novosibirsk, Russia, Contact: V. Snouritsin, Novosibirsk State Technical University, 20 K. Marx prosp., 630092 Novosibirsk, Russia, Tel: Not Available, Fax: 7-3832-462598, E-Mail: crra@ref.nst.ru, Deadline: Not Available, www: Not Available

September 21 - 24, 1999, T **INTERNATIONAL CONFERENCE ON SOLID-STATE DEVICES AND MATERIALS**, Location: Nihon Toshi Center, Kaikan, Tokyo, Japan, Contact: Hisatsune Watanabe, Vice President R & D Group, NEC Corporation, 4-1-1, Miyazaki Miyamae-ku, Kawasaki, Japan, Tel: 81-44-856-2009, Fax: 81-44-856-8070, E-Mail: watanabe@rdg.cl.nec.co.jp, Deadline: 5/14/99, www: Not Available

September 22 - 24, 1999, T **INTERNATIONAL SEMINAR/WORKSHOP ON DIRECT AND INVERSE PROBLEMS OF ELECTROMAGNETIC AND ACOUSTIC WAVE THEORY**, Location: Institute for Applied Problems of Mechanics and Mathematics of NASU, Lviv, Ukraine, Contact: Mykhailo I. Andriyuchuk, Inst. of Appl. Probl. of Mech. & Math., 3 Ab@ Naukova str., Lviv, 290601, Ukraine, Tel: 38-0322-651944, Fax: 38-0322-637088, E-Mail: voi@ippmm.lviv.ua, Deadline: 5/1/99, www: Not Available

September 26 - 28, 1999, * **IEEE BIPOLAR/BICMOS CIRCUITS AND TECHNOLOGY MEETING**, Location: Marriott City Center Hotel, Minneapolis, MN, Contact: Janice V. Jopke, CCS Associates, 6611 Countryside Drive, Eden Prairie, MN 55346, Tel: (612) 934-5082, Fax: (612) 934-6741, E-Mail: jjopke@aol.com, Deadline: Not Available, www: <http://www.snf.stanford.edu/Conferences/BCTM/>

September 27 - 30, 1999, T **ELECTRICAL OVERSTRESS/ELECTROSTATIC DISCHARGE SYMPOSIUM**, Location: Buena Vista Palace, Orlando, FL, Contact: ESD Association, 7900 Turin Road, Building 3, Suite 2, Rome, NY 13440-2069, Tel: (315) 339-6937, Fax: (315) 339-6793, E-Mail: None, Deadline: Not Available, www: <http://www.eosesd.org>

October 4 - 7, 1999, * **IEEE INTERNATIONAL SOI CONFERENCE**, Location: Sonoma Doubletree Hotel, Rohnert Park, CA, Contact: Bobbi Armbruster, Bobbi Armbruster Conference Management, 520 Washington Boulevard, #350, Maria del Rey, CA 90292, Tel: (310) 305-7885, Fax: (310) 305-1038, E-Mail: bacm@media.net, Deadline: Not Available, www: Not Available

October 5 - 9, 1999, * **INTERNATIONAL SEMICONDUCTOR CONFERENCE**, Location: Sinaia Hotel, Sinaia, Romania, Contact: Doina Vancu, IMT - Bucharest, Str. Erou Iancu Nicolae 32B, Sector 2, 72996 Bucharest, Tel: 40-1-230-14-48, Fax: 40-1-411-46-61, E-Mail: cas@imt.ro, Deadline: 4/15/99, www: <http://www.imt.ro/CAS>

October 11 - 13, 1999, @ **IEEE INTERNATIONAL SYMPOSIUM ON SEMICONDUCTOR MANUFACTURING**, Location: Santa Clara Marriott, Santa Clara, CA, Contact: Suzanne Harkless, Meetings Plus, 242 Lafayette Circle, Lafayette, CA 94549, Tel: (510) 284-4040 ext. 237, Fax: (510) 284-4161, E-Mail:

suzanne@meetingsplus.com, Deadline: 4/23/99, www: <http://www.issm.com>

October 17, 1999, T **GALLIUM ARSENIDE RELIABILITY WORKSHOP**, Location: Doubletree Hotel at Fisherman's Wharf/Monterey Marriott, Monterey, CA, Contact: Tony Immorlica, Sanders, a Lockheed Martin Company, 65 Spit Brook Road, Nashua, NH 03060, Tel: (603) 885-1100, Fax: (603) 885-1074, E-Mail: anthony.a.immorlica@lmco.com, Deadline: Not Available, www: Not Available

October 17 - 20, 1999, * **IEEE GALLIUM ARSENIDE INTEGRATED CIRCUITS SYMPOSIUM**, Location: Doubletree Hotel, Fisherman's Wharf, Monterey, CA, Contact: Mark Wilson, Motorola SPS, 2100 E. Elliot Rd., M/S EL609, Tempe, AZ 85284, Tel: (602) 413-6046, Fax: (602) 413-5748, E-Mail: mrw@cs1.sps.mot.com, Deadline: Not Available, www: Not Available

October 18 - 20, 1999, T **INTERNATIONAL SYMPOSIUM ON ULSI PROCESS INTEGRATION**, Location: Hilton Hawaiian Village, Honolulu, Hawaii, Contact: Hiroshi Iwai, Toshiba Corp., 1, Komukai-Toshiba-cho, Saiwai-ku, Kawasaki, 210, Japan, Tel: 81-44-549-2335, Fax: 81-44-549-2291, E-Mail: h.iwai@ieee.org, Deadline: 3/1/99, www: <http://www.electrochem.org/meetings/196/symp>

October 25 - 29, 1999, T **MANUFACTURING SCIENCE AND TECHNOLOGY GROUP PROGRAM**, Location: Washington State Convention Center, Seattle, Washington, Contact: Frederick H. Dill, IBM Research Center, Route 134, P.O. Box 218, Yorktown Heights, NY 10598, Tel: (914) 945-3332, Fax: (914) 945-4520, E-Mail: f.dill@ieee.org, Deadline: Not Available, www: Not Available

November 3, 1999, T **IEEE ELECTRON DEVICES ACTIVITIES IN WESTERN NEW YORK**, Location: Center for Integrated Manufacturing Studies (CIMS), Rochester Institute of Technology, Rochester, NY, Contact: Karl Hirschman, RIT Microelectronic Engineering, 82 Lomb Memorial Drive, Rochester, NY 14623-5604, Tel: (716) 475-5130, Fax: (716) 475-5041, E-Mail: kdhemc@rit.edu, Deadline: Not Available, www: Not Available

November 7 - 11, 1999, # **IEEE INTERNATIONAL CONFERENCE ON COMPUTER-AIDED DESIGN**, Location: DoubleTree Hotel, San Jose, CA, Contact: Jacob White, MIT, Department of EECS, Rm 36-880, 50 Vassar St., Cambridge, MA 02139, Tel: (617) 253-2543, Fax: (617) 258-7864, E-Mail: white@rle-vlsi.mit.edu, Deadline: Not Available, www: Not Available

November 22 - 24, 1999, T **INTERNATIONAL CONFERENCE ON MICROELECTRONICS (ICM)**, Location: Le Meridian Hotel, Kuwait City, Kuwait, Contact: M.I. Elmasry, Director VLSI Group, University of Waterloo, Waterloo, Ontario, Canada N2L 5V7, Tel: (519) 888-4567 ext. 3753, Fax: (519) 746-5195, E-Mail: elmasry@vlsi.uwaterloo.ca, Deadline: 4/1/99, www: Not Available



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