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## Contributions Welcome

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

### Newsletter Deadlines

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

# IEEE Electron Devices Society

## 1998 International Electron Devices Meeting (IEDM)



San Francisco Convention & Visitors Bureau

The premier technical conference of the Electron Devices Society will return to San Francisco this year when the 44<sup>th</sup> annual International Electron Devices Meeting (IEDM) comes to the San Francisco Hilton and Towers during December 6-9, 1998.

The IEDM is the world's leading international forum for reporting advances in the technology, design, manufacturing, physics and modeling of electron devices ranging from deep submicron MOSFET's to flat-panel displays, from compound semiconductor materials to new memory architectures, and from novel microelectromechanical (MEMs) devices to smart-power technologies.

The conference attracts authors, attendees and guest speakers from industry and academia from around the world and provides an excellent opportunity to meet colleagues and keep up with the state-of-the-art in a broad range of interrelated disciplines. The conference hotel is conveniently located near many of San Francisco's finest restaurants, shopping and tourist destinations, making for an enjoyable stay in one of the world's greatest cities.

### IEDM '98 Technical Program

The heart of the IEDM is the technical program. No other meeting presents as much leading work in so many different areas of microelectronics. The IEDM offers students, scientists and engineers an opportunity to hear about the best work being done in their own disciplines and related areas and offers them the opportunity to speak directly with experts working in these 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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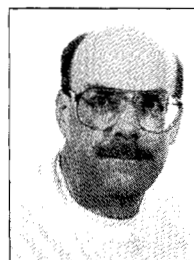
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## June 1998 AdCom Meeting Summary



John K. Lowell

The Spring Administrative Committee (AdCom) Meeting of the IEEE Electron Devices Society (EDS) was held on Sunday, 7 June, at the Hilton Hawaiian Village Hotel, Honolulu, HI, in conjunction with the 1998 Symposia on VLSI Circuits & Technology.

After a formal acceptance of the minutes from the December AdCom, President, Bruce Griffing, opened the meeting by reporting that the IEEE Millennium Project, scheduled for the year 2000, is looking for inputs from the various society Presidents. The project is intended to commemorate the activities of the IEEE societies in that year with a variety of projects exemplifying the "last fifty years and the next fifty years" of each society. The chairs of the EDS technical committees (and any other members) are asked to summarize those activities of scientific and historical interest, and submit them to Bruce. The President's Report also included information on another IEEE directive towards meeting the needs of the "practicing engineer". This effort is meant to direct society concern and action towards meeting the needs of engineers/members who are not primarily in R&D, but in sustaining or "practical" positions. The thrust will initially be educational. EDS may offer short courses tailored to the intellectual needs of these professionals. Prof. Jason Woo of UCLA has been selected to head the EDS Adhoc Short Course Committee looking into this initiative and he welcomes input and ideas on this topic from all members. It was then announced that the site for the Spring 1999 AdCom meeting would be Kyoto, Japan. This also will be held in conjunction with the VLSI Symposia. It will be the first AdCom meeting held outside the US. If the AdCom meeting in Japan is successful, consideration will be given to holding the Spring 2000 AdCom meeting in Europe. By holding some of its AdCom meetings outside the US, EDS hopes to encourage more participation from its non-US members.

Vice President, Cary Yang, presented a summary of the 6 June Executive Committee (ExCom) meeting, much of which will be discussed within this article. Treasurer, Lu Kasprzak, reported that EDS is in excellent financial health. All publications, such as *Electron Device Letters* (EDL), *Transactions on Electron Devices* (T-ED), *Transactions on Semiconductor Manufacturing* (T-SM) and the *Journal of Electronic Materials* (JECMA) are doing well financially; they are meeting their budgets and keeping costs down. The Book Broker Program and conferences, which are major revenue-generating areas, are also doing well. Expenses are up over previous years, but reflect our financial outlay for continued globalization and membership promotion in Regions 8, 9 & 10 (Europe, Middle East, Africa, Latin America and Asia & Pacific, respectively). A motion was approved to move \$1 million from reserves into the IEEE Long-Term Investment Program.

Bill Van Der Vort and his staff in the EDS Executive Office in Piscataway, NJ, continue to be busy and productive. Among their

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### EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

#### 1998

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

#### 1999

R.G. Adde (1)  
J.J. Brown (1)  
B.F. Griffing (2)  
R.P. Jindal (2)  
J.B. Kuo (2)  
J.K. Lowell (2)  
I. Mojzes (2)  
K. Shenai (1)

#### \*2000

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

Number in parenthesis represents term.

\* Members elected 12/97

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# Upcoming Technical Meetings

## 1998 Semiconductor Interface Specialists Conference (SISC)



The 1998 IEEE Semiconductor Interface Specialists Conference (SISC) will be held December 3-5, 1998 in San Diego, CA, immediately prior to the International Electron Devices Meeting (IEDM). The SISC provides a unique forum for device engineers, solid-state physicists, and materials scientists to discuss issues of common interest. Principal topics for discussion at SISC are semiconductor interfaces, the physics of insulating thin films, and the interaction among materials, science, device physics, and state-of-the-art technology. The conference emphasis is on silicon-based devices, including the SiGe and SiC systems.

An important goal of the conference is to provide an environment that encourages an interplay between scientific and technological issues. Invited and contributed talks, as well as a lively poster session, are presented in a setting designed to encourage discussion, and conference participants enjoy numerous opportunities for informal gatherings.

This year will be the twenty-ninth meeting of SISC. The "Interface Specialists Conference" was first held in 1965 and attendance was by invitation. The hot topic of the day was sodium contamination in SiO<sub>2</sub>. Starting with the fourth meeting held in 1973, the conference has been held annually. By then, the word "Semiconductor" had been added to the conference name. The SISC now alternates between the east and west coasts, and meets just before the IEDM. Abstracts for contributed

talks are typically due in early August.

While SISC has remained focused on silicon-based technology and the Si-SiO<sub>2</sub> system, topics have evolved, as the state-of-the-art has advanced. Invited talks at this year's conference focus on many of the topics that will be discussed at the SISC; a preliminary list of invited presentations follows: Yoav Nissan-Cohen (co-CEO, Tower Semiconductor Corporation, Israel) has tentatively agreed, schedule permitting, to discuss issues associated with Embedded Flash Memories. Yasu Nishioka (Texas Instruments, Japan) will describe Characterization and Control of Ultrathin Oxide Interfaces. A complementary presentation by K. R. (Beau) Farmer (New Jersey Institute of Technology, USA) will treat the issue of Electrical Characterization of Ultrathin Oxides. Melissa Hines (Cornell University, USA) will focus on SiO<sub>2</sub> surface chemistry in her presentation on Understanding the Evolution of Silicon Surface Morphology During Aqueous Etching. The emerging commercial interest in silicon-on-insulator technology is reflected in the talk by Ronald Bolam (IBM, USA) on SOI Gate Oxide Reliability. An update on issues associated with using electronics in high radiation environments will be given by Paul Dressendorfer (Sandia National Laboratories, USA), whose talk is entitled "Basic Mechanisms of Radiation Damage in Semiconductor Devices—Revisited with an Eye Toward the Future". For those inter-

*(continued on page 4)*

## IEDM *(continued from page 1)*

IEDM'98 will feature an increased emphasis and a greater number of papers in the areas of device manufacturing, RF devices and silicon based displays and sensors. Device manufacturing techniques to ensure high yield, tight parametric control, and high reliability are becoming even more critical in the era of \$1 billion fabs. RF (radio frequency) devices are essential elements in many advanced communication systems. Silicon based displays and sensors are also playing an increasingly important role in the electronic marketplace. The technical conference will also feature a number of papers from universities. Limited financial assistance is available for students who are presenting papers. Each year an award is presented for the best student paper.

IEDM'98 will feature more than 200 invited and contributed papers by authors from throughout the world dealing with the latest advances in several areas, including: CMOS Devices and Reliability: Topics include device physics, performance and reliability of MOS structures, scaling, SOI and device isolation. Detectors, Sensors and Displays: Reports on advances in theory, performance, modeling and fabrication processing of detectors, sensor devices, actuators and displays. Device and Interconnect Technology: Features advances in process integration, interconnect technology and process modules for the fabrication of CMOS, bipolar and BiCMOS devices. Integrated Circuits: Covers advances in device integration, circuit applications and related technologies. Topics include the process architecture for manufacturability, reliability, performance and testing. Modeling and Simulation: Topics include analytical, numerical and statistical approaches to modeling of all types of electron devices, their isolation and interconnection. Quantum Electronics and Compound Semiconductor Devices: The areas of compound semiconductor electronic and photonic devices and materials. Solid State Devices: Reports on the theory and operation of smart-power ICs, bipolar, discrete power, high voltage, DMOS, IGBT, superconducting, novel devices, silicon based quantum devices, SiGe and SiC devices and IC's, integrated passive components and RF devices.

*(continued on page 4)*

## IEDM *(continued from page 3)*

### Short Courses

A popular feature of the IEDM is the program of short courses held the Sunday before the conference formally begins. This year, the courses will be offered on Sunday, December 6. They provide attendees with the opportunity to learn about new and emerging areas and to benefit from direct contact with the lecturers who are experts in the field. Introductory material for general audiences is also included.

This year, the two Short Course subjects will be "Reliability for Logic and Memory Technologies" and "Next Generation TCAD: Models and Methods". The courses are held at the same location as the conference. Since they take place on Sunday, they offer the opportunity to take advantage of discounted airfares, which include a Saturday night stay over. The registration fee for each Short Course is \$350 (for both IEEE members and non members) and \$50 for students. Advance registration is required.

Our luncheon speaker this year will be Dr. Yoshio Nishi, Senior Vice President and Director, Research and Development of the Semiconductor Group of Texas Instruments. He will speak on "Technology Development Trends in the Next Millennium". Dr. Nishi joined Texas Instruments in 1995 and is currently a visiting professor at Waseda University in Japan and a consulting professor at Stanford University. Dr. Nishi is a

Fellow of IEEE and a member of the Japan Society of Applied Physics, Institute of Electronics, Information and Communications Engineers of Japan and the Electrochemical Society.

### Plenary Presentations

In addition to the regular paper sessions, the conference will include three plenary presentations dealing with developing technologies. This year's talks will be:

"Semiconductor Process Equipment" by Paul Peercy from Sematech, "System on a Chip" by Daeje Chin, from Samsung Electronics, Korea, and "Electronics for Communication" presented by Professor Matti Ojala from Helsinki, Finland.

### Panel Sessions

IEDM'98 will continue the tradition of holding evening panel sessions on important topics of interest to the electronics community. This year the topics will be: "Do Copper and Low-k Solve All of Our Interconnect Related Problems?" moderated by Shyam Murarka from RPI and "Front End Processing: Scaling Challenges for Nanometer Transistors" led by Steven Hilienius from Lucent Technologies.

### Special Manufacturing Session

IEDM'98 will feature for the first time a special session on device manufacturing issues. This session will be assembled from papers submitted to the IEDM in all areas of interest to the conference and will fea-

ture presentations describing issues related to device manufacture and control. The appearance of this session reflects the importance of these topics to the industry at large.

### Late News Papers

The submission date for regular papers has already passed but a limited number of late-news papers will be accepted for presentation. If you have recent outstanding developments you wish to publish at the conference, please submit by September 16, one original of your proposed paper (including artwork) and 25 copies to Phyllis Mahoney, IEDM, 101 Lakeforest Boulevard, Suite 270, Gaithersburg, MD 20877, USA. Accepted late-news papers and accompanying figures will be printed as received in the Technical Digest. Submission of a late-news paper for review will be considered by the review committee as consent from the author for its publication, if accepted.

### Further Information

For registration and other information, visit the IEDM 1998 Home Page on the World Wide Web at <http://www.ieee.org/conference/iedm> or contact Conference Managers Melissa Widerkehr and Phyllis Mahoney, Suite 270, 101 Lakeforest Boulevard, Gaithersburg, MD 20877, USA; TEL: (301) 527-0900; FAX (301) 527-0994.

Howard Masto  
Masto Public Relations  
Latham, NY

## SISC *(continued from page 3)*

ested in dielectrics other than SiO<sub>2</sub>, Brad Melnick (Motorola, USA) will discuss Effects of the Electrode Interface on the Dielectric Performance of Barium Strontium Titanate Capacitors for High Density DRAM Applications. And, for those interested in technology developments in the SiC world, Carl-Mikael Zetterling (KTH - Royal Institute of Technology, Sweden) will review Dielectric Issues for Silicon Carbide MOS Devices.

The formality of the invited and contributed talks is complemented by several informal settings designed to encourage lively discussion and debate. At the poster reception on Thursday evening, a spread of finger-foods, wine, and cheese will encourage interaction among poster authors and other conference participants. There are no scheduled talks on Friday afternoon to allow time to meet informally,

relax on the beach, or visit one of San Diego's numerous attractions. On Friday evening, the conference hosts a banquet and awards ceremony, complete with the now-famous (and always riotous) limerick contest. You are sure to be approached for a limerick contribution, so unleash your literary zeal and enjoy the fun! The limericks never fail to give the conference events an entirely new perspective!

