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Editor: Krishna Shenoi

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Contributions Welcome

Readers are encouraged to submit news items concerning the Society and its members. Please send your ideas/articles directly to either the Editor or appropriate Associate Editor. All contact information is listed on page 2. Whenever possible, e-mail is the preferred form of submittal.

Newsletter Deadlines

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



1995 IEEE International Electron Devices Meeting (IEDM)



Photo courtesy of the Washington, DC Convention and Visitors Association

The 41st annual International Electron Devices Meeting (IEDM) will be held at the Washington, D.C. Hilton and Towers from December 10 - 13, 1995.

The IEDM is the world's premier international forum for reporting advances in the technology, design, manufacturing, physics and modeling of electron devices, ranging from deep submicron MOSFETs to flat-panel displays, and from compound semiconductor materials to new memory architectures.

The conference attracts authors, attendees and guest speakers from all over the world, and it provides an excellent opportunity to meet colleagues and to keep up with the state-of-the-art in a broad range of disciplines.

Conference Location — Washington, D.C.

The IEDM returns to Washington, D.C. in 1995, to the newly renovated Washington Hilton and Towers hotel. All of the meeting rooms and sleeping rooms have been thoroughly updated and renovated, and there is a new front desk. A particularly attractive and useful aspect of the hotel renovation is the all-new front lobby, which features many areas where it is possible to sit and have quiet, private conversations.

(continued on page 3)

Your Comments Solicited

Your comments and suggestions are most welcome. Please write directly to the Editor of the Newsletter at the address given on page 2.

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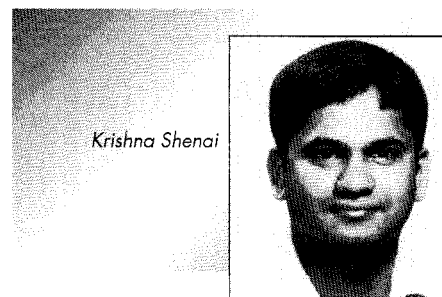
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A Message from the Editor



Krishna Shenai

This is the second time that I am addressing you as the Editor of the new EDS Newsletter. My first column appeared in the October 1994 issue, and, since then, two important changes have taken place. First, we are now featuring four EDS-sponsored/co-sponsored conferences per issue. Second, we have increased the number of pages allocated for our Newsletter Associate Editors to report regional and chapter news to four pages per issue. This change will help accomplish one of the most important objectives of the newsletter to provide our members an opportunity to report on local news.

Recently, Paul Cheung, one of the two Region 10 Associate Editors, has informed us that he has found it necessary to resign from that post because of his other commitments. I would like to thank Paul on behalf of all of the officers and AdCom members for his service to the Society — such jobs are of great value to the Society and are usually unrewarding; the fine job he did is most appreciated. Beginning this issue, Cuong Nguyen will take over the responsibility of Paul Cheung. A brief biography of Cuong follows. I welcome Cuong to the editorial board of the newsletter and look forward to working with him on this important assignment.

Cuong T. Nguyen was born in Can Tho, Viet Nam, in 1966. He completed the B.S. degree with Highest Honors in EE and CS at the University of California at Berkeley in 1988, and the M.S. and Ph.D. degrees in EE at Stanford University in 1989 and 1993. While at Berkeley he received the Kraft Scholar award, the Alumni and the Chancellor's/Regents' Scholarships. He is a recipient of an NSF fellowship and an IBM research fellowship. He joined the faculty of Electrical and Electronic Engineering at the

(continued on page 3)

EDS ADCOM MEMBERS-AT-LARGE

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| 1995 | 1996 | *1997 |
|--------------------|-----------------------|------------------------|
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* Members elected 12/94

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IEDM '95

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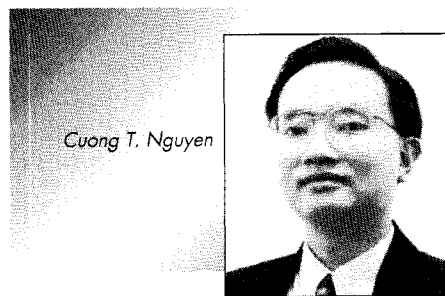
As capital of the United States, the city of Washington is one of the leading tourist destinations in the world. Decorative, clean, spacious and cosmopolitan, Washington is both a major center of government and a great cultural center.

You may enjoy a visit to the White House, the Capitol, the Lincoln or Jefferson Memorials, the Washington Monument or other national sites. Washington also offers a selection of world-class museums, art galleries, libraries, shrines, churches and parks to suit virtually any interest.

Dining, entertainment and shopping choices abound throughout the area. Downtown Washington features a number of large department stores and boutique plazas, while the Georgetown district is the center of Washington's nightlife, with many restaurants, taverns and shops. Old Town Alexandria offers these, too, plus a pleasing view of the past, with its beautiful tree-lined streets (some of them cobblestoned) closely flanked by 18th- and 19th-century houses with beautiful courtyards. Old Town Alexandria is an integral part of the

From the Editor

(continued from page 2)



Cuong T. Nguyen

Hong Kong University of Science and Technology in 1993 as Assistant Professor, where he also serves as Associate Director of Computer Engineering. His current research interests include advanced bipolar and MOS/SOI physics and technology, and chemo-mechanical polishing as a technology for microelectromechanical systems.

Dr. Nguyen has served on technical program committees of the Hong Kong Electron Devices Meetings and of the ISS-CC, and is Technical Program Co-Chairman for the TENCON '95 Conference. He is a member of the Eta Kappa Nu and Tau Beta Pi engineering societies.

Washington metropolitan area, although it lies technically in the state of Virginia.

IEDM '95 Technical Program

The heart of any IEDM is the technical program. No other technical meeting offers the presentation of so much leading work in so many diverse areas of electronics research as does the IEDM. The IEDM offers scientists and engineers an unparalleled opportunity to learn about the best work being done not only in their own specialties, but in closely related ones as well. This has never been more important, because as technology grows more complex, it also becomes more difficult to maintain historical industry growth rates.

The 1995 IEDM will feature the presentation of more than 200 invited and contributed papers by authors from the Far East, Europe and the Americas. These papers will deal with the latest advances in several areas:

Device and Interconnect Technology — covering process modules, integration issues and interconnect technology for fabricating CMOS, bipolar and BiCMOS devices;

CMOS Devices and Reliability — covering all aspects of MOS and SOI devices, device isolation, scaling and reliability;

Solid State Devices — covering bipolar, power, high-voltage and superconducting devices, and novel device structures;

Integrated Circuits — covering device application and process architecture, circuit applications of novel devices, high-speed logic, advanced memory technologies and related technologies;

Quantum Electronics and Compound Semiconductor Devices — covering compound semiconductor electronic and photonic devices and materials, including FETS, HBTs, lasers, LEDs, devices based on new physical concepts, novel semiconductors and fabrication techniques, optical circuits and interconnects, and related developments;

Detectors, Sensors and Displays — covering all types of sensor devices, smart sensors, MEMs, CCDs, emissive and non-emissive displays;

Modeling and Simulation — covering analytical, numerical and statistical approaches to modeling all aspects of device fabrication, behavior, yield and reliability;

Vacuum Electronics — covering materials and structures for vacuum electronic and microelectronic devices, and generation and amplification of electromagnetic radiation.

Device and Interconnect Technology

Owing to the increasing importance of interconnect technology as circuits become denser, and to the growing realization that interconnection is a process issue as well as a device issue, this year the IEDM Device Technology subcommittee has increased its focus on interconnect issues, and has been renamed the Device and Interconnect Technology subcommittee. Authors will present papers covering fabrication and interconnect technology and process integration for CMOS, bipolar and BiCMOS devices.

Plenary Talks

In addition to the regular paper sessions, the conference will include three plenary presentations dealing with developing technologies. This year's talks will be, "Consumer Electronics as the Technology Driver," by Y. Hashimoto of Sony Corporation; "Smart-Power Devices," by B. Murari of SGS Thomson; and "CMOS Image Sensors" by E. Fossum of the Jet Propulsion Laboratory.

Panel Sessions

The 1995 IEDM will continue the tradition of holding lively, entertaining evening panel sessions promoting the free exchange of ideas and opinions on important subjects of interest to the industry. This year the topics will be, "Technology of the Future or Nano-Niche?" moderated by Paul Peerey of Sandia National Laboratories, and "Flash or DRAM: Memory Choice for the Future?" moderated by James Prendergast of Motorola.

Short Courses

Traditionally, a very popular feature of the IEDM has been the slate of Short Courses offered the Sunday before the conference formally begins. This year, they will be offered on Sunday, December 10. These courses are presented by experts in the fields covered, and provide conference attendees with an opportunity to learn about new and emerging areas and to benefit from the experience and up-to-date knowledge of lecturers who are not only very active, but who lead the field.

The two subjects to be covered this year are "Non-Volatile Memories, Technology and Applications," and "Technologies for Portable Systems" (including low-power electronics and portable displays).

The courses are held at the same location as the conference, and since they are held on a Sunday, they offer attendees the opportunity to take advantage of discount

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1995 IEEE Semiconductor Interface Specialists Conference (SISC)

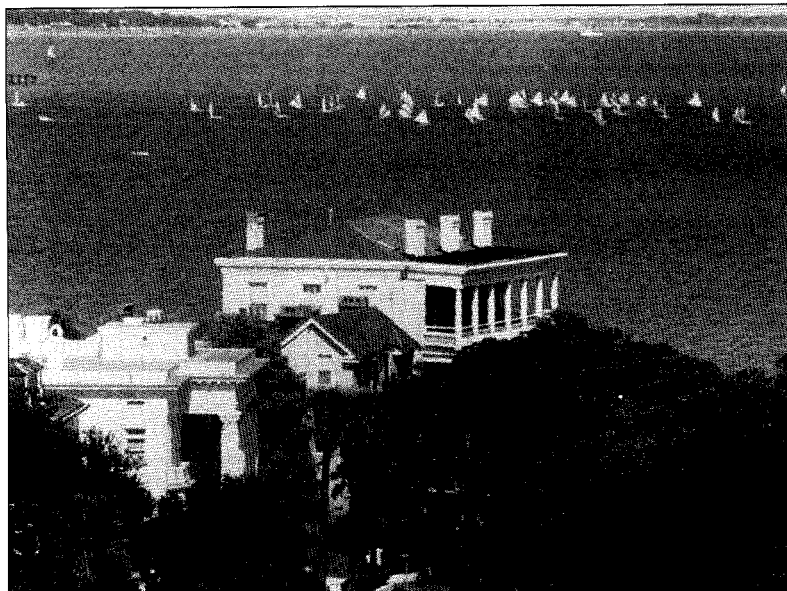


Photo courtesy of the Charleston Convention Bureau

The 1995 Semiconductor Interface Specialists Conference (SISC) will be held December 7 - 9, 1995 in Charleston, SC immediately prior to IEDM. The SISC provides a unique forum for device engineers, solid-state physicists, and material scientists to discuss issues of common interest. Discussions after the talks are encouraged, and the conference activities and setting provide many opportunities for informal discussions. Some of the interests include the various semiconductor interfaces, the physics of insulating thin films, and the interaction among materials science, device physics, and state-of-the-art technology issues. One of the main goals of the conference is to provide an environment

that encourages an interplay between scientific and technological issues. The SISC emphasizes Si-based devices, including Si alloys.

