

October 1999  
 Vol. 6, No. 4 ISSN:1074 1879  
 Editor-in-Chief: Krishna Shenai

### Table of Contents

Upcoming Technical Meetings .....1  
 • 1999 IEDM      • 1999 IRW  
 • 1999 GaAs IC    • 1999 SISC

June 1999 AdCom Meeting Summary .....2

Society News .....6  
 • 1999 EDS Region 10 Chapters Meeting  
 • VLSI Technology and Circuits Technical Committee Report  
 • 1998 EDS Paul Rappaport Award Winners  
 • EDS AdCom Minutes Now on the Web  
 • EDS "Permanent" Membership Option  
 • Expanded On-Line Access to IEEE Journals and CD ROM Package Available to EDS Members

Regional & Chapter News .....9

EDS Meetings Calendar .....17

### Contributions Welcome

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

#### Newsletter Deadlines

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

# IEEE Electron Devices Society Newsletter

## 1999 International Electron Devices Meeting (IEDM)



Photo courtesy of the Washington, DC Convention & Visitors Association

The 1999 IEEE International Electron Devices Meeting (IEDM) will be held at the Washington Hilton and Towers, Washington, D.C., December 5 to 8, 1999. IEDM is the premier conference on advances in silicon and compound semiconductor devices and processes. It is the annual technical meeting of the IEEE Electron Devices Society, rotating in location between Washington, D.C. and San Francisco. The conference traditionally draws a large number of attendees from Europe, Asia and the US with high quality contributions from industry, academia and government. Limited financial assistance is available for students presenting papers. Each year an award is presented for the best student paper.

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 disciplines and related areas, and affords them the opportunity to speak directly with the experts working in these areas.

The meeting highlights include three plenary presentations by prominent experts, invited talks on all aspects of advanced devices and technologies, two evening panel discussions on future challenges to the industry and presentation of IEEE/EDS prestigious awards.

Changes for 1999 include the formation of a new "CMOS and Interconnect Reliability" subcommittee, and the addition of manufacturing issues and

*(continued on page 3)*

### Your Comments Solicited

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

## Electron Devices Society

### President

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

### Vice President

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

### Treasurer

Lucian A. Kasprzak  
Direct Radiography Corp.  
Tel: (302) 451-0230  
E-Mail: l.kasprzak@ieee.org

### Secretary

John K. Lowell  
Oracle Corporation  
Tel: (972) 501-3701  
E-mail: j.lowell@ieee.org

### Sr. Past President

W. Dexter Johnston, Jr.  
Lucent Technologies Inc.  
Tel: (908) 582-7247  
E-Mail: w.johnston@ieee.org

### Jr. Past President

Louis C. Parrillo  
Motorola, Inc.  
Tel: (512) 933-6802  
E-mail: l.parrillo@ieee.org

### EDS Executive Director

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

### Awards Chair

H. Craig Casey, Jr.  
Duke University  
Tel: (919) 660-5250  
E-Mail: c.casey@ieee.org

### Educational Activities Chair

Jerry M. Woodall  
Yale University  
Tel: (203) 432-4298  
E-Mail: j.woodall@ieee.org

### Meetings Chair

James T. Clemens  
Lucent Technologies, Inc.  
Tel: (908) 582-2800  
E-Mail: j.clemens@ieee.org

### Membership Chair

T. Paul Chow  
Rensselaer Polytechnic Institute  
Tel: (518) 276-2910  
E-Mail: p.chow@ieee.org

### Publications Chair

Steven J. Hillenius  
Lucent Technologies, Inc.  
Tel: (908) 582-6539  
E-Mail: s.hillenius@ieee.org

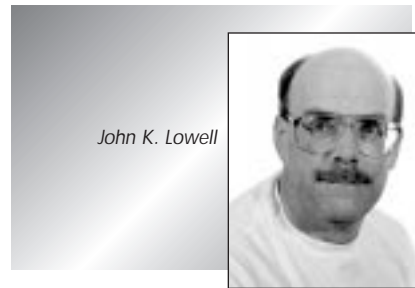
### Regions/Chapters Chair

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

### IEEE Newsletter Coordinator

Robin Edwards  
IEEE Operations Center  
445 Hoes Lane  
P.O. Box 1331  
Piscataway, NJ 08855-1331  
Tel: (732) 562-3945  
Fax: (732) 981-1855  
E-Mail: r.edwards@ieee.org

## June 1999 AdCom Meeting Summary



John K. Lowell

The Spring meeting of the Electron Devices Society (EDS) Administrative Committee (AdCom) was held on Sunday, June 13, 1999 at the Rihga Royal Hotel in Kyoto, Japan in conjunction with the 1999 VLSI Technology Symposium. This was a very special meeting, since it was the first-ever AdCom session to be held outside the continental United States as part of EDS' effort to globalize itself. To continue this policy, the Spring AdCom meeting will switch to Region 8 when it goes to Toulouse, France on May 21, 2000 at the International Symposium on Power Semiconductor Devices and Integrated Circuits (ISPSD).

President Bruce Griffing's opening remarks were directed to globalization and activities taken by IEEE and the IEEE Technical Activities Board (TAB). Next year, the IEEE will give out 3,000 special Millennium Medals, of which EDS will distribute 45. The cost of this program is underwritten by the IEEE. Recipients of the medal should be announced by year-end. On a more serious note, Bruce advised that IEEE was developing a new financial model for the Institute and all its entities. Although IEEE societies overall (i.e., Technical Activities Board) are doing very well financially, a number of other entities of the Institute are running at a deficit. Thus, a new financial model is being developed to redistribute the wealth of the Institute, which would result in taking a significant amount of funds from a number of entities (primarily the societies). As expected, the societies are quite upset over the implementation of the new financial model, especially since there has not been any effort to reduce the expenses of the entities that are not performing well financially. To send a message back to the IEEE governance, AdCom approved that a letter be sent to the IEEE President, Ken Laker, requesting that "the IEEE Board of Directors table consideration of this new model, and (instead) focus on reducing the deficit spending of other activities". Sadly, Bruce and all other AdCom members noted the passing of Roger Van Overstraeten of IMEC, who passed away earlier this spring. Dr. Van Overstraeten was a former EDS AdCom member and highly respected researcher, as well as a friend to all. He will be greatly missed.

Lu Kasprzak, Treasurer, reported that the surplus for 1998 (\$846.8K) was higher than budgeted, primarily due to more income being received from membership fees, *Electron Device Letters*, various conferences, the IEEE Book Broker and the IEEE Long-Term Investment Program. In addition, *Transactions on Semiconductor Manufacturing* and the *Journal of Lightwave Tech-*

(continued on page 8)

### EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

#### 1999

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

#### 2000

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

#### \*2001

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

Number in parenthesis represents term.

\* Members elected 12/98

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

**Copyright © 1999 by IEEE:** Information contained in this Newsletter may be copied without permission provided that copies are not used or distributed for direct commercial advantage, and the title of the publication and its date appear on each photocopy.

# Upcoming Technical Meetings

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

full process integration to the Integrated Circuits subcommittee. The device and interconnect technology subcommittee has also been renamed Process Technology. The areas to be covered in this year's conference are:

- CMOS Devices
- CMOS and Interconnect Reliability
- Detectors, Sensors, and Displays
- Integrated Circuits and Manufacturing
- Modeling and Simulation
- Process Technology
- Quantum Electronics and Compound Semiconductor Devices
- Solid State Devices

CMOS Devices focuses on device physics, novel device structures, CMOS scaling issues, performance, low- and high-temperature operation, high frequency behavior, noise of MOS structures, and SOI device issues. This session should provide attendees the latest advances in CMOS devices and projections into the next millennium.

CMOS and Interconnect Reliability will cover all aspects of CMOS reliability. This includes issues of both the front-end and back-end of the process. Attendees will hear original work on reliability issues and failure mechanisms in high performance CMOS and interconnect technology.

Detectors, Sensors and Displays play a major role in information delivery. Sessions in this area will cover critical devices, structures, and integration for imaging, displays, detectors, sensors, and micro-electro-mechanical systems.

The Integrated Circuits and Manufacturing sessions will cover advances in integrated circuits manufacturing process integration for memory and logic applications. Other topics of interest include technology for failure analysis and yield modeling.

Modeling and simulation are important aspects of electronic device development. This year the session on Modeling and Simulation will deal with analytical, numerical, and statistical approaches to modeling electron devices, and their isolation and interconnection.

One of the new sessions is Process Technology. This session will cover front-end and back-end modules for fabrication of CMOS, memory and BiCMOS devices. Topics relat-

ed to front-end processing include substrate and isolation technologies.

The IEDM conference provides a forum for the introduction of new device concepts in electronics and photonics. This year the Quantum Electronics and Compound Semiconductor Devices sessions will feature the latest results in compound semiconductor and wide-bandgap materials and devices.

Solid-State Devices are increasingly in demand for varied applications, such as automotive and communications. This year, IEDM will cover integrated power/current/voltage devices; silicon bipolar transistors, discrete and integrated; novel analog and digital devices and technology; integrated RF components including inductors; and single electron devices in silicon and germanium/silicon.

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 5. They provide attendees with the opportunity to learn about new 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 "Sub-100 nm CMOS Technology", organized by Mark Bohr of Intel Corporation and "System on a Chip", organized by Dr. Subramanian Iyer of IBM.

The IEDM will include three plenary presentations dealing with developing technologies. Dr. Roel Kramer, Chief Technology Officer of Philips Consumer Electronics, will talk on "The Consumer Electronics industry as Silicon Engine." Dr. Susumu Kohyama, Corporate Vice President of Toshiba Corporation, will talk on "Emerging Technology and Digital Consumer Design Platform," and Professor Bob Austin of Princeton University will present "Micromachines for Genetic Sequencing: Progress and Challenges."

IEDM'99 will continue the tradition of holding evening panel sessions on important topics of interest to the electronics community. This year the topics will be: "The Future of CMOS Technology Evolution" moderated by Steven Hillenius of Bell Labs, Lucent Technologies and "Semiconductor R & D Models: Who, What, and When?" moderated by Michael Polcari of IBM.

For registration and other information, visit the IEDM 1999 Home Page on the

World Wide Web at <http://www.ieee.org/conferences/iedm>, or contact Conference Managers Melissa Widerkehr and Phyllis Mahoney, Suite 400B, 101 Lakefront Boulevard, Gaithersburg, MD, 20877, USA; TEL: (301) 527-0900; FAX (301) 527-0994.

The Washington, D.C. area provides many attractions for visitors and we encourage attendees to explore in the off hours of the conference. The IEDM organizers and committee members look forward to seeing you in December.

*Jon Abrokwah  
Motorola, Inc.  
Tempe, AZ*

## 1999 Gallium Arsenide Integrated Circuits (GaAs IC) Symposium

Over the last 21 years, the IEEE GaAs IC Symposium has become the preeminent international forum on developments in integrated circuits using GaAs, InP, and other compound semiconductor devices. Coverage embraces all aspects of the technology, from materials issues and device fabrication, through IC design and testing, high volume manufacturing, and system applications. The IEEE GaAs IC Symposium is the forum for learning the latest results in high-speed digital, analog, microwave/millimeter wave, mixed mode and optoelectronic integrated circuits. First-time papers concerned with the utilization and application of GaAs, InP, and other compound semiconductor ICs in military and commercial products have been invited. Technical areas covered typically include:

- Innovative RFIC Device & Circuit Concepts, Circuit Design & Fabrication
- Manufacturing Technology & Cost Issues
- CAD/CAM/CAT Tools & Techniques, IC Testing & Methodology
- Packaging Technology, Reliability, Advanced Device Applications
- System Applications (commercial and military; e.g., wireless, vehicular, medical)

*(continued on page 4)*



- Optoelectronic applications, fiber system IC's

Over 70 technical papers will be selected from worldwide submissions for oral presentation and publication in the Symposium Digest. Invited papers and panel sessions on topics of current importance to the GaAs IC technical community will complete the program. A special issue of the *IEEE Journal of Solid State Circuits* will publish extended versions of selected papers from the Symposium. This year's vendor exhibition will be closely coupled to the

technical sessions, providing an ideal arena for experiencing the latest in GaAs products, manufacturing and test equipment and simulation tools.

The Symposium will again offer the popular primer course, "Basics of

GaAs ICs," which is an introductory-level class intended for those wishing to obtain a broad overview of GaAs technology. The Sunday evening course will cover materials and processes, device operation, and both analog/microwave and digital ICs. The Course will be tailored to provide the specific background needed for participants to understand and appreciate the papers presented in the Symposium Technical program.

A short course titled "Millimeter-Wave Systems" will be held on Sunday, Oct.

17th. The course will cover very current topics in the industry, including: automotive applications, millimeter-wave communication systems, design of frequency sources and converters, millimeter-wave amplifier design techniques and MMIC implementation. Organizer: John Sitch, Nortel, Ottawa, Canada, TEL: 613-763-3851; FAX: 613-763-2404.