This year's SISC will continue the tradition of presenting an award memorializing Prof. E. H. Nicollian. The award will be given for the best student presentation. Ed Nicollian was a pioneer in the exploration of metal oxide semiconductor (MOS) systems. His contributions were important to establishing SISC in its early years, and he served as the Technical Chair in 1982. With John Brews, he wrote the definitive book MOS Physics and Technology.

The 1998 SISC will be held at the Catamaran Resort Hotel, 3999 Mission Boulevard, San Diego, CA 92109, TEL: (619)

488-1081. The Catamaran is just one block away from the Pacific Ocean (see photo). San Diego is renowned for its weather, its weather, and its weather! Oh, yes, and also its high-tech industry base, the wonderful zoo and wild animal park, and its historic monuments at Old California, all of which are an easy drive from the Catamaran. We hope to see you there!

For registration information and general inquiries about SISC, please contact the Arrangements Chair, Beall Fowler, at Lehigh University, 161 Memorial Drive E., Bethlehem, PA 18015; TEL: (610) 758-3947; FAX: (610) 758-4561; E-MAIL: [wbf0@lehigh.edu](mailto:wbf0@lehigh.edu). Also, for updates on the 1998 IEEE SISC, including upcoming travel, technical program and registration information, we invite you to visit our web site at [www.coe.uncc.edu/~edwards/sisc98/](http://www.coe.uncc.edu/~edwards/sisc98/).

Daniel M. Fleetwood  
Sandia National Laboratories  
Albuquerque, NM

## Integrated Reliability Workshop (IRW)



Since 1982, the IEEE International Integrated Reliability Workshop and its predecessor, the Wafer Level Reliability Workshop, have

provided an ideal environment for envisioning, developing and sharing reliability technology in semiconductor applications. The Workshop features tutorials, formal paper presentations, open poster sessions, moderated discussion group sessions, and special interest group meetings. The Workshop has developed to focus on a more cross-functional approach to semiconductor reliability engineering by exploring a broad range of topics critically relevant to the semiconductor industry. All Workshop activities take place in a relaxed and rustic setting that promotes an atmosphere of interactive learning. The Workshop is co-sponsored by the IEEE Electron Devices Society and the IEEE Reliability Society.

The 1998 workshop will focus on ensuring semiconductor reliability through component design, characterization, and analysis tools. One embodiment of these reliability tools is Wafer Level Reliability (WLR). WLR is most effective when a proven physical acceleration model is used in the design and application of reliability test structures, test methods, and stress conditions. This year's Workshop will focus on the effective use of WLR to built-in reliability. To this end, the limits to WLR will be addressed.

### Technical Papers

Approximately 24 papers will be presented during the workshop in the following topics:

1. Identification of Reliability Effects - failure mechanisms and sensitivities to materials and manufacturing.
2. Reliability Models - experimental agreement between short-duration and long-duration test results; limits to accelerated stress; applications for AC, pulsed, and DC conditions.
3. Reliability Test Structures - design, characterization, uses, and data analysis; integrated on-chip reliability test systems.
4. Wafer Level Reliability tests and Test Approaches - test and analysis methodologies; reduction in development time; relation to circuit element and package tests, in-line monitors; use and interpretation of WLR data.

5. Designing-in Reliability - methodologies and concepts; modeling; simulation tools; reliability-driven design rules and checkers; use of WLR for design rule verification.
6. Customer Product Reliability Requirements - reliability evaluation methodologies; data bases; reporting systems; future reliability targets.

### Keynote Speaker

The invited keynote speaker for the workshop is yet to be decided at the time of this writing.

### Tutorials

In a continuing effort to enhance the value of the Workshop and to supplement the technical program, we are again offering two tutorials on Monday afternoon. This year's topics will be:

1. Reliability Issues and the Development of Advanced DRAM Products. Wayne Ellis will discuss the integration of DRAM reliability issues at the system level.
2. The Analysis of Oxide Reliability Data. Bill Hunter will review state-of-the-art methodologies for analyzing TDDDB data, ramped voltage data, and current ramp data.

### Discussion Groups

The discussion groups offer an outstanding opportunity to interact with peers on critical reliability topics. These are structured in terms of specific topics as an open forum of discussion, where everyone is encouraged to contribute. Held after dinner, discussions are always spirited, and open inputs from different perspectives provide a valuable experience for all. A tentative list of this year's topics are electromigration, gate oxide reliability, electrostatic discharge (ESD), C-V Characteristics, and Customer Reliability Requirements.

### Open Poster Sessions

Attendees will be provided the opportunity to present a poster communicating ideas and results of a technical project or issue during the two open poster sessions. Poster display boards will be available, and you are invited to submit a one-page abstract of your poster presentation for inclusion in the Workshop proceedings.

### Special Interest Groups (SIG)

The SIG program has been very successful in fostering collaborative work on important reliability issues. The SIGs provide a forum for interested participants to remain in contact with each other through-

out the year to pursue specific projects.

### JEDEC 14.2 Meeting

The JEDEC 14.2 Wafer Level Reliability Standards Committee meeting will be held immediately following the Workshop at the same location on Thursday afternoon and Friday morning. Members, alternates and guests are welcome. The cost for accommodations is US \$160, which includes Thursday night dinner and lodging and Friday breakfast and lunch. If you have any questions, please call Michael Dion at TEL: (407) 724-7067. If you want to become a member of JC-14.2, please call the JEDEC office at TEL: (703) 907-7560.

### The Conference Location

The Workshop is held annually at the Stanford Sierra Camp, located on Fallen Leaf Lake in the Lake Tahoe region of California. This location has served to provide an optimum environment for sharing the types of innovative reliability and physics breakthroughs that have consistently been presented at the Workshop. The schedule is intense from Monday afternoon through Thursday lunch and extends late into the evenings. We do, however, take Tuesday afternoon off to enjoy the beauty of the area. Most attendees hike, while others play volleyball, sail, canoe, or play tennis. Lodging includes clusters of 2 and 3 bedroom cabins furnished in the rustic style of an alpine resort. Each cabin cluster is equipped with shared bathroom facilities. All rooms have decks with magnificent views of Fallen Leaf Lake and surrounding Sierra peaks.

### Final Details

The Workshop begins at 2:00 p.m. Monday, October 12, and ends at noon Thursday, October 15. Dress is casual as part of the rustic and work-level nature of the Workshop. The registration fee is US \$900 for IEEE members and US \$950 for non-members, which includes meals, lodging, and refreshments at the Stanford Sierra Camp; Presentation View Graphs (provided at the meeting); and the 1998 IRW Final Report (published after the meeting). Please visit our IRW web page (<http://www.irps.org/irw>) for more information or contact: Sally Yankee (IBM Microelectronics), Communications Chair, TEL: (802) 769-3242; E-MAIL: [syankee@us.ibm.com](mailto:syankee@us.ibm.com) or Raif Hijab (Cirrus Logic), General Chair, TEL: (510) 624-7213; E-MAIL: [rhijab@corp.cirrus.com](mailto:rhijab@corp.cirrus.com).

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IBM Microelectronics  
Essex Junction, VT

## 1998 Gallium Arsenide Integrated Circuits Symposium



This year's 20th anniversary of the IEEE Gallium Arsenide Integrated Circuits (GaAs IC) Symposium will be held November 1-4 in the dynamic city of Atlanta, Georgia, site of the 1996 Centennial Olympic Games. Our venue is the beautiful Westin Peachtree Plaza Hotel, conveniently located in downtown Atlanta. Over the last 20 years, this symposium has become the pre-eminent international forum on developments in integrated circuits using GaAs, InP and other compound semiconductor devices. Coverage embraces all aspects of the technology, from material issues and device fabrication, through IC design and testing, high volume manufacturing and system applications. In true Olympic form, the GaAs IC Symposium continues its tradition of presenting the best from around the world in GHz frequency microelectronics. Forty percent of this year's technical papers come from outside the US. This year's program is also indicative of the dramatic adoption over the past several years of GaAs technology for commercial applications in addition to the traditional government supported technology and applications. Major focus areas of this year's GaAs IC Symposium, organized by Mark Wilson and the Technical Program Committee, include state-of-the-art circuits and technology for:

- Wireless and broadband communications
- Very high speed digital communications
- Highly efficient, linear power amplifiers
- Interface electronics & signal processing
- mm-wave defense & automotive systems

Additionally, the symposium features sessions highlighting: GaAs IC manufacturing issues, new heterostructure device development, device modeling, characterization and reliability, and design techniques and software.

This 20th IEEE GaAs IC Symposium also continues our tradition of providing focused educational opportunities through our Short Course and Primer Course, both held on Sunday, November 1. Jim Komik has organized a very interesting and highly applicable one-day Short Course on "Power Amplifiers: From Milliwatts to Kilowatts," taught by 5 experts in the industry:

Phil Smith	Sanders, Lockheed Martin Co.
Mike Golio	Rockwell Collins
Steve Nelson	Bosch Telecom
Aryeh Platzker	Raytheon Advanced Device Center
Mahesh Kumar	Lockheed Martin GES

This course will focus on the technical details of the technology and design of power amplifiers. In addition, Stephen Long (UCSB) and Donald Estreich (HP) will once again present our Primer Course on the "Basics of GaAs ICs" which is not only a tutorial but is presented within the context of this year's symposium.

To complement the full technical program, the symposium will also have several social events to provide opportunities to interact with colleagues while catching up with the newest technology available on the market. These events include the Sunday evening Opening Reception, the Monday evening Technology Exhibition Reception in the GaAs IC Technology Exhibition Hall, and the Tuesday evening 20th Birthday Party at Atlanta's Hard Rock Cafe. There will also be opportunities for

attendees to learn of new products just hitting the market for the III-V microelectronics business through approximately 40 exhibits at the GaAs IC Technology Exhibition. Additionally, potential customers for the latest commercially available GaAs IC's can learn about these in the Vendor Product Forums.

Finally, this year's GaAs IC Symposium will have some new features. At the opening session, we will be presenting our first "Outstanding Paper Award" from the 1997 Symposium to Taiichi Otsuji et al. from NTT for their paper on 80 Gb/s Multiplexers using InAlAs/InGaAs HEMT's. In addition, we are entering our second symposium with support from corporate benefactors. We can already, gratefully acknowledge the support of Watkins-Johnson and Sumitomo Electric Co., USA for our symposium in Atlanta. We also welcome any others who may be interested in joining this year's team.

We hope you'll join us in Atlanta for this special 20th IEEE GaAs IC Symposium. We feel that we have an outstanding technical and educational program which also supports the business we're in.

Registration can be accomplished through Jennifer Lambert of the IEEE by sending a registration form at the following: FAX: +1-732-981-1203; E-MAIL: [registrations@ieee.org](mailto:registrations@ieee.org). To obtain a registration form please telephone IEEE at TEL: +1-800-810-4333.

Further information is available through our web site at: <http://www.gaasic.org/> or from the Symposium Chairman, Bill Stanchina, by TEL: +1-310-317-5089 or E-MAIL: [weStanchina@HRL.com](mailto:weStanchina@HRL.com).

William Stanchina  
Hughes Research Laboratories  
Malibu, CA

## IEEE Personal E-Mail Alias Service

The IEEE now offers an Alias Service in which IEEE members can register or update a personal alias of their choice (subject to availability and on a "first come, first serve" basis). Messages addressed to the [alias@ieee.org](mailto:alias@ieee.org) will automatically be forwarded to the real Internet e-mail address. This Alias Service also provides a virus scanning feature to help prevent you from receiving viruses in the first place. Attachments within your e-mail that are sent to your IEEE e-mail alias will be scanned for viruses. If a virus is found, the attachment will be deleted. An alert is then sent to both the sender and recipient. While the IEEE cannot guarantee that every virus will be found, the virus scanning software is updated weekly with a current virus recognition file. A service like this typically costs \$30 per year, but as an IEEE member, it is yours FREE of charge.

To register to use IEEE's Alias Service via the web, go to <http://mail.ieee.org/elecomm/personal-aliases.html> or send an e-mail to [alias-info@ieee.org](mailto:alias-info@ieee.org).