This year will be the twenty-sixth meeting of the SISC. The first Interface Specialists Conference was held in 1965 in Las Vegas, and the invitation-only attendees discussed the hot topic of the day: sodium. Since the fourth meeting held in 1973, the conference has been held annually. By then, "Semiconductor" had been added to the conference title giving the conference its present name. The SISC now alternates between the east and west coasts and meets just before IEDM.

While the SISC has remained focused

on silicon-based technology, topics have evolved as the state-of-the-art of integrated circuit fabrication has advanced. The seven invited speakers for this year's conference illustrate the breadth of research areas covered:

- A rapidly growing technological area for flat panel displays is the use of thin film transistors. John Batey from Xerox Corporation will present "Technology and Science in the Development of Thin Film Transistors for Active Matrix LCDs."

- A new area of interest for the SISC is silicon carbide, and James Cooper from Purdue University will introduce the session by speaking on "Electrical Properties and Device Applications of Thermally Oxidized Silicon Carbide."

- Despite years of study, the initial growth of SiO_2 is still not well understood. Eric Garfunkel from Rutgers University will give a talk entitled "Medium Energy Ion Scattering Studies of Silicon Oxidation in the 5 - 80 Å Regime."

- Measuring the quality of thin gate oxides is a technological and scientific challenge that will be addressed by Masataka Hirose from Hiroshima University in his talk "Structural and Electrical Characterization of Ultrathin Gate Oxides and their Interfaces."

- Reducing boron interpenetration and increasing oxide reliability have promoted research of nitrogen inclusion into SiO_2 . Gerald Lucovsky from North Carolina State University will give a talk "N-Atom Incorporation and Dangling-Bond Defects in Silicon Oxynitride Films."

- A novel technique for introducing hot electrons into SiO_2 will be presented by Rudolf Ludeke from IBM Corporation; his talk is "Transport Issues of STM-Induced Hot Electrons in MOS Structures."

- Michael Petty from the University of Durham will expand the horizons of gate insulators normally considered at the SISC in his talk entitled "Molecular Engineering Using Thin Organic Films."

This year the SISC is instituting an award memorializing Prof. E. H. Nicollian. It will be given to the best student presentation. Ed Nicollian was a pioneer in the exploration of metal oxide semiconductor (MOS) systems. His contributions were important to establishing the SISC in its early years and he served as the Technical Chair in 1982. With John Brews, he wrote the definitive book about interface and near-interface defects in MOS devices measured by capacitance-voltage techniques.

While the heart of the conference is its

IEDM '95

(continued from page 3)

ed air fares that include a Saturday night stopover.

Luncheon Speaker

This year's invited luncheon speaker for Tuesday, December 12 is Arati Prabhaker, Director of the U.S. National Institute of Standards and Technology in Gaithersburg, MD. She will speak on government support for research and development.

Late-News Papers

The submission date for regular papers has already passed, but a limited number of late-news papers will be accepted for pre-

sentation at the conference. If you have very recent developments you wish to publish at the conference, please submit one original of your proposed paper (including artwork) and 25 copies by September 20, 1995 to:

Melissa Widerkehr, IEDM Conference
Suite 270
101 Lakeforest Boulevard
Gaithersburg, MD 20877.

Further Information

For further information concerning the IEDM, contact Melissa Widerkehr at TEL: (301) 527-0900; FAX: (301) 527-0994.

— Gary Dagastine

Masto, Dagastine and Associates, Inc.
Latham, NY 12110

invited and contributed talks and poster presentations, the surroundings and activities enhance the exchange of ideas. At the poster reception on Thursday evening, the spread of hors d'oeuvres and wine will encourage lively discussions. Friday afternoon will be free of sessions, so that there will be time to "interface" with each other and/or explore Charleston. Another highlight will be the limerick contest held during Friday evening's banquet. Unleash your literary zeal and join in the fun!

This year, the SISC moves to a new location, the Mills House Hotel in Charleston, South Carolina. Steeped in elegant Southern charm, the Mills House Hotel was built in the early 1850's and is located in the heart of the city's 300 year-

old historic district. Downstairs in the parlors, hallways and meeting rooms, period antiques, crystal chandeliers, and rare oil paintings provide the perfect ambience for informal meetings or relaxation. All of the guest rooms have been decorated in custom fabrics and wall coverings, and have furnishings indicative of the 19th century. The hotel is conveniently located for domestic and international travel - only 20 minutes from the Charleston International Airport.

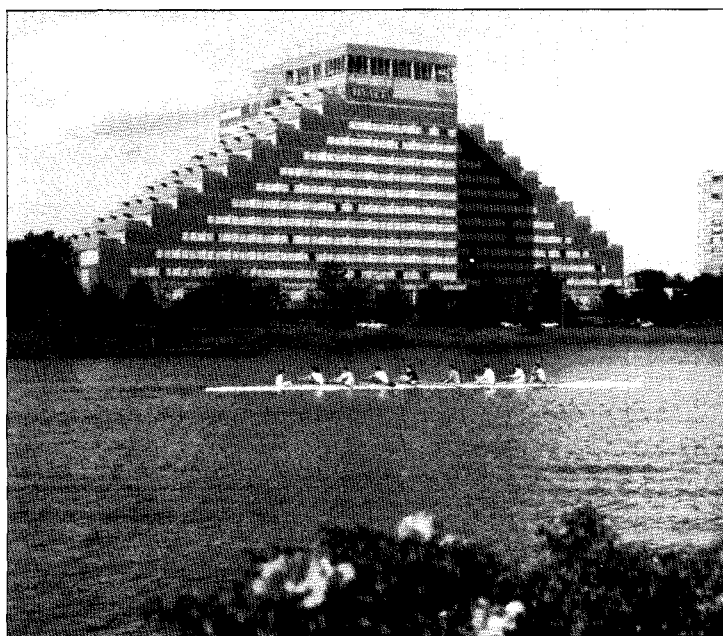
From the Mills House Hotel, it is an easy walk to the tree-lined Battery Park, the downtown Market, and the elegant 18th- and 19th-century restored homes. Within several blocks there are numerous fine restaurants, wonderful antique shops, and

elegant clothing boutiques and gift shops. Plus, the historic district abounds with cobblestone streets, churches, museums, and historic buildings to explore. All this is within easy walking distance or you can explore the district by horse-drawn carriage. Other nearby attractions include championship golf courses, Gulf Stream fishing, horseback riding, beaches and tours of Fort Sumter.

For registration information and inquiries, please contact the Arrangements Chair, Doug Buchanan at IBM Research, TEL: (914)945-3175, E-mail: buchan@watson.ibm.com

— Robert E. Stahlbush
Naval Research Laboratory
Washington, DC 20375

1995 SEMI/IEEE Advanced Semiconductor Manufacturing Conference and Workshop (ASMC)



Explosive growth, intense global competition, and dramatically adaptable technology are hallmarks of today's seemingly boundless semiconductor industry. It is no surprise, therefore, that semiconductor manufacturing methods, costs, and productivity are under greater scrutiny than ever before. These timely issues are reflected in the theme of the upcoming 6th annual SEMI/IEEE Advanced Semiconductor Manufacturing Conference (ASMC): "Semiconductor Manufacturing: Economic Solutions for the 21st century." (Nov. 13-15, Hyatt

Regency, Cambridge, Mass.) ASMC is sponsored by Semiconductor Equipment and Materials International (SEMI), IEEE Electron Devices Society (EDS) and IEEE Components, Packaging and Manufacturing Technology (CPMT) Society.

Technical paper submissions for this rapidly growing East Coast event increased substantially this year and originated from a wide range of geographic areas. For ASMC 95, the 54 member technical program committee has accepted 84 papers for presentation in 13 sessions over

a three-day period. Individual session themes address production implementation of enabling semiconductor technologies, cost/benefit analyses of manufacturing strategies, metrology for feedback and control of manufacturing, CIM (computer integrated manufacturing) strategies, process control for yield improvement and cost reduction, equipment productivity, achieving ROI from customer/supplier relationships, contamination free processing, total defect reduction, and team efforts and employee decision empowerment in the manufacturing environment. The conference program will be rounded out with a poster session on manufacturing techniques and process improvements, tutorials on TOC and ULSI multilevel metallization, and panel workshops on the National Semiconductor Technology Roadmap and on Activity Based Costing. Invited talks are scheduled for a number of sessions, beginning with a keynote address by Michael R. Splinter, Corporate Vice President and General Manager of Components Manufacturing, Intel Corporation, and extending to a review of the economic status of the industry by Clark Fuhs, Senior Industry Analyst, Dataquest (an update of a very well received 1994 presentation). In addition, an international session comprised of speakers from Europe, Japan, Korea, and Russia will highlight manufacturing issues in those regions.