Monterey is located on the beautiful California coastline with the historic Cannery Row a mere 10 minute walk from the conference headquarters at the Doubletree Hotel. The Monterey Aquarium is the largest aquarium in the world and is fascinating for the entire family. Fantastic bike rides along a protected bike trail provide for a refreshing retreat at the end of a technically filled day. For Symposium details, please visit our website at <http://www.gaasic.org/>.

*Brad Nelson  
Space Systems Loral  
Palo Alto, CA*

## 1999 Integrated Reliability Workshop (IRW)



The 1999 Integrated Reliability Workshop (IRW) will be held from October 18-21 at Stanford's Sierra Camp, a rustic

— but comfortable — setting along the shores of Fallen Leaf Lake near South Lake Tahoe. This workshop gives engineers and scientists working on wafer level reliability a very special opportunity to present work, test ideas and get input and feedback from others in the field.

The IRW workshop structure is much different than a typical technical conference. From the moment attendees arrive they are pulled into conversations, discussion groups, seminars, Q and A sessions — the entire workshop revolves around interaction among the engineers and scientists. Noted authorities from industry, national laboratories and academia come each year to share and refine their work and ideas. This sharing and mentoring process has helped many authors to receive best paper awards by enhancing their papers and submitting them to other conferences (e.g. IRPS). In addition, many have used the opportunity to fine tune an idea or

experiment or get new ideas to solve a nagging problem. Last year's presentations focused on Wafer Level Reliability, Designing-in Reliability, Contributors to Failure, and Reliability Test Structures. Presentation topics ranged from copper/low-k processes to the examination of new mechanisms for ultra-thin gate oxide degradation.

Additionally, every year there are distinguished speakers chosen for the keynote address. Most recently, Dennis Yost from Applied Materials spoke on advances and changes taking place in the semiconductor equipment industry, and Prof. David A. Hodges, UC Berkeley, gave a great keynote address in 1997 on the topic of benchmarking in semiconductor manufacturing.

Tutorials are also a part of the workshop and no additional registration or fee is required. They are offered on topics chosen for relevance to current issues and practices in the semiconductor industry. Some examples of the kinds of topics that are addressed at IRW — and the level of detail and sophistication that attendees can expect from the workshop — are evident from the most recent of these tutorials. Bill Hunter of Texas Instruments, Inc. gave a tutorial in 1998 entitled, "The Analysis of Oxide Reliability Data", in which he discussed the relationship

between absolute reliability determinations and the analysis of data from measurements of gate oxide reliability, such as TDDB. Wayne Ellis, IBM, held a tutorial that discussed how today's reliability issues are addressed in the realm of high performance DRAM product design and development.

There is significant overlap between the technical presentations and informal poster sessions that are held daily, another indication of the emphasis placed on participant involvement. All of the attendees are given the opportunity to post results and be available for questions and discussion — informally and with refreshments provided!

Discussion groups are held every evening during the workshop, always on topics chosen especially to stimulate lively conversation among the participants, and I can tell you from personal experience that lively is sometimes an understatement! Last year's topics targeted timely issues for the semiconductor industry, copper technology, ultra-thin oxides, electrostatic discharge and C-V measurements. Each year, the discussion group leaders provide a written summary of the highlights of their session, and this summary is included in the proceedings, along with presentation and poster session papers and the tutorial



summaries as well. These proceedings are a very valuable resource.

And is the day over after the discussion groups? — NO! — SIGs are next. SIGs or Special Interest Groups are created based on the continuing interest of the individual attendees. A SIG is composed of small groups of researchers who continue their conversation and collaboration even after they leave the workshop. The Thin Oxide SIG, headed by Cleston Messick, Fairchild Semiconductor, has been meeting for several years now and is collaborating with researchers from Kodak,

NIST, Penn State and others. Each year workshop participants have the opportunity to become part of an existing SIG or suggest a new topic and start their own.

This coming year's workshop promises to be interesting and profitable. At this writing, the session topics have not been set, but some of the issues that will be addressed in this year's papers will be the identification of reliability effects due to failure mechanisms, materials and manufacturing; wafer level reliability tests and test approaches; the design and characterization of reliability test struc-

tures; methodologies and tools for designing in reliability — clearly a comprehensive coverage of the topics that are crucial to the reliability engineer. The IRW Web site, <http://www.irps.org/irw>, is up and available for you to keep current on the workshop information and registration deadlines. You can also contact this year's technical program chair, William R. Tonti, TEL: 802-769-6561; E-Mail: [wtonti@us.ibm.com](mailto:wtonti@us.ibm.com).

*Linda M. Head  
Rowan University  
Glassboro, NJ*

## 1999 Semiconductor Interface Specialists Conference (SISC)

The 1999 IEEE Semiconductor Interface Specialists Conference (SISC) will be held December 2-4, 1999 in Charleston, SC, immediately prior to the 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 Si-Ge 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 thirtieth 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 presenta-

tions follows. One or more sessions on ultra-thin oxides will feature talks by Jim Stathis (IBM, USA) on "Defect Generation and Reliability of Ultra-thin SiO<sub>2</sub> at Low Voltage" and Jeff Bude (Lucent Technologies, USA) on "Oxide Damage and Breakdown: the Crucial Role of Anode Injected Holes". Paul Mertens (IMEC, Belgium) will speak on "Surface Cleaning Issues in Thin-Oxide Technology". The oxidation process itself will be treated by Kate Queeney and Yves J. Chabal (Lucent Technologies, USA) in a talk, "Low Temperature Route to Silicon Oxidation". For those interested in dielectrics other than SiO<sub>2</sub>, Christophe Chaneliere (INSA-Lyon, France) will speak on "Tantalum Pentoxide (Ta<sub>2</sub>O<sub>5</sub>) as a Dielectric Film for Silicon-based 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 and to explore historic Charleston. 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 1999 SISC will be held at the Mills House Inn, 115 Meeting Street, Charleston, SC 29401. In 1853 the Mills House was considered the finest hotel south of New York City. By 1967, however, it was discovered that the building was not structurally sound, and so the hotel was torn down and a replica built in its place. Throughout the construction of the Mills House, there was meticulous attention to detail, both exterior and interior. In restoring the hotel to its 1850's antebellum grandeur, over \$250,000 worth of period antiques was purchased. Plaster artisans who still performed the traditions of their grandfathers were brought in to duplicate ceiling, chandelier, and archway moldings. The Inn is located in the heart of the historic district, and is an easy walk from historic landmarks, charming shops, and wonderful restaurants. The Mills House Inn can be reached by TEL: (803) 577-2400 or FAX: (803) 722-2112. For registration information and general inquiries about SISC, please contact the Arrangements Chair, Kathleen S. Krisch, Bell Labs, Lucent Technologies, 600 Mountain Ave., Rm. 2D-308, Murray Hill, NJ 07974, USA; TEL: (908) 582-2432; E-Mail: [krisch@lucent.com](mailto:krisch@lucent.com). Also, we invite you to visit our web site at [www.coe.uncc.edu/~edwards/sisc99/](http://www.coe.uncc.edu/~edwards/sisc99/).

*W. Beall Fowler  
Lehigh University  
Bethlehem, PA*

## Society News

### 1999 EDS Region 10 Chapters Meeting



Attendees of the 1999 EDS Region 10 Chapters meeting in Kyoto, Japan

The third biennial Electron Devices Society Region 10 Chapters Meeting was held on June 12, 1999 at the Rihga Royal Hotel in Kyoto, Japan. The meeting was attended by representatives from 9 of the 13 chapters in Region 10, one chapter in progress and members of the EDS Regions/Chapters Committee. The chapter representatives who attended were: K. S. Chari (India); J. Vasi (Bombay Chapter, which is in progress); B. Majlis (Malaysia); Y. Ng (Singapore Chapter); N. Yoothanom (Thailand); H. Watanabe (Tokyo); K. Kwack (Hanyang University Student Branch); M. Lee (Seoul); K. Lee (Korea); J. Feng (Beijing);

and S. C. Sun (Taipei). The meeting started at 5:00 p.m. and was co-chaired by C. Yang, EDS Vice President, and H. Iwai, EDS Regions/Chapters Committee Chair. After the opening remarks and a brief introduction of the various resources and services available to EDS chapters, all the chapter representatives presented their chapter activities and exchanged their experiences and problems. A large number of workshops, short courses and distinguished lectures held by the chapters were reported. It was men-

tioned that the biggest problem for some of the chapters is that the IEEE membership fee is too high for the individual members to afford. Some chapters also requested to allow members to pay membership fees in their own currency instead of in US dollars because of the difficulty in obtaining the foreign currency. Another request made by most of the chapters was the periodical electronic distribution of updated chapter membership information in order to make it easier for chapter chairs to deliver messages to all their members. Although these three items are difficult problems to solve and beyond EDS' authority, EDS Presi-

dent B. Griffing, promised to raise the issue at the June IEEE Technical Activities Board (TAB) meeting. The first two items were already discussed in the previous December EDS AdCom meeting and are now being discussed by TAB. It was pointed out that the distinguished lecturers seldom have chances to visit even their neighboring chapters, and that it is difficult to organize distinguished lectures of the chapter's interest. This could possibly be solved if the chapters offered to subsidize certain portions of the lecturer's travel. Another issue is the founding of new chapters. It is difficult for a single chapter to organize a meeting for the members from the entire country to attend, especially in large countries such as India or China. The Bombay Chapter is now in the process of forming, and was welcomed and supported by the attendees of the meeting. This meeting also featured the first participation of a representative of a Student Chapter (Korea) as well as the recent activation of the two Korean Chapters, Korea and Seoul. As Arlene Santos, Regions/Chapters committee member, expressed during the meeting, as a whole, it was a very active and fruitful meeting. The meeting adjourned at 7:00 p.m., and discussions were continued at the AdCom buffet dinner held in the hotel immediately after the meeting.

*Hiroshi Iwai  
Tokyo Institute of Technology  
Yokohama, Japan*

## VLSI Technology and Circuits Technical Committee Report



*H.S. Philip Wong*

The VLSI Technology and Circuits Technical Committee was formed in 1998 under the leadership of Prof. Charles G. Sodini (MIT). The missions of this technical committee are:

- Initiate topical workshops of current interest (by either attaching them to existing conferences or by starting new ones)

- Suggest special issues topics for major publications (e.g. T-ED)
- Suggest panel session topics for major conferences
- Suggest special sessions for major conferences

Throughout its one and a half years of operation, the committee has operated entirely by electronic mail, thereby reducing the overhead of volunteering for the committee. Our experiences indicated that this committee is most successful in items 1 & 2 in the above mission. Every year, our committee brainstorms (by e-mail) on

ideas that are suitable for a new workshop, special issue for a journal, panel sessions, and special sessions for conferences. Committee members then take these ideas forward and find a way to make them happen, either by being the organizers themselves, or by finding suitable organizers for the topic. We work closely together with journal editors and conference organizers. It is much easier to attach the new workshop to existing conferences rather than to start new ones, especially in the case of new workshops.

Our accomplishments so far include:

- RF Passive Component workshop (co-sponsored by the Solid-State Circuits Society) held in Feb. 1999, before the 1999 ISSCC. The workshop was filled to capacity and was very successful.
- 300 mm Manufacturing workshop to be held in conjunction with the IEEE International Symposium on Semiconductor Manufacturing in Oct. 1999.
- A *Transactions on Electron Devices* special issue on "Computational Electronics - New Challenges and Directions" will be published in Oct. 2000. Both workshops, as they turned out, were organized by one of our committee members. The

*Transactions on Electron Devices* special issue topic was suggested by our committee and we worked with the journal editor to identify the Guest Editors. This is quite an accomplishment given the short history of our committee.

The committee members represent a mix of technical expertise in VLSI Technology and VLSI Circuits, with representatives from the U.S., Europe, and Asia. The present members are:

1. Jim Clemens (Lucent)
2. Atsushi Hori (Matsushita)
3. Jack Lau (Hong Kong University of Science and Technology)
4. John Lowell (Oracle)

5. Eric Mair (National Semiconductor)
6. Kevin O'Connor (Lucent)
7. Dennis Polla (University of Minnesota)
8. Werner Weber (Infineon)
9. H. S. Philip Wong (IBM) - Chair

If you have ideas for a new workshop, a special issue, or topics for panel sessions and special sessions for conferences, please contact the committee members. If you would like to volunteer in the committee, please contact Philip Wong (pwong@watson.ibm.com). Our committee membership rotates every 3 years and we need fresh ideas.

*H. S. Philip Wong  
IBM T.J. Watson Research Center  
Yorktown Heights, NY*

## 1998 EDS Paul Rappaport Award Winners

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, "A Front-Gate Charge-Pumping Method for Probing Both Interfaces in SOI Devices", by Yujun Li and T.-P. Ma, was published in the June, 1998 issue of *Transactions on Electron Devices*. The 1998 award will be presented at the IEDM on 6 December 1999 in Washington DC. The following are brief biographies of the two winners.