## Society News

### New EDS Membership Benefit

#### Free On-line Access to Selected Publications of the ED, IT, MTT & UFFC Societies

Effective with the start of the 1999 IEEE billing cycle (1 September, 1998), EDS will begin to offer its members and affiliates a very significant and valuable new membership benefit of free on-line access via the World-Wide Web to selected publications of the Electron Devices (ED), Information Theory (IT), Microwave Theory and Techniques (MTT) and Ultrasonics, Ferroelectrics and Frequency Control (UFFC) societies. By virtue of being a member or affiliate of EDS, who is current in the payment of his/her IEEE and EDS membership fees, you will be entitled to access the following publications on-line via the IEEE OPeRA(On-line Periodicals and Research Area)System at <http://www.opera.ieee.org>:

Publication	Sponsoring Society
Electron Device Letters	ED
Transactions on Electron Devices	ED
Electrochemical & Solid-State Letters	ED & ECS
Transactions on Information Theory	IT
Transactions on Microwave Theory and Techniques	MTT
Microwave and Guided Wave Letters	MTT
Trans. on Ultrasonics, Ferroelectrics & Frequency Control	UFFC

This new membership benefit of providing free on-line access for the three EDS publications (EDL, T-ED and ESL) was approved by the EDS Administrative Committee at its December 1997 meeting. At the same meeting, the AdCom also approved for my negotiation with the other 36 IEEE societies to establish reciprocal agreements to access on-line selected publications of each respective society; hence the agreements with ITS, MTTs and UFFCS resulted. Thus, as of 1 September, ITS, MTTs and UFFCS members and affiliates will be able to view EDS publications on-line. In addition, Reliability Society members will also be allowed to access EDS publications on-line as of 1 September. The Reliability Society does not currently have its Transactions on-line, but plans to do so in the near future, and has agreed to allow EDS members access via OPeRA when they are up and running. I am continuing to negotiate with other Societies and expect that several additional publications will be added to this reciprocal on-line access plan next year.

If you have any questions regarding the new membership benefit, contact the Executive Office (see page 2 for contact information).

W. Dexter Johnston, Jr.  
Lucent Technologies, Inc.  
Murray Hill, NJ

### Update on the STAR Program

The STAR program (Student-Teacher and Research Engineer/Scientist) was started in 1995 by the IEEE Electron Devices and IEEE Microwave Theory and Techniques Societies. STAR



Karen Moore

was started in an effort to encourage young women to participate more in math, science, and engineering by providing positive female role models for those disciplines. The program aims to address the growing concern that young women in junior high and high school are discouraged from careers in mathematics, science, and engineering at a young age. The goal of STAR is to create a technical support network for teachers, and a mentoring program for students, through one-on-one interactions with IEEE society volunteers and student/teacher teams. EDS and MTTs offered STAR to their chapters from 1995-1997. Several successful programs were started during that time both in the United States and around the world.

The IEEE Women in Engineering Committee took over administration of the STAR program in January 1998. This transition was made in an effort to make STAR available to more individuals and societies in the IEEE. STAR was re-launched under WIE with a forum at the November 1997 IEEE Board of Directors Meeting followed by an article in the Institute in January 1998. Since these two events, WIE has had a great deal of increased interest in the program. Over the last several months, WIE has had inquiries about STAR from 9 of the 10 IEEE regions, including groups not only from the United States, but also from Canada, Finland, Singapore, and Malaysia. We have had interest from several additional societies, including the IEEE Computer, Robotics and Automation, Control Systems, Industry Applications, and Professional Communications Societies. Finally, and possibly most exciting, is we have had inquiries from several organizations out-

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### EDS 'Permanent' Membership Option

EDS members are currently being offered the option of making a one-time payment of \$25 to become a 'permanent' member of EDS. The only requirement to become a permanent EDS member (besides the \$25 fee) is to maintain your IEEE membership.

Current IEEE and EDS members are able to request this new option via their 1999 IEEE membership renewal bill. IEEE members who are not members of EDS can also use their 1999 renewal bill to request permanent membership. In addition, non-members of the IEEE are also able to request this option by completing the appropriate section of the 1999 IEEE/EDS membership application form. We encourage you to take advantage of this EDS offering and benefit. This option is not available to IEEE student or EDS affiliate members.

side IEEE who are interested in educating young women and may also want to partner with IEEE to support STAR programs and development.

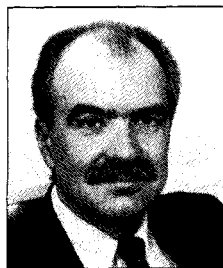
WIE believes that the STAR program is a unique opportunity to increase the IEEE's level of community involvement while encouraging more young women to enter technical fields. For more information about the STAR program, please contact WIE by E-MAIL: [women-star@ieee.org](mailto:women-star@ieee.org).

Karen Moore  
Motorola Inc.  
Tempe, AZ

## 1997 Paul Rappaport Award

The Paul Rappaport Award is given each year to honor the author(s) of the best paper that has appeared in an EDS publication in the preceding calendar year. The recipient(s) is awarded a certificate and check for \$2,500, presented at the International Electron Devices Meeting (IEDM).

The paper entitled "Back-gated CMOS on SOIAs for Dynamic Threshold Voltage Control" by D.A. Antoniadis, A. Chandrakasan, C. Vieri and I.Y. Yang was recognized as the best paper appearing in an EDS publication in 1997. The paper was published in the May 1997 issue of *IEEE Transactions on Electron Devices*. The 1997 award will be presented at the IEDM on 6 December, 1998 in San Francisco, CA. The following are brief biographies of the four winners.



Dimitri A. Antoniadis

Dimitri A. Antoniadis received a B.S. in Physics from the National University of Athens (1970), and an M.S.E.E. (1973) and Ph.D. (1976) in Electrical Engineering from Stanford University.

He has worked with semiconductor devices and integrated circuit technology since 1976, developing the SUPREM process simulator. At present, his research focuses on the physics and technology of extreme-submicron Si and Si/SiGe MOSFET's, SOI devices and technology for sub-0.25 CMOS, Technology CAD and applications for advanced device design, and quantum-

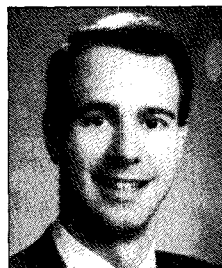
effect electronic devices. Prof. Antoniadis joined MIT in 1978 and is a chaired Professor of Electrical Engineering and Director of the SRC Center of Excellence in Microsystems Technologies.



Anantha Chandrakasan

Anantha Chandrakasan received the Ph.D. degree in EECS from U.C. Berkeley in 1994. He is currently an associate professor of EECS at MIT. He has received various awards including the 1993 IEEE

Communications Society's best tutorial paper award, the NSF Career award in 1995, the IBM Faculty Development award in 1995, and the National Semiconductor Faculty Development award in 1996. He is a co-author of "Low Power Digital CMOS Design" and a co-editor of "Low Power CMOS design". He has served as a program chair for various conferences including the 1997 ISLPED, VLSI Design '98 and SiPS '98.



Carlin Vieri

Carlin Vieri is currently pursuing his doctorate at the MIT Artificial Intelligence Laboratory. He received bachelor's degree in electrical engineering and computer science from the University

of California at Berkeley in 1993 and a master's degree from MIT in 1995. He is also currently a Senior VLSI Engineer at the MicroDisplay Corporation. He has worked on high performance/low power parallel computing, the development of specialized integrated circuits employing power management techniques, and his main interest is in reversible computation structures.

Isabel Y. Yang (M'93) received the B.S. degree in material science and engineering in 1990. She received the M.S. and Ph.D. degrees, while on an AT&T graduate fellowship, in electri-



Isabel Y. Yang

cal engineering in 1993 and 1996, respectively, from the Massachusetts Institute of Technology, Cambridge. From September 1996 to July 1997, she has been a member of the technical staff at the Advanced Products Research and Development Laboratory of Motorola, Austin, TX. Since July 1997, she has been a member of the technical staff in the Networking and Computing Systems Group of Motorola. She is working on CMOS device design and process integration for embedded platform applications.

Steven J. Hillenius  
Lucent Technologies, Inc.  
Murray Hill, NJ

## William R. Cherry Award

The William R. Cherry Award was presented to Richard J. Schwartz at the 2<sup>nd</sup> World Conference and Exhibition on Photovoltaic Solar Energy Conversion in Vienna, Austria, on July 6<sup>th</sup>. The conference



Richard J. Schwartz

incorporated the 27<sup>th</sup> IEEE Photovoltaic Specialists Conference. Dr. Schwartz is Dean of Engineering at Purdue University and was honored for his pioneering work in the analysis and design of high intensity silicon cells. He has held a number of positions since joining the Electrical Engineering Faculty of Purdue University in 1964, including Head of the School. Dr. Schwartz is a Fellow of IEEE and Chair of the Science and Technology Committee for the National Renewable Energy Laboratory.

The William R. Cherry Award was established in 1980 in recognition of the key role played by Bill Cherry in establishing solar cells as the ideal power source for space and for vigorously advocating development of photovoltaics for terrestrial uses. It is awarded during each Specialists Conference to an individual who has made outstanding contributions to the advancement of photovoltaic science and technology.

John D. Meakin  
University of Delaware  
Newark, DE



## AdCom (continued from page 2)

current adhoc projects are preparation of the five-year Society and Publications Reviews which were held at the IEEE Technical Activities Board (TAB) meeting in June and assisting in the development of the new EDS "Chapter of the Year" award, in collaboration with Cary Yang, Regions/Chapters Chair. Their other chapter-related efforts include: the initiation of a "Region Champions" program to identify opportunities for the formation of new chapters; arranging for the Division I & IV Region 8 Chapters Meeting in Amsterdam; development of the 1998 EDS Membership Directory; and continued coordination of membership promotions at major meetings such as the International Solid-State Circuits Conference (ISSCC), the Custom Integrated Circuits Conference (CICC), and the VLSI Symposia. On the publications side, the office has been instrumental regarding the following: getting the new *Electrochemical and Solid-State Letters* (ESL) started; coordinating the production and distribution of the new CD ROM (which includes all the 1997 T-ED, EDL & IEDM papers); coordinating the set-up of the new EDS membership benefit for EDS members of free on-line access to T-ED, EDL, ESL, *Transactions on Microwave Theory and Techniques*, *Microwave and Guided Wave Letters*, *Transactions on Information Theory* and *Transactions on Ultrasonics, Ferroelectrics and Frequency Control* (by reciprocal agreement with each respective Society), effective with the start of the 1999 billing cycle (September 1st); and re-establishment of a better working relationship with the IEEE Press. The new arrangement with the IEEE Press, headed by Kwok Ng, will get the eleven technical committees involved with proposal reviews and suggestions for new initiatives for IEEE Press reflecting EDS interests. The Executive Office has also helped seven meetings obtain EDS sponsorship/technical co-sponsorship support. The Executive Office will be assuming the technical responsibility for the EDS Home Page which was previously performed by the Home Page Editor, Lisa McIlrath, coordinating the arrangements for the Meetings Best Practices Workshop, and beginning to implement a new process management plan at the office.

James Kuo (standing in for T. Paul Chow, Membership chair) informed the AdCom of recent membership activities. At the end of 1997, EDS membership totaled 11,471 members, which was a five percent

growth. This was the 2nd highest growth rate of all 37 IEEE societies. As of April of this year, EDS stood at 11,338 members which as a 12.3% rise over April of 1997. Membership promotions at major meetings continue to do well with IEDM generating 116 new members, ISSCC having 313, and CICC providing twenty. Similarly, 126 members were signed-up through a direct-mail campaign. Paul Chow and his Membership Committee also plan to consider the

possibility of sending out a member survey worldwide to a selected group of 1,000 members. A motion to continue the IEEE Marketing Direct Mail Campaign in 1999 at a cost of \$7,000 was approved. The AdCom also discussed the possibilities of linking membership promotions at the chapter level with consideration of an award for the most new members, and the encouragement of more "affiliated" members with other societies such as MRS, ECS, etc.

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## EDS Members Receive 1998 IEEE Awards

Two EDS members were among the recipients of IEEE Awards, presented at the 1998 IEEE Honors Ceremony, held in late June in Detroit, MI.



Rolf Landauer

Rolf Landauer received the IEEE Edison Medal, which is given for a career of meritorious achievement in electrical science or electrical engineering or the electrical arts. His citation reads, "For pioneering contributions to the physics of computing and conduction in small dimensional structures." He has held a variety of research and managerial positions at the IBM T.J. Watson Research Center. He was Director of Physical Sciences from 1962 to 1966 and in 1966 he became Assistant Director of Research in IBM's Research Division. In 1969, he was appointed an IBM Fellow, and returned to personal research. Dr. Landauer's research ranged over a number of fields, but much of it was related to the kinetics of small structures.

He is a member of the National Academy of Engineering and has received numerous awards. These awards include the 1992 Stuart Ballantine Medal of the Franklin Institute and the Oliver E. Buckley Prize in solid-state physics by the American Physical Society in 1995.

H. Troy Nagle received the IEEE Richard M. Emberson Service Award, which is given for "Distinguished service to the development, advancement, and pursuit of the technical objectives of the IEEE." His citation reads "For outstanding technical leadership and dedication to the Institute, particularly in preparing for the challenges of the 21<sup>st</sup> century."

Upon completing his Ph.D. in electrical engineering and his military service which included a tour in Vietnam, he returned to Auburn University as an assistant Professor of Electrical Engineering. He was promoted to the rank of Professor in 1976. During the period, 1979 to 1981, he took a leave of absence from Auburn University to study medicine at the University of Miami. This effort was undertaken to re-orient his research to biomedical engineering. He received his Doctor of Medicine degree in 1981 and returned to Auburn University. In 1984, he joined North Carolina State University as Professor of Electrical and Computer Engineering. During the period of 1990 - 1992, he established the Biomedical Microsensors Laboratory at NCSU.