ASMC was launched in 1990 as a regional adjunct to the SEMICON/East equipment exposition. Since then, thanks to the efforts of a large and active cadre of industry volunteers who recognized the need for an accessible East Coast forum
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1995 IEEE International Integrated Reliability Workshop (IRW)

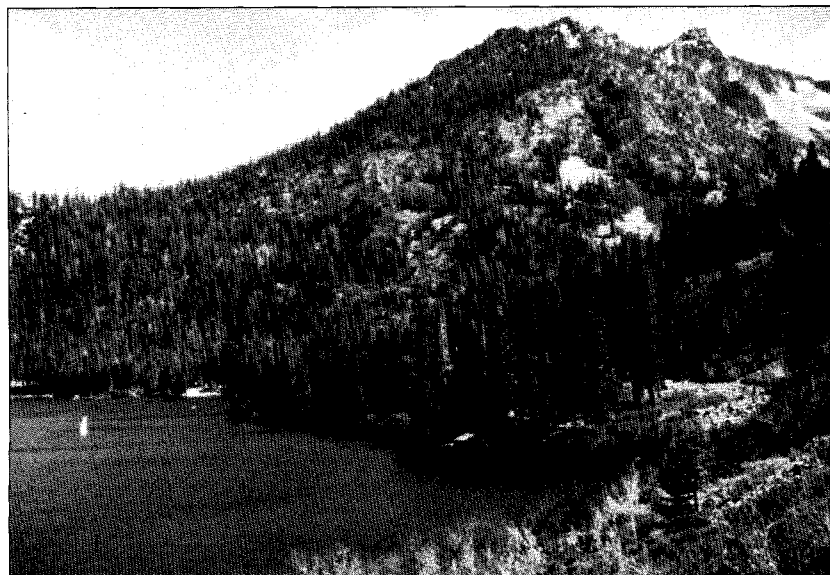


Photo courtesy of the Stanford Sierra Lodge, Lake Tahoe, NV

Since 1982, the Integrated Reliability Workshop (IRW) and its predecessor, the Wafer Level Reliability Workshop, have provided a unique environment for envisioning, developing and sharing reliability technology in present and future semiconductor applications. The Workshop features formal paper presentations, tutorials, open poster sessions, moderated discussion group sessions, and special interest group (SIG) meetings. The Workshop organizers recognize the need for a broader and more cross-functional approach to semiconductor reliability engineering. In response to this need, a work-

shop was developed that explores a broad range of topics that are critically relevant to the semiconductor business community and offers attendee participation in a variety of forms. All Workshop activities take place in a relaxed and rustic setting that promotes an atmosphere of interactive learning. The Workshop is cosponsored by the IEEE Electron Devices Society and the IEEE Reliability Society.

The varied interaction formats and the unique, beautiful, isolated location offer a workshop experience that provides an environment to convey and receive information and opinions (Invited Speaker

Keynote Address, Technical Papers, Tutorials, and Posters). The rich opportunity to interact with reliability engineering professionals in structured (Discussion Groups) as well as informal settings (Posters, communal meals, free time) provides the environment for true breakthroughs in understanding and paradigm shifts.

The 1995 Workshop will focus on the implementation of a Wafer Level Reliability (WLR) program, new methods and techniques of WLR measurements, development of the Building-In-Reliability (BIR) approach, and the role that WLR can have in supporting BIR. We will also continue to explore approaches for bringing product reliability assessment upstream into the technology development and product manufacturing cycle. The eventual goal is to move reliability assessment from its current location (at the end of the development and manufacturing process) forward to points of device conception, process definition, design, and manufacturing implementation.

It is expected that approximately twenty papers will be presented during the Workshop. The Call For Papers requested inputs on the following topics.

Implementation of WLR:

- Successes/failures of WLR applications
- Company WLR programs and infrastructure
- WLR correlation to reliability defects, electrical measurements, or other classical reliability parameters

WLR Development:

- New or novel WLR structures, techniques, testing methodologies, or analytical techniques
- Test method development and test structure characterization for reliability
- WLR as a predictor of reliability
- WLR for new and emerging technologies

Building-In-Reliability (BIR):

- Use of WLR measurement/methods or other tools to identify, understand or ultimately control those parameters that affect reliability in circuit design and processing/packaging
- BIR implementation results: impacts on present and future

The technical program will be opened by an invited keynote speaker whose paper should set the stage for an exciting, illuminating conference.

Discussion Groups:

The discussion groups offer an outstanding opportunity to interact with peers on critical reliability topics. These are structured in terms of specific topics, but they are on *(continued on page 9)*

1995 ASMC

(continued from page 5)

devoted to semiconductor manufacturing issues, the conference has grown rapidly from a New England regional to a national and international meeting for the exchange of information between semiconductor manufacturing professionals. In 1994, even without the presence of a trade show, ASMC attendance exceeded 300 and attendee demographics provided convincing evidence that this now premier conference has grown well beyond its original charter as a regional event. With conference committee membership drawn from key centers of industry and academic strength across the globe, ASMC is assured of a continuing focus on the advancing state of semiconductor manufacturing.

The ASMC 95 conference venue at the Cambridge Hyatt Regency in Massachusetts is adjacent the Charles River, within walking distance of MIT and Harvard, and directly across from downtown Boston. Though mid-November weather is usually brisk, in milder years traces of New England autumn foliage linger on, providing a colorful respite for those who explore the riverfront paths. Abuzz with preholiday activity and spirit at this time of year, greater Boston offers visitors a wide range of attractions.

For further information, contact Margaret Kindling at SEMI (DC), 805, 15th St., Suite 810, Washington, DC 20005; TEL: (202) 289-0440; FAX: (202) 289-0441; E-mail: mkindling@semi.org

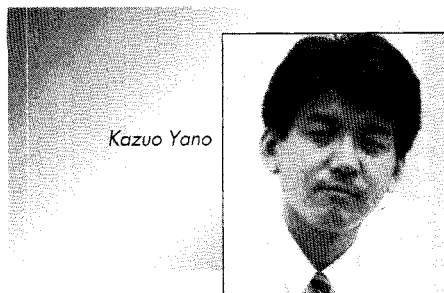
— Margaret Kindling
SEMI
Washington, DC 20005

1994 Paul Rappaport Award

The Paul Rappaport Award is given each year to honor the author(s) of the best paper that has appeared in an EDS publication in the preceding calendar year. The recipient(s) is awarded a certificate and a check for \$1,000, presented at the International Electron Devices Meeting (IEDM).

The paper entitled, "Room-Temperature Single-Electron Memory" by Kazuo Yano, Tomoyuki Ishii, Takashi Hashimoto, Takashi Kobayashi, Fumio Murai and Koichi Seki was recognized as the best paper appearing in an EDS publication in 1994. The paper was published in the September, 1994 issue of IEEE Transactions on Electron Devices. The 1994 award will be presented at the IEDM on December 11, 1995 in Washington, DC.

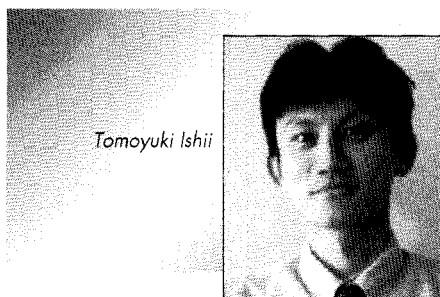
The following are brief biographies of the six winners who are all employees of the Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan.



Kazuo Yano

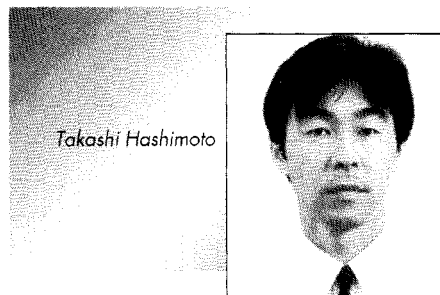
Kazuo Yano received the B.S., M.S., and Ph.D. degrees in physics from Waseda University, Japan, in 1982, 1984, 1993, respectively. Since he joined the Central Research Laboratory, Hitachi Ltd., in 1984, he has studied MOS/bipolar devices for low-temperature VLSIs, CMOS/BiCMOS logic circuits, and single-electron devices. From 1991 to 1992 he was a Visiting Scientist at the Arizona State University. He is a co-author of the book *Silicon-Based Heterojunction Devices* (Maruzen, 1991). He is a member of the IEEE, the American Physical Society, the Japan Society of Applied Physics, and the IEICE of Japan.

Tomoyuki Ishii was born in Tokyo, Japan, on July 31, 1967. He received the B.E. degree in applied physics and the M.S. degree in physics from Waseda University in 1990 and 1992, respectively. He joined the Hitachi Central Research Laboratory, Tokyo, Japan, in 1992. His research interests include quantum effect devices and their applications. Mr. Ishii is



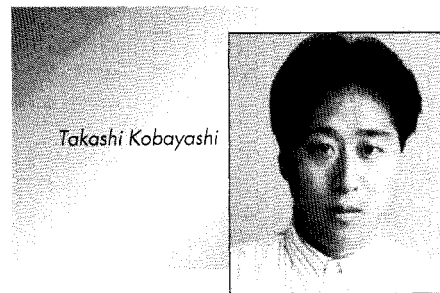
Tomoyuki Ishii

a member of the Institute of Electronics, Information and Communication Engineers of Japan and the Japan Society of Applied Physics.



Takashi Hashimoto

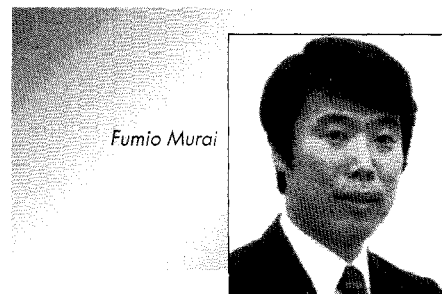
Takashi Hashimoto was born in Yamagata prefecture, Japan, on April 1, 1960. He received the B.S. and M.S. degrees in Applied Chemistry from Tohoku University, in 1983 and 1985, respectively. He joined the Central Research Laboratory, Hitachi Ltd., in 1985 and has been engaged in the research and development of polysilicon thin film transistors for high density SRAM, 4-mega-bits or beyond. He is now with the Semiconductor & Integrated Circuits Division. His present interests are focused on developing process and device engineering for flash EEPROM products.



Takashi Kobayashi

Takashi Kobayashi was born in Nagano, Japan, in 1961. He received B.S. and M.S. degrees in metal processing from Tohoku University, Sendai, Japan, in 1984 and 1986, respectively. In 1986, he joined the Central Research Laboratory, Hitachi Ltd., Tokyo, Japan, where he has been engaged in research and develop-

ment of polycrystalline Si processing. Mr. Kobayashi is a member of the Japan Society of Applied Physics.



Fumio Murai

Fumio Murai received the B.S. degree in 1969 and M.S. degree in 1971 in electric engineering from Kobe University, Kobe, Japan. After he joined Hitachi Central Research Laboratory, Hitachi Ltd., in 1971, he worked on the III-V compound semiconductor field-effect transistors. Now he is working on electron beam lithography, especially on resist process and proximity effect correction techniques. His current interest is a fast hardware correction method of the electron beam proximity effect. He is a member of Japan Society of Applied Physics.



