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Table of Contents

Upcoming Technical Meetings	1
• 1998 CICC	
• 1998 ICMTS	
• 1998 IITC	
• 1998 SIMC	
Summary of the 1997 IEEE Divisions I & IV Region 8 Chapters Meeting	2
Society News	7
• 1997 BCTM	
• EDS Members Named Winners of 1998 IEEE Field Awards	
• 1996 T-SM Best Paper Award	
• William R. Cherry Award	
• EDS University of Illinois at Champaign- Urbana Student Branch Chapter	
• EDS Launches Chapter Partners Program	
• 1997 Issues of ED Letters & Transactions to be available on CD-ROM	
Regional & Chapter News	12
EDS Meetings Calendar	17
Newsletter Editorial Staff	20

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

1998 Custom Integrated Circuits Conference (CICC)



In 1998, CICC will be celebrating its 20th anniversary. Over the years, CICC has become the leading technical conference for design, fabrication and integration of application specific integrated circuits (ASICs). Started back in the late 70's, the conference focused on applications in the MSI area using bipolar and nMOS technology. Now, in the late 90's, the conference focuses on system-on-a-chip applications using CMOS technology. Other technologies are represented as well, such as BiCMOS, bipolar and GaAs. Single IC complexities have now reached into the multi-million transistor counts. Apart from the complexity in terms of numbers, there is another facet of the design that is receiving increased attention: the continued increase in operating frequencies. Some of the most advanced CMOS circuits presented at last year's CICC were operating beyond the magical 1GHz limit. Non-CMOS circuits were presented which operated even as high as 34GHz. The Custom Integrated Circuits Conference offers a program that provides multiple access points to all these new developments. This program of educational sessions, technical sessions, panels and exhibitions has proven to be an excellent mixture with proper attention to the technical contents. Over the years, the conference has gathered a significant percentage of regular attendees from all over the world who appreciate its technical content and the interaction with circuit designers, system designers, technologists and CAD developers. CICC is a technical conference. This is demonstrated by the fact that over 88% of the attendees have

(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.

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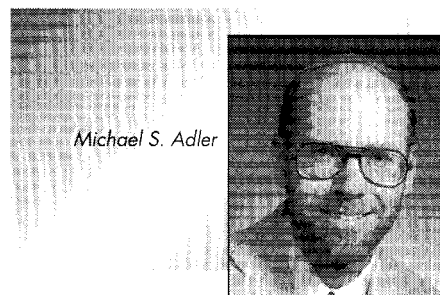
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Summary of the 1997 IEEE Divisions I & IV Region 8 Chapters Meeting



Michael S. Adler

The second annual joint Division I and IV Region 8 Chapters Meeting was held on September 21, 1997 in the town of Ludwigsburg near Stuttgart, Germany. This meeting grew out of chapters meetings held by the Electron Devices Society, starting in 1992 with the goal of chapter formation and support in Region 8. The meeting was held in conjunction with the European Solid-State Device Research Conference (ESSDERC). In attendance were 52 people representing 9 societies and 35 chapters, from 25 countries in Region 8. The meeting, which started at 8:30 a.m. and ended at 6:30 p.m., featured a series of addresses from the two Division Directors, the Region 8 Director, society presidents and representatives, and then reports from all of the chapters present. The chapter reports highlighted best practices from each chapter and issues and problems facing the chapters. The last hour of the meeting was devoted to a tutorial on holding technical meetings that was given by Bruce F. Griffing, the current Vice President and past Meetings Chair for the Electron Devices Society.

The meeting was chaired by Michael S. Adler, Director of Division I, and William G. Duff, Director of Division IV. Division I includes the CAS, CPMT, ED, and LEO societies, and the new SSC society. Division IV includes AP, BT, CE, EMC, MAG, MTT, and NPS societies. A combined Division I and IV Chapters meeting was held since most of the chapters in Region 8 are joint chapters involving the two divisions. For example, of the more than 30 ED and MTT chapters in Region 8, over two-thirds are joint chapters between the societies. Furthermore, 12 new chapters have been formed since 1995 in the former Soviet Union and all of these are joint MTT/ED chapters.

Mike Adler was the first speaker and he highlighted the progress made in forming new chapters in Region 8. The initial ED/MTT initiative, started in 1993, has resulted in 24 new chapters and affiliations in the last three years, with ED going from 8 chapters to 32 in this period. Parenthetically, Region 8 is the fastest growing region for ED membership with a 17% increase over three years. These statistics support the notion that local chapter activities are one key to membership growth. The other Division I and IV societies have added an additional 35 chapters and

(continued on page 11)

EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

<u>1997</u>	<u>1998</u>	<u>*1999</u>
H.S. Bennett (1)	S. Asai (2)	R.G. Adde (1)
J.T. Clemens (2)	A.S. Brown (1)	J.J. Brown (1)
H. Iwai (1)	T.P. Chow (1)	B.F. Griffing (2)
J.L. Merz (2)	M.A. Shibib (1)	R.P. Jindal (2)
K. Tada (1)	R.D. Sivan (1)	J.B. Kuo (2)
R.J. Temkin (1)	J.M. Woodall (2)	J.K. Lowell (2)
S. Verdonckt-Vandebroek (1)	C.Y. Yang (2)	I. Mojzes (2)
		K. Shenai (1)

Number in parenthesis represents term.

* Members elected 12/96

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Upcoming Technical Meetings

CICC (continued from page 1)

been engineers (numbers based on last year's conference). Attendees are from all over the world, roughly according to a 70% (USA), 10% (Asia/Pacific), 11% (Europe) and 9% (Japan) distribution.

The educational session (May 11th) takes place a day before the technical program starts and offers four different 8-hour tracks. Each track focuses on a particular topic, which is sub-divided into four two hour slots. Last year's CICC saw the highest number of participants for the educational session ever registered. Topics such as "Low Power IC Design" (Kaushik Roy, Purdue University), "MOSFET Modeling and Spice" (Daniel Foly, author of the recently released book on MOSFET Modeling with Spice) and "On-Chip ESD Protection Techniques for CMOS and Bipolar Circuits" (Les Avery, David Sarnoff Research Center) drew an exceptionally large number of attendees. This year's educational session will have the following four tracks: "Advanced IC Design", "Wireless IC Design", "High-Level Digital Design" and "Embedded Memory".

The core of the conference is made of the approximately 140 technical presentations sub-divided over 27 sessions. Session topics range from "PLLs", "Analog Techniques", "Audio and Video DSPs" and "Clocking and Low-Power Methodologies" through "Core-Based Design Methodologies", "RF Modeling and Simulation", "Analog and Digital Test" and "Library Design and Modeling" to "Power, Interconnect and Noise Analysis", "RF IC Technology", "IC Reliability" and "Fab Technology for Wireless Applications". One of the most valued features of the CICC technical program are the invited papers. The majority of the sessions will start with an invited paper that has either a tutorial or in-depth/exploratory character. These papers are double length papers (e.g. the presentation lasts for at least 45 minutes), making them especially suitable for newcomers or those that need a refreshment of the particular topic.

The conference also features an exhibit area where the attendees can receive an update on the latest product developments. The exhibit area is also the "networking"

area, as during the conference, coffee, tea and other refreshments are available in this area. A special marketing session is scheduled at the beginning of the conference (the evening of May 11th) where both established as well as start-up companies will present their latest products.

Panels are yet another way to interact directly with some of the major players in the industry. Sometimes funny, sometimes controversial and sometimes news breaking, the panels are an excellent way for the attendees to get their questions answered by some of the most respected people in the field. Each year the CICC committee selects two to three relevant and controversial panel topics and invites the industry's leading experts to take a seat on the panel and present their company's view on this topic. After an introductory presentation, attendees can interact directly with the panel to get answers to their questions or to provide their own vision.

For after-conference (or during, if you didn't come for the conference) thrills, a 2 minute walk to the Great America Amusement Park will provide everything you can think of (well, almost everything). Furthermore, both the San Jose and Santa Clara area hold a variety of museums such as the Children's Discovery museum, the Rosicrucian Egyptian Museum and the San Jose Museum of Art. In addition, the close proximity of San Francisco (approximately 45 minutes by car) offers a bristling nightlife for those who find the Valley's nightlife too quiet.

This year's CICC is also increasing the use of its web site. Apart from the normal conference related information such as paper submission deadline (which was December 3rd, 1997), conference location and accommodations, it also provides support for authors who would like to submit a paper or prepare their presentation. This support consists of downloadable author kits and templates for both paper and slide presentations. These templates are available for the more popular types of word processors (e.g. Microsoft Word, Adobe FrameMaker and Microsoft PowerPoint).

For registration information and general inquiries about the CICC, please contact the Conference Manager, Melissa Widerkehr, CICC, 101 Lakeforest Boule-

vard, Suite 270, Gaithersburg, MD 20877. TEL: (301) 427-0902; FAX: (301) 527-0994; E-MAIL: cicc@his.com. The web site address of the CICC is <http://www.ieee.org/conference/cicc>. For a regular update on the program of the CICC '98, you can either check the web site on a regular basis or you can send E-MAIL: cicc@his.com with the request for a regular update. You will be put on a mailing list that will receive an update on the CICC program on a regular basis.

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Compass Design Automation
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IEEE Fellow Kits Ready

For the first time, IEEE will offer the Fellow Nomination Kit on the World Wide Web. Look for it on the IEEE Web Page (<http://www.ieee.org>). Users should note that the Fellow Committee has determined that only hard copy nominations will be accepted. Those returned to IEEE over the Internet will not be processed.

As in previous years, the kit also will be available in the traditional (paper) format and a LaTeX version (a dummy nomination form that may be edited using a LaTeX document processor in a UNIX system). Those using the LaTeX version should note that no technical support is available from IEEE if the files do not work locally.

The traditional and LaTeX nomination kits for the 1999 class of IEEE fellows will be available in mid-November, 1997. The Web version will be available as of January 1998. The deadline for receiving all nominations is 15 March, 1998.

For traditional and LaTeX versions of the kit, contact: IEEE Fellow Committee, 445 Hoes Lane, P. O. Box 1331, Piscataway, N.J., USA 08855-1331; TEL: (732) 562-3840; FAX: 1 (732) 981-9019; E-MAIL: fellow-kit@ieee.org. Questions regarding the fellow process should be directed to E-MAIL: fellows@ieee.org.

1998 International Conference on Microelectronic Test Structures (ICMTS)



The IEEE Electron Devices Society is sponsoring the 1998 International Conference on Microelectronic Test Structures (ICMTS 1998) to be held in cooperation with The Institute of Electronics, Information and Communications Engineers (IEICE), and The Japan Society of Applied Physics (JSAP). The Conference will be held at the Kanazawa Citymonde Hotel, Ishikawa, Japan, March 23-26, 1998. The Conference will be preceded by a one-day Tutorial Short Course on Microelectronic Test Structures on March 23.

The test structures for new process, device and circuit developments become important as the feature size is scaled down. Furthermore, an advantage of test structures, which can provide important information for mass production technology, such as the rapid transfer of new LSIs from the R & D section and yield improvement, becomes widely recognized. The basic importance of test structures is the "divide and conquer approach" and the "Kelvinist approach", as stated by M. G. Buehler (JPL).

The purpose of the conference is to bring together designers and users of test structures to discuss recent developments and future directions. Original papers concerning new developments in both silicon and gallium arsenide microelectronic test structure research, implementation, and application, as well as test structures aimed at material and device characterization, will be presented.

ICMTS is held on a three year rotation between North America, Europe and Asia. The conference is guided by an international steering committee and a technical committee which is equally shared among the

three regions. The organization for each year's conference is arranged by a local committee and gives each ICMTS a unique flavor of its host country. ICMTS 1998 is organized by: General Chairperson, K. Asada (The Univ. of Tokyo); Technical Chairperson, H. Koyama (Mitsubishi Electric Corp.); Local Arrangements Chairperson, M. Suzuki (Kanazawa Univ.); Tutorial Chairpersons, M. G. Buehler (Jet Propulsion Lab.) and N. Sasaki (Fujitsu Labs.); and Equipment Chairperson, S. Habu (Hewlett-Packard Japan).

The conference will consist of approximately 8 oral sessions and 1 poster session. Session topics will include: "Test Structures for Material and Process Characterization"; "Reliability and Product Failure Analysis"; "Wafer Fabrication Process Control"; "Device & Circuit Modeling"; "Replicated Feature Metrology"; "New Sensors and Devices"; and "Measurement Utilization Strategy". The poster session is preceded by a short oral presentation by the author to guide conference participants to topics of their specific interest. The best paper of ICMTS 1998 will be announced at the end of the conference, and the formal award will be made at ICMTS 1999 in Goteborg, Sweden.

The one-day Tutorial Short course instructors have many years of experience in the field of test structure design, measurement and analysis. The course is intended to provide the participants with a guideline on good design, test and analysis so that superior test-structure can be applied to the production technology, which may contribute to improved process control, higher product yield and rapid product introduction. The ICMTS 1998 Tutorial will cover

the history and the key concept of ICMTS, test structure fundamentals, measurements of critical feature sizes and overlay tolerance, reliability (including wafer level reliability), low current/voltage/capacitance measurements, transistor matching, applications of test structures in DRAMs, Flash Memories and TFT display. Participants will receive copies of all visual presentations. There will be an equipment exhibition relating to the latest test structure measurements: measurement instrument, wafer probing equipment, computer software for data analysis, parameter extraction and measurement control.

The City of Kanazawa is situated on the western side of Honshu, the main island of Japan. Kanazawa is one of Japan's famous castle towns, and one of the two largest cities on the west coast of Japan, with a population of about 400,000. Kanazawa's history began in 15th century, and now it has become a major hub of political, economic, educational and cultural activities. The city is a harmonic blend of the old and the new. The conference participants are able to slip out from their modern meeting place to a quiet samurai neighborhood of centuries ago, with long earthen walls along streets and murmuring waterways. The Kanazawa Citymonde Hotel is located near Kenrokuen Garden which is one of the three most beautiful gardens in Japan. Traveling by train from Kansai International Airport near Osaka may be the most convenient and economical way for people from overseas and will offer an enjoyable view of Japan's countryside. Kanazawa can be reached by train from almost anyplace in Japan. There are seven daily flights between Tokyo (Haneda) and Komatsu Airport, just outside Kanazawa. The flight to/from Tokyo is very efficient (about 1 hour).

For further information concerning the conference, please contact the ICMTS 1998 Secretariat, c/o Center for Academic Societies Japan, Osaka: 1-4-2 Shinsenrihigashi-machi, Toyonaka 565, JAPAN, TEL: +81-6-873-2301; FAX: +81-6-873-2300; E-MAIL: o-conf@bcasj.or.jp; or look on the World Wide Web at <http://www.ee.ed.ac.uk/~ajw/ICMTS/ICMTSSindex.html>.

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1998 Premiere of the International Interconnect Technology Conference (IITC)



The IITC (International Interconnect Technology Conference), an exciting new conference dedicated to advanced interconnect technology, will make its debut June 1-3, 1998 at the San Francisco Airport Hyatt Regency Hotel, conveniently located 20 minutes from Silicon Valley or downtown San Francisco. The conference is being established to provide a forum for professionals in semiconductor devices, processing, academia and equipment development to present and discuss new technology supporting the fabrication of integrated circuit interconnects. The conference will provide several venues for interconnect-related topics, including oral and poster presentations, supplier exhibits on advanced interconnect simulation, fabrication, metrology and testing tools, and exhibitor seminars describing the latest equipment technology.

Why do we need a new interconnect conference? The ever-increasing demand for higher IC density and performance has led to a crisis in connectivity. The need for smaller and longer wires on-chip as well as an increasing number of metal levels has shifted the cost, performance and reliability focus to interconnects. New materials, architectures and process technologies have arisen to meet this challenge, and no other semiconductor technology sector has been growing and changing more rapidly. The IITC will serve a unique role as the only IEEE conference dedicated to the interconnect community.

The international stature of the IITC is reflected by the broadbase support of its organizing committee, which consists of three subcommittees from North America, the Far East, and Europe. Committee members are well-known researchers and R&D professionals from universities, national labs and industrial labs throughout the world. The committee will rate all submitted papers based on rigorous standards; approximately 40 papers will be accepted for oral presentation and a similar number for poster presentation. The three day program will also include invited talks on emerging technologies as well as evening seminars on specific hands-on applications.

With a vision of being the premier conference for leading edge interconnect technology as well as future interconnect needs, IITC seeks papers covering a broad range of topics. Example interconnect technology topics include:

- Silicide/Salicide: Silicide materials, deposition and formation processes; novel gate and source/drain structures; contact silicidation, etc.
- Dielectrics: dielectric materials (low k, high k, liners, ARCS, etc.) and deposition processes (vapor, CVD, spin-on, etc.); dry etch and dry cleaning techniques.
- Planarization: dielectric/metal CMP processes, equipment and metrology issues; alternative planarization techniques.
- Metallization: metal deposition processes/equipment (PVD, CVD, electroplating) and materials characterization; metal etch/cleaning processes.
- Process Integration: multilevel interconnect processes; clustered processes; novel interconnect structures; contact/via integration; metal barrier and materials interface issues.
- Process Control/Modeling: CMP, metal/dielectric deposition and etch, PVD, CVD, electroplating.
- Reliability: metal electromigration and stress voiding; dielectric integrity and mechanical stability; thermal effects; passivation issues; interconnect reliability prediction and modeling; plasma damage.
- Interconnect Systems: interconnect performance modeling and high frequency

characterization; interconnect system integration and advanced packaging concepts (flipchip, chip-on-chip, MCM); novel architectures; advanced interconnect concepts (rf, optical, super-conductors). Given the rapid acceleration of integrated circuit technology, the last topic provides an important forum for discussion of the interconnect crisis and potential paradigm shifts.

The cost and performance of ULSI circuits strongly depends on the capability and the productivity of interconnect fabrication equipment. In recognition of this critical role, equipment supplier exhibits and seminars will be an integral part of the IITC technical program. Equipment exhibitions are planned for the second and third days of the conference while exhibitor seminars will be held on the first and second days following the evening socials. To encourage and facilitate supplier participation, a special exhibits coordinator has been appointed to concentrate on this important aspect.

Prospective authors and exhibitors are encouraged to participate in this exciting new conference. The deadline for receiving camera-ready papers is January 23, 1998. The call for papers, instructions for authors, IEEE copyright forms, and other detailed information can be obtained from the IITC website: <http://www.ieee.org/conference/iitc>. For additional information please contact: Widerkehr & Associates, TEL: (301) 527-0900; FAX: (301) 527-0994; E-MAIL: iitc@his.com; or Dr. Robert Havemann, TEL: (972) 995-0271; FAX: (972) 995-2770; E-MAIL: havemann@spdc.ti.com. For information on supplier exhibits and seminars, please contact Dr. Chris Case, TEL: (908) 582-2941; FAX: (908) 582-2300; E-MAIL: christopher.j.case@lucent.com.

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EDS Newsletter Now On the WEB!

You can now view the EDS Newsletter on the WEB at <http://www.ece.neu.edu/eds/EDSnewsletter.html>. Each issue will remain on the Web for an approximate one-year period.

1998 Conference on Semiconducting and Insulating Conference (SIMC)



The tenth international SIMC-X, formerly known as the Semi-Insulating III-V Materials Conference, will be held in Berkeley, CA, USA, from June 1st through the 5th, 1998 in the Berkeley Marina Marriott. This conference brings together scientists and engineers interested in materials problems of compound semiconductors of relevance for the performance of electronic and optoelectronic devices. With this approach, the conference traditionally helps to bridge the gap between scientists working on fundamental materials problems and industrial researchers interested in understanding the influence of specific materials imperfections on device performance. Therefore, this conference brings together specialists from various fields, including materials science, solid state physics, and device and process engineering. The purpose of the meeting is to discuss growth, characterization, theory, device applications, and materials problems related to Semiconducting and insulating compounds such as GaAs, InP, III-nitrides, II-VI compounds, SiC and SiGe.

The conference will take place at the very scenic Berkeley Marina Marriott at the Berkeley waterfront within easy reach of major airports (Oakland and San Francisco). The conference hotel is located directly at the Berkeley waterfront, which has a spectacular view of the Golden Gate Bridge and San Francisco. A wide range of water sports, including sailing and wind surfing, is within easy reach of the conference site. Attendance at the conference can be well combined with

visits to UC Berkeley, and Stanford Universities and Silicon Valley companies that can be reached with less than a one hour drive.

The conference will be organized without parallel sessions and include invited, oral and poster presentations. Sufficient time for discussions and the exchange of information among the participants will be provided, with additional space for informal discussions. Posters will be on display throughout the conference and an industrial exhibit will allow easy contacts with major materials and equipment suppliers.

The four general fields of interest of this conference are bulk and thin film crystal growth, characterization, modeling, and applications. Of special emphasis for the upcoming conference will be the following topics: bulk and thin films of GaAs, InP, and related compounds including non-stoichiometric thin films, GaN and related compounds, II/VI compounds, SiC and SiGe. Topics of interest are materials problems in bulk crystal growth, thin film deposition, including low dimensional structures, and device processing including implantation and annealing. Due to the high interest in III-nitrides, it is expected that materials problems in these systems will be a major focus of this conference. The scope ranges from point to line defects to extended defects, including interfacial imperfections and precipitates. Perspective authors are encouraged to submit a one page abstract by December 15, 1997, to the conference chair. It

is expected that the abstracts will be submitted electronically as ASCII file or MS Word document.

Organizing Committee

Zuzanna Liliental-Weber, Conference Chair; Wladek Walukiewicz, Program Chair; Eicke R. Weber, Treasurer; Carla Miner, Editor; Malhe Fields, Local Technical Organizer; and Eve Edelson, Secretary.

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The advance registration fee (May 1, 1998) is \$375, thereafter \$425, including banquet and conference excursion. The reduced student fee is \$200 and \$250 after May 1, 1998.

The Berkeley Marina Marriott can be easily reached by shuttle bus from Oakland (25 minutes) and the San Francisco airport (45 minutes). The hotel can also be reached by public transportation (bus). From the hotel, free shuttle bus service is provided to the BART subway system (time to downtown San Francisco about 30 minutes).

The special conference room rate is \$99 per single, \$104 per double room, and \$295 per suite. For a limited number of participants, this rate can be extended through the weekends before and after the conference. Participants are encouraged to make early reservations in order to obtain this room rate, especially if they intend to extend their stay. The toll free number for reservations is: 1(800) 343-0625. For direct reservations TEL: (510) 548-7920 or FAX: (510) 548-7944. Please mention the

(continued on page 7)

Society News

1997 Bipolar/BiCMOS Circuits and Technology Meeting (BCTM)



From Left: Simon Atkinson (Keynote speaker), Tad Yamaguchi (1997 BCTM General Chairman) and the invited speakers: Jack Kilby, Ray Warner, Jim Early, John Shier, Tak Ning, John Moll, Tetsushi Sakai

The recently completed BCTM '97 (Bipolar/BiCMOS Circuits and Technology Meeting) celebrated the 50th anniversary of the invention of the bipolar junction transistor with a luncheon honoring a number of the early pioneers of bipolar transistors, including: Jim Early, Jack Kilby, John Moll, Tak Ning, Tetsushi Sakai, John Shier, and Ray Warner. Charlie Kirk and Hermann Gummel were also both invited, but they could not attend because of health reasons.

The lunch was hosted by Tad Yamaguchi, General Chair of the 1997 BCTM. John Shier, one of the founders of the BCTM and General Chair for the first eight years, acted as master of ceremonies.

Activities included presentation of the honored guests with a plaque honoring their contributions and the cutting of a special 50th anniversary cake.

Each of the guests was invited to share a short anecdote with the audience. John Shier reminded the audience that 1997 was also the 100th anniversary of the discovery of the electron, another significant milestone for the electronics industry. Ray Warner discussed the early days at TI, providing foils (or 'forls' to the natives) for his then boss, Jack Kilby. John Moll related the discovery of the passivating effects of thermal SiO₂ through a diffusion run with a broken furnace. Jack Kilby reminded the

audience that progress in the electronics industry actually has moved in fits and jumps rather than the smooth semilog plots used in industry projections. Tak Ning described how he and a team at IBM through a casual experimental split, discovered the polysilicon emitter. Tetsushi Sakai described the invention of the SST or super self-aligned transistor.

Jim Early gave the featured luncheon speech, entitled 'Early Age of Bipolar Transistor'. He began by honoring five very significant individuals who started it all and by asking the audience for a moment of silence in their memory. First were John Bardeen and Walter Brattain who invented the point contact bipolar transistor on December 16th, 1947. Next was Bill Schockley, their supervisor at that time, who in the next six weeks developed the bulk hypothesis, explaining the electrical injection of charged carriers into bulk silicon and predicted both the junction diode and bipolar junction transistor. The Nobel committee subsequently joined these two separate but related contributions into a single Nobel prize. Next came Jack Morton, director of Bell Labs at that time, who encouraged ways to make this research practical, promoting efforts to license this new technology. Last was Robert Noyce, who was involved in the founding of both Fairchild and Intel and who first patented the integrated circuit in the form that is used throughout the industry today, combining junction isolation, silicon dioxide as insulation, and aluminum interconnects. Dr. Early interspersed his talk with 'Musical Interludes' from the 4 Regions, a quartet at the 1957 Device Research Conference in Boulder Colorado. Dr. Early described discovery of space charge layer widening and the effect which bears his name (Early Effect) in January 1952 as the solution of an easy problem which was worked out sitting in a weekly department meeting. He also reviewed other unexpected successes, little known contributors, early paradigms, and significant milestones.

Jim Hayden
Motorola, Inc.
Austin, TX

Tad Yamaguchi,
Maxim Integrated Products Inc.
Beaverton, OR

SIMC (continued from page 6)

reservation code SIMC-X to obtain the conference rate.

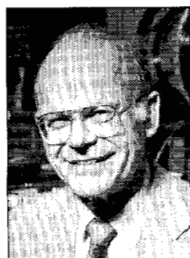
Details of the conference can be found on the conference web site at <http://www.lbl.gov/~simc>. The program agenda will be finalized in February, 1998. All participants are