*Tso-Ping Ma*

TSO-PING MA is a professor of Electrical Engineering and of Applied Physics at Yale University, where he has been a faculty member since 1977. Prior to that, he had been with IBM after he graduated from Yale University with a Ph.D. degree in 1974. He has served on many committees at Yale University, was Acting Chairman of the E.E. Department in 1988, and Chairman during the period July 1991-June 1996. His research and teaching have focused on semiconductors, MOS interface physics, ionizing radiation and hot electron effects, advanced gate dielectrics, flash memory device physics, and ferroelectric thin films for memory applications. He is a patent

holder, co-editor of a book, has given numerous invited talks and contributed to several book chapters, as well as over 150 research papers. He has been actively involved in numerous technical conferences, including the IEEE SISC, IEEE DRC, IEEE NSREC, SSDM, EDMS, ECS, and MRS meetings. He is an Honorary Professor of the Chinese Academy of Sciences and an Honorary Guest Professor of Tsinghua University, Tienjin University and Shandong University. He is a Fellow of IEEE, a Member of the Connecticut Academy of Science and Engineering (CASE), a life member of the APS, and a member of the ECS, MRS, Sigma Xi, and Yale Science and Engineering Association (YSEA).

YUJUN LI (S'94) received her B.S. degree in physics from University of Science and Technology of China, P.R.C., in 1992, and the M.S., the M.Phil., and the Ph.D. degrees in electrical engineering from Yale University, New Haven, CT, in 1993, 1994 and 1997, respectively. Her doctoral research was on interface Characterization



*Yujun Li*

and hot-carrier effects in SOI/MOS-FETs. She is currently a development staff member at IBM Semiconductor Research and Development Center in Hopewell Junction, NY.

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

### 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 2000 IEEE membership renewal bill. IEEE members who are not members of EDS can also use their 2000 renewal bill to request permanent EDS membership. In addition, non-members of the IEEE are also able to request this option by completing the 2000 IEEE/EDS membership application form. We encourage you to take advantage of this new EDS offering and benefit. This option is not available to IEEE student or EDS affiliate members.

### EDS AdCom Minutes Now on the Web!

You can now view the EDS Administrative Committee (AdCom) Minutes on the web at <http://www.ieee.org/organizations/society/eds/minutes.html>. The minutes for each AdCom meeting will remain on the web for two years.



## Expanded On-Line Access to IEEE Journals and CD ROM Package Available to EDS Members

The Electron Devices Society is committed to expanding its on-line access and CD ROM versions of its periodicals. The Society is continuing its participation in the IEEE project, dubbed "OPeRA" (On-line Periodicals Research Area), to disseminate transactions, journals and letters on a secure world-wide web site for society members. Since the start of the project in January of 1997, EDS' *Transactions on Electron Devices* (T-ED) and *Electron Device Letters* (EDL) have been available on-line. In 1998, EDS also began offering an annual CD ROM in lieu of the print versions of T-ED and EDL, which was named the EDS CD ROM Package. Each Package includes the past year's issues of T-ED and EDL, as well as the current year's technical digest of the International Electron Devices Meeting (IEDM).

There are currently 55 journals available on OPeRA. As an EDS member, you

have free on-line access to the full articles of the EDS sponsored publications: T-ED, EDL and *Electrochemical and Solid-State Letters* (ESL). Due to the establishment of mutual access agreements with other IEEE societies and one publications committee, EDS members also have free on-line access to *Transactions on Information Theory*, *Journal of Lightwave Technology*, *Transactions on Microwave Theory and Techniques*, *Microwave and Guided Wave Letters* and *Transactions on Ultrasonics, Ferroelectrics and Frequency Control*. Free on-line access for EDS members was a new benefit given to EDS members as of the start of the 1999 IEEE membership cycle on 1 September 1998. In addition to the on-line access to periodicals included with EDS membership, *Transactions on Semiconductor Manufacturing* and the *Journal of Microelectromechanical*

*Systems* are available on-line to their respective member subscribers of the print version.

OPeRA 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. We encourage all members of the society to explore this new option for getting your journals.

We now have two CD ROM Packages (1997 & 1998). For the upcoming 2000 IEEE membership cycle, the 1999 CD ROM Package will be offered. If you would like to purchase the 1997 or 1998 CD ROM Packages, please contact the EDS Executive Office (contact information on page 2). As for the 1999 CD ROM Package, you can add this item to your 2000 IEEE membership renewal bill when you receive it this Fall.

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

### AdCom (continued from page 2)

nology distributed surpluses to EDS of \$34K and \$10K, respectively. EDS finished 1998 with \$5.6M in income against \$4.8M in expenses, with EDS reserves now totaling \$5.6M. AdCom voted to add another \$250K into the IEEE Long-Term Investment Program.

The EDS Executive Office continues to be busy and productive. Amongst their activities since the December AdCom meeting are the revamping of the EDS Home Page, a letter writing campaign to sections and chapters worldwide where no current EDS presence exists, coordination of the Region 10 Chapters Meeting, preparation for the Divisions I & IV Region 8 Chapters meeting at ESSDERC, and development of the new Membership Directory. In addition, Bill Van Der Vort, Amanda Papasso and Carrie Lin contributed to the EDS membership survey, coordinated with representatives of T-SM and J-MEMS to make them available on-line, and developed the specifications for a centralized administrative support system for *Electron Device Letters*. Upcoming projects include: planning for the Regions 1-7 & 9 Chapters meeting and Meetings "Best Practices" Workshop at the IEDM in December, renewal of the memberships for 11 Eastern European chapters and the implementation of centralized administrative support for EDL.

In the absence of the Chair, Paul Chow,

Membership Committee member, James Kuo, gave the Membership report. James stated that there were 12,629 EDS members at the end of 1998, which was a 10.1% growth over the previous year, giving EDS the third highest percentage of growth amongst the thirty-six IEEE societies. At the end of April 1999, the number was 11,916, again, an

increase of 5.1% from April 1998. Only the Communications and Solid-State Circuits Societies had higher numbers for 1998. James also reported that there were 3,162 "permanent" EDS members as of the end of 1998. This count is almost 30% of the total EDS members eligible for permanent membership. Finally, the EDS membership survey, which was sent randomly to 2000 EDS members, was completed in April, and results will be coming from the IEEE Institutional Research Dept. in July, to be reported at the December AdCom meeting. The cost for this project was \$15.2K.

Outgoing Regions/Chapters Chair, Cary Yang, gave his committee report. He will be succeeded by Hiroshi Iwai as of this meeting. Cary welcomed new committee members, Cor Claeys, Don Butler, Arlene Santos and Hiroshi Nozawa. The



Attendees of the June 1999 AdCom Meeting in Kyoto, Japan

committee will ask Chapter Partners to assess and evaluate their respective chapters when the 2001 annual subsidy requests are submitted. Each chapter chair, whether or not he or she is an EDS member, will receive a copy of the new EDS Membership Directory, and an effort to get more chapter-related information on the web will be started. A parallel investigation of putting the membership directory on the web in a manner similar to that of the LEO society is also being looked at. Iwai-san will conduct the Region 10 Chapters Meeting later in the day, as summarized in this issue of the EDS Newsletter. The 1999 Region 8 Chapters Meeting, which will be held in Belgium in September, will again be jointly conducted with the other eleven

(continued on page 16)



## Regional and Chapter News

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

#### ED/SSCS/CAS Chicago Chapter

— *Michael Banak*

The IEEE ED/SSC/CAS Chicago Chapter held two meetings during the current period, as follows:

1. On Wednesday evening, January 13, the ED/SSC/CAS Chicago joint chapter held its winter meeting at the Motorola Center in Schaumburg, IL. Twenty-four (24) IEEE members plus eleven (11) guests heard Chuck Byers, Distinguished Member of Technical Staff with Lucent Technologies, give a lively two hour talk on "Internet Telephony".

Being a member of Bell Labs' Advanced Architecture Team had placed Chuck in a unique position to give us an accurate view of this emerging technology. Some of us were expecting an overview of how to simply get a free phone call over the Internet. The technology, though, is barely understood from that standpoint. Chuck lead us through an in-depth Telephony Evolution, showing how the entire network could some day be replaced by an Internet-Based Architecture.

Among points of particular note was the existence of Internet Time, somewhat analogous to "Dog-Time", where things are happening very fast and a "lifetime" for a product or technology could be a mere 3-4 years. In fact, Chuck indicated that the information he shared would likely be obsolete within a year.

In defining Internet Telephony, Mr. Byers explained that this technology carries packetized voice as either IP packets or ATM cells on high-speed facilities and fast switches and routers. Because this voice data shares bandwidth with other data in the network, it seems natural to transport other application-specific data with that voice traffic, thus enhancing the possible uses. The key is to push the point of Analog/Digital Conversion right up to the customer's premises, so that voice and digital services can be merged at that point, and enable a whole new world of applications.

Today's simplest application is Internet-based telephony using current modem-access. The sound quality is poor, being

transported through a mere 56K modem, but the voice/internet bridge has been made. Even with this crude, existing structure, it is possible to sustain a 24-hour voice connection to a relative overseas, while having to pay only local telephone access charges and a flat-rate Internet Access fee. Except for the local access, this scheme, of course, bypasses the Public Switched Telephone Network, and is thus a major threat to the incomes of those who manage this network.

In an advanced IP-Based Local Access Model, almost everyone has broadband digital access, either through a Cable Modem, ADSL or a corporate LAN or WAN. The voice A/D conversion occurs at the POTS station on customer premises and is immediately merged with other digital services, such as video conferencing, education, library access, database access, etc. It is generally agreed that future network access will be rich with graphical content, perhaps HTML based, thus making the merger with Desktop PC's all the more natural.

Though long-standing manufacturers such as Lucent and Nortel have a stake in providing equipment for the existing Telephone Network, they are working feverishly to match the activity of new firms like Cisco and Ascend, who make equipment geared for Internet Access and Bridging.

Interestingly, the Q&A session was heavily weighted with questions about the business and marketing trends of this emerging branch of the industry.

The scope of Chuck Byers' discussion was a pleasant surprise, and somewhat of a wake-up call to many of the attendees. Also, Chuck Byers generously expressed a willingness to provide an updated version of the talk a year from now. The importance and timeliness of this subject makes his suggestion a strong possibility for next year's schedule.

2. On Tuesday Night, March 30, The ED/SSC/CAS Chicago joint chapter held its Spring meeting at Lucent Technologies in Naperville, IL. Eighteen (18) IEEE members, plus six (6) guests heard Dr. Krishna Shenai, Professor of Electrical Engineering with the University of Illinois, Chicago, give an impressive 90 minute talk on "Ultra Low-Power RF MicroSystems for the Next Millennium."

Dr. Shenai manages two (2) research labs at UIC: the Power Electronics Research

Lab (PERL) and the System on Silicon Research Center (SYSREC). Thus, he was rather qualified to give us the state-of-the art in this talk.

Even though Prof. Shenai promised to address RF systems, he opened with a broad overview of the general subject of Systems-on-a-Chip. Most of us who read the trade journals will likely think of this in terms of squeezing as many gates as possible onto the head of a pin. But, Dr. Shenai showed how his labs, and those around the world, are integrating Analog, Digital, Power Systems and Micro-machine Electrical-Mechanical Systems (MEMS) all on one chip.

The ultimate system, of course, would have all components integrated onto one silicon substrate. However, enormous problems remain to be solved in the areas of circuit topology, packaging and power dissipation.

One surprising assertion in the talk was the deduction that CMOS would remain the technology of choice, going deep into system-on-chip development. Although CMOS may not surpass other technologies in areas like noise figure or bandwidth, its performance is still quite adequate for most tasks. Thus, its exceptionally low cost will make it the focus of further research for some time to come.

Presentation of the Camera-on-a-Chip concept was very well received. Using a CMOS Active Pixel technology, it is possible to integrate optical detection and signal processing for interface with PC's for everything from robotic control to video conferencing.

One vision of the ultimate RF system would include the RF front-end, the Power-Amplifier and all of the subsystems from these points to the user, all on one IC. At the RF front-end, the High-Frequency input would be quickly down-converted where it would be A/D converted and demodulated with digital signal processing techniques. This would bypass the power-hungry and less-accurate analog circuitry usually associated with these functions. In the best case, there would not even be a down-conversion, but rather an immediate, Very High Speed Analog to Digital Conversion and then hand-off to a DSP for demodulation. One of the critical issues here is to avoid input overload.

Integration of High-Q magnetic components continues to be a problem. But with emerging Micro-Machined Techniques, it is possible to fabricate such magnetics so that they are suspended well above the lossy substrate, perhaps by creating a hollow area just below the integrated inductor. This, in turn, allows for, among other things, a fully integrated switching regulator power conversion system. At sufficiently high switching frequencies, the size of the magnetics lends itself to possible integration.