Koichi Seki

Koichi Seki (S'76-M'81) received the B.S., M.S., and Ph.D. degrees in electronic engineering from the University of Tokyo, Japan, in 1976, 1978, and 1981, respectively. Since he joined the Central Research Laboratory, Hitachi, Ltd., he has been engaged in the research and development of amorphous silicon devices, non-volatile memories, single electron devices and low power Si LSIs. Currently he is a Senior Researcher at the laboratory. From 1986 to 1987, he was a Visiting Industrial Fellow at the Department of EECS, University of California, Berkeley. Dr. Seki received the Young Engineer Award from the Institute of Electronics and Communication Engineers of Japan in 1985.

— Steven J. Hillenius
AT&T Bell Laboratories
Murray Hill, NJ 07974-0636

April 1995 AdCom Meeting Report

The Spring Meeting of the Electron Device Society Administrative Committee (AdCom) took place at the Hilton Hotel in Santa Clara, preceding the Custom Integrated Circuits Conference, on April 30, 1995. A number of new and continuing business items that are of interest to members of the EDS were discussed at length.

EDS World-Wide Web Home Page

Lisa Dron, an Assistant Professor at Northeastern University, has agreed to serve as the EDS World-Wide Web Home Page Editor. The EDS Home Page can be accessed as a tag of the IEEE Home Page, or directly at the following address: 'http://www.ece.neu.edu/EDShome.html'. It contains a great deal of information about EDS: such as a meetings calendar; how to join IEEE and/or EDS; how to subscribe to periodicals available from EDS; and the tables of contents of the periodicals' current issues. It is being designed to be interactive, so that people can ask for information, apply for membership, etc., and it will eventually include the current issue of the EDS Newsletter, on-line EDS membership applications, and expanded information about all EDS conferences.

Lisa would like suggestions as to content of the EDS Home Page, and can be contacted at her IEEE internet address: l.dron@ieee.org.

Globalization of the EDS Continues in High Gear

Mike Adler reported on the very successful efforts to establish new EDS chapters in Region 8, which comprises Europe, the Middle East, and Africa. Eleven new chapters have been formed since this past December, two more are well along, and another in Moscow, is currently being organized. This results in a total of 24 chapters as of the end of July, and it is expected that the number should eventually reach 26, which would more than triple the original number that existed before the globalization efforts were initiated. Lou Parrillo, Mike Adler and Imre Mojzes will be hosting the 3rd Annual EDS Region 8 Chapters meeting on September 24th in conjunction with the European Solid-State Device Research Conference in the Hague, The Netherlands.

The activity in Region 10 is similarly intense, as reported by Jim Clemens. This is a very large geographical area, including Japan, Taiwan, Hong Kong, Korea, Peo-



*AdCom members discuss issues at the April meeting
Pictured (left to right) are: Larry Coldren, Lauren Christopher, Dexter Johnston, Jayasimha Prasad, Kunio Tada, John Lowell, Tak Ning and Hiroshi Iwai*

ple's Republic of China, Thailand, Singapore, and Australia. It is clear that the field of electronics (and consequent EDS activities) are in very different stages of development in these countries, so communications between them must be done with care. It was pointed out that this Newsletter may be the first successful vehicle to do just that.

Lew Terman, Jim Clemens and Shojiro Asai visited Hong Kong, Taipei, Seoul, and Tokyo in May/June, while Renuka Jindal visited India this June. Several trips to Region 10 are planned in the near future. The EDS President, Dexter Johnston, will travel to Australia and New Zealand in August, with the hopes of establishing one or two new chapters. Beijing will be visited by Lew Terman, Jim Clemens and Tak Ning in October, and Cary Yang will go to Hong Kong in November.

Members, Sections, and Chapters

Marv White reported that he and his staff have been very successful in recruiting new members for EDS by maintaining a membership desk in the registration areas of conferences such as the '94 IEDM, '95 ISS-CC, and '95 CICC. Current membership seems to have stabilized somewhere between 10,500 and 11,000, with the usual influx and outflux of members. In the future, more students will be encouraged to join through a variety of recruitment approaches, and it is felt that the World-Wide Web and the continued formation of new chapters world-wide will enhance the society's membership. There is now a large number of EDS chapters that are joint with one or more of the other IEEE societies (primarily with MTT and AP), a tendency that is felt to be very good in

light of the current emphasis on interdisciplinarity and breadth in education. Of the 73 EDS chapters, 28 are EDS only, whereas 45 are joint with one or more other societies.

Distinguished Lecturer Program Goes Off-Scale!

Jerry Woodall provided a history of the Distinguished Lecturer Program since 1989, when there was one lecture tour, up to 1994, when the program was revamped in July. For the first half of 1994, there were six lectures given by one lecturer at a total cost of \$5.5K. For the remainder of 1994, (with the introduction of the revamped DL Program), there were six lectures given by five different lecturers at a total cost of \$316. For 1995, as of mid-July there have been 9 lectures, with 18 more planned at a total cost of \$930. The number of EDS lecturers is now 42. It is expected that many more lectures will be given to sections and chapters before the end of this year, hopefully at the same cost level!

EDS Newsletter

The EDS Newsletter appears to be a resounding success, as judged by the comments received by many of the members of the AdCom. A significant, positive feature of the newsletter is the opportunity it presents for publishing news from the various chapters, particularly those in regions where communications are often problematic. To build on this positive attitude towards the newsletter, and to maintain its current momentum, the newsletter will be significantly expanded by adding four new pages, enabling more complete reporting

of area and chapter activities. To handle the additional workload, five new associate Editors will be recruited, two for the western (American) hemisphere, two for Europe, and one for Asia. Hopefully, the new Associate Editors will be appointed before you read this article, and the details of their new assignments will be presented in a later issue.

Optoelectronic Devices

Larry Coldren, Chair of the Optoelectronics Technology Committee of the EDS, and liaison with LEOS, gave a lengthy report about the current situation in the US and elsewhere in the area of optoelectronics.

Continuing cut-backs in industrial research are being observed in optoelectronics, with the consolidation of resources both within and between companies. Future growth areas are perceived to be in multimedia demands, FTTH, networking, information storage). Companies are organized via large-scale trade organizations, OIDA (US) and OITDA (Japan). OIDA predicts a \$300 billion market, half of which is in display. Thus, display is seen to be a market that is taking off. (e.g.,

HDTV real time images in the home). Other current 'hot topics' include: blue lasers (GaN), VCSELs, visible lasers, simple lasers requiring no cooler, device bias, packaging, data transmission and communications, analog, WDM networks, 10+ Gb/s networks.

Larry recently completed an extensive tour of the Japanese optoelectronics R&D activities with a team assigned to write a detailed "JTECH" report. General impressions gained through JTECH include: many companies are making a massive effort on optoelectronics, but the Japanese are ahead in most areas — US not doing so well, except for a few companies in niche areas.

Larry stressed that manufacturability is the KEY issue in the optoelectronics area today. Universities are (or should be) pushing this with their students.

Other Reports

- Bruce Griffing will organize another "Best Practices" Workshop at the 1995 IEDM. These workshops are intended to be refresher or training programs for those planning to organize or run meetings.

- The STAR Program (Student, Teacher and Researcher) is off and running under the auspices of Julia Brown, Hughes Research Labs, and April Brown, Georgia Tech. The goal of this program is to create a mentor support system for young women entering science or engineering.

- A request for sponsorship of the Silicon Nanoelectronic Workshop was made by Toshiaki Ikoma. The workshop will take place in Honolulu on June 9, 10, 1996. EDS will provide 100% financial sponsorship.

- A request for EDS support of the International Conference on Ion Implantation Technology was presented and discussed. EDS will provide non-financial technical co-sponsorship support, as requested.

- The recently-approved agreement between The Japan Society of Applied Physics (JSAP) and EDS has now been well advertised. Requests for subscriptions to *Electron Device Letters* and *Transactions on Electron Devices* are now being received from JSAP members by the EDS office.

— James L. Merz
University of Notre Dame
Notre Dame, IN 46556-5637

IRW '95

(continued from page 6)

open forum of discussion where everyone is encouraged to contribute. The discussion groups are held in the evening after dinner. While they formally end at 9:30 PM, small groups of attendees have been seen extending these discussions for hours beyond this formal ending. The discussions are always spirited, and the inputs from many different companies with different levels of experience provide a valuable experience for all in attendance. This year's discussion group topics have not yet been finalized, but at least two of the four topics are fairly well established.

- Test Structure Design for Reliability
- Mobile Ions: Detection and Control
- BIR (specifics not yet final)

Tutorials:

In our continuing effort to enhance the value of the Workshop and to supplement the Technical Program, we are again offering two tutorials on Sunday afternoon. One of the topics will be "Charging Measurement Modeling for Plasma Systems." The second is yet to be finalized.

Open Poster Sessions:

The Technical Program will include two open poster sessions. All attendees will be provided with the opportunity to present a

poster to communicate their ideas and results on a technical project or issue. Poster display boards will be available, and, in addition, you are invited to submit a one-page abstract of your poster presentation for inclusion in the workshop proceedings. This is a great opportunity to share your work or to review the work of others in a casual, informal environment where a free, one-on-one exchange of ideas is encouraged.

Special Interest Groups (SIG):

This is the fourth year that the Workshop has sponsored SIGs. The SIG program at the Workshop has been very successful in fostering collaborative work on important reliability issues, and we look forward to continuing growth and renewal in our SIGs. The SIGs are often an outgrowth of the Discussion Groups and provide a forum for interested participants to remain in contact with each other to pursue specific projects.

JEDEC 14.2 Meeting:

The JEDEC 14.2 Wafer Level Reliability Standards Committee meeting will be held immediately after the workshop at the same location.

The Conference Location:

The beauty of the locale for this conference is unsurpassed — the Stanford Sierra Camp Conference Center at Fallen Leaf

Lake in the Lake Tahoe region of California. The isolation keeps attendees together in an atmosphere where everyone can really get to know each other, form friendships, valuable business contacts, exchange ideas, analyses, and results in an informal and open milieu. The schedule is intense, extending late into the evenings, from Sunday afternoon through to Wednesday lunch. However, Tuesday afternoon is taken off to enjoy the surroundings of the area. Most attendees hike, while others play volleyball, tennis, sail, or canoe. We attempt to do things together rather than going in different directions, as is the tendency in other large conferences. This is an invaluable aspect of this Workshop.