Professor Nagle's IEEE activities cover a range of activities. They include: Division VIII Director (Computer Society) (1987 - 1988), Vice President of the Technical Activities Board (TAB) (1989-1990), and IEEE President (1994).



H. Troy Nagle

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

Cary Yang reported that two new chapters have been formed since the December AdCom meeting. They are the ED Cuba and ED Mexico CINVSTAV-IPN Student Branch chapters. This brings the total number of chapters to ninety. The 1998 Region 8 Chapters Meeting will be held in October at the European Microwave Symposium (EuMC) in Amsterdam, the 1998 Regions 1-7 & 9 Meeting will take place at the IEDM in San Francisco and the next Region 10 Chapters Meeting will be held at the 1999 VLSI Symposia in Kyoto. As previously stated, the Region Champions Program has been started, initially targeting Regions 1-7. These Champions are to examine the existing distribution of EDS members in these regions to see if a new chapter (by affiliation, expansion or self-incorporation) is warranted. The new annual Chapter of the Year Award will be presented at the IEDM. AdCom approved to extend its support for another three years to subsidize IEEE, EDS and Microwave Theory and Techniques (MTT) memberships and publication subscriptions for 155 members in eleven chapters in Eastern Europe (14 members per chapter). There is now a requirement that 4-6 of the individuals of each chapter must be 'new' members each year. AdCom approval of this program to the year 2002 was contingent on MTT's continuing its involvement. Subsequent to the meeting, MTT approved the extension of support.

Three 1998 conference reports were presented: the International Symposium on Statistical Metrology, Silicon Nanoelectronics Workshop, and the Symposia on VLSI Circuits & Technology. All three meetings reported improved technical content and good attendance. They are all seeing a reduction in attendees from all over the world due to the present economic downturn. The Silicon Nanoelectronics Workshop reported that they have been invited to publish some of their papers and abstracts in the Nanotechnology journal. This was discussed in AdCom, since the capture of EDS-sponsored conference material by non-EDS publications is a possible area of concern. One possible solution to this is to expand the EDS CD ROM Package to include the published proceedings of EDS conferences. Arlene Santos (standing in for Jerry Woodall, Educational Activities Chair) briefed the AdCom on the status of the action items for the Educational Activities Committee from the December 1997 AdCom meeting. Arlene Santos has been appointed as the EDS liaison to the Educational Activities Board (EAB). The committee

will also begin to include professional activities as one of its responsibilities. Arlene reported that there are now a total of 91 Distinguished Lecturers and 17 IEDM Short Course videotapes were borrowed from the EDS Lending Library for 1997.

Publications Chair, Steve Hillenius, advised that about 500 members have purchased the 1997 EDS CD ROM Package which includes the 1997 issues of EDL & T-ED and the 1997 IEDM proceedings. His committee is considering archival CD ROMs, which may include all past years of T-ED, EDL & IEDM. Estimates are that one disk would cover ten years of these two publications. In the future, these disks may include all papers & abstracts from all EDS journals & publications, and the proceedings of 100% financially sponsored conferences. Previously mentioned items such as the IEEE Press initiative, and Kwok Ng's role were reviewed. Steve also suggested a motion that EDS return all royalties from EDS sponsored IEEE Press book sales to the respective author(s), which was approved. He also announced that I.Y. Yang, A. Chandrakasan & D. Antoniadis will receive the 1997 Paul Rappaport Award for their paper in the May 1997 T-ED. The agreement between The Electrochemical Society (ECS) & EDS to publish the *Electrochemical and Solid-State Letters* has been signed and the first issue (July) is now available on the World Wide Web (<http://www.electrochem.org/letters.html>) and in paper and microfiche.

Jim Clemens, Meetings Chair, stated that there are now a total of 118 meetings for which EDS provides some type of support. Specifically, there are 33 sponsored/co-sponsored, 71 technically co-sponsored & 14 cooperatively sponsored. Renewal of support for the major meetings in all categories of sponsorship for the 2nd half of 1999 was approved. Jim reported that delinquent documentation from the Device Research Conference for the years 95-98 has been received or promised and the issues surrounding this have been resolved. The IEEE Custom Integrated Circuits Conference (CICC) has requested that the Solid-State Circuits Society replace EDS as the full financial sponsor and to have EDS become a non-financial technical co-sponsor. This will take effect as of the 1999 occurrence. He also announced that the new Intl. Interconnect Technology Conference, held for the first time the previous week, reported good attendance and was considered a success. In related conference news, the continuation of co-support between EDS and the

Reliability Society for the IEEE International Reliability Physics Symposium (IRPS) and the IEEE Integrated Reliability Workshop (IRW) meetings will continue for 1999.

New requests for 25% co-sponsorship for the International Conference on Microelectronics (MIEL) in Yugoslavia (Sept. 1999), and 100% sponsorship of the International Conference on Vacuum Electronics were also approved. For the latter meeting, the sponsorship applied only to those meetings which are held in the US & Japan. When the meeting rotates to Europe, EDS will only provide technical co-sponsorship.

In the area of other business, Bruce Griffing reported that a committee headed by the Awards Chair, H. Craig Casey, has suggested that the current IEEE Field Award, the Jack A. Morton Award (which passed responsibility for the 1999 award to EDS from Lucent Technologies) be renamed for Andrew S. Grove beginning in the year 2000. The proposal was approved. Arlene Santos, AdCom member and representative for the Baltimore EDS chapter, asked and received approval for \$3,000 to be designated for the Historical Electronics Museum in Baltimore to promote their activity and encourage the inclusion of semiconductor electronics history and memorabilia into their collection.

Bruce also continued with the list of EDS goals for 1998 and 1999 which include: Revitalize/increase current chapters in Regions 1-7, determine whether we should develop a member survey to determine the needs of our members, develop & implement methods to grow membership (increase programs, start new ones), implement the new member benefit of producing on-line access to EDL, T-ED, ESL and the publications of several societies for all EDS members, change content and format of the Best Practices Workshop and implement process management in the Executive Office.

Technical Committee Chairs also reported on their recent activities. Reliability Chair Lu Kasprzak, reported that his committee is supporting the idea of a new cross-society (EDS, ECS, MRS, AVS) publication solely on reliability issues. This will be taken under advisement to study the need for such a journal and how it would be organized. Vacuum Devices Chair, Jim Dayton feels that his committee has taken the lead to establish the International Conference on Vacuum Microelectronics, become a consolidated, widely supported meeting in this area. It replaces many smaller meetings in this area and provides a forum to increase Far East participation. Beyond that, the com-

## 1998 Issues of Electron Device Letters & Transactions to be Available on CD ROM

EDS is continuing and expanding its participation in the IEEE project to disseminate transactions, journals, letters and publications on a secure world-wide web site for society member subscribers. The project, dubbed "OPeRA" (On-line Periodicals Research Area) has been available to subscribers of *Transactions on Electron Devices* (T-ED) and *Electron Device Letters* (EDL) since January of 1997. This year, we also began offering a CD ROM in lieu of the print versions, which was named the EDS CD ROM Package. This Package was made available for the 1998 membership cycle and it included all 1997 issues of T-ED and EDL plus the 1997 IEDM Technical Digest. The CD ROM Package will again be an option for the 1999 cycle and will include the 1998 versions of these publications. As a future plan, EDS is also considering the addition of the Technical Digests from other EDS financially sponsored meetings to its CD ROM Package.

The Electron Devices Society was one of the 4 charter societies participating in on-line access of IEEE journals. There are currently 11 participating Societies and Councils with 33 journals available. Members from all Societies have access to bibli-

ographical information on all the journals and access to the full article for the journals that they subscribe to. Access is simple. IEEE members can go to the OPeRA site (<http://www.opera.ieee.org>) and register with their IEEE membership number. They are then given a PIN number and access to any publications that they are entitled to. There is also a demo site available for members without subscriptions. With the start of the 1999 billing cycle (1 September 1998), EDS members will have free access to T-ED, EDL, the new *Electrochemical and Solid-State Letters* (ESL), and several other journals from the Information Theory, Microwave Theory and Techniques and Ultrasonics, Ferroelectrics and Frequency Control societies (please see the article in this newsletter by W. Dexter Johnston).

The use of these on-line capabilities has grown significantly. *Transactions on Electron Devices* has been consistently one of the most accessed journals of the 33 journals available. We encourage all members of the society to explore this exciting new option for getting your journals.

Steven J. Hillenius  
Lucent Technologies, Inc.  
Murray Hill, NJ

## The IEDM Tutorial Series — Live or on Video!

Each December, the IEEE Electron Devices Society sponsors two technical tutorials at the annual International Electron Devices Meeting. These tutorials cover topics in technology, design, manufacturing, physics, and modeling of electron devices presented by experts from around the world. This year's program involves Reliability for Logic and Memory Technologies and Next-generation TCAD: Models and Methods.

If you are unable to attend the live sessions, you can still benefit from these and previous years' tutorials. Past titles include:

- Giga-Scale CMOS Technology (1997)
- Trends in RF Devices for Wireless Application (1997)
- DRAMS in the 21st Century (1996)
- The Back End at the Forefront (1996)

Each program is videotaped and made available through the IEEE. Please refer to <http://www.ieee.org/eab/products/videos.html> for product information on these and other IEDM titles. Each IEDM program consists of four videotapes and runs approximately five hours. If you wish to purchase the programs, contact the IEEE Customer Service Department at 1-800-678-IEEE (in the USA or Canada) or 1-732-981-0060 or by E-MAIL: [customer-service@ieee.org](mailto:customer-service@ieee.org).

As a point of information, the EDS Executive Office administers a Lending Library which includes all the IEDM videotape short courses. These tapes can be borrowed for chapter meetings at no cost except for return shipment. If you are interested, please contact the Executive Office. See contact information on page 2.

## AdCom (continued from page 10)

mittee is looking into new educational opportunities, videos, visiting lecturers, and other new initiatives in this technical area. The Semiconductor Manufacturing Committee, headed by Arlene Santos, is exploring new ways to embrace such issues as feature-size reduction, yield enhancement, new materials, 300mm design, cost, design for manufacturability, human resources, and factory networks which are all major factors in both present and future wafer fab production. They wish to promote cross-disciplinary approaches to solving these problems and are looking into joint projects with the VLSI Technology Committee and others. Arlene is also looking into consolidating conferences such as the International Symposium on Semiconductor Manufacturing (ISSM) and the Advanced Semiconductor Manufacturing Conference & Workshop (ASMC) into one, and using her group to define skill sets for future fabs. The VLSI Technology Committee (reported by John Lowell for Chair Charlie Sodini) is also looking into many projects and has identified 300mm technology (joint with the semiconductor manufac-

turing committee), interconnect, and TCAD as some of their targets. Charlie's group has also defined a special session on "Passive Elements & Active Device Modeling", and a panel discussion on "RF integration" for future meetings.

The meeting closed with some Chapter Chair and Chapter Partner reports given by Masao Fukuma (Tokyo Chapter Representative), Hiroshi Iwai (Partner for Finland, Singapore & Korea chapters) and Ilesanmi Adesida (Partner for Baltimore, Northeastern University, and Venezuela chapters). There were also meeting reviews for the CICC, IEDM, International Conference on Microelectronic Test Structures (ICMTS), IRPS, and Non-Volatile Semiconductor Memory Workshop (NVSMW). A final discussion on the question of member needs (i.e. what do we do to serve the needs of those members for whom T-ED & EDL are not a major benefit?) brought the meeting to a final adjournment.

John K. Lowell  
EDS Secretary

## Regional and Chapter News

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

#### 1999 International Conference on Microelectronics (MIEL '99)

— by Ninoslav D. Stojadinovic

The 22nd International Conference on Microelectronics (MIEL'99) will be held during September 19-22, 1999 at the Faculty of Electronic Engineering, University of Nis, Yugoslavia. The Conference MIEL'99 will be organized by the ED/SSC Yugoslavia Chapter, in co-operation with the Faculty of Electronic Engineering, University of Nis, and Ei-Holding Co., Nis, under the co-sponsorship of the IEEE EDS, and under the auspices of Serbian Ministry of Science and Technology and Yugoslav Ministry of Science and Development. MIEL is an outstanding European conference, providing an international forum for the presentation and discussion of the recent developments and future trends in the field of microelectronics. Since 1984, there is an aura of internationalization around the MIEL conferences, providing an opportunity for specialists from both academic and industrial environments from the West and East, as well as from the countries of the Third World, to meet in an informal, friendly atmosphere and exchange experiences about the theory and practice of microelectronics.