Several other technologies, including lab-on-a-chip and computer-on-a-chip, were also covered. By the time Dr. Shenai presented the advanced EDA and modeling techniques used in his labs, there was a sense that the audience had just about seen it all. And even though many problems remain to be solved for the most complex systems, a feeling emerged from the talk that the vision of full mixed-signal system integration, even for Electro-Mechanical systems, was now within the realm of reality for the next generation, and that those not working on it are missing out.

### Report from the 1999 International Conference on Modeling and Simulation of Microsystems

—Andreas Wild

The Second International Conference on Modeling and Simulation of Microsystems attracted high quality contributions and excellent participation. With respect to the last edition, the number of submissions was up by 20%, the number of participants was essentially the same (approx. 220), and the international exposure increased by more than 15%, as participants converged to Puerto Rico from 33 countries.

MSM '99 showed convincingly that the ability to integrate heterogeneous elements into microsystems must transcend the point solutions developed within individual disciplines, relying upon interdisciplinary, integrative approaches. While continuous advances in point models and tools are essential, this Conference intends to emphasize and stimulate cross fertilization in modeling, simulation and scientific computing in materials sciences, semiconductors, MEMS, sensors, actuators and biotechnologies.

The plenary lectures covered fast 3-D algorithms, the TCAD expansion into non-traditional areas, the art of modeling coupled-field effects, power integration trends, and virtual qualification of components based on predictive simulations. The technical program included contributions grouped in two categories:

- Methodology papers, primarily concerned with advances in the state of the art modeling and numerical algorithms
- Applications papers, illustrating the impact of advanced modeling and accurate simulation in building microsystems

A full-day workshop focusing on computational initiatives in biotechnology was held in parallel with special sessions addressing system-level modeling, computational methods in microfluidics, computational parameter extraction for compact models, cross-disciplinary modeling of front-end semiconductor manufacturing, and quantum devices. The beach-side poster session complemented and extended the content of the oral presentations, sparking very productive and animated interactions among the participants.

The Conference also included an exhibition of commercially available modeling and simulation software tools, which experienced a 25% growth with respect to last year. The tools covered computational materials and molecular simulations, numerical tools and interdisciplinary CAD systems.

MSM '99 was welcomed in sunny San Juan by the Deputy Secretary for Economic Development of the Government of Puerto Rico, Alfredo P. E. Archilla. The Conference was mentioned in the evening TV news on the island, and the Caribbean Business magazine dedicated a one-page article to the conference.

The Third International Conference on Modeling and Simulation of Microsystems will take place in San Diego, California, USA, on March 27-29, 2000. The home page of the MSM2000 conference can be visited at <http://www.cr.org/MSM2000>.

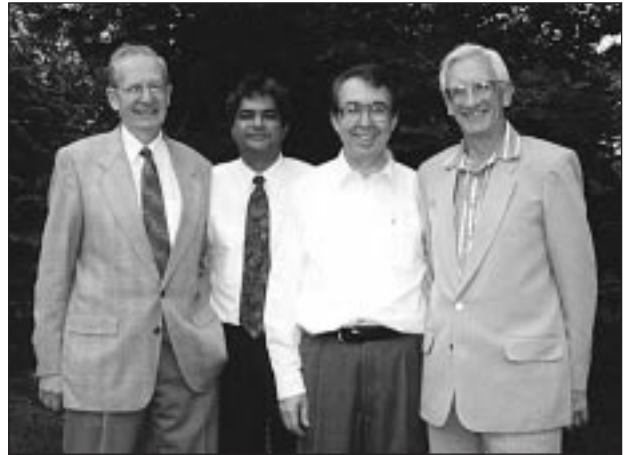
—Mark Weichold, Editor

### AP/CAS/ED/MTT Kitchener-Waterloo Chapter

—by Arokia Nathan

So far this year, our chapter has hosted three very interesting IEEE lectures that were well attended by IEEE members, including student members. All lectures were held at the University of Waterloo.

1. On March 1, Christoph Maier from the Physical Electronics Laboratory, ETH Zurich, presented a method to automatically produce compact equivalent cir-



From left: Robert MacPhie, Arokia Nathan, Savvas Chamberlain and Jiri Vlach

cuit models of spatially inhomogeneous resistors; the spatial inhomogeneity arising from the presence of a magnetic field and/or stress field. The method was demonstrated with SPICE circuit simulation of a magnetic Hall sensor.

2. On March 17, our lecturer was Professor Charles Main from the University of Albertay Dundee, UK, who presented a theory for the current noise power spectral density (PSD) arising from carrier density fluctuations in materials such as amorphous semiconductors. His analysis, based on a simple exact R-C equivalent circuit representation of the carrier trapping kinetics, yields a simple relation between the form of the noise spectrum and the modulated photocurrent response. Furthermore, he showed that the noise current PSD produced by trapping noise in an exponential band tail of characteristic energy  $kT_c$  is of the form  $S_i(f) \sim f^\alpha$  where  $\alpha = T/T_c$ .
3. On May 21, Dr. Sai Tak Chu from the Kanagawa Academy of Science and Technology, Japan, presented recent results of a new ultra-compact vertically coupled micro-ring resonator multi-channel add/drop filter, developed by him and his co-workers. They achieved a FWHM of 0.1-3 nm at a wavelength of 1550 nm. Their multi-channel filter consists of micro-ring resonators placed on top of a cross-grid array of buried waveguides. Dr. Chu also demonstrated compact integration of photonic circuits consisting of cross-grid waveguides and an 8-channel add/drop filter to occupy an area of 1.75 mm by 50  $\mu$ m.

On June 19, the chapter celebrated the bestowment of Distinguished Professor Emeritus, on Dr. Savvas Chamberlain. The ceremony took place at the Spring Convocation of the University of Waterloo. Dr.

Chamberlain was a former professor of the University of Waterloo and is currently the CEO of DALSA Inc., a company that manufactures advanced image sensor and CCD cameras. He is a Fellow of the IEEE and a former editorial staff member of the EDS Newsletter. The event was well celebrated in terms of a technical get-together of IEEE members from both the University of Waterloo and DALSA Inc. Also present were IEEE Life members Robert MacPhie and Jiri Vlach.

The chapter also celebrated the prestigious 1999 NSERC (Natural Sciences and Engineering Research Council of Canada) Doctoral Prize, awarded to IEEE Student member, Dr. Hoan Huu Pham, in recognition of his high quality research conducted during his doctoral degree at the University of Waterloo. Dr. Pham developed a new computational algorithm, based on exponential expansion of the Green's function for the electric potential, for simulation of capacitance in ULSI interconnects, large area imaging arrays, and microsystems. The algorithm provides greater speed and runs on smaller hardware than existing methods. Dr. Pham also received the Governor General's Gold Medal at the University of Waterloo's Spring Convocation.

—Arokia Nathan, Editor

### ED/MTT Oregon Chapter

—Ed Godshlak

The joint IEEE ED/MTT Oregon chapter has recently been reactivated, and has met formally four times, year to date. Technical presentations for these meetings were "Wireless Standards" by Rob Hamilton from TriQuint Semiconductor (March), "Power Amp Design Methods" by Tom Ruttan from Intel (April), "Phase Noise and Jitter Effects in Digital Comm. Systems" by Ed Godshlak (May), and "EM Simulators" by Brian Denheyer from Deldot Design Inc. (July).

At the August meeting, John Cowles from Analog Devices discussed GaAs Bipolar technology. Meetings will continue throughout the Fall, on the fourth Wednesday of each month. The chapter has been enthusiastically supported this year, with an average meeting attendance of 20.

The chapter officers are: Ed Godshlak, Chapter Chairman; Darren Ferwalt, Vice Chairman; Rob Hamilton, Chapter Publicity Chairman. For information on upcoming meetings, please contact Rob Hamilton at: TEL: (503) 615-9407; FAX: (503) 615-8901; E-Mail: rhamilton@tqs.com.

—Paul K.L. Yu, Editor

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

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

—by Sergei Zagriadski

St. Petersburg, one of the most beautiful cities in the world, is especially attractive in the period of so called "white nights", when in May - June the day light continues from 3 a.m. to 12 p.m. In 1999, the St. Petersburg Chapter co-sponsored several local scientific conferences during the white nights time frame, enabling participants to wonder the beauty of the city.

The International University Conference "Electronics and Radiophysics of Ultra-High Frequencies" (UHF'99) was held May 24-28, 1999. It was supported by the IEEE MTT Transnational Committee, Russian Foundation for Basic Research, Russian Ministry of Education and the St. Petersburg ED/MTT/AP Chapter. The latest results of experimental and theoretical investigations, novel achievements in design and development of microwave devices and physical applications of electromagnetic waves from meter to submillimeter wavelengths were presented in lectures of invited speakers and contributed papers structured in oral and poster sessions. More than 110 people from 10 countries (including 3 from CIS) attended the Conference and presented 50 oral and 89 poster reports. A seminar on modern problems of the university education in the field of microwave electronics was also held in the framework of the Conference.

International Seminar "Day on Diffraction" (June 1- 4, 1999), an annual seminar on mathematical methods in the diffraction theory, was organized here by the St. Petersburg State University, St. Petersburg Branch Steklov Mathematical Inst., Euler International Mathematical Inst. and co-sponsored by the Russian Foundation for Basic Research, URSI Mode-A and the IEEE ED/MTT/AP St. Petersburg Chapter. This year, the seminar was timed to the celebration of the 275th anniversary of St. Petersburg University (founded January 28, 1724). The seminar brought together over 80 scientists working in the area of mathematical theory of diffraction and propagation and researchers interested in applications of wave phenomena of various nature. Over 60 oral reports were presented by participants from Russia, Belarus, U.K., USA, Israel, Japan, Mexico, France, Iran, Canada, Czech Republic, Italy, Finland. Topics of the seminar were traditional:

Asymptotic Methods, Mathematical Aspects of Wave Phenomena, Inverse Problems, Scattering and Diffraction, Boundary-Contact Problems, Waveguides and Resonators, Rays and Beam Waves in Non-Uniform Media, Boundary Layers, Nonlinear Waves, Propagation in Random Media, Numerical Approaches. The seminar "Day on Diffraction" has been held annually in late May or early June since the 1960's.

The 6th International Student Seminar on High Temperature Superconductors (HTS) and Microwaves was held May 29 - June 4, 1999 in Hailuoto (Finland) and was organized by Microelectronics and Material Physics Laboratories of the University of Oulu (Finland), Empart research group of Infotech Oulu, St. Petersburg State Electrotechnical University and co-sponsored by the ED/MTT/AP St. Petersburg Chapter. There were 5 invited lectures presented by distinguished lecturers from 3 Universities of Russia and Finland and 12 oral reports by students from 6 Universities of Russia, Finland, Germany and England which were devoted to theory and microwave applications of HTS. The total number of participants was over 40.

For further information about conferences annually organized in St. Petersburg and its region, please contact Prof. Sergei Zagriadski; E-Mail: zagr@radio.stu.neva.ru.

### ED/MTT/AP/EMC Republic of Georgia Chapter

—by Revaz Zaridze

At our most recent chapter meeting, activities of the chapter during 1998 and the results of the Third International Seminar/Workshop on Direct and Inverse Problems of Electromagnetic and Acoustic Wave Theory (DIPED'98) were reported. Topics related to the organization of an International Workshop on Electron Devices in Georgia next year have also been discussed. There was an election of new Chapter Officers. Dr. Nina P. Khuchua, Head of RPC "Electron Technology" of Tbilisi State University, has been elected as a Chapter Secretary. The Chapter Chair, Prof. R. Zaridze, and Vice Chair, Dr. D. Karkashadze, have been re-elected for the next term.

Among chapter activities, a new library with special technical information has been founded, which receives periodical subscriptions subsidized by IEEE. Scientific and Technical information in the field of semiconductor technology (Tbilisi State University, Tbilisi Technical University, Institute of Cybernetics of the Georgian Academy



of Sciences, etc.) has been obtained and disseminated. Georgian meetings (Tbilisi State University, Tbilisi Technical University) to prepare the scientific and technical materials for the 1999 GaAs IC Symposium have been held. As a result of a business trip to the USA by Dr. Nina Khuchua in February 1999, IEEE provided RPC "Electron Technology" with the latest scientific and technical information in the field of GaAs technology free of charge. This information will be used in the course of implementation of the NATO Project under SFP Programme as well as for other projects. A meeting devoted to preparing the Georgian Chapter's presentation for the 1999 IEEE Divisions I and IV Region 8 Chapters Meeting has been held. It has been decided that Irakli Sikmashvili will be the chapter's representative at this meeting.

For further information, please contact: Dr. Revaz Zaridze, Department of Physics, Tbilisi St. University, 3 Chavchavadze Ave., Tbilisi, Republic of Georgia, TEL: +995 32 290845; FAX: +995 32 290845; E-Mail: rzaridze@resonan.ge.

—Ninoslav Stojadinovic, Editor

### ED Sweden Chapter

—Mikael Östling

The previous period of the ED Sweden Chapter's activities included some interesting events, including the ICMTS '99 conference arrangement.