Final Details:

The conference cost is \$875 for IEEE members and \$950 for non-IEEE members. These costs include the conference and lodging and all meals at the Stanford Sierra Camp. JEDEC 14.2 is an extra charge. For further information, contact Gordon Claudius (Rockwell), Communications Chair, TEL: (714) 833-4060, E-mail: gordon.claudius@nb.rockwell.com

— Gordon Claudius
Rockwell International
Newport Beach, CA 92658-8902

Regional and Chapter News

Regions 1-6, 7&9

SE Michigan AP/MTT/ED Chapter

— by Joseph W. Burns

The Southeastern Michigan AP/MTT/ED Chapter sponsored a presentation by Dr. Michael Schinke of the University of Karlsruhe in Karlsruhe, Germany. The meeting was held on April 11 at the University of Michigan. Dr. Schinke's lecture, entitled "Reflection and Transmission of Nonsinusoidal Waves at a Lossy Semi-Infinite Medium," discussed a new analytic technique for computing in the time domain the reflection and transmission of nonsinusoidal plane waves which are normally incident on a planar interface between a perfect dielectric and a lossy semi-infinite medium. As ansatz functions for the electric and the magnetic fields in the lossy medium, closed-form solutions of a characteristic initial value problem for an unbounded medium are calculated with Riemann's method. These fundamental solutions can be seen as extension of d'Alembert solutions for a lossy medium. The special case of the reflected and transmitted waves for an impulsive incident field was considered. Due to the losses, continuous terms evolve in both media. The distribution in reflected and transmitted parts and the propagation of the impulse-shaped parts can easily be described.

Toronto CAS/ED/LEO Chapter

— by Keith Lee

On March 20, our Toronto chapter co-hosted a meeting with the Toronto Electromagnetics and Radiation Joint Chapter with a talk entitled, "GaAs Markets and Technology Directions: A review of current commercial GaAs IC applications and a discussion of future technology options," given by Dr. Paul Jay, Director of the Microwave Modules Group, Northern Telecom, Ottawa.

On June 1, Dr. Peter S. Guilfoyle, of OptiComp Corporation presented a talk entitled, "Digital Optical Computing," in which he discussed the design philosophy of the present and future programs at OptiComp Corporation as well as the impact on hardware implementation.

On August 9, Dr. N. K. Dutta of AT&T Bell Laboratories gave a talk entitled, "Optical Interconnection Technology for Large Computing and Switching Systems."

Springfield ED/LEO/MTT/AP/GRS

— by Kei May Lau

The joint chapter of ED/LEO/MTT/AP/GRS at Springfield, MA held two lec-

tures by EDS distinguished lecturers in the past academic year. The first one was given on November 17, 1994 by John Lowell of Advanced Micro Devices, entitled, "Towards an Optical C-V: Progress in Optical Device Characterization". There were approximately 50 attendees, primarily faculty and students at the University of Massachusetts - Amherst. The second lecture was given by the EDS President, Dr. Dexter Johnston, Jr. of AT&T Bell Laboratories, on February 7, 1995. The talk was on "State of the Art Semiconductor Laser Devices for High Bit Rate Long Haul Communications." The attendance was at about 50 to 60 people. Both lectures were about problems relevant to manufacturing of semiconductor devices and circuits. These topics are particularly interesting to our chapter because of our high academic constituency. With a majority of our lectures and seminars related to basic sciences, it was very refreshing to mix in such titles relating engineering research to manufacturing. Although not completely fundamental in nature, the problems are equally interesting and challenging.

Upcoming EOS/ESD Symposium

— by Michael T. Brandt

The Electrical Overstress/Electrostatic Discharge Symposium, will hold its 17th annual technical conference at the Phoenix Civic Plaza/Hyatt Phoenix Hotel, September 10-14, 1995.

This premier international Symposium deals primarily with the effects of electrical overstress (EOS) and electrostatic discharge (ESD) in semiconductor devices and components. Nearly 1,000 attendees from throughout the world are expected to attend the annual event, which is sponsored by the ESD Association and is technically co-sponsored by the IEEE Electron Devices Society.

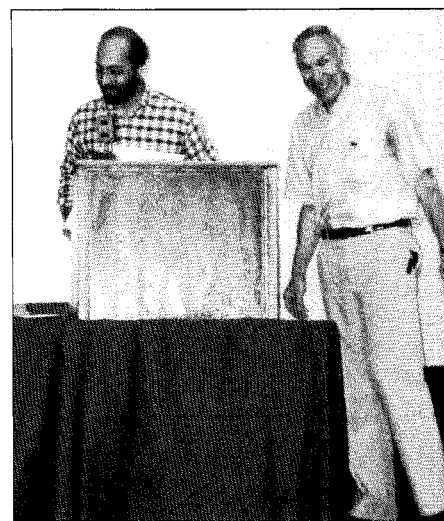
Additional information on the EOS/ESD Symposium can be obtained by contacting the ESD Association, 7902 Turin Rd., Suite 4, Rome, NY 13440-2069; TEL: (315)339-6937; FAX: (315)339-6793.

— Paul K. L. Yu, Associate Editor

Report on 1995 Device Research Conference (DRC)

— by Elias D. Towe

The 1995 Device Research Conference (DRC) provided a congenial forum for technical exchanges for most EDS members in the Eastern and Southeastern United States. For the first time in its history, the DRC was



Prof. Umesh Mishra of the University of California at Santa Barbara receiving an IEEE Fellow certificate from Prof. Marvin White, EDS Membership Chair.

held at the University of Virginia in Charlottesville, VA. The conference was, once again, co-located with the TMS Electronic Materials Conference (EMC). The two conferences were held from June 19th through June 23rd. A little over 350 people attended DRC this year and about 500 came for EMC; these participants came from all over the world.

The DRC evening Rump Panel Session on Wide Gap Semiconductors was one of the most popular sessions. Some leading experts on III-Nitrides engaged interested participants in spirited discussions on the prospects of blue-green nitride-based lasers. Some of the industrial participants on the panel session punctuated their remarks and comments with references to an impressive blue LED display board they had brought along from their laboratory for the panel session. The display panel was reportedly made with nitride-based LEDs manufactured in their laboratory. In one of the regular conference sessions, a late news paper on blue-green lasers on ZnSe substrates generated a lot of discussions. The discussion was centered on the fact that this was the first time ever that II-VI compounds had been grown on lattice-matched II-VI substrates. The paper was presented by a group from North Carolina State University.

Two major awards were presented at the plenary session of the DRC. The first award was the IEEE Morris Liebmann Award presented to Dr. G. Craford of Hewlett-Packard for his contributions to the development of color LEDs. The second award was an IEEE Fellow Certificate pre-

sented to Prof. Umesh Mishra of the University of California at Santa Barbara. Prof. Mishra was also the 1995 DRC General Chair.

1995 Bipolar/BiCMOS Circuits and Technology Meeting (BCTM)

— by John Leighton

For the first time beginning 1995, BCTM is offering a short course to be held the day before the conference. This year marks the 10th Anniversary of BCTM. To commemorate this occasion, a Best Student Paper Award consisting of a plaque and a check for US\$500 will be presented to Mr. Hsin-Hua Li of the University of Wisconsin - Madison for his paper presented at the 1994 BCTM. The conference will have 13 sessions with 46 papers, including 5 invited papers, given in the following areas of bipolar interest: Process Technology, Power Devices, High Speed Analog Design, High Performance Analog Techniques, Advanced Models, Extraction Method for Advanced Models, Mixed Mode Circuit Design, Process Technology, and Digital Design. Two panel discussions are planned on the subjects of "Technologies for wireless communication" and "Low-cost smart-power technologies." Ken Sodomsky of AT&T Labs will be this year's keynote speaker and will deliver a talk on "The past and future of bipolar technology."

Charlie Sporck, retired from the National Semiconductor Corporation will give the luncheon address. New to the BCTM for 1995 are the Power Device sessions and a short course titled "Integrated Circuits Technologies for Wireless and High Speed Communication." Three short course instructors will lead sessions titled, "Overview of

Opportunities of Bipolar IC's in Wireless and Optical Communication" (Dr. Robert Swartz), "Integrated Circuit Design for Wireless and High Speed Communication" (Ico Koullias), and "IC Process Technologies for Wireless and High Speed Communication" (Dr. Hans Stork). The short course is on October 1, and the Conference will be held on October 2-3, 1995. For the first time, two separate sessions consisting of a total of 10 papers will be presented dealing with recent advances in power rectifiers, MOSFETs, IGBTs, MCTs, high-voltage and smart-power ICs. For information, contact Jan Jopke, CCS Associates, 6611 Countryside Drive, Eden Prairie, MN 55346; TEL: (612) 934-5082; FAX: (612)934-6741; E-mail: jjopke@aol.com

— Elias D. Towe, Associate Editor

Region 8

Switzerland CAS/ED Chapter

— by Jacques Kowalczyk

The upcoming 1995 chapter sponsored activities include:

- 6th of October 1995. Advanced Technologies (AT'95) - Intelligent Vision
- 6th-7th November 1995. "How to use Multi-Project Wafer service - The first day is more dedicated to the technical approach of MPW and the second day for technological representatives.

AT'95:

Since its original announcement, AT'95 has moved its date to 6th of October 1995. The subject of the manifestation will bring together specialists from various disciplines covering the issues of intelligent sensing. The idea at this event, is also to provide a panel of application people

showing how the innovation of smart seeing ship has brought some economical impact on products and application. Invited speaker from the domain, Dr. Peter Seitz, form Paul Schere Institute (Zurich) will give the kick-off talk specifying how electronic photography has moved to seeing chip. Papers around analog signal processing for CCDs, digital signal processing for ranging images, intelligent sensing components and applications will be presented. A special price policy has been applied to promote the event and encourage membership of the IEEE.

Cooperatively Supported Events:

The CAS/ED Chapter has offered its cooperative sponsorship (no financial involvement) for IEE's symposium on "Date Highways" - Bern, to be held on 26th October 1995. The subject is of particular importance for the overall society.