The topics which will be covered by the technical program of the Conference MIEL'99 include all important aspects of microelectronic devices, circuits and systems, ranging from materials and processes, technologies and devices, device physics and modeling, process and device simulation, circuit design and testing, system design and packaging, and characterization and reliability. Based on the history of the past decade, it is expected that the technical program of the Conference MIEL'99 will consist of about 150 contributed papers by the authors from more than 30 countries all around the world, which will be structured into oral and poster sessions. These papers, together with 15 invited papers, which are to be presented by the world's leading authorities from the field of microelectronics, will form the solid foundation of the Conference MIEL'99. Three related scientific events, namely the workshops "Power Devices and IC's" and "Microsystem Tech-

nologies", containing 5 invited papers each, and a short course: "Low Power Electronics" by Krishna Shenai, will round off the technical program of the Conference MIEL'99.

The invited lectures are: "Quantum Engineering of Nanoelectronic Devices" (V. Arora, USA), "Challenges of Developing Modern VLSI Technology", (J. Clemens, USA), "Access to Microsystem Technology: the MPC Services Solution", (B. Courtois, France), "SOI Technology: Context, Prospects and Challenges", (S. Cristoloveanu, France), "Industrial Demands on Microtechnical Products", (H. Dettner, Austria), "Non-Standard Physicochemical and Electrical Examinations in Thick-Film and LTCC Technologies", (A. Dziedzic, Poland), "Microtechnology on the Threshold of the 21st century", (W. Ehrfeld, Germany), "Degradation Mechanisms in Compound Semiconductor Heterostructure Devices", (F. Fantini, Italy), "Radiation Effects on Electronics in Space Telecommunications Systems", (D. Fleetwood, USA), "Flexible Hardware Model: A New Paradigm for System LSI Design in the 21st Century", (M. Imai, Japan), "RFC-MOS Technology", (H. Iwai, Japan), "Heterostructure FET's", (E. Kohn, Germany), "Three-Dimensional Optical Data Storage Based on a CW Femtosecond Laser", (N. Koroteev, Russia), "Compact Modeling of Bipolar and VLSI CMOS Devices", (J. Kuo, Taiwan), "Design of Analog Interfaces in Submicron Digital CMOS Technology", (V. Liberali, Italy), "Electrostatic Discharge (EDS) Prevention in Semiconductor Devices", (J. Liou, USA), "Silicon Carbide Devices and Processes—Present Status and Future Perspective", (M. Ostling, Sweden), "Advanced Smart MOS Power IC's", (P. Rossel, France), "Mixed Mode Device and Circuit Analysis", (S. Selberherr, Austria), "Status and Trends in High-Power Semiconductor Devices", (K. Shenai, USA), "Smart Power Technology and Application", (M. Shibib, USA), "Transition Metal Nitrides Diffusion Barriers for Copper Metallization", (S. C. Sun, Taiwan), "Reliability of Surface Micromachined Microelectromechanical Actuators", (D. Tanner, USA), "Development of High Voltage and High Current Press Pack IGBT and Its Applications", (Y. Uchida, Japan), "Bulk Silicon Micromachining", (P. Zavracky, USA).

The authors of the contributed papers are asked to submit two-page extended abstracts (including figures, tables and references) which will serve as a basis for the paper selection. Therefore, it should clearly state the purpose of the work and the novelty and significance of the results obtained. A cover page of the abstract should include the complete address (including fax and e-mail) of the author to be contacted, as well as the preference for oral or poster presentation. The deadline for the receipt of one original plus five copies of the abstract, which should be sent to the Conference Chairman, is 30 January 1999. After the paper selection, authors of accepted papers will receive information regarding the layout of papers, transparencies, slides and posters, along with the notice of acceptance.

For further information please contact: Prof. Dr. Ninoslav Stojadinovic, MIEL'99 Conference Chairman, Department of Microelectronics, Faculty of Electronic Engineering, University of Nis, Beogradska 14, 18000 Nis, Yugoslavia, TEL: +381 18 529-326, FAX: +381 18 46-180, E-MAIL: [nino@unitop.elfak.ni.ac.yu](mailto:nino@unitop.elfak.ni.ac.yu). You can also check out the web site at: <http://unitop.elfak.ni.ac.yu/miel/welcome.html>.

#### ED Sweden Chapter

— by Mikael Ostling

During the second quarter of 1998 we had a visit by Professor Gehan Amarantunga, from the University of Liverpool, England. He gave a lecture on "The Trench Gate IGBT: Is it the optimum high power switching device?"

Thereafter he also acted as a faculty opponent to one of the IEEE student members in the Swedish chapter, Dr. Olof Tombald, defending his Ph.D. thesis.

A video screening was done with help from the EDS Lending Library. The title was "Getting Ready: Careers for Electrical Engineers and Computer Scientists". We had a good discussion on future possible activities with the present ED student members and some initial ideas on how to promote the EE student interest in nearby areas.

A symposium with student papers will be organized during the Fall. For more information, please contact Mikael Ostling, Professor, Department of Electronics, Device Technology Laboratory, KTH, Royal Institute



of Technology, E229, SE-164 40 Kista, Sweden, TEL: +46-8-7521402; FAX: +46-8-7527850; MOBILE: +46-70-5658007

— Michael Ostling, Editor

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

— by Terry Oxley

In line with the Chapter committee (AdCom) aim of organizing more activities away from London, the last AdCom meeting was held at Cardiff University. This was followed the next day by a lecture on "AlGaIn/GaN HFET's for Very High Power Microwave Amplifiers" by Professor L. Eastman, Cornell University, which formed an introduction to a half-day workshop on GaN Electronics Research Activities. Other activities planned since the last report include: lecture on "A Survey of Current III-V Technology" at Queens University, Belfast; lecture on "Integrated Optics in Planar Lightwave Circuits" at City University, London; support of "22nd Antenna Symposium" at QMW, London; lecture on "Novel Integrable Laser Structures" at City University, London; lecture on "GPS Technology and Applications" at Queens University, Belfast; lecture on "Low Dimensional Structures" at City University, London; lecture on "MVDs" at UMIST, Manchester; support of "9th IEE Vacation School on Microwave Measurements" at NPL; and half day Symposium on "Photonics System Modeling" at City University, London.

Important activities for your diary include:

28 September – 1 October — "1998 Microwaves and RF Exhibition & Conference (M+RF98)", Wembley Conference Center, London.

23/24 November — "International Workshop on High Performance Electron Devices for Microwave and Optoelectronic Applications (EDMO '98)", UMIST, Manchester.

For further information, please contact the Chapter Chair, Neil Williams, ERA Technology Limited, Cleeve Road, Leatherhead, Surrey KT22 7SA, U.K., TEL: +44 (0) 1372 367061; FAX: +44 (0) 1372 367099; E-MAIL: [neil.williams@era.co.uk](mailto:neil.williams@era.co.uk).

### ED/MTT Egypt Chapter

— by Ibrahim Salem

The ED/MTT Egypt Chapter is planning a workshop for teaching Electron Devices at Egyptian Engineering Faculties and Institutes, sponsored by IEEE-EDS and the Academy of Scientific Research and Technology. The call for contribution is distributed and the Seminar date will be October 8, 1998, at the A.S.R.T. The relevant technical topics cover both undergraduate and

graduate levels.

The Chapter Chair is Professor 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

The following summarizes some of the more important recent Chapter activities:

- April 18th, 1998 - A technical meeting within the DL and Partner program of Dr. Gady Golan, Secretary of IEEE-EDS Israel, and Prof. Gulbin Dural, Chair Chapter of the IEEE-AP/MTT/EDS Turkey, in the Middle East University in Ankara.
- April 22nd, 1998 - The joint meeting of IEEE-EDS, Israel, with the Israeli Vacuum Society (IVS), "Science and Technology of Nanostructures", STN-98 was held in the Weizmann Institute. The scope of the meeting was on the investigation of nanostructures, down to the atomic scale. This is becoming a topic which is more and more important both from the scientific and the technological point of view. Many efforts are devoted recently to the 'scaling down' of many techniques and investigation of materials in the nm size domain. The properties of matter and the application of different techniques to the nanometer scale, are not a simple extrapolation of their macroscopic counterparts. However, radical new concepts and techniques can be developed for the nano science and technology world. The purpose of the workshop was to discuss the latest information of various aspects of research and development in the field of nanoscience and technology. Special emphasis was laid on equipment design of scanning probe techniques, processes and potential applications. The IEEE-EDS Distinguished Lecturer, Prof. E. H. Li from Hong Kong University presented his talk on "Advances in quantum well intermixing - materials and devices".
- April 23rd, 1998 - An IEEE-EDS meeting was held at the Center for Technological Education, Holon, on "Trends and developments in the photonics industry". The guest lecturer was Prof. E. H. Li from Hong Kong University. The audience consisted mainly of students from the center (about 50).

The Chapter Chair is 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](mailto:croitoru@eng.tau.ac.il). The Chapter Secretary is Dr. Gady Golan, Center for Technological Education and The Open University of Israel, 16 Klauzner St., P.O. Box 39328, Tel Aviv, 61392, Israel. TEL: 00-972-3-646-0329; FAX: 00-972-3-646-5465; E-MAIL: [gady@oumail.openu.ac.il](mailto:gady@oumail.openu.ac.il).

— Terry Oxley, Editor

### ED Benelux Chapter

— by Cor Claeys

The last semester of 1997 started with the organization of the very successful 1997 Workshop on Charge-Coupled Devices and Advanced Image Sensors (CCD & AIS), in Bruges, Belgium. This high level scientific conference, chaired by Dr. A. Theuwsen from Philips-Eindhoven, is considered as the leading conference in the field and is organized bi-annually. In 1999, the Conference will be organized in Japan. Furthermore, in 1997, the Chapter also organized some local seminars.

In 1998, the Chapter will be involved in the technical sponsoring of two international conferences. The 1998 International Conference on Simulations of Semiconductor Processes and Devices (SISPAD) will be held in Leuven, Belgium, September 2-4, 1998. It will provide an open forum for the presentation of the latest results and trends in modeling and simulation of semiconductor equipment, processes and devices. The Conference Chair is Prof. K. De Meyer (IMEC). The Chapter is also technically supporting the 1998 International Symposium on Ultra Clean Processing of Silicon Surfaces (UCPSS). Since 1992, this conference has been organized bi-annually and focuses on the investigation of silicon surfaces and ultra-clean technology from different points of view, in order to improve the understanding in the field. This topical conference, international in nature and attended by about 250 researchers from both academic and industrial institutions, is chaired by Dr. M. Heyns (IMEC) and will take place in Ostende, Belgium, Sept. 21-23, 1998.

The ED Benelux Chapter has now also an Executive Committee, consisting of Mrs. A. Broot (Philips-Nijmegen), Prof. C. Claeys (IMEC), Mr. A. Saltink (Philips Nijmegen), Dr. A. Theuwsen (Philips-Eindhoven), Prof. R. Vounckx (VUB - Free University of Brussels), and Prof. H. Wallinga (University of Twente). In the near future this Committee will be extended by another 4 to 5 members in order to have a better geographical coverage of the region. Interested volunteers can

always contact the ED Benelux Chairman. The first meeting of the Executive Committee took place in Leuven, Belgium, on June 15, while the next meeting is scheduled for November 25 in Mierlo, The Netherlands. Within the Committee there is a strong incentive to increase the number of events within the Chapter, taking into account a good geographical distribution of the meeting locations in order to increase the interactions between the Chapter members.

For more information, please contact the Chapter Chairperson, Prof. Cor Claeys, IMEC, Kapeldreef 75, B-3001 Leuven, Belgium, TEL: 32-16-281-328; FAX: 32-16-281-214; E-MAIL: [claeys@imec.be](mailto:claeys@imec.be).

### ED Germany Chapter

— by Klaus Heime

In the first half of 1998 the Chapter organized two lectures:

1. Dr. Markus Behet, IMEC, Leuven, Belgium: Molecular beam epitaxy and characterization on InAs/[AlGa]Sb-quantum well structures for Magnetic field sensors. It was held on April 23, 1998, at RWTH Aachen.
2. Dr. I. R. Chris Van Hoof, IMEC, Leuven, Belgium: Mid-IR LEDs and Lasers: Improved performance from strain engineering May 28, 1998, at RWTH Aachen.

Both lectures dealt with applications of antimony-containing III-V semiconductors in two rapidly emerging fields:

- Magnetic field sensors in all areas where position and/or speed have to be controlled precisely, e.g. PC motor drive.
- Emitters (and also detectors) for the mid-infrared (2-5  $\mu\text{m}$ ).

Here the detection of hazardous and toxic gases, not only in the atmosphere, but equally well in blood and tissue is the field of application. III-V devices are expected (or have already been demonstrated) to operate at room temperature. The lectures were attended by around 20 participants each.

In Autumn, a course on "Multigrids-Introduction to Standard Methods," will be held from November 20 - 22, 1998, at Fachhochschule Koeln by W. Joppich (E-MAIL: [Wolfgang.Joppich@gmd.de](mailto:Wolfgang.Joppich@gmd.de)).