In February, we arranged a workshop by Silvaco, Inc. on computer modeling of interconnects and related issues. The seminar was led by G. Thomas from Silvaco, UK. A number of other technical seminars were also arranged during the Spring. An interesting talk was presented by Professor Dieter Silber entitled, "Research on Power Device Physics, Power Device Integration and Power Modules" at Bremen University.

At the formal annual chapter meeting, a talk entitled "Recent Trends in RF TCAD" was given by Prof. Torkel Arnborg (IEEE Senior Member), Ericsson Components/Royal Inst. of Technology, Stockholm, Sweden. In June, a talk entitled "Fundamental Studies of the Silicon Carbide MOS Structure" was presented by Mrinal K. Das from Purdue University.

### Report from International Conference on Microelectronic Test Structures (ICMTS '99)

—by Kjell O. Jeppson

The 12th International Conference on Microelectronic Test Structures was held in Goteborg, Sweden on March 15-18, 1999. The conference (which was spon-

sored by the IEEE Electron Devices Society) brought together more than 125 designers and users of test structures from all over the world to discuss the most recent developments and future directions. During the years, the ICMTS has established itself as the number one meeting place for engineers and researchers, both in academia and industry, who use test structures for process development and to control and monitor the manufacturing of microelectronic circuits.

This year, the technical program was organized in 10 sessions containing 44 contributed papers, including a poster session and an equipment exhibition. The conference was preceded by a one-day tutorial short course to provide participants with guidelines for good design and use of test structures. Most aspects of microelectronic test structures, including their applications for parameter extraction, characterization of device matching, critical dimensions, yield, reliability, interconnects, etc., were covered during the conference.

As usual, there were hot discussions on whether parameter extraction of transistor model parameters or methods for determining critical dimensions was the most interesting subject of the conference. To mention just a few conference highlights, a new class of critical dimension references for calibration of the 0.12  $\mu\text{m}$  generation integrated circuits was presented by the Cresswell group from the National Institute of Standards and Technology. Several papers presented new methods for extraction of capacitance, RF and noise parameters, including one paper on 3D characterization of RF power transistors using SEM photographs.

The paper on thermal van der Pauw test structures for determining in-plane thermal sheet conductivities of thin films presented by Prof. Paul et al. from University of Freiburg was selected for the best paper award. The award will be presented at the next year's conference, which will be held in Monterey, California on March 13-16, 2000.

For more information about ICMTS'2000, please contact the ICMTS 2000 Conference Secretariat, att: Wendy Walker; 101 Lakeforest Blvd, Suite 270, Gaithersburg, MD 20877, USA; TEL: +1-301-527-0900; FAX: +1-301-527-0994;



Technical chairman Alan Mathewson (left) and General chairman Kjell Jeppson (right) formally opening the ICMTS'99.



General chairman to be, Prof. Takashi Ohzone, is convincing Kjell Jeppson that the beautiful city of Kobe (Japan) will be the best site for ICMTS 2001.

E-Mail: widerkehr@aol.com: or wmarwalker@aol.com.

—Mikael Ostling, Editor

### ED/MTT Egypt Chapter

—by Ibrahim Salem

The Chapter held a Workshop on "Teaching Photonics" at the Egyptian Faculties and Institutes on May 18, 1999. Professors of Cairo University, Alexandria University, Ain Shams University, National Institute of Laser Enhanced Sciences, Menoufia University, Higher Technological Institute Ramadan 10th City, National Telecommunication Institute and Zagazig University, presented thirteen papers. Following the workshop, the attendees (IEEE members and 30 guests) made a tour through the laboratories of the Institute of Laser Enhanced Sciences (Cairo Univ.-Giza). A second workshop on "Teaching Photonics" is planned for year 2000.

For further information, please contact the Chapter Chair, Professor Ibrahim A. Salem, 17 Elkobbba Street - Heliopolis, Cairo - 11341, Egypt. TEL: 202-258-



0256; FAX: 202-594-1270; E-Mail: isalem@brainy1.ieeg.com.

### ED Israel Chapter

—by Gady Golan

Two IEEE ED Israel chapter meetings held during the current period are reported below:

1) Tuesday, May 18, 1999, at the Center For Technological Education - Holon. The meeting on "Updates in Semiconductor Manufacturing" was chaired by Prof. Nathan Croitoru, IEEE ED Israel Chapter Chair. Guests of Honour included Prof. David Maron, President of the Center for Technological Education — Holon, and Prof. Ady Seidman, IEEE Israel Section Office. Guest speakers included: Dr. Rick Sivan, Motorola, who presented "Materials Challenges in the Manufacture of ULSI Silicon Circuits"; Prof. Yael Nemirovsky, Technion IIT, who presented "Updates in Micromachining and Silicon Microsystems"; Dr. Reuven Dahan, El-Op, who presented "Manufacturing of Opto-Electronic Devices"; and Dr. Gady Golan, Center for Technological Education — Holon, who presented "Novel Heating Technology with Barium Titanate PTC crystals". 120 people (the majority students) attended.

2) Thursday, June 17, 1999, a seminar was held in the Center for Technological Education - Holon. The special guest speaker was Dr. Eugene Kamenetskii from the Faculty of Engineering, Dept. of Electrical Engineering - Physical Electronics, Tel-Aviv University. The subject of the seminar was: "Macroscopic Electrodynamics of Chiral and Bianisotropic Media and Artificial Microwave Bianisotropic Materials". Twenty people (faculty and students) attended.

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

### MTT/ED/AP/LEO UKRI Joint Chapter

—by Ali Rezazadeh

Chapter activities for the current period with future planning have included:

1. A full-day seminar was held 21st April 1999 at the City University, London, on "WDM Technology". There were six invited speakers: Dr Jens Buus (IEEE Distinguished Lecturer '98-99), Gayton Photonics, presented "Semiconductor

Lasers for WDM Systems"; Mr Kevan & P. Jones, Nortel Networks, presented "Engineering Practical Erbium Doped Optical Amplifiers"; Dr M. N. Zervas, University of Southampton presented "WDM Applications of Fibre Gratings"; Dr Polina Bayvel, University College, London, presented "Design of Wavelength Routed Optical Networks"; and Dr David Colter, British Telecom Research Laboratories, presented "Photonics Networks - beyond WDM".

2. A well attended evening Lecture was held on 22nd April 1999 at the IEE London on "Wide Bandgap Semiconductor Microwave Power Amplifiers" by Robert J. Trew (US Department of Defense).
3. A Workshop on "Non-linear Device Characterization and Use in RFIC and MMIC Power Amplifier Design", jointly organized by the Chapter and The University of Surrey, with technical co-sponsorship by the IEE, was held on 5/6th July 1999 at The University of Surrey. The program included three main sessions covering "Accurate Non-linear Characterization", "Implementation of Non-linear Behavior in Commercial Simulators" and "Non-linear Design Techniques in RFIC and MMIC Power Amplifier Design". A Workshop Dinner was included for the evening of 5th July. A Chapter AdCom Meeting was held on 6th July following the Workshop.
4. The 1999 "HF Postgraduate Student Colloquium" is planned for 16-17th September 1999 at The University of Leeds. This is the fourth event of the series and this year it is being organized by The University of Leeds. The University contact is Dr Stavros Iezekiel, E-Mail: s.iezekiel@ieee.org.
5. The "7th IEEE International Workshop on Electron Devices for Microwave and Optoelectronic Applications - EDMO'99", jointly organized by the Chapter and King's College London, and with technical co-sponsorship by EDS, is planned for 22-23 November 1999 at King's College London. Planning of the technical program is proceeding and details are available from the TPC Chair, Ali Rezazadeh (Chapter Chair).
6. The last event of 1999 is planned as an evening Lecture for the 14th December 1999 at King's College London, on "Passive Radiometry" by Roger Appleby. For further information, please contact the Chapter Chair, Dr Ali A Rezazadeh, Department of Electronics, King's College

London, Strand, London WC2R 2LS, UK. TEL/FAX: +44 171 873 2879; E-Mail: a.rezazadeh@bay.cc.kcl.ac.uk.

—Terry Oxley, Editor

### Workshop Co-sponsored by MTT/ED France Chapter

—by Daniel Pasquet

The IEEE MTT/ED France Chapter is organizing a workshop entitled "New Semiconductor Materials for Telecommunication and Microwave" in co-operation with other European MTT, ED and AP chapters. It will be held at Palais du Grand Large in Saint-Malo, France, a well-known privateer city in Northern Brittany. The workshop will consist both of communications and invited papers. The official language of the workshop is English. Contributors for communications may submit a copy of a two-page summary by September 10th, 1999. A cover letter should provide the title, the authors' names, a full mailing address and an e-mail address to keep contact. The summary and the cover letter must be sent to : Prof. Daniel Pasquet, ENSEA, 6, avenue du Ponceau, F-95014 CERGY-Cedex, France or as a Word6-7 file to: pasquet@ensea.fr.

### ED Central and South Italy Chapter

—by Christian Zardini

Since December 1998, Professor Salvatore Bellone from the University of Salerno has been the new Chairman of the ED Central and South Italy Chapter. In November 1999, Professor Martin A.Green will present his EDS Distinguished Lecture "High Efficiency and Low Cost Silicon Solar Cells" at the University of Salerno and at the University of Naples. The University of Salerno will organize in May 2000 at the University of Salerno a one day meeting on "Device Characterization for Micro and Optoelectronics." The Chapter is also planning to co-sponsor the National Meeting of the Electronic Group. For further information, please contact the Chapter Chair Prof. Salvatore Bellone, E-Mail: bellone@dieee.unisa.it.

—Christian Zardini, Editor

## Asia & Pacific (Region 10)

### ED/MTT India Chapter

—by Dr. K.S. Chari

The Chapter had taken a major initiative by sponsoring a two-day National Symposium on Electronics Technology (NASSET-99)



NASET '99 organizing team of Kurukshetra University

as an exclusive student event at Kurukshetra University 15-16th April 99 to expose students to the challenges of science and engineering. The Electronics Society of Kurukshetra University conducted the event. The event focused on electronics and computer technologies with technical paper presentations, hardware design contest-cum-exhibition, a quiz and a cultural event. About 150 entries from various engineering institutions such as the Punjab Engineering College, Agra Engineering College, Delhi College of Engineering, Regional Engineering College Kurukshetra, Engineering Colleges at Raduar, Mullana and various departments of Kurukshetra University participated in the technical paper presentation and 22 teams enrolled for the quiz competition. Twenty-four student papers in electronics and computers were orally presented by authors, a technology quiz had participation by 6 student teams, 15 entries selected for hardware competition. The hardware competition included innovative designs like computerized lathe, powerful and efficient inverter, compact moving message display, suspended impurities sensing system, PID controller, auto traffic/rail messaging system, computer based communication systems, etc.

In total, the Chapter awarded prizes to the following students: Hardware contest: Trilok Chauhan, Manish Wadhawan and Gyannirajan Jena from REC (Kurukshetra); Nidhi from University College of Kurukshetra, and Sandeep Chauhan from Electronics Science, Kurukshetra University. Technical paper presentations: Vishrut Goel and Puneet Kumar from REC (Kurukshetra); Anil Kumar Gautam and Abhinav Khetrupal from Agra Engineering College and Sandeep Chauhan from Dept. of Electronics Science, Kurukshetra University; Nitin Bansal from Kurukshetra University; Mona Luthra and Priti Jain from REC (Kurukshetra), Amit Gaur and Kartik Buhlakoti from M.L.N.Engg College (Radur).

The events were hosted at Kurukshetra University by a team headed by Prof. P. J.

George, Head, Electronics Science Department. The Chapter Chair addressed the students on the second day and gave away the prizes to the winners. The event concluded with cultural items presented by the students of Electron-

ics Science Department. About 200 students attended the two-day event. The event also exposed students to the IEEE EDS/MTS activities.

Under invitation of the Chapter, Prof. Hameed Naseem of the Arkansas Advanced Photovoltaic Research Centre, University of Arkansas, visited the Chapter and gave a talk entitled "Low Cost Si Solar Cells Using Low Temperature Metal Assisted Crystallisation of a:Si" at the Department of Electronics, New Delhi on 26th April 99. Thirty-five participants attended the talk.

The ED/MTT India Chapter Chair attended the EDS Region 10 Chapters Meeting at Kyoto, Japan on 13th June and presented the activities organized by the Chapter. He also visited Waseda University and delivered a talk, "Thermal Oxides on Si and Poly" at the Department of Electronics Information and Communication Engineering on 18th June. Professor Isamu Kato hosted the visit. The Chapter Chair also visited other R&D groups at the University of Tokyo. Prof S. K. Koul, Past Chapter Chair and member of the current chapter executive committee had attended the MTT-S Chapter Chairpersons meeting on 13th June at Anaheim, CA, USA.

For further information, please contact Dr. K.S. Chari, Director, Micro Electronics & Photonics Division, Department of Electronics, C.G.O. Complex, New Delhi, India, TEL: 91-11-4361464; FAX: 91-11-4363082; E-Mail: chari@xm.die.ernet.in.