For more information, please contact the Chapter Chair, Professor D. Mlynek, or his secretary Dr. J. Kowalczyk at the Swiss Federal Institute of Technology, DE-LEG/C3i, 1015 Lausanne, Switzerland or E-mail: jacques.kowalczyk@leg.de.epfl.ch or jacques.kowalczyk@leg.de.epfl.ch

Yugoslavia ED Chapter

— by Ninoslav D. Stojadinovic

Currently, the main activity of the Yugoslavia Chapter has been applied to organizing the "20th International Conference on Microelectronics" (MIEL'95), for 12th-14th September 1995 at NIS, Serbia. The January 1996 issue of the EDS Newsletter will provide the earliest opportunity to report on this event.

Chapter Chair: Prof. Dr. N. Stojadinovic, Faculty of Engineering, University of Nis, Beogradska 14, 18000 Nis, Serbia. Tel: +381 1855-682, Fax: +381 1846-180.

St. Petersburg MTT/ED Chapter

— by Sergei Tretyakov

A new joint ED/MTT Chapter was formed in St. Petersburg, Russia (approved on April 6, 1995). This is a result of the joint initiative of the MTT and ED Societies for aiding Eastern Europe and the former Soviet Union for promoting the formations of MTT-S and ED-S chapters in the former Soviet Union and the Eastern Europe area.

The first events were:

- Invited lecture of Professor F. Barnes, Distinguished Lecturer of the ED Society (May 26, 1995). The lecture topic was "Voltage tunable dielectric films in making microwave phase shifters, voltage tunable



1995 BCTM Executive Committee. Back Row: Paul Davis, John Shier, Stephen Campbell, Shaun Simpkins. Front Row: Taylor Efland, Tad Yamaguchi, Jan Jopke, Masahiko Nakamae, Prasad Raje. Seated: Krishna Shenai, Robert Pease.

oscillators and phased array antennas". This lecture took place at the St. Petersburg Electrotechnical University and was arranged here by Professor O. Vendik of that University.

- Former Soviet Union/Eastern Europe Chapter Meeting. The meeting was held during the 1995 International Symposium on Electromagnetic Theory on May 23. The meeting was co-chaired by Ari Sihvola, Finland (AP/MTT/ED Finland Chapter chair) and Sergei Tretyakov (ED/MTT St. Petersburg Chapter chair). Twenty representatives from Russia, the Ukraine, Belarus, Bulgaria and IEEE activists from different Western countries participated.

In the meeting, the present state and the problems in formation of new IEEE chapters in the area were discussed. At present, one more chapter in Russia is under development: the Moscow chapter. Three representatives of the Moscow community were present: Y. Shestopalov (Moscow University), A. Vinogradov (Scientific Center of Applied Electrodynamics), V. Kaloshin (Academy of Sciences). In the Ukraine (represented by V. Veremey, Academy of Sciences), two chapters are active since very recently, based in Lviv (Western Ukraine) and Kharkov (East Ukraine). Problems of fast communications, access to the World Wide Web, and participation in international meetings and symposia sponsored by the IEEE were also considered.

Meeting notes available from St. Petersburg Chapter Chair: Dr. Sergei Tretyakov, St. Petersburg Technical University, 195251 Polytekhnicheskaya 29, St. Petersburg, Russia, TEL: (7-812)-552-76-85; FAX: (7-812)-552-60-86; E-mail: tretyakov@rphd.stu.spb.su

Benelux ED Chapter

— by Cor Claeys

The Benelux ED Chapter is one of the new Chapters in Region 8. The Chapter was officially founded on March 22, 1995. The first activity will be on September 8th, 1995. Dr. Howard Huff from Sematech will give a lecture on "Silicon Materials and Metrology: Critical Concepts for Optimal IC Performance in the Gigabit Era." On the same day the newly elected IEEE Fellows from the Benelux Chapter will officially be honored.

From September 25-27, the 15th European Solid State Device Research Conference (ESSDERC '95) will take place in The Hague, Netherlands. During the conference, the 1995 EDS Region 8 Chapters Meeting will be organized (on Sept. 24th in The Hague). The EDS Benelux Chapter is

also supporting the "Nomadic Microwave Technologies and Techniques for Mobile Communications and Detection" International Meeting on November 16-18, 1995 in Palais de Congres in Arcachon, Gironde, France. This meeting is an initiative of the IEEE MTT & ED France Chapter.

The EDS Benelux Chapter, together with the MTT & ED French Chapter will also organize in June 1996 the 2nd European Low Temperature Electronics Workshop (WOLTE-2) in Leuven, Belgium. The objective of the Workshop is to provide an international forum for discussing recent research and development achievements in the area of low temperature electronics and high temperature superconductivity. The meeting has technical co-sponsorship from the IEEE Electron Devices Society and the Workshop Organizer is Prof. Cor Claeys from IMEC, Leuven, Belgium. The topics of interest for the workshop are: device physics and fundamental aspects, new materials and novel technologies, characterization and modeling, device and circuit design, bolometer sensors and detectors; and applications.

The Benelux EDS Chapter is also technically supporting the organization of the 3rd International Symposium on Ultra-Clean Processing of Silicon Surfaces to be held in September 1996 in Antwerp, Belgium. Being a rather new Chapter the Benelux EDS Chapter is on its way in building new and different activities.

For further information, please contact Chapter Chair: Prof. Cor Claeys, IMEC VZW, Kapeldreef 75 - B 3001 Leuven, Belgium, TEL: 32-16-281-328; FAX: 32-16-281-214, E-mail: claeys@imec.be

ED/LEO South Africa Chapter

— by Wilhelm Leuschner

A new combined Chapter of the EDS and LEOS members was recently formed in the Republic of South Africa. The new chapter will have its first meeting during a combined symposium on the 17th November 1995. Three symposia will be held at the University of Pretoria, Pretoria, South Africa during the 16th and 17th of November: Communications & Signal Processing Symposium - COMSIG-95 on November 16, 1995; Antennas and Propagation & Microwave Theory and Techniques Symposium - AP/MTTS-95 on November 17, 1995; Lasers and Electro-Optics & Electron Devices Symposium - LEO/EDS-95 on November 17, 1995. All members of the LEOS and EDS are encouraged to submit papers on any Photonic or Electron Devices topics.

During the one day LEOS/EDS symposium a meeting of all the LEOS and EDS IEEE members will be convened to elect a Chairman and office bearers for the new Chapter. Until then the executive Chairmen of the Chapter are: Prof. Willem Perold from the University of Stellenbosch, South Africa and Prof. Wilhelm Leuschner from the University of Pretoria in South Africa.

For further information, please contact the Chapter Chair: Prof. Wilhelm Leuschner, Department of Electrical & Electronic Engineering, University of Pretoria, 0002 Pretoria, South Africa, TEL: 27-12-4202164; FAX: 27-12-433254, E-mail: Leus-FW@fanella.ee.up.ac.za

— Adrian Veron, Associate Editor

— Terry H. Oxley, Associate Editor

Region 10

SISPAD'96

— by Akira Yoshii

In the July Issue, there was an announcement that SISPAD'96 will be held in Kawasaki, Japan. The location of the conference has recently been changed to Tokyo. For more information please read the call for papers in the Trans. on Electron Devices or contact Dr. A. Yoshii, TEL: +81-462-40-4306, E-mail: yoshi@aecl.ntt.jp

Report of the 1995 International Symposium on VLSI Technology, Systems, and Applications (VLSI-TSA'95)

— by Ping Yang

The 1995 International Symposium on VLSI Technology, Systems, and Applications, jointly sponsored by Industrial Technology Research Institute (ITRI) and the National Science Council, was held from May 31 - June 2, 1995 in Taipei, Taiwan. This marks the 12th anniversary of the Symposium. EDS provides cooperation support for the VLSI-TSA. The symposium continues to be a success and provides a major forum for the researchers and engineers to exchange new ideas and to further enhance the state of art in VLSI. The number of attendees this year increased to roughly six hundred, including government dignitaries and a large number of local microelectronics industry leaders, researchers and engineers. The growth of this symposium reflects the phenomenal advancement in VLSI in Taiwan, (the growth rate is around 40 - 50 % this year, and the local VLSI industry has committed \$13 billion to build new fab facilities in 95/96), as well as around the world.

This year's Technical Program consisted of 62 contributed papers from 11 countries. The paper acceptance ratio was about 50%. In addition there were also ten outstanding invited talks from world's distinguished speakers. Besides the regular technical programs, there were also three distinguished Keynote talks: Dr. Johan Danneels, General Manager of Line Transmission Systems Division, Atcatel Bell Telephone, on "Impact of Modern ASIC Technologies on Future Telecommunication Systems;" Dr. C.M. Melliar-Smith, Chief Technical Officer, AT&T Microelectronics, on "Integrated Circuits Through the Year 2010;" and Mr. Yasuo Akatsuka, Senior Manager of LSI Operations Unit, NEC Corporation, on "VLSI Memory for Multimedia Applications." This Symposium is held every other year. The exact date for the next Symposium has not been set but will be around the end of May in 1997. For those who are interested in participating in an outstanding technical conference and having an opportunity to witness and visit the prospering local VLSI industry, please reserve those dates on your calendar.

ED/LEO Australia Chapter

— by Chennupati Jagadish

The Australian Chapter of EDS & LEOS was approved by IEEE in May 1993. We have joint membership of about 200, belonging to seven IEEE sections spread all over Australia. We have organized a number of activities jointly with other groups, including the 1993 and 1994 Australian Conferences on Compound Optoelectronic Materials, and a number of workshops on optical networks and photonic devices.

We have been visited by EDS and LEOS Distinguished Lecturers, including Prof. Dieter Schroder who gave two seminars on "Semiconductor Defects and their Characterization" and "Contactless Characterization of Semiconductors," and Prof. Connie Chang-Hasnain who gave seminars on "Vertical Cavity Surface Emitting Laser Arrays".

Seminar visits were also received of Prof. Jim Coleman (Illinois), Prof. Cary Yang (Santa Clara), Prof. Kunio Tada (Tokyo), Prof. Lawrie Challis (Nottingham), and Prof. Peter Blood (Wales at Cardiff).

Our joint Chapter won the "1994 Most Innovative LEOS Chapter" award. We are planning number of future activities. These include the screening of a video course on "Silicon on Insulator" in July 1994, and a seminar by Dr. Dexter Johnston, Jr., the EDS President, on "State of the Art Semiconductor Lasers for High Bit-Rate Long Haul Com-



From left: Dr. Ping Yang, Technical Program Chairman; Dr. Genda Hu, Symposium Chairman; Dr. C.Y. Lu, Technical Program Co-chairman; H. Iwai; Ms. Rachel L.C. Huang, Secretary of the Symposium

munications" on August 11th, 1995.