For further information on the meeting, please contact the Chapter Chairperson: Dr. Klaus Heime, E-MAIL: [mailbox@iht.rwth-aachen.de](mailto:mailbox@iht.rwth-aachen.de).

### ED Central & South Italy Chapter

— by Paolo Spirito

In 1997, the Chapter co-sponsored the "Annual National Meeting of the Electronic Group of CNR" held in Gallipoli, Puglia, from June 16th to 19th, 1997. The topics covered were: Systems Architecture, CAD, Microwaves, Electronics, Nanometric devices, Optoelectronics, Silicon devices, Sensors and Microsystems. About 150 people have been attending the meetings.

On October 1997, the chapter held an Invited Lecture on "Trends and reliability aspects of power semiconductor devices" by Prof. Wolfgang Eckard, of Siemens, Munich, at the Electronics Department in Napoli.

From June 15th to June 17th 1998 the Chapter co-sponsored the "Annual National Meeting of the Electronic Group of CNR" held in Punta Ala, Toscana. The topics covered were: Microelectronic Systems, Semiconductor Devices, Microwave Devices and Circuits, Sensors and Microsystems, Photonics and Optoelectronics, Power Electronics and Industry Applications. The attendance at the Meeting was about 130 people.

For further information, please contact the Chapter Chairperson: Paolo Spirito, Dipartimento di Ingegneria Elettronica, Via Claudio 21, 80125 Napoli, FAX: +81-5934448; TEL: +81-7683138; E-MAIL: [spirito@diesun.die.unina.it](mailto:spirito@diesun.die.unina.it).

— Robert Adde, Editor

## Asia & Pacific (Region 10)

### ED/MTT India Chapter

— K. S. Chari

In the 2nd quarter of 1998 (April-June), the Chapter focused its efforts on the newly initiated IEEE STAR Program supported by EDS; a new membership drive; and working out schedules for the local DL workshops in the later half of the year. Under the IEEE STAR Program, two events were held to expose the selected higher secondary school girl students to the trends in the area.

- The first event was held on 11th May 1998 and consisted of the IEEE EDS Video Show on "Careers of Electrical Engineers and Computer Scientists," plus a half-an-hour slide show on "What is an Engineer" presented by the Chapter Chair. The second event was a visit to the cyber school housed in the National Science Centre, New Delhi, wherein the students had a hands-on experience on "Internet links and Multi-Media Educational Material, especially

on Science and Engineering". About 30 students attended this event and enjoyed the interactions. The participants have expressed the wish for more events like this to be organized for other areas in science and engineering. The Chapter Chair coordinated the activities along with Ms. Archana Deepak of the Alhons Public School, Delhi.

- A Seminar-cum-Workshop on "Conformal Antennas and Related device technologies" was held at the Department of Electronic Science, Berhampur University, Orissa during 23-25 May, 1998. Dr. R K Mishra of Department of Electronic Science coordinated the event. The Workshop was attended by academicians and researchers, with outside experts delivering the invited talks.
- The Chapter had one executive meeting on 4th April, 1998, and reviewed the membership drive and the seminars/workshops planned for rest of the year. It was decided to bring more awareness at the University campuses on the directions of the IEEE Membership subscriptions for the student members, so that more participation from this segment could be obtained. The Chapter also discussed ways of further subsidy to increase the number of student members. Several topics for technical events were identified.

### ED/LEO Australia Chapter

— by Dr. Chennupati Jagadish

The Chapter is a technical co-sponsor of the 1998 Conference on Optoelectronic and Microelectronic Materials and Devices (COMMAD '98), to be held in Perth during December 14-16, 1998. Deadline for pre-registration and accommodation is October 31, 1998.

The following is a partial list of Invited Speakers:

- J Bajaj, Rockwell Science Centre (USA): "HgCdTe IR Detectors and FPAs"
- RM Biefeld, Sandia National Labs (USA): "III-V Optoelectronic Materials & Devices"
- M Green, Univ. of NSW (Australia): "Recent Progress in Silicon Solar Cells"
- H Hartnagel, TU Darmstadt (Germany): "Membrane Structures for Tunable Fabry-Perot Filters"
- H Maes, IMEC (Belgium): "Reliability of Giga Scale Silicon Devices"
- U. Mishra, Univ. of Calif. at Santa Barbara (USA): "GaN Based Electronics"
- D Pulfrey, Univ. of British Columbia (Canada): "Quasi-Ballistic Transport in Narrow Base BJT's"



Further information about the conference could be obtained either visiting the conference Website (<http://www.ee.uwa.edu.au/~COMMAD98>) or contacting Ms. Sabine Betts, Conference Administrator, Microelectronics Research Groups Dept. of Electrical & Electronic Engineering, The University of Western Australia, Nedlands, WA 6907, Australia, TEL: 61-8-9380-3801; FAX: 61-8-9380-1095, E-MAIL: [sabine@ee.uwa.edu.au](mailto:sabine@ee.uwa.edu.au). Professor Pallab Bhattacharya, LEOS Distinguished Lecturer, will be visiting the Chapter during Feb./March 1999. Further information can be obtained from Chapter Chair: Dr. C. Jagadish, TEL: 61-2-6249-0363; FAX: 61-2-6249-0511; E-MAIL: [c.jagadish@ieee.org](mailto:c.jagadish@ieee.org).

### ED/R/CPMT Singapore Chapter

— by Dr. Ong Soon Huat

The ED/R/CPMT Singapore Chapter will be organizing two conferences:

1. The 2nd Electronic Packaging Technology Conference (EPTC'98) will be held during 8-10 December 1988, Singapore. The General Chairman is Professor Andrew Tay, Department of Mechanical & Production Engineering, National University of Singapore, 10 Kent Ridge Crescent, Singapore 119260. For further information, please contact Prof. Andrew Tay, TEL: 65-874-2207; FAX: 65-777-7936; E-MAIL: [mpetayoa@nus.sg](mailto:mpetayoa@nus.sg).
2. 7th International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA '99) will be held during 5-9 July 1999, Singapore, with Dr. M. Radhakrishnan as the Conference Chairman. For more information, please contact Dr. M. Radhakrishnan, Failure Analysis Department, The Institute of Microelectronics, 11 Science Park Road, Singapore 117685; FAX: 65-774-5747; E-MAIL: [radha@ime.org.sg](mailto:radha@ime.org.sg).

For updates and further details of the two conferences, please visit the internet website at <http://cicfar.ee.nus.sg/epc98.html> and <http://cicfar.ee.nus.sg/ipfa99.html>, respectively.

Dr. Thomas Ahrens of Fraunhofer ISiT gave a talk on "Design for Reliability: A product Specific Development Approach Using a Matrix Plan" on 28th May, 1998.

### ED Malaysia Chapter

— by Dr. Burhanuddin Yeop Majlis

The ED Malaysia Chapter is organizing the 1998 IEEE International Conference on Semiconductor Electronics,

ICSE'98 during November 24-26, 1998, in Hotel Equatorial, Bangi, Selangor, Malaysia. This conference is technically co-sponsored by the Electron Devices Society (EDS), in co-operation with Universiti Kebangsaan Malaysia (UKM).

The conference will cover various aspects of semiconductor technologies such as design, processing, device fabrication, physics issues etc. for both silicon and GaAs technologies. Areas of interest include: Device physics, Device characterization, Device modeling, simulation and design, Materials and new fabrication technologies for Si and GaAs, Wafer fabrication facilities and technology, Process Technology (CMOS, bipolar, BiCMOS, GaAs and etc.), Equipment development, Device packaging and testing, Opto-electronics and electro-optic devices, Micromachining, microsensors and MEMS, Microwave devices and MMIC, Application of microelectronics in product development, Reliability and failure analysis, Training and human resource development in microelectronic industry.

A tutorial on VLSI design, and MMIC design have also been arranged prior to the conference.

All questions or inquiries for further information regarding ICSE'98 should be directed to: Secretariat, ICSE'98, Electron Device Chapter, IEEE Malaysia Section, Department of Electrical Electronic and Systems Engineering, Universiti Kebangsaan Malaysia, 43600, UKM, Bangi, Selangor Darul Ehsan, Malaysia, TEL: 603-829-1292; FAX: 603-825-9080; E-MAIL: [ICSE98@eng.ukm.my](mailto:ICSE98@eng.ukm.my).

### Announcement From New Tokyo Chapter Chair

— by Hisatsune Watanabe and Masao Fukuma,



Dr. H. Watanabe, Chair



Dr. M. Fukuma

New officers for 1998-1999 are Hisatsune Watanabe (Chair), Kazuo Tsubouchi (Co-Chair), Masao Fukuma (Secretary) and Kazuya Masu (Treasurer).

On January 29th, an annual Briefing Session for the 1997 IEDM was held in

Tokyo, where six speakers were invited to deliver summary talks on the highlights of the 1997 IEDM. Topics covered were Silicon Process, Silicon Device, Integrated Circuits, Modeling/Simulation, Compound Semiconductor and Single Electron Devices. The number of participants was about 120, including non-EDS members, which is a record for the annual briefing session. In addition to the briefing session, the Tokyo Chapter provides several activities on technical meetings and non-technical events. The Chapter technically supports domestic Workshops sponsored by the Institute of Electronics, Information and Communications Engineers (IEICE) in Japan. The Workshops are organized by two technical groups of the IEICE, Silicon Devices and Materials and Integrated Circuits and Devices groups, which are both held every month. Every Workshop has 10-20 talks and about one hundred participants. The Workshops offer a very good opportunity for engineers in the special area to exchange new ideas through deep discussion. To increase the ED Tokyo Chapter membership, a Japanese version of the brochures for the EDS membership information and application form has been prepared. These brochures have been distributed at meetings sponsored by EDS such as the 1998 Symposium on VLSI Technology and on VLSI Circuits, in Honolulu, Hawaii from June 8th through June 13th. In addition, announcements for the annual briefing session on the 1997 IEDM have been sent to non-EDS members as well as EDS members. As a result, more than 30 non-members attended the session. The Tokyo Chapter now is the biggest one among all EDS chapters. Better service is necessary to activate the Chapter.

### ED Korea Chapter

— by Kwyro Lee

In June, new staff has been added to Korea Council ED Chapter. They are:

Secretary: Hyungcheol Shin, KAIST; TEL: +82-42-869-3459; FAX: +82-42-869-8590; E-MAIL: [hcshin@ee.kaist.ac.kr](mailto:hcshin@ee.kaist.ac.kr).

Treasurer: Dong Myong Kim, Kookmin University; TEL: +82-2-910-4719; FAX: +82-2-910-4655, E-MAIL: [dmkim@kmu.kookmin.ac.kr](mailto:dmkim@kmu.kookmin.ac.kr).

This Chapter together with the ED/SSC Seoul Chapter hosted an IEEE Distinguished Lecture on May 12, 1998 at MICRO Research Center, KAIST in Taejeon. Prof. Krishna Shenai, who works as an Associate Professor, EECS Dept. and as a Director of System on Silicon



(From back left) Euisik Yoon, Chul-Hi Han, Hyungcheol Shin, Young-Kwon Jun.

(From front left) Joonbo Yoon, Kwyro Lee, Krishna Shenai, Joungho Kim, and Songcheol Hong.

Research Center (SYSREC), University of Illinois at Chicago, gave the lecture, entitled, "Ultra-Low Power Electronics for Functional Integration". There were about 80 attendees for the lecture. After the meeting, we took a photograph with the members who participated (see above photograph). For more information, contact the chairman, Prof. Kwyro Lee, E-MAIL: [krlee@ee.kaist.ac.kr](mailto:krlee@ee.kaist.ac.kr).

### ED/SSC Seoul Chapter

— by Chong-Gun Yu

The chapter conducted several types of activities in the report period. The major activities were as follows:

- The chapter hosted 3 seminars on Design House Venture for student members. The first seminar, "A Venture Company, C&S Tech." by S. M. Seo, C&S Tech, was given at Yonsei University May 8th, 1998. The second seminar, "Waiting for 3000 Venture Stars," by J. C. Jung, Bokwang Media, was held at Inha University on May 13th, 1998. The last seminar, "What are Venture Companies?" by H. M. Cho, CMOS Tech, was given at Sungkyunkwan University on May 28th, 1998. About 200 people attended the seminar and they received good value for their time.
- On May 8th the chapter co-sponsored the CAD&VLSI Design Conference which was held at Chungju University and was attended by approximately 100 people.
- On June 8th, the chapter had the pleasure of inviting an ED Distinguished Lecturer for the first time. Dr. Ayman Shibib, from Bell Laboratories, gave a very interesting talk on "Power ICs in Telecommunications Applications" at Hanyang University. For further information, please see M. Ayman Shibib's article in the next column.

Another lecture was also given on "High Voltage ICs for Flat Panel Displays" by Prof. O. K. Kwon from Hanyang University. The lecture was attended by 50 people from University and Industry.

For further information please contact: Prof. Moon-key Lee, Chapter Chair; TEL: +82-2-361-2867; FAX: +82-2-312-4584; E-MAIL: [mklee@bubble.yonsei.ac.kr](mailto:mklee@bubble.yonsei.ac.kr); URL: <http://ieee-korea.inha.ac.kr/Ed/index.html>.