#### ED Malaysia Chapter

—by Dr. Burhanuddin Yeop Majlis

The ED Malaysia Chapter is organizing the IEEE National Symposium on Microelectronics on 6-7th September 1999 in Pan Pacific Resort, Pangkor. The Symposium will be partly sponsored by Telekom Malaysia. The scope of the symposium covers all fields in microelectronics, such as device physics, characterization, modeling, materials and fabrication technologies, VLSI and MMIC circuits, optoelectronics, sensors, etc. The symposium fee is RM500 for

IEEE members and RM550 for non-IEEE members. This Symposium is for local researchers, but is also open to Singaporeans. Professor Vijay K. Arora is invited to give a Keynote address.

For more information, please contact Dr. Burhanuddin Yeop Majlis, Dept of Electrical, Electronics and System Engineering, Universiti Kebangsaan Malaysia, TEL: 03-8251292; FAX: 03-8259080; E-Mail: burhan@eng.ukm.my.

#### IEEE REL/CPMT/ED Singapore Chapter

—by Y. C. Ng

The IEEE REL/CPMT/ED Singapore Chapter organized three technical talks. The first technical talk was presented by Prof. Roman Sobolewski from Rochester University, entitled "Ultra Fast Supercomputing Electronics and Optoelectronics". There were 18 participants. The second talk was presented by Dr. Leo G. Henry of Oryx Instruments, entitled "Transient Latch-Up Testing of Integrated Circuits," with 42 attendees. The third technical talk focused on FEA of Packaging Reliability and attracted 46 participants.

The Singapore Chapter was honored to receive a prize from the IEEE Reliability Society for its performance in 1997-1998. Prof. Daniel Chan attended the AdCom meeting and received the award on behalf of the Chapter at the International Reliability Physics Symposium (IRPS) in San Diego.

Prof. Andrew Tay attended the 1st Annual International CPMT Chapter Meeting, which was held prior to the 49th Electronic Components Technology Conference in San Diego, California. The Chapter will be holding the 7th International Symposium on the Physical & Failure Analysis of Integrated Circuits (IPFA 99) in June in Singapore.

For more details, please contact Dr. Ong Soon Huat, E-Mail: soon.huat.ong@nsc.com.

—W. K. Choi, Editor

#### Report of the 1999 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors

—by Nobukazu Teranishi

The 1999 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors, sponsored by the IEEE Electron Devices Society, was held June 10-12, 1999 at the Karuizawa Prince Hotel of Nagano, Japan. The purpose of this Workshop is to provide an opportunity for exchanging new results in the area of Solid-State Image Sensors in an informal atmosphere. This time, 130 people from 13 countries and regions attended the Workshop and 62 papers were present-



Attendees of the 1999 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors

ed. One of the highlights was the Discussion Session, where all the attendants debated frankly and hotly. At the Workshop Dinner, the first Walter Kosonocky Award was conferred on Dr. Jan T Bosiers et al. of Philips by the Walter Kosonocky Award Committee. The next workshop in 2001 will be chaired by Dr. Eric Fossum, Photobit, E-Mail: fossum@photobit.com.

### Report of the 1999 Silicon Nanoelectronics Workshop

—by Toshiro Hiramoto

The 1999 Silicon Nanoelectronics Workshop was held in Kyoto, Japan June 12 - 13, 1999. The Workshop was sponsored by the Japan Society of Applied Physics and the IEEE EDS, and was a satellite workshop of the 1999 VLSI Symposia, held just after the workshop at the same location. More than 90 people participated and 34 contributed papers were presented. Five invited talks and two panel discussion sessions were the highlights of the Workshop. The topics of the invited talks and panel sessions included: silicon dot memories, vertical MOSFETs, TCAD, technologies beyond 0.1  $\mu\text{m}$ , and ball semiconductors. Technical issues and future directions were widely discussed. The next Workshop will be held in Honolulu, HI, USA on June 10 - 11, 2000, just prior to the 2000 VLSI Technology Symposium. For more information, please contact the General Chair, Prof. Sandip Tiwari, Cornell University, E-Mail: st222@cornell.edu.

### Report of the 1999 4th International Workshop on Statistical Metrology (IWSM'99)

—by Hiroo Masuda

The 1999 4th International Workshop

on Statistical Metrology (IWSM'99), sponsored by the IEEE Electron Devices Society and co-sponsored by the Symposium on VLSI Technology, the Japan Society of Applied Physics and IEEE ED Tokyo Chapter, was held at the Rihga Royal Hotel, Kyoto, Japan, on June 12, 1999. The number of participants was 81. Fifteen of the 19 papers submitted, were presented orally together with 1 invited paper by Dr. Yoshio Nishi titled, "IC Technology R&D for Next Century." There were two features in the IWSM'99. One is an increased contribution from Europe. The other is the significant advance in the statistical design and metrology in higher level LSI development such as interconnects skew problems. IWSM'2000 is scheduled to be held on June 10, 2000, at the Hilton Hawaiian Village, Honolulu, Hawaii, again in association with the 2000 Symposium on VLSI Technology (<http://www.ieee.org/conference/vlsi>)

### Report of the 1999 Symposium on VLSI Technology

—by Masakazu Kakumu

The 1999 Symposium on VLSI Technology was held in Kyoto, Japan June 14-16th. There were over 600 attendees, which was a record for the Symposium in Japan. From the 212 submitted papers, 78 papers were selected, and they were organized into 20 sessions. After the opening remarks, two speakers for the Plenary Session were invited. Dr. Yoshiaki Kushiki, Vice Presi-

dent of Matsushita Electronics, talked on the Digital Consumer Evolution in Multimedia and Network Age. Dan Niels from BancBoston Robertson Stephens spoke on the Trends in the Semiconductor Business. Furthermore, a special session on "Technology for System LSI" on Wednesday, June 16, was held in order to provide a good opportunity for both technology and circuit engineers (3 papers from Technology and 1 paper from Circuit). There were three Rump Sessions and one Joint Rump Session for the evening of June 15th and 16th, respectively. In particular, the Joint Session with the Symposium on VLSI Circuits which addressed "Silicon On Insulator (SOI)", was highly successful. The next Symposium on VLSI Technology will be held in Hawaii from June 12 — 14, 2000 (<http://www.ieee.org/conference/vlsi>).

—Hiroshi Iwai, Editor



IWSM'99



## AdCom (continued from page 8)

Divisions I and IV societies. A petition to add the name of the chapter chair on the Chapter-of-the-Year certificate was declined. At present, there are 97 chapters across the ten regions, of which, 61 are joint with MTT, AP, CAS, CPMT or LEO. Proposed chapters in Bombay (India) and the Mohawk Valley (New York) are currently in progress. The total amount of chapter subsidy money awarded for 1999 was \$41K, up from \$10K in 1995. Later in the meeting, AdCom received excellent progress reports from the Tokyo, Seoul and Malaysia chapters, in addition to a detailed Partners report by Arlene Santos.

Steve Hillenius, Publications Chair, noted that C.L. Lou and H.S. Philip Wong have joined his committee. He also announced Yujan Li and T.P. Ma as winners of the 1998 Paul Rappaport Award, for their paper included in the June issue of T-ED entitled, "A Front-Gate Charge Pumping Method for Probing Both Interfaces in SOI Devices". The new EDL Editor-in-Chief, Yuan Taur, took over for John Brews as of May 1st. He, in collaboration with the Executive Office, is busy transferring the EDL Publications office to Piscataway. He and others are currently working with Judge Technical Services to develop a database manuscript system that the Executive Office will be able to use to provide administrative support for the EDL Editor-in-Chief and all EDL Editors. Ms. Marlene James, formerly of the LEOS Publications Office, joined the EDS Staff on June 7th to take on the responsibility of providing administrative support for EDL. Steve added that the archival CD ROM project concerning EDL and T-ED will be put on hold pending the expected development of DVD formats and new IEEE Publications software (EPIC) in the near future. His study has shown that a CD ROM going back only to 1996 is not attractive, and that many back issues of EDL and T-ED are or will be available on-line to members soon.

The Meetings Chair, Jim Clemens, indicated that EDS will have 18 sponsored or co-sponsored meetings, 57 technical co-sponsored meetings, and 10 cooperative meetings in 1999. His trends show that while the number of sponsored/co-sponsored meetings has stabilized at 33 since 1993, technical co-sponsored meetings have increased from 2 to 77 over the same period. Conversely, cooperative meetings have declined from 39 to 12 in the same time frame. AdCom supported his motion to approve the schedule of meetings planned for the second half of 2000. Jim also showed that, as a result of

the globalization effort, the rate for new meeting sponsorship requests are running at about one per month, and that such requests are predominately from Regions 8 and 10. There was a follow-up discussion with regard to whether or not EDS should take a pro-active stance to support this trend more vigorously, or to take a more passive approach. It was decided that the promotion of new meetings is best left to the respective technical committees who have been universally charged with this task already. There was also discussion of what must be done to get delinquent meetings to close their books on-time, and that EDS has withdrawn its previous support for some meetings which are now outside the mainstream interests of the society.

The Short Course Committee, chaired by Jason Woo, has proposed two classes for next year, Communications Technology, and 0.15u CMOS Device & Design and Optimization. Scheduled versions of these are planned to be offered in Austin, Portland, and San Jose, although no definite dates are available. This project will require additional work to find instructors, determine appropriate fees, and develop budgets. Bruce Griffing reported that the EDS Fellows Committee has received 43 nominations to evaluate this year and they should submit their evaluations to IEEE by June 18th. There should also be a renewed attempt to encourage and support the nomination of Fellows from regional areas such as Korea and Japan, where currently few EDS Fellows exist.

The original two-year agreement between EDS and the Electrochemical Society (ECS) to collaborate on *Electrochemical & Solid-State Letters* will terminate in 1999. AdCom approved both a renewal of the agreement for 2000 under basically the same terms as the first, and an additional proposal for 2001 stipulating that, in the future, such renewals will be automatic unless changes are being proposed. In another area, a request was made and approved to increase the EDS grant to the IEEE History Center, from \$25K to \$65K. All society grants will be matched by the IEEE Foundation, so EDS' contribution is extremely important to the History Center. AdCom approved a request of the Device Reliability Physics Committee to sponsor a new journal for 2001 to be titled, *Transactions on Reliability of Electronic Materials and Devices*. The new publication will be totally electronic, but still peer-reviewed and archival. The committee demonstrated a need for this project by pointing out that, while important and popular, the subject of reliability has not found a home within any

of the current publications. It is hoped that the new publication will be co-sponsored with the Reliability Society, although there have been discussions with several other societies as well. The committee expects that the Transactions will require funding of \$24K in the first year, but will be solvent in year two and beyond.

The chair of the VLSI Technology and Circuits Technical Committee, H.S. Philip Wong, reported a strong program for his group. For this year, they have already completed one workshop on Passive RF Components (at ISSCC) and will hold another on 300mm Technology at the ISSM in October. A new workshop on Emerging Memory and Storage Technology is planned. Special Issues of T-ED are in progress. The first special issue on Computational Electronics, "New Challenges and Directions", is scheduled to appear in the June 1999 issue, and a follow-up one on Interconnect Systems will be announced. Book proposals are also being entertained. Philip asks that anyone interested in participating in the Memory workshop should contact him directly. The Compound Semiconductor IC Technical Committee, under Herb Bennett, has been active in the Compound Semiconductor Roadmap, working with the LEO Society, and in identifying and publicizing new topics and areas of interest in several publications. They have developed a joint website with the ODTC-WEB at COBRA, supported by Eindhoven University (Netherlands), and have contributed to IEEE Spectrum. Among the areas currently being promoted for compound devices are seamless, packet-switched systems architectures, merging of audio, visual, and multimedia, high bandwidth applications, wide-gap power devices, automotive radar and advanced A/D conversion with high count HBTs or RTDs. Reporting for the EDS representative, Steve Knight, Herb Bennett summarized the work of the IEEE New Technology Directions Committee (NTDC) committee also. The NTDC is responsible for identifying emerging technologies of interest, and interfaces closely with all the technical committee chairs. Steve is currently looking at literature searches, meeting reports, teleconferences, and other methods to examine the worldwide scope of new technologies. They plan to report their findings to AdCom and publish them to members in cooperation with *IEEE Spectrum* and *Circuits and Devices Magazine*.