For further information, please contact Dr. C. Jagadish, Chapter Chair, TEL: +61-6-249-0363; FAX: +61-6-249-0511; E-mail: cxj109@phys.anu.edu.au

ED Beijing Chapter

— by Han C. Hu

The Beijing Chapter is organizing the 1996 International Conference on Millimeter Wave and Far Infrared Science and Technology (ICMWFST), to be held in Beijing on August 22-26, 1996, with direct technical support from the IEEE EDS.

Another significant event to take place is the 10th Anniversary of the IEEE Beijing Section, to be celebrated on July 16-18, 1995. The Section has asked each of the 14 chapters to organize a paper reporting the state-of-the-art of the frontier in their specialization. The Beijing EDS Chapter is presenting a paper on "State-of-the-Art in Vacuum Microelectronics—A Review." Also planned is a meeting where the 14 chairpersons will be sharing their experience with running each chapter to benefit future activities.

We have arranged for a visit by Dr. Lew Terman, EDS Sr. Past President, and Dr. Jim Clemens, EDS Region 10 Technical Activities Co-Chair, in October 1995. Dr.

Terman plans to give a Distinguished Lecture on Low-Power Electronics, and Dr. Clemens will be discussing How to Build a City in One Square Centimeter (Modern VLSI Microelectronics).

For further information, please contact either the Chapter Chair, Dr. Han C. Hu, TEL: +86-1-436-1371 x306; FAX: +86-1-436-3521, or Dr. Qing-An Huang, an EDS Chapter Officer, at Microelectronics Center, Southeast University, 2 Si Pai Lou, 210018, Nanjing, P.R. China; FAX: +86-25-771-4212.

ED India Chapter

— by S. K. Koul

Over the last year, the ED/MTT Chapter of the IEEE India Council has been quite active in promoting ED/MTT membership and in organizing lecture meetings within India. We had the opportunity of organizing lectures by the UFFC Society Distinguished IEEE Lecturer, Prof. Eric Adler, on Surface Acoustic Waves and Acoustic Wave Propagation in Solids. Other lecturers we hosted included Prof. Shiela Prasad of Northeastern University, on High-Frequency HBT's, Vikram Jandhyala (Illinois) on Capacitance Computation in Stratified Dielectrics, and Prof. C.I. Beenakker from the Delf Institute on the Status of Microelectronics Technology at DIMES.

We organized a successful workshop on Phased Array Radar Techniques in New Delhi in February 1995. The workshop was supported by IEEE MTT-S, USA and the IEEE Transnational Committee, Region 10. In all, there were 46 participants. Fifteen experts were invited to deliver lectures at the workshop. As part of the membership drive, an IEEE membership booth was arranged and we managed to recruit 30 new members.

For further information, please contact Prof. S.K. Koul, Chapter Chair, TEL: +91-11-686-3165; FAX: +91-11-686-2037; E-mail: s.k.koul@ieee.org

ED Malaysia Chapter

— by Burhanuddin Yeop Majlis

The IEEE Malaysia Section is organizing an International Conference on Semiconductor Electronics, to take place on October 22-24 in Penang. The conference scope ranges from basic semiconductor materials and technologies to microsensors and micromachines, as well as applications of microelectronics products. For further information please contact Dr. B. Majlis, Chapter Chair, TEL: +603-829-2928; FAX: +603-825-9080; E-mail: burhan@eng.ukm.my

IEEE Electron Devices Society Meetings Calendar

(As of August 15, 1995)

| DATE | NAME/LOCATION | CONTACT/ABSTRACT DEADLINE |
|---------------------|--|--|
| 1995 | | |
| Oct. 1-3 | 1995 IEEE BIPOLAR/BICMOS CIRCUITS AND TECHNOLOGY MEETING/ Marriott City Center Hotel, Minneapolis, MN | Janice V. Jopke - Deadline: Past Due Tel: (612) 934-5082 Fax: (612) 934-6741 |
| Oct. 2-4 | 1995 IEEE INTERNATIONAL CONFERENCE ON COMPUTER DESIGN: VLSI IN COMPUTERS AND PROCESSORS/ Four Seasons Hotel, Austin, TX | Wayne Wolf - Deadline: Past Due Tel: (609) 258-1424 Fax: (609) 258-3745 |
| Oct. 2-5 | 1995 IEEE INTERNATIONAL SOI CONFERENCE/ Westward Look Resort, Tucson, AZ | Sandra Grawet - Deadline: Past Due Tel: (310) 371-3438 Fax: (310) 371-5268 |
| Oct. 6 | 1995 IEEE INTERNATIONAL CONFERENCE ON ADVANCED TECHNOLOGIES/ Scientific Park (Y-Parc), Yverdon, Switzerland | Jacques Kowalczyk - Deadline: Past Due Tel: 41-21-693-6981 Fax: 41-21-693-4663 |
| Oct. 11-14 | 1995 INTERNATIONAL SEMICONDUCTOR CONFERENCE/ Sinaia Hotel Sinaia, Romania | Doina Vancu - Deadline: Past Due Tel: 401-6333040 Fax: 401-3127519 |
| Oct. 15-18 | 1995 INTERNATIONAL CONFERENCE ON VLSI AND CAD/ The Swiss Grand Hotel, Seoul, Korea | Deog Kyoong Jeon - Deadline: Past Due Tel: 82-02-880-7437 Fax: 82-02-887-6575 |
| Oct. 19-21 | 1995 SEMICONDUCTOR MANUFACTURING TECHNOLOGY WORKSHOP/ Vanguard International Semiconductor Corporation, Hsinchu, Taiwan, R.O.C. | Chi-Ming Chang - Deadline: Past Due Tel: 886-35-770355 Fax: 886-35-787952 |
| Oct. 22-25 | 1995 IEEE INTERNATIONAL INTEGRATED RELIABILITY WORKSHOP/ Stanford Sierra Camp, South Lake Tahoe, CA | Gordon Claudius - Deadline: Past Due Tel: (714) 833-4060 Fax: (714) 833-6680 |
| Oct. 23-27 | 1995 EUROPEAN PHOTOVOLTAIC SOLAR ENERGY CONFERENCE AND EXHIBITION/ Acropolis Convention Center, Nice, France | Heinz Ehmann - Deadline: Past Due Tel: 49-89-7201235 Fax: 49-89-7201291 |
| Oct. 24-28 | 1995 INTERNATIONAL CONFERENCE ON SOLID-STATE AND INTEGRATED- CIRCUITS TECHNOLOGY/ Beijing International Convention Centre, Beijing, China | Mengqi Zhou - Deadline: Past Due Tel: 861-8263459 Fax: 861-8263458 |
| Oct. 25-27 | 1995 INTERNATIONAL SYMPOSIUM ON SIGNALS, SYSTEMS AND ELECTRONICS/ Parc 55 Hotel, San Francisco, CA | Tatsuo Itoh - Deadline: Past Due Tel: (310) 206-4820 Fax: (310) 206-4819 |
| Oct. 29 | 1995 GALLIUM ARSENIDE RELIABILITY WORKSHOP/ Sheraton Harbor Island Resort, San Diego, CA | Anthony A. Immorlica - Deadline: Past Due Tel: (315) 456-3514 Fax: (315) 456-0695 |
| Oct. 29 - Nov. 1 | 1995 IEEE GALLIUM ARSENIDE INTEGRATED CIRCUITS SYMPOSIUM/ Sheraton Harbor Island Resort, San Diego, CA | George Bechtel - Deadline: Past Due Tel: (415) 941-3438 Fax: (415) 941-5120 |
| Nov. 1 | 1995 IEEE ELECTRON DEVICES ACTIVITIES IN WESTERN NEW YORK/ Rochester Institute of Technology, Rochester, NY | Eby Friedman - Deadline: Past Due Tel: (716) 275-1022 Fax: (716) 275-2073 |
| Nov. 5-9 | 1995 IEEE INTERNATIONAL CONFERENCE ON COMPUTER-AIDED DESIGN/ San Jose Red Lion Hotel, San Jose, CA | Kevin Lepine - Deadline: Past Due Tel: (303) 530-4562 Fax: (303) 530-4334 |
| Nov. 7-10 | 1995 IEEE REGION 10 CONFERENCE (TENCON '95) ON MICROELECTRONICS AND VLSI/ Hong Kong Convention and Exhibition Centre, Wanchai, Hong Kong | Nelson Yung - Deadline: Past Due Tel: 852-859-2685 Fax: 852-559-8738 |
| Nov. 13-15 | 1995 IEEE/SEMI ADVANCED SEMICONDUCTOR MANUFACTURING CONFERENCE AND WORKSHOP/ Hyatt Regency Hotel, Cambridge, MA | Margaret M. Kindling - Deadline: Past Due Tel: (202) 289-0440 Fax: (202) 289-0441 |
| Nov. 16-18 | 1995 IEEE INTERNATIONAL TOPICAL MEETING ON NOMADIC MICROWAVE TECHNOLOGIES AND TECHNIQUES FOR MOBILE COMMUNICATIONS AND DETECTION/ Palais Des, Congres, Arcachon, France | Robert Adde - Deadline: Past Due Tel: 33-1-69-41-78-50 Fax: 33-1-60-19-25-93 |
| Nov. 27 | 1995 WORKSHOP ON HIGH PERFORMANCE ELECTRON DEVICES FOR MICROWAVE AND OPTOELECTRONIC APPLICATIONS/ King's College, Strand, London, UK | Ali A. Rezazadeh - Deadline: 9/1/95 Tel: 44-171-873-2879 Fax: 44-171-836-4781 |
| Nov. 27 Dec. 1 | 1995 IEEE INTERNATIONAL SYMPOSIUM ON PHYSICAL AND FAILURE ANALYSIS OF INTEGRATED CIRCUITS/ Shangri-la Hotel, Singapore | Jonnovan Hong - Deadline: Past Due Tel: 65-773-1141 Fax: 65-773-1142 |
| Dec. 6-9 | 1995 IEEE SEMICONDUCTOR INTERFACE SPECIALISTS CONFERENCE/ Mills House Hotel, Charleston, SC | Robert E. Stahlbush - Deadline: Past Due Tel: (202) 767-3357 Fax: (202) 404-7194 |