—Hiroshi Iwai, Editor

### ED/SSC Seoul Chapter Holds an EDS Distinguished Lecture

— by M. Ayman Shibib

The newly formed ED/SSC Chapter in Seoul, South Korea, held the first in a series of EDS Distinguished Lectures. Dr. Ayman Shibib of Lucent Technologies, Bell Labs, delivered a lecture on "Power IC's in Telecommunications Applications" at Hanyang University in Seoul on Monday, June 8th, 1998.

The lecture was attended by 47 people from the industry and academia, and it was part of the ED/SSC Chapter meeting and dinner. The lecture started with the definition of the domain of power semiconductors, and then it focused on power integrated circuits and their three main areas of application, namely power management/conversion, automotive and telecommunications. Then an overview of the three isolation techniques for power IC's were presented; self isolation, junction isolation and dielectric isolation. After that the device technologies and technology evolution of

power IC's were discussed with specific examples of actual product IC's presented. Throughout the lecture, differences and similarities between VLSI technology/design and power IC's were stressed. Finally, the special issues and requirements of power IC's from a reliability/design for reliability were discussed. After the Distinguished Lecture, Prof. Kwon of Hanyang University presented some research work on flat panel display drivers at Hanyang University.

Dr. Shibib then met with the Executive Committee of the ED/SSC Chapter consisting of: Prof. M. Key Lee, Chairman, Yonsei University; Prof. Kwang-Sub Yoan, Secretary, Inha University; Prof. Inchaee Song, Professional Activities, Soong-Sil University; Prof. Ilhun Son, Membership Development, Dankook University; and Prof. Oh-kyong Kwon, Treasurer, Hanyang University (see picture below). A traditional Korean dinner was served after the meeting.

### Summary of the 10th International Symposium on Power Semiconductor Devices & Integrated Circuits — ISPSD'98

— by M. Ayman Shibib

The 10th International Conference on power semiconductor devices and IC's was held at the Rihga Royal Hotel in Kyoto, Japan, during June 3-6, 1998. The conference was sponsored by IEE of Japan and co-sponsored by the Electron Devices Society. It was attended by about 370 people, and it included a special banquet celebrating the 10th anniversary of ISPSD. Dr. Yoshiyuki Uchida, of Fuji Electric, opened the ceremony with the traditional "Kagamiwari" (see picture on page 17) with all previous general chairmen of past Symposia participating. Dr. Ayman Shibib, member of EDS AdCom and a founding member of ISPSD, delivered a speech about the history of ISPSD and how the founding Japanese and American members unified the Symposia.

Dr. Ayman Shibib with the Executive Committee of the ED/SSC Chapter in Seoul, South Korea.



# ISPSD '98

## The 10th Anniversary



"Kagami-wari"  
ceremony at  
ISPSD '98, Kyoto,  
Japan

sium as the main international forum on power devices and integrated circuits. ISPSD is held annually and rotates sites between Europe, Japan and North America. Following Dr. Shibib's speech, there was a keynote address by Prof. E. Masada, President of IEE of Japan and on the faculty of the Science University of Tokyo. Prof. Masada gave a very interesting talk about "Energy, Environment & Evolution - Can Power Electronics solve the problem" in which he challenged the audience to participate and put their efforts to support the environment. A special ISPSD award was presented to Dr. Akio Nakagawa of Toshiba Corp. for his paper "Impact of Dielectric Isolation Technology on Power IC's" presented at the 1991 ISPSD, Baltimore, Maryland, for its maximum impact in the field.

The technical program included 46 oral and 51 poster presentations. The oral papers included three in the plenary session: "Trends in Power Discrete Devices" by Prof. Baliga, North Carolina State University, "Smart Power Approaches VLSI Complexity" by Dr. Contiero, SGS-Thomson, and "Toyota's Newly Developed Hybrid Powertrain" by Dr. Sasaki, Toyota Motor Corp. The other papers were organized into 13 sessions: SOI Devices I & II, IGBT's I & II, Thyristors I & II, high Voltage IGBT's, MOSFET's, Smart Power Devices, SiC Devices, Diodes, Poster Session, Power IC's.

— M. Ayman Shibib, Editor

### 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 sponsored by IEEE Electron Devices Society, IUVTSA, and the Vacuum Society of Japan) was held at 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 with 80 of the 130 submitted papers being selected and 16 invited papers being presented. The IVESC 2000 will be held at the Disney Coronado Springs Resort, Orlando, Florida, U.S.A. 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](mailto:edwin.g.wintucky@lerc.nasa.gov).

### Report of 1998 Semiconductor Manufacturing Technology Workshop

— by S.C. Sun

From June 16 to 17, 1998, the 1998 Semiconductor Manufacturing Technology

Workshop was held in Hsinchu, Taiwan. This is the 5<sup>th</sup> time that the workshop has been held since its inception. The workshop attracted more than 200 attendees to exchange experiences and ideas on the advancement of manufacturing technology.

The participation and support received in the past, further encouraged the organization of this year's workshop. This year's workshop was co-sponsored by the IEEE Electron Devices Society Taipei Chapter, Taiwan Semiconductor Industry Association, and United Microelectronics Corp. The technical program committee was chaired by Shih-Wei Sun of UMC and co-chaired by S.C. Sun of TSMC. Four invited papers included two local keynote speakers (Chintay Shih from ITRI on "Challenges for Taiwan in 21<sup>st</sup> Century" and Rick Tsai from TSMC on "Foundry Technology and Services) and two overseas invited speakers (Michael Mandracchia from Motorola on "Future of the Foundry Model" and Hideo Miura of Hitachi on "New Mechanical Reliability Issues for Deep Sub-micron Devices").

Twenty-one contributed papers from local industry, universities and research labs were presented on various perspectives of risk management and safety, chemical management and waste treatment, yield enhancement, cycle time improvement, CIM system and virtual fab. A special panel discussion on "Environment, Safety and Health" was held to advocate the significance of ESH to industry.

This workshop will be held again at Hsinchu, Taiwan in 2000. For further information, please contact Sophia Li of TSIA, E-MAIL: [sophia@erso.itri.org.tw](mailto:sophia@erso.itri.org.tw).

— S. C. Sun, Editor

Front row from left:  
S.C. Sun, Genda Hu,  
Hideo Miura, H.J. Wu  
and Sophia Li.

Standing from left:  
Y.C. Shih, S.C. Chang,  
F.T. Liou, S.W. Sun, and  
Yih.J. Chang at the  
1998 Semiconductor  
Manufacturing  
Technology Workshop  
(SMTW).



# EDS Meetings Calendar

(As of 1 September 1998)

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

## 1998 MEETINGS

Oct. 2 - 9, 1998, ✓ **INTERNATIONAL SCHOOL ON CHAOTIC OSCILLATIONS AND PATTERN FORMATION**, Location: Volzhskie Dali Holiday Hotel, Saratov, Russia, Contact: Dmitry I. Trubetskov, Tel: 7-8452-241696, Fax: 7-8452-514298, E-Mail: true@cas.ssu.runnet.ru, Deadline: Past Due

Oct. 5 - 6, 1998, ✓ **IEEE EUROPEAN GALLIUM ARSENIDE AND RELATED COMPOUNDS APPLICATION SYMPOSIUM**, Location: RAI Congress Center, Amsterdam, The Netherlands, Contact: Giuliano Gatti, Tel: 31-71-5654529, Fax: 31-71- 5654596, E-Mail: ggatti@estec.esa.nl, Deadline: Past Due

Oct. 5 - 7, 1998, ✓ **INTERNATIONAL CONFERENCE ON ADVANCED SEMICONDUCTOR DEVICES AND MICROSYSTEMS**, Location: The Castle of Smolenice, Smolenice, Slovakia, Contact: Juraj Breza, Tel: 4217-60291328, Fax: 4217-65423480, E-Mail: breza@elf.stuba.sk, Deadline: Past Due

Oct. 5 - 7, 1998, # **IEEE INTERNATIONAL CONFERENCE ON COMPUTER DESIGN: VLSI IN COMPUTERS AND PROCESSORS**, Location: Marriott Hotel at the Capital, Austin, TX, Contact: Mary-Kate Rada, Tel: (202) 371-1013, Fax: (202) 728-0884, E-Mail: m.rada@computer.org, Deadline: Past Due

Oct. 5 - 8, 1998, \* **IEEE INTERNATIONAL SOI CONFERENCE**, Location: Indian River Plantation, Marriott Resort, Stuart, FL, Contact: Ted Houston, Tel: (972) 995-9131, Fax: (972) 995-2770, E-Mail: ted-houston@ti.com, Deadline: Past Due

Oct. 5 - 9, 1998, ✓ **EUROPEAN SYMPOSIUM ON RELIABILITY OF ELECTRON DEVICES, FAILURE PHYSICS AND ANALYSIS**, Location: Scandic Hotel Copenhagen, Copenhagen, Denmark, Contact: Claus Kjaergaard, Tel: 45-4525-5266, Fax: 45-4588-0286, E-Mail: ck@iae.dtu.dk, Deadline: Past Due

Oct. 6 - 8, 1998, ✓ **ELECTRICAL OVER-STRESS/ELECTROSTATIC DISCHARGE SYMPOSIUM**, Location: John Ascuaga's Nugget Hotel, Reno, NV, Contact: ESD Association, Tel: (315) 339-6937, Fax: (315) 339- 6793, E-Mail: eosesd@aol.com, Deadline: Past Due

Oct. 6 - 10, 1998, \* **INTERNATIONAL SEMICONDUCTOR CONFERENCE**, Location: Sinaia Hotel, Sinaia, Romania, Contact: Doina Vancu,

Tel: 401-2301448, Fax: 401-2307519, E-Mail: cas@imt.ro, Deadline: Past Due

Oct. 7 - 9, 1998, @ **IEEE INTERNATIONAL SYMPOSIUM ON SEMICONDUCTOR MANUFACTURING**, Location: Hotel East 21 Tokyo, Tokyo, Japan, Contact: Sumitomo Hirota, Tel: 81-3-3815-8775, Fax: 81-3-3815-8529, E-Mail: rlz@ppp.bekkoame.or.jp, Deadline: Past Due

Oct. 8, 1998, ✓ **WORKSHOP FOR TEACHING ELECTRON DEVICES AT EGYPTIAN ENGINEERING FACULTIES & INSTITUTES**, Location: Academy of Scientific Research and Technology, Cairo, Egypt, Contact: Ibrahim A. Salem, Tel: 202-258-0256, Fax: 202-594-1270, E-Mail: isalem@brayn1.ieeg.com, Deadline: Past Due

Oct. 12 - 15, 1998, \* **IEEE INTERNATIONAL INTEGRATED RELIABILITY WORKSHOP**, Location: Stanford Sierra Camp, S. Lake Tahoe, CA, Contact: Sally J. Yankee, Tel: (802) 769-3242, Fax: (802) 769-1220, E-Mail: yankees@bvlalum.vnet.ibm.com, Deadline: Past Due

Oct. 12 - 16, 1998, @ **IEEE INTERNATIONAL SYMPOSIUM ON COMPOUND SEMICONDUCTORS**, Location: Nara-ken New Public Hall, Nara, Japan, Contact: Kimiyoshi Yamasaki, Tel: 81-462-40-2500, Fax: 81-462-40- 2872, E-Mail: kyama@aecl.ntt.co.jp, Deadline: Past Due

Oct. 19 - 22, 1998, ✓ **INTERNATIONAL WORKSHOP ON COMPUTATIONAL ELECTRONICS**, Location: Osaka University, Osaka, Japan, Contact: Masato Morifugi, Tel: 81-6- 879-7767, Fax: 81-6-879-7774, E-Mail: morifugi@nl.ele.eng.osaka-u.ac.jp, Deadline: Past Due

Oct. 20 - 23, 1998, ✓ **INTERNATIONAL CONFERENCE ON SOLID-STATE AND INTEGRATED CIRCUITS TECHNOLOGY**, Location: Beijing International Convention Centre, Beijing, China, Contact: Mengqi Zhou, Tel: 86-10- 68283463, Fax: 86-10-68283458, E-Mail: mqzhou@public.bta.net.cn, Deadline: Past Due

Nov. 1, 1998, ✓ **GALLIUM ARSENIDE RELIABILITY WORKSHOP**, Location: Westin Peachtree Plaza, Atlanta, GA, Contact: Anthony A. Immorlica, Jr., Tel: (603) 885-1100, Fax: (603) 885-1074, E-Mail: anthony.a.immorlica@lmco.com, Deadline: Past Due

Nov. 1 - 4, 1998, \* **IEEE GALLIUM ARSENIDE INTEGRATED CIRCUITS SYMPOSIUM**, Location: Westin Peachtree Plaza, Atlanta, GA, Contact: Bill Stanchina, Tel: (310) 317-5089, Fax: (310) 317-5450, E-Mail: wstanchina@msmail4.hac.com, Deadline: Past Due