The new EDL Editor-in-Chief, Yuan Taur, reported that in 1998, 527 papers were submitted, with 149 of them being accepted. As Editor-in-Chief, he must find a more equitable system of reviewing

*(continued on page 16)*



# EDS Meetings Calendar

(As of 20 August 1999)

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

## 1999 MEETINGS

- October 4 - 7, 1999, \* **IEEE INTERNATIONAL SOI CONFERENCE**, Location: Sonoma Doubletree Hotel, Rohnert Park, CA, Contact: Bobbi Armbruster, Tel: (310) 305-7885, Fax: (310)305-1038, E-Mail: bacm@mediaone.net, Deadline: Past Due, www: <http://www.drcsca.com/~soiconf/>
- October 5 - 8, 1999, T **EUROPEAN SYMPOSIUM ON RELIABILITY OF ELECTRON DEVICES, FAILURE PHYSICS AND ANALYSIS**, Location: Palatium-Arcachon, Bordeaux, France, Contact: Nathalie Labat, Tel: 33-(0)5-56-84-65-45, Fax: 33-(0)5-56-37-15-45, E-Mail: esref@ixl.u-bordeaux.fr, Deadline: Past Due, www: Not Available
- October 5 - 9, 1999, \* **INTERNATIONAL SEMICONDUCTOR CONFERENCE**, Location: Sinaia Hotel, Sinaia, Romania, Contact: Doina Vancu, Tel: 40-1-230-14-48, Fax: 40-1-411-46-61, E-Mail: cas@imt.ro, Deadline: Past Due, www: <http://www.imt.ro/CAS>
- October 10 - 13, 1999, # **IEEE INTERNATIONAL CONFERENCE ON COMPUTER DESIGN: VLSI IN COMPUTERS & PROCESSORS**, Location: Austin Marriott at the Capitol, Austin, TX, Contact: Andreas Kuehlmann, Tel: (914) 945-3458, Fax: (914) 945-4469, E-Mail: kuehl@watson.ibm.com, Deadline: Past Due, www: Not Available
- October 11 - 13, 1999, @ **IEEE INTERNATIONAL SYMPOSIUM ON SEMICONDUCTOR MANUFACTURING**, Location: Santa Clara Marriott, Santa Clara, CA, Contact: Suzanne Harkless, Tel: (510) 284-4040 ext. 237, Fax: (510) 284-4161, E-Mail: suzanne@meetingsplus.com, Deadline: Past Due, www: <http://www.issm.com>
- October 17, 1999, T **GALLIUM ARSENIDE RELIABILITY WORKSHOP**, Location: Monterey Conference Center, Monterey, CA, Contact: Anthony A. Immorlica, Tel: (603) 885-1100, Fax: (603) 885-6036, E-Mail: anthony.a.immorlica@lmco.com, Deadline: Past Due, www: <http://www.jedec.org/gaas>
- October 17 - 20, 1999, \* **IEEE GALLIUM ARSENIDE INTEGRATED CIRCUITS SYMPOSIUM**, Location: Doubletree Hotel, Fisherman's Wharf, Monterey, CA, Contact: Brad Nelson, Tel: (650) 852-6843, Fax: (650) 852-7128, E-Mail: nelson.brad@ssd.loral.com, Deadline: Past Due, www: <http://www.gaasic.org>
- October 18 - 20, 1999, T **INTERNATIONAL SYMPOSIUM ON ULSI PROCESS INTEGRATION**, Location: Hilton Hawaiian Village, Honolulu, Hawaii, Contact: Hiroshi Iwai, Tel: 81-45-924-5471, Fax: 81-45-924-5487, E-Mail: h.iwai@ieee.org, Deadline: Past Due, www: <http://www.electrochem.org/meetings/196/symp>
- October 18 - 21, 1999, \* **IEEE INTERNATIONAL INTEGRATED RELIABILITY WORKSHOP**, Location: Stanford Sierra Camp, South Lake Tahoe, CA, Contact: Linda Head, Tel: (609) 256-5335, Fax: (609) 256-4950, E-Mail: head@rowan.edu, Deadline: Past Due, www: <http://www.irps.org/irw/>
- October 25 - 29, 1999, T **MANUFACTURING SCIENCE AND TECHNOLOGY GROUP PROGRAM**, Location: Washington State Convention Center, Seattle, Washington, Contact: Frederick H. Dill, Tel: (914) 945-3332, Fax: (914) 945-4520, E-Mail: f.dill@ieee.org, Deadline: Past Due, www: Not Available
- October 26 - 27, 1999, T **INTERNATIONAL CONFERENCE ON VLSI & CAD**, Location: Hotel Inter-Continental, Seoul, Korea, Contact: ICVC Secretariat, Tel: 82-2-551-3404, Fax: 82-2-551-3406, E-Mail: ychoi@semi.org, Deadline: Past Due, www: Not Available
- October 27 - 29, 1999, T **INTERNATIONAL SYMPOSIUM ON MICROELECTRONICS AND MICROELECTROMECHANICAL SYSTEMS**, Location: Royal Pines Resort, Gold Coast, Queensland, Australia, Contact: Cherie Morris, Tel: 61-2-9929-0099, Fax: 61-2-9929-0587, E-Mail: ireesoc@ozemail.com.au, Deadline: Past Due, www: <http://www.spie.org/web/meetings/calls/au99/au99.home.html>
- November 3, 1999, T **IEEE ELECTRON DEVICES ACTIVITIES IN WESTERN NEW YORK CONFERENCE**, Location: Center for Integrated Manufacturing Studies (CIMS), Rochester Institute of Technology, Rochester, NY, Contact: Karl Hirschman, Tel: (716) 475-5130, Fax: (716) 475-5041, E-Mail: kdhemc@rit.edu, Deadline: Past Due, www: Not Available
- November 7 - 11, 1999, # **IEEE INTERNATIONAL CONFERENCE ON COMPUTER-AIDED DESIGN**, Location: DoubleTree Hotel, San Jose, CA, Contact: Debbie Giallombardo, Tel: (303) 530-4562, Fax: (303) 530-4334, E-Mail: debbie@mpassociates.com, Deadline: Past Due, www: <http://www.iccad.com>
- November 22 - 23, 1999, T **WORKSHOP ON HIGH PERFORMANCE ELECTRON DEVICES FOR MICROWAVE AND OPTOELECTRONIC APPLICATIONS**, Location: King's College, University of London, London, Contact: Ali Rezazadeh, Tel: 44-0-171-873-2879, Fax: 44-0-171-873-2879, E-Mail: ali.rezazadeh@kcl.ac.uk, Deadline: None, www: <http://www.eee.kcl.ac.uk/~prg/COE/edmo99.html>
- November 22 - 24, 1999, T **INTERNATIONAL CONFERENCE ON MICROELECTRONICS (ICM)**, Location: Le Meridian Hotel, Kuwait City, Kuwait, Contact: M.I. Elmasry, Tel: (519) 888-4567 ext. 3753, Fax: (519) 746-5195, E-Mail: elmasry@vlsi.uwaterloo.ca, Deadline: Past Due, www: <http://139.141.2.41:8080/icm/icm.html>
- December 1 - 3, 1999, T **INTERNATIONAL SEMICONDUCTOR DEVICE RESEARCH SYMPOSIUM**, Location: Omni Hotel, Charlottesville, VA, Contact: Holly Claudia Slade, Tel: (804) 952-7932, Fax: (804) 952-7342, E-Mail: sladeh@whiteoaksemi.com, Deadline: Past Due, www: [http://www.ee.virginia.edu/~isdrs/isdrs\\_main.htm](http://www.ee.virginia.edu/~isdrs/isdrs_main.htm)
- December 2 - 4, 1999, \* **IEEE SEMICONDUCTOR INTERFACE SPECIALISTS CONFERENCE**, Location: Mills House Hotel, Charleston, SC, Contact: Kathleen S. Krisch, Tel: (908) 582-2432, Fax: (908) 582-2445, E-Mail: krisch@lucent.com, Deadline: Past Due, www: Not Available
- December 6 - 8, 1999, \* **IEEE INTERNATIONAL ELECTRON DEVICES MEETING**, Location: Washington Hilton & Towers Hotel, Washington D.C., Contact: Phyllis Mahoney, Fax: (301) 527-0994, E-Mail: pwmahoney@aol.com, Deadline: Past Due, www: <http://www.ieee.org/conference/iedm>
- December 14 - 18, 1999, T **INTERNATIONAL WORKSHOP ON PHYSICS OF SEMICONDUCTOR DEVICES**, Location: Solid State Physics Laboratory, IIT, Delhi, India, Contact: SK Agarwal, Tel: (11) 291-5144, Fax: (11) 291-3609, E-Mail: ska@drsspl.res.nic.in, Deadline: past Due, www: <http://httpserver.iitd.ernet.in/iwpsd/>

## 2000 MEETINGS

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

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

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

February 13 - 17, 2000, \* **IEEE NON-VOLATILE SEMICONDUCTOR MEMORY WORKSHOP**, Location: Hyatt Regency, Monterey, CA, Contact: Michael Fliesler, Tel: (408) 749-5561, Fax: (408) 749-3718, E-Mail: michael.fliesler@amd.com, Deadline: 10/22/99, www: <http://www.hea.com/hean2/flash/nvsm/index.html>

February 28 - March 3, 2000, T **RUSSIAN SCIENTIFIC-PRACTICAL CONFERENCE OF STUDENTS, YOUNG SCIENTISTS AND SPECIALISTS "MODERN TECHNIQUE AND TECHNOLOGY"**, Location: Tomsk Polytechnic University, Tomsk, Russia, Contact: Oleg V. Stoukatch, Tel: 7-3822-233183, Fax: 7-3822-223262, E-Mail: ird@tusr.ru, Deadline: Past Due, www: Not Available

March 13 - 16, 2000, \* **IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES**, Location: DoubleTree Hotel, Monterey, CA, Contact: Wendy Walker, Tel: (301) 527-0900 ext. 315, Fax: (301) 527-0994, E-Mail: wendyw@widerkehr.com, Deadline: Past Due, www: <http://www.ee.ed.ac.uk/ICMTS>

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

March 15 - 17, 2000, T **INTERNATIONAL CARACAS CONFERENCE ON DEVICES, CIRCUITS AND SYSTEMS**, Location: Cancun, Mexico, Contact: ICCDCS, Tel: 58-2-9064010, Fax: 58-2-9064025, E-Mail: iccdcs@usb.ve, Deadline: Past Due, www: <http://pancho.labc.usb.ve/iccdcs2000>

March 27 - 29, 2000, T **INTERNATIONAL CONFERENCE ON MODELING & SIMULATION OF MICROSYSTEMS, SEMICONDUCTORS, SENSORS AND ACTUATORS**, Location: U.S. Grant Hotel, San Diego, CA, Contact: Sarah Wenning, Tel: (925) 847-9152, Fax: (925) 847-9153, E-Mail: wenning@dnai.com, Deadline: 12/15/99, www: <http://www.cr.org/MSM2000>

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

May 1 - 5, 2000, T **EUROPEAN PHOTO-VOLTAIC SOLAR ENERGY CONFERENCE & EXHIBITION**, Location: Scottish Exhibition & Conference Centre, Glasgow, Scotland, Contact: Bettina Kaisa, Tel: 49-89-720 1291, Fax: 49-89-720

1291, E-Mail: renewables@tnet.de, Deadline: 10/15/99, www: <http://www.wip.tnet.de>

May 2 - 4, 2000, @ **IEEE INTERNATIONAL VACUUM ELECTRONICS CONFERENCE**, Location: Doubletree Hotel, Monterey, CA, Contact: Carol L. Kory, Tel: (216) 433-3512, Fax: (216) 433-8705, E-Mail: carol.kory@grc.nasa.gov, Deadline: Not Available, www: Not Available

May 14 - 18, 2000 @ **IEEE INTERNATIONAL CONFERENCE ON INDIUM PHOSPHIDE AND RELATED MATERIALS**, Location: Williamsburg Marriott, Williamsburg, VA, Contact: Samantha Padilla, Tel: (732) 562-3894, Fax: (732) 562-8434, E-Mail: s.padilla@iee.org, Deadline: Not Available, www: <http://www.ieee.org/leos>

May 21 - 24, 2000 T **IEEE CUSTOM INTEGRATED CIRCUITS CONFERENCE**, Location: Caribe Royale, Lake Buena Vista, FL, Contact: Melissa Widerkehr, Tel: (301) 527-0900, Fax: (301) 527-0994, E-Mail: cicc@his.com, Deadline: 12/1/99, www: Not Available

May 22 - 24, 2000, T **IEEE INTERNATIONAL SYMPOSIUM ON PLASMA PROCESS INDUCED DAMAGE**, Location: Westin Hotel, Santa Clara, CA, Contact: Della Miller, Tel: (408) 246-3600, Fax: Not Available, E-Mail: della@vacuum.org, Deadline: 2/4/00, www: <http://www.vacuum.org/nccavs/p2id.html>

May 22 - 25, 2000, @ **INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & ICS**, Location: Pierre Baudis Congress Centre, Toulouse, France, Contact: M. Ayman Shibib, Tel: (610) 939-6576, Fax: (610) 939-3769, E-Mail: a.shibib@iee.org, Deadline: 10/15/99, www: <http://www.laas.fr/ISPSD2000/>

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

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

June 2000, \* **IEEE VACUUM ELECTRON SOURCES CONFERENCE**, Location: Orlando, FL, Contact: Edwin G. Wintucky, Tel: (216) 433-3510,

Fax: (216) 433-8705, E-Mail: edwin.g.wintucky@lerc.nasa.gov, Deadline: Not Available, www: Not Available

June 10, 2000, @ **IEEE INTERNATIONAL WORKSHOP ON STATISTICAL METROLOGY**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: Not Available

June 10 - 11, 2000, @ **IEEE SILICON NANO-ELECTRONICS WORKSHOP**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: Not Available

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

June 12 - 14, 2000, @ **IEEE INTERNATIONAL SYMPOSIUM ON VLSI TECHNOLOGY**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: Not Available

June 15 - 17, 2000, # **IEEE INTERNATIONAL SYMPOSIUM ON VLSI CIRCUITS**, Location: Hilton Hawaiian Village, Honolulu, HI, Contact: Phyllis Mahoney, Tel: (301) 527-0900 ext. 103, Fax: (301) 527-0994, E-Mail: phyllism@widerkehr.com, Deadline: Not Available, www: Not Available

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

June 21 - 23, 2000, T **EUROPEAN WORKSHOP ON LOW TEMPERATURE ELECTRONICS**, Location: European Space Research and Technology Center, Noordwijk, The Netherlands, Contact: Errico Armandillo, Tel: 31-565-3742, Fax: 31-565-4999, E-Mail: earmandi@estec.esa.nl, Deadline: 12/15/99, www: <http://www.estec.esa.nl/CONFANNOUN/Wolte4>

June 25 - 30, 2000, T **INTERNATIONAL CONFERENCE ON HIGH-POWER PARTICLE BEAMS**, Location: Hotel New Otani Nagaoka, Nagaoka, Niigata, Japan, Contact: Kiyoshi Yatsui, Tel: 81-258-

47-9891, **Fax:** 81-258-47-9890, **E-Mail:** beams@eti-go.nagaokaut.ac.jp, **Deadline:** 12/20/99, **www:** <http://eti-go.nagaokaut.ac.jp/beams>

June 26 - 29, 2000, T **INTERNATIONAL POWER MODULATOR SYMPOSIUM**, **Location:** Sheraton, Newport News, VA, **Contact:** Janice Brooks, **Tel:** (703) 413-3882, **Fax:** (703) 413-1315, **E-Mail:** jbrooks@washington.palisades.org, **Deadline:** Not Available, **www:** Not Available

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

July 24 - 28, 2000, T **INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE**, **Location:** The Riviera, Las Vegas, NV, **Contact:** Jean Riley, **Tel:** (703) 264-7553, **Fax:** (703) 264-7551, **E-Mail:** jeanr@aiaa.org, **Deadline:** Not Available, **www:** <http://www.aiaa.org>

September 6 - 8, 2000, \* **INTERNATIONAL CONFERENCE ON SIMULATION OF SEMICONDUCTOR PROCESSES AND DEVICES**, **Location:** Sheraton Hotel, Seattle, WA, **Contact:** Fely Barrera, **Tel:** (650) 723-1349, **Fax:** (650) 725-7731, **E-Mail:** fely@gloworm.stanford.edu, **Deadline:** Not Available, **www:** Not Available

September 12 - 14, 2000, \* **IEEE/SEMI ADVANCED SEMICONDUCTOR MANUFACTURING CONFERENCE AND WORKSHOP**, **Location:** Fairmont Copely Plaza, Boston, MA, **Contact:** Margaret Kindling, **Tel:** (202) 289-0440, **Fax:** (202) 289-0441, **E-Mail:** mkindling@semi.org, **Deadline:** Not Available, **www:** Not Available

September 12 - 14, 2000, T **EUROPEAN SOLID-STATE DEVICE RESEARCH CONFERENCE**, **Location:** University College of Cork, Cork, Ireland, **Contact:** Herbert Grunbacher, **Tel:** 43-4242-2004-123, **Fax:** 43-4242-2004-179, **E-Mail:** hg@cti.ac.at, **Deadline:** Not Available, **www:** [www.essdrc.org/](http://www.essdrc.org/)

September 12 - 15, 2000, T **INTERNATIONAL CONFERENCE ON MATHEMATICAL METHODS IN ELECTROMAGNETIC THEORY**, **Location:** Kharkov State University, Kharkov, Ukraine, **Contact:** MMET'2000, **Tel:** 380-572-448595, **Fax:** 380-572-441105, **E-Mail:** mybox@public.kharkov.ua, **Deadline:** Not Available, **www:** Not Available

September 14 - 16, 2000, T **INTERNATIONAL CONFERENCE ON MICROWAVE AND MILLIMETER WAVE TECHNOLOGY**, **Location:** Beijing International Convention Center, Beijing, China, **Contact:** Fang Min, **Tel:** 86-10-68283463, **Fax:** 86-10-68283458, **E-Mail:** shaz@sun.ihep.ac.cn, **Deadline:** 4/30/00, **www:** <http://www.cie-china.org/icmmt2000.htm>

September 17 - 22, 2000, \* **IEEE PHOTO-VOLTAIC SPECIALISTS CONFERENCE**, **Location:** Anchorage Hilton and William A. Egan Civic & Convention Center, Anchorage, AK, **Contact:** Americo F. Forestieri, **Tel:** (440) 234-1574, **Fax:** (440) 234-1574, **E-Mail:** moeforestieri@worldnet.att.net, **Deadline:** Not Available, **www:** <http://ieeepvsc.nrel.gov>

September 17 - 22, 2000 T **INTERNATIONAL CONFERENCE ON ION IMPLANTATION TECHNOLOGY**, **Location:** Alpbach Conference Center, Tyrol, Austria, **Contact:** IIT 2000, **Tel:** 49-9131-761-100, **Fax:** 49-9131-761-102, **E-Mail:** i1it2000@iis-b.fhg.de, **Deadline:** 3/17/00, **www:** <http://www.mfa.kfki.hu/IIT2000>

September 23 - 26, 2000, T **SIBERIAN RUSSIA STUDENT WORKSHOP ON ELECTRON DEVICES AND MATERIALS**, **Location:** Novosibirsk State Technical University, Novosibirsk, Russia, **Contact:** Alexander V. Gridchin, **Tel:** 7-383-246-0877, **Fax:** 7-383-246-0209, **E-Mail:** algrid@ref.nstu.ru, **Deadline:** 4/20/00, **www:** <http://www.ref.nstu.ru/edm>

September 24 - 26, 2000, \* **IEEE BIPOLAR/BICMOS CIRCUITS AND TECHNOLOGY MEETING**, **Location:** Minneapolis Marriott City Center Hotel, Minneapolis, MN, **Contact:** Janice V. Jopke, **Tel:** (612) 934-5082, **Fax:** (612) 934-6741, **E-Mail:** jjopke@aol.com, **Deadline:** Not Available, **www:** Not Available

September 25 - 28, 2000 T **IEEE INTERNATIONAL DISPLAY RESEARCH CONFERENCE**, **Location:** Breakers Hotel, Palm Beach, FL, **Contact:** Ralph Nadell, **Tel:** (212) 460-8090 ext. 203, **Fax:** (212) 460-8090, **E-Mail:** rnadell@newyork.palisades.org, **Deadline:** Not Available, **www:** Not Available

September 26 - 28, 2000, T **ELECTRICAL OVERSTRESS/ELECTROSTATIC DISCHARGE SYMPOSIUM**, **Location:** Disneyland Hotel, Anaheim, CA, **Contact:** ESD Association, **Tel:** (315) 339-6937, **Fax:** (315) 339-6793, **E-Mail:** eosed@borg.com, **Deadline:** Not Available, **www:** <http://www.eosed.org>

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

## AdCom (continued from page 16)

since some Editors review a disproportionate amount of submissions in comparison to others, and he will work to refine the new support system at the Executive Office. As always, turnaround time is critical. The current rate for EDL is 8.3 months, which is too long. Yuan will work towards a more acceptable figure of about five months. James Kuo reported on *Circuits and Devices Magazine*, which is now jointly sponsored by only EDS, CASS and LEOS. The other two Division I societies (CPMTS and SSCS) have decided to discontinue their support of the publication. Ken Werner has been approved as the chair of the Advisory Board, which includes EDS advisors, James Kuo and H. G. "Skip" Parks. P.K. Vasudev has recently been appointed as the magazine's editor for subjects on device technology and ICs. The magazine is currently maintaining a reserve of \$130K and will distribute

about \$55K this year to its original supporting factions. John Lowell announced that a new agreement between EDS and the *Journal of Lightwave Technology* (JLT) will allow free on-line access of JLT to EDS members, and, in return, JLT subscribers will get access gratis to EDL and T-ED. The change is currently in effect.

Hiroo Masuda reported on the 1999 International Workshop on Statistical Metrology, which was being held as part of the VLSI Symposia. The meeting is co-sponsored by the Japanese Society of Applied Physics and, this year, accepted 15 of 19 submissions. Eighty-one attendees were counted. The meeting will be reported in *Transactions on Semiconductor Manufacturing* in the near future. The other meeting, held prior to the VLSI Symposium, is the Silicon Nanoelectronics Workshop, which this year welcomed 34 papers and over 96 attendees. Single electron memory, tunneling devices, and vertical MOSFETS have received a lot of attention at the meeting. The 1999 Symposium on VLSI Technology

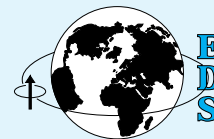
is expected to draw over 500 people to hear 78 papers. The organizers were delighted with the return of contributions from Korea and Taiwan, which decreased significantly last year. This year, the meeting looks at consumer technology applications in its plenary sessions. The AdCom heard reports from two meetings, the 1998 IEDM and the 1999 IRPS. The former had 1,822 in attendance and will return a less-than-expected total of about \$75K due to some unforeseen mishaps during the meeting. Short course attendance was also lower than estimated. The IRPS fared well reporting 630 attendees with a return of \$38K to EDS. The IRPS is starting a new trend, since it will require all submissions and presentations to be in PDF format.

The next meeting of AdCom will be on December 5, 1999 in Washington, D.C. prior to the start of the IEDM at the Washington Hilton and Towers Hotel.

John K. Lowell  
Oracle Corporation  
Irving, TX



## NEWSLETTER EDITORIAL STAFF



### EDITOR-IN-CHIEF

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

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

### EDITORS

#### **REGIONS 1-6, 7 & 9**

##### **Eastern and Northeastern USA**

###### **(Regions 1 & 2)**

M. Ayman Shibib  
Lucent Technologies Inc.  
Bell Laboratories  
2525 N. 12th Street  
P.O. Box 13396  
Reading, PA 19612  
Tel: (610) 939-6576  
Fax: (610) 939-6795  
E-Mail: a.shibib@ieee.org

##### **Southeastern and Southwestern**

###### **USA & Latin America (Regions 3, 5 & 9)**

Mark H. Weichold  
Texas A&M University  
Dept. of EE  
214 Zachry Engineering Center  
College Station, TX 77843-3128  
Tel: (409) 845-7587  
Fax: (409) 845-6259  
E-Mail: m.weichold@ieee.org

##### **Central USA & Canada (Regions 4 & 7)**

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

##### **Western USA (Region 6)**

Paul K.L. Yu  
Univ. of California at San Diego  
Dept. of Elec. and Computer Engrg.  
Eng. Bldg. Unit 1, Room 3604  
La Jolla, CA 92093-0407  
Tel: (619) 534-6180  
Fax: (619) 534-0556  
E-Mail: p.yu@ieee.org

#### **REGION 8**

##### **Eastern Europe & The Former Soviet Union**

Ninoslav D. Stojadinovic  
Faculty of Electronic Engineering  
University of Nis  
Beogradska 14, 18000 Nis  
Yugoslavia  
Tel: 381-18-49155/46499  
Fax: 381-18-46-180  
E-Mail: nino@unitop.elfak.ni.ac.yu

##### **Scandinavia & Central Europe**

Mikael L. Ostling  
Department of Electronics, FTE  
P.O. Box Electrum 229  
Royal Institute of Technology  
S-164 40 Kista  
Sweden  
Tel: 46-8-7521402  
Fax: 46-8-752 7782  
E-Mail: m.ostling@ieee.org

##### **UK, Middle East & Africa**

Terry H. Oxley  
"Railside"  
Station Lane  
Farnsfield Newark  
Notts NG228LB, UK  
Tel: 441-623-882051  
Fax: 441-623-882023  
E-Mail: t.oxley@ieee.org

##### **Western Europe**

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

#### **REGION 10**

##### **Australia, New Zealand & South Asia**

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

##### **Northeast Asia**

Hiroshi Iwai  
Dept. of Applied Electronics  
Interdisciplinary Graduate School of Sciences &  
Engineering  
Tokyo Institute of Technology  
4529 Nagatsuta, midori-ku  
Yokohama, 226-8502  
Japan  
Tel: 81-45-924-5471  
Fax: 81-45-924-5487  
E-Mail: h.iwai@ieee.org

##### **East Asia**

S.C. Sun  
Wafer Tech  
5509 NW Parker St.  
Camas, WA 98607  
Tel: (360) 817-3338  
Fax: (360) 817-3049  
E-Mail: s.sun@ieee.org