| DATE | NAME/LOCATION | CONTACT - ABSTRACT DEADLINE |
|------------------|---|---|
| Dec. 10-13 | 1995 IEEE INTERNATIONAL ELECTRON DEVICES MEETING /Washington Hilton & Towers Hotel, Washington, DC | Phyllis Mahoney - Deadline: Past Due Tel: (301) 527-0900 Fax: (301) 527-0994 |
| Dec. 18-20 | 1995 INTERNATIONAL CONFERENCE ON MICROELECTRONICS /Malaysia Institute of Microelectronic Systems, Kuala Lumpur, Malaysia | M.I. Elmasry - Deadline: Past Due Tel: (519) 888-4567 Fax: (519) 746-5195 |
| Dec. 18-21 | 1995 INTERNATIONAL NOISE SCHOOL ON 'NOISE IN SEMICONDUCTOR MATERIALS AND DEVICES' /University of Florida, Gainesville, FL | Gijs Bosman - Deadline: Not Applicable Tel: (904) 392-6607 Fax: (904) 392-8671 |
| 1996 | | |
| Feb. 5-7 | 1996 IEEE MULTI-CHIP MODULE CONFERENCE /The Coconut Grove, Santa Cruz, CA | David Tuckerman - Deadline: Past Due Tel: (408) 945-9992 Fax: (408) 945-0151 |
| Feb. 8-10 | 1996 IEEE INTERNATIONAL SOLID-STATE CIRCUITS CONFERENCE /San Francisco Marriott, San Francisco, CA | Diane S. Suiters - Deadline: 9/8/95 Tel: (202) 639-4255 Fax: (202) 347-6109 |
| March 18-21 | 1996 NATIONAL RADIO SCIENCE CONFERENCE /The Military Technical College, Cairo, Egypt | Ibrahim A. Salem - Deadline: 10/15/95 Tel: 20-2-258-0256 Fax: 20-2-349-8217 |
| March 26-28 | 1996 IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES /Grand Hotel Trento, Trento, Italy | Maddalena Bassetti - Deadline: Past Due Tel: 39-461-314-444 Fax: 39-461-314-591 |
| April 21-25 | 1996 IEEE INTERNATIONAL CONFERENCE ON INDIUM PHOSPHIDE AND RELATED MATERIALS /Conference Center "Stadtgarten", Schwabisch Gmund, Germany | Volker Schanz - Deadline: 11/10/95 Tel: 49-69-6308-360 Fax: 49-69-6312-925 |
| April 29 - May 3 | 1996 IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM /Wyndham Anatole Hotel, Dallas, TX | Roy Walker - Deadline: 9/22/95 Tel: (315) 339-3971 Fax: (315) 336-9134 |
| Apr. 29 - May 3 | 1996 IEEE SEMICONDUCTING AND SEMI-INSULATING MATERIALS CONFERENCE /Hotel Atria, Toulouse, France | Sutra Josiane - Deadline: 12/15/95 Tel: 33-62-25-78-00 Fax: 33-62-25-79-99 |
| May 5-8 | 1996 IEEE CUSTOM INTEGRATED CIRCUITS CONFERENCE /Town & Country Hotel, San Diego, CA | Melissa Widerkehr - Deadline: 12/6/95 Tel: (301) 527-0902 Fax: (301) 527-0994 |
| May 13-14 | 1996 INTERNATIONAL SYMPOSIUM ON PLASMA PROCESS INDUCED DAMAGE /San Jose, CA | Charles K.P. Cheung - Deadline: 1/15/96 Tel: (908) 582-6483 Fax: (908) 582-5980 |
| May 13-17 | 1996 IEEE PHOTOVOLTAIC SPECIALISTS CONFERENCE /Hyatt Regency Crystal City Hotel, Crystal City, VA | Eldon C. Boes - Deadline: 11/27/95 Tel: (202) 651-7500 Fax: (202) 651-7502 |
| May 21-23 | 1996 IEEE INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES AND INTEGRATED CIRCUITS /Hyatt Hotel, Maui, HI | M. Ayman Shibib - Deadline: 10/16/95 Tel: 610-939-6576 Fax: 610-939-6795 |
| May 28-31 | 1996 INTERNATIONAL SYMPOSIUM ON ELECTRON, ION AND PHOTON BEAMS /The Atlanta Marriott Hotel, Atlanta, GA | Donald Tennant - Deadline: 1/15/96 Tel: (908) 949-5007 Fax: (908) 949-8988 |
| June 9-10 | 1996 IEEE SILICON NANOELECTRONICS WORKSHOP /Hilton Hawaiian Village Hotel, Honolulu, HI | Mark A. Reed - Deadline: Not Available Tel: (203) 432-4306 Fax: (203) 432-7769 |
| June 11-13 | 1996 IEEE SYMPOSIUM ON VLSI TECHNOLOGY /Hilton Hawaiian Village Hotel, Honolulu, HI | Richard A. Chapman - Deadline: 1/8/96 Tel: (214) 995-2366 Fax: (214) 995-1916 |
| June 17-18 | 1996 IEEE MICROWAVE AND MILLIMETER-WAVE MONOLITHIC CIRCUITS SYMPOSIUM /Mascone Convention Center, San Francisco, CA | Mahesh Kumar - Deadline: 12/1/95 Tel: (516) 574-3295 Fax: (516) 574-1244 |
| June 17-19 | 1996 IEEE DEVICE RESEARCH CONFERENCE /University of California, Santa Barbara, CA | Peter M. Asbeck - Deadline: Not Available Tel: (619) 534-6713 Fax: (619) 534-0556 |
| June 17-21 | 1996 INTERNATIONAL CONFERENCE ON ION IMPLANTATION TECHNOLOGY /Stouffer Hotel, Austin, TX | Larry A. Larson - Deadline: 1/21/96 Tel: (512) 356-7145 Fax: (512) 356-3083 |
| June 24-27 | 1996 POWER MODULATOR SYMPOSIUM /The Boca Raton Resort & Club, Boca Raton, FL | Janice D. Brooks - Deadline: Not Available Tel: (703) 413-1282 Fax: (703) 413-1315 |
| June 26-28 | 1996 EUROPEAN WORKSHOP ON LOW TEMPERATURE ELECTRONICS /IMEC, Leuven, Belgium | Cor L. Claeys - Deadline: 12/15/95 Tel: 32-16-2813-28 Fax: 32-16-2812-14 |
| June 29 | 1996 HONG KONG ELECTRON DEVICES MEETINGS /Hong Kong The Hong Kong Polytechnic University, Hung Hom | Peter P.T. Lai - Deadline: 3/1/96 Tel: 852-2859-2691 Fax: 852-2559-8738 |

CALL FOR NOMINATIONS - EDS AdCom

The Electron Devices Society invites the submission of nominations for election to its Administrative Committee (AdCom). Presently, the AdCom meets twice per year and is composed of 21 members. Seven members will be elected this year for terms of three years, and a maximum of two consecutive terms is allowed. In 1995, the election will be held after the AdCom meeting on Sunday, December 10th. Electees begin their term in office on January 1, 1996.

Nominees are being sought to fill the slate of candidates. Nominees may be self-nominated, or may be nominated by another person; in the latter case, the nominee must have been contacted and have agreed to serve if elected. Any member of EDS in good standing is eligible to be nominated. As another condition for nomination

and election, a nominee must be willing to attend the two annual AdCom meetings.

Please send name, address, and supporting information for a nominee to the IEEE EDS Nominations and Elections Committee Chair in time to be received by the deadline of October 27, 1995. It is very desirable that submissions include a biographical summary in a standard two-page format. Please contact the Nominations and Elections Chair for an example of the format, and to answer any questions which may arise. The information for contacting the Chair is as follows: Michael S. Adler, General Electric Company, Bldg. KW, Room C1327, 1 River Rd, P.O. Box 8, Schenectady, NY 12301; Tel: (518) 387-5882; Fax: (518) 387-5997; E-Mail: m.adler@ieee.org

EDS Administrative Committee Election Process

The Members-at-Large (MAL) of the EDS AdCom are elected for staggered three-year terms, with a maximum of two consecutive terms. The 1993 Constitution and Bylaw changes mandated increasing the number of elected MALs from 18 to 22, and required that there be at least two members from IEEE Regions 8 (Europe, Mid. East & Africa) and 10 (Asia & Pacific). It also required that there be at least 1.5 candidates for each opening. In 1993 and 1994, eight and seven positions were filled, respectively. In 1995 another seven positions will be filled and then the three year-cycle will start over.

The election procedure now begins with the announcement and Call For Nominations in this Newsletter, *IEEE Electron Device Letters*, and *IEEE Circuits and Devices Magazine*. The slate of nominees is developed by the EDS Nominations

Committee and includes the non-Committee and self-nominations received. Nominees are asked to submit a two-page biographical resume in a standard format. Nominations are closed around the end of October, and the biographical resumes are distributed to the 'full' voting members of AdCom prior to the AdCom meeting. Nominees are urged to attend the December AdCom meeting, and the election is held after the conclusion of the meeting.

A continuing flow of new AdCom members who are interested in working for the improvement of the Society and its related technical areas is key to the continued development of EDS and the field of electron devices. Those interested in the field, the Society, and its operations are encouraged to attend AdCom meetings, become involved in Society activities, and to consider running for election to AdCom.

New ALL ELECTRONIC Journal of Technology Computer Aided Design

The Electron Devices Society is starting a new journal covering modeling and simulation of semiconductor devices, materials, processes, and process equipment (Technology CAD or TCAD). This Journal will be published electronically on the World-Wide Web (WWW) in cooperation with Stanford University. Publication on the WWW provides the capability for both color and movies to be included in the articles. Progress in the start-up of this new Journal can be followed through the EDS Home Page. The WWW address or URL (Uniform Resource Locator) for the EDS Home Page is: 'http://www.ece.neu.edu/eds/EDS_home.html'. In its initial phase, the Journal will be free to all with access to the WWW.

— Frederick H. Dill
IBM Research Center
Yorktown Heights, NY 10598

IEEE Election! Did You Vote Yet?

This is a reminder for EDS members to vote in the 1995 IEEE Election for IEEE President (Charles K. Alexander, Joseph Bordogna or Jan Brown) and Division I Director (Michael S. Adler or Philip V. Lopresti) as well as your respective Regional Directors. The deadline for the submission of your ballot is November 1, 1995.