Nov. 2 - 5, 1998, ✓ **INTERNATIONAL SEMINAR/WORKSHOP ON DIRECT AND INVERSE PROBLEMS OF ELECTROMAGNETIC AND ACOUSTIC WAVE THEORY**, Location: Tbilisi State University, Tbilisi, Georgia, Contact: Mykhailo I. Andriychuk, Tel: 38-0322-651944, Fax: 38-0322-637088, E-Mail: voi@ippmm.lviv.ua, Deadline: Past Due

Nov. 2 - 6, 1998, ✓ **MANUFACTURING SCIENCE AND TECHNOLOGY GROUP PROGRAM**, Location: Baltimore Convention Center, Baltimore, MD, Contact: Frederick Dill, Tel: (914) 945-3332, Fax: (914) 945-4520, E-Mail: dill1@watson.ibm.com, Deadline: Past Due

Nov. 4, 1998, ✓ **IEEE ELECTRON DEVICES ACTIVITIES IN WESTERN NEW YORK**, Location: Rochester Institute of Technology, Rochester, NY, Contact: Karl Hirschman, Tel: (716) 475-5130, Fax: (716) 475-5041, E-Mail: kdhemc@rit.edu, Deadline: 10/1/98

Nov. 8 - 12, 1998, # **IEEE INTERNATIONAL CONFERENCE ON COMPUTER-AIDED DESIGN**, Location: DoubleTree Hotel, San Jose, CA, Contact: Darrin Judkins, Tel: (303) 530-4562, Fax: (303) 530-4334, E-Mail: darrin@dac.com, Deadline: Past Due

Nov. 14 - 15, 1998, ✓ **INTERNATIONAL CONFERENCE ON NEXT DECADES OF HIGH TECHNOLOGIES**, Location: National Taiwan University, Taipei, Taiwan, Contact: Bing Sheu, Tel: (213) 740-4711, Fax: (213) 740-8677, E-Mail: sheu@pacific.usc.edu, Deadline: Past Due

Nov. 23 - 24, 1998, ✓ **WORKSHOP ON HIGH PERFORMANCE ELECTRON DEVICES FOR MICROWAVE AND OPTOELECTRONIC APPLICATIONS**, Location: UMIST Conference Centre, Manchester, United Kingdom, Contact: Mohamed Missous, Tel: 44-161-200-4797, Fax: 44- 161-200-4770, E-Mail: missous@umist.ac.uk, Deadline: Past Due

Nov. 24 - 26, 1998, ✓ **IEEE INTERNATIONAL CONFERENCE ON SEMICONDUCTOR ELECTRONICS**, Location: Bangi Equatorial Hotel, Bangi, Kuala Lumpur, Malaysia, Contact: Burhanuddin Yeop Majlis, Tel: 603-829-6305, Fax: 603-825-9080, E-Mail: burhan@eng.ukm.my, Deadline: 10/1/98

Nov. 25 - 26, 1998, ✓ **AGIL - CONFERENCE OF THE ISRAEL MATERIALS UNION**, Location: Maccabia Congress Center, Ramat Gan, Israel, Contact: Aviezer Israeli, Tel: 972-3-646-0329, Fax: 973-3-544- 0864, E-Mail: medion-ic@mail.iol.co.il, Deadline: Past Due

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Dec. 6 - 9, 1998, \* **IEEE INTERNATIONAL ELECTRON DEVICES MEETING**, Location: San Francisco Hilton & Towers Hotel, San Francisco, CA, Contact: Phyllis Mahoney, Widerkehr and Associates, Tel: (301) 527-0900, Fax: (301) 527-0994, E-Mail: pwmahoney@aol.com, Deadline: Past Due

Dec. 14 - 16, 1998, ✓ **INTERNATIONAL CONFERENCE ON MICROELECTRONICS (ICM)**, Location: Universite des Sciences de Monastir, Monastir, Tunisia, Contact: M.I. Elmasry, Tel: (519) 888-4567 Ext. 3753, Fax: (519) 746-5195, E-Mail: elmasry@vlsi.uwaterloo.ca, Deadline: Past Due

Dec. 14 - 16, 1998, ✓ **CONFERENCE ON OPTOELECTRONIC AND MICROELECTRONIC MATERIALS AND DEVICES**, Location: The University of Western Australia, Perth, Australia, Contact: Sabine Betts, Tel: 61-9-380-3801, Fax: 61-9-380-1095, E-Mail: sabine@ee.uwa.edu.au, Deadline: Past Due

Dec. 14 - 18, 1998, ✓ **INTERNATIONAL CONFERENCE ON FIBRE OPTICS AND PHOTONICS**, Location: Indian Institute of Technology Delhi, New Delhi, India, Contact: Anurag Sharma, Tel: 91-11-6861977 ext. 7409, Fax: 91-11-6865039, E-Mail: asharma@physics.iitd.ernet.in, Deadline: Past Due

Dec. 20 - 23, 1998, # **INTERNATIONAL ELECTRON DEVICES AND MATERIALS SYMPOSIUM**, Location: National Cheng Kung University, Tainan, Taiwan, Contact: Shou-Jinn Chang, Tel: 886-6-275-7575 ext. 62391, Fax: 886-6-234-5482, E-Mail: changsj@mail.ncku.edu.tw, Deadline: Past Due

## 1999 MEETINGS

Feb. 23 - 25, 1999, ✓ **NATIONAL RADIO SCIENCE CONFERENCE**, Location: Ain Shams University, Cairo, Egypt, Contact: M.A. Sheirah, Tel: (202) 2830947, Fax: (202) 2850617, E-Mail: sheirah@asunet.shams.eun.eg, Deadline: 10/10/98

March 16 - 18, 1999, \* **IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES**, Location: Sheraton Goteborg Hotel & Towers, Goteborg, Sweden, Contact: Kjell Jeppson, Tel: 46-31-772-1856, Fax: 46-31-772-3622, E-Mail: kjell@ic.chalmers.se, Deadline: Past Due

March 22 - 24, 1999, ✓ **CONFERENCE ON ADVANCED RESEARCH IN VLSI**, Location: Georgia Center for Advanced Telecommunication Technology, Georgia Institute of Technology, Atlanta, GA, Contact: Stephen P. DeWeerth, Tel: (404) 894-4738, Fax: (404) 894-9959, E-Mail: steve.deweerth@ece.gatech.edu, Deadline: Not Available

March 22 - 25, 1999, \* **IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM**, Location: Town & Country Hotel, San Diego, CA, Contact:

Alan G. Street, Tel: (619) 658-9770, Fax: (619) 550-9448, E-Mail: alan@irsi.com, Deadline: Past Due

April 12 - 16, 1999, ✓ **ULTRAFAST ELECTRONICS & OPTOELECTRONICS TOPICAL MEETING**, Location: Snomass, CO, Contact: John Bowers, Tel: (805) 893-8447, Fax: (805) 893-7990, E-Mail: bowers@ece.ucsb.edu, Deadline: Not Available

April 19 - 21, 1999, ✓ **INTERNATIONAL CONFERENCE ON MODELING & SIMULATION OF MICROSYSTEMS, SEMICONDUCTORS, SENSORS & ACTUATORS**, Location: San Juan Marriott Resort, San Juan, Puerto Rico, Contact: Andreas Wild, Tel: (602) 952-3108, Fax: (602) 952-3232, E-Mail: tdoc03@email.sps.mot.com, Deadline: 11/30/98

May 9 - 11, 1999, ✓ **INTERNATIONAL SYMPOSIUM ON PLASMA PROCESS-INDUCED DAMAGE**, Location: DoubleTree Hotel/Monterey Conference Center, Monterey, CA, Contact: Della Miller, Tel: (408) 737-0767, Fax: (408) 737-2403, E-Mail: della@technicalmarketing.com, Deadline: 1/23/99

May 17 - 20, 1999, @ **IEEE INTERNATIONAL CONFERENCE ON INDIUM PHOSPHIDE AND RELATED MATERIALS**, Location: Davos Congress Center, Davos, Switzerland, Contact: Samantha Padilla, Tel: (732) 562-3894, Fax: (732) 562-8434, E-Mail: s.padilla@ieee.org, Deadline: Not Available

May 18 - 20, 1999, ✓ **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, Tel: 7-3822-233183, Fax: 7-3822-526969, E-Mail: office@tusur.ru or ird@main.tasur.edu.ru, Deadline: 2/25/99

May 24 - 26, 1999, \* **IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE**, Location: San Francisco Airport Hyatt Hotel, San Francisco, CA, Contact: Widerkehr & Associates, Tel: (301) 527-0900, Fax: (301) 527-0994, E-Mail: iitc@his.com, Deadline: Not Available

May 25 - 28, 1999, @ **IEEE INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & INTEGRATED CIRCUITS**, Location: Crown Plaza Hotel, Toronto, Canada, Contact: M. Ayman Shibib, Tel: (610) 939-6576, Fax: (610) 939-3796, E-Mail: a.shibib@ieee.org, Deadline: 10/15/98

May 31 - June 4, 1999, ✓ **ADVANCED WORKSHOP ON FRONTIERS IN ELECTRONICS**, Location: Hotel President, Lecce, Italy, Contact: Yoon Soon Park, Tel: (703) 696-5755, Fax: (703) 696-2611, E-Mail: parky@onr.navy.mil, Deadline: 12/31/98

June 1 - 4, 1999, # **INTERNATIONAL CONFERENCE ON ELECTRON, ION & PHOTON BEAMS**, Location: Marriott Resort, Marco Island,

FL, Contact: Mark Gesley, Tel: (510) 887-3312, Fax: (510) 786-9438, E-Mail: gesley@etec.com, Deadline: 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, Tel: 81-3-3299-1371, Fax: 81-3-3299-1361, E-Mail: tr99@twics.com, Deadline: 11/30/98

June 8 - 10, 1999, ✓ **INTERNATIONAL SYMPOSIUM ON VLSI TECHNOLOGY, SYSTEMS & APPLICATIONS**, Location: Taipei, Taiwan, Contact: Dr. Tak Ning, Tel: (914) 945-2579, Fax: (914) 945-3623, E-Mail: ning@watson.ibm.com, Deadline: 12/18/98

June 10 - 11, 1999, ✓ **ELECTRON DEVICES CONFERENCE**, Location: Madrid, Spain, Contact: Javier Gutierrez, Tel: 34-1-5618806, Fax: 34-1-4117651, E-Mail: ltqgm10@fresno.csic.es, Deadline: Not Available

June 10 - 12, 1999, \* **IEEE INTERNATIONAL WORKSHOP ON CHARGE-COUPLED DEVICES & ADVANCED IMAGE SENSORS**, Location: Karuizawa Prince Hotel, Karuizawa, Nagano, Japan, Contact: Nobukazu Teranishi, Tel: 81-427-71-0923, Fax: 81-427-71-0878, E-Mail: nobu+@mel.cl.nec.co.jp, Deadline: Not Available

June 12, 1999, @ **IEEE INTERNATIONAL WORKSHOP ON STATISTICAL METROLOGY**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Naoyuki Shigyo, Tel: 81-45-890-2801, Fax: 81-45-890-2890, E-Mail: shigyo@fdae.eec.toshiba.co.jp, Deadline: 1/29/99

June 12 - 13, 1999, @ **IEEE SILICON NANO-ELECTRONICS WORKSHOP**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Toshiro Hiramoto, Tel: 81-3-3402-0873, Fax: 81-3-3402-0873, E-Mail: hiramoto@nano.iis.u-tokyo.ac.jp, Deadline: Not Available

June 13 - 15, 1999, \* **IEEE RADIO FREQUENCY INTEGRATED CIRCUITS SYMPOSIUM**, Location: Anaheim, CA, Contact: Chris Kermarrec, Tel: (617) 937-1217, Fax: (617) 937-1051, E-Mail: christian.kermarrec@analog.com, Deadline: Not Available

June 14 - 16, 1999, @ **IEEE SYMPOSIUM ON VLSI TECHNOLOGY**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Secretariat for VLSI Symposia, Tel: 81-3-5814-5800, Fax: 81-3-5814-5823, E-Mail: vlsisym@bcasj.or.jp, Deadline: 1/8/99

June 16 - 19, 1999, # **CONFERENCE ON INSULATING FILMS ON SEMICONDUCTORS**, Location: Kloster-Banz, Erlangen, Germany, Contact: Max Schultz, Tel: 49-0-9131-85-8421, Fax: 49-0-9131-85-8423, E-Mail: mpap01@rzmail.uni-erlangen.de, Deadline: Not Available

June 17 - 19, 1999, # **IEEE SYMPOSIUM ON VLSI CIRCUITS**, Location: Righa Royal Hotel, Kyoto, Japan, Contact: Secretariat for VLSI Symposia, Tel: 81-3-5814-5800, Fax: 81-3-5814-5823, E-Mail: vlsisym@bcasj.or.jp, Deadline: 1/8/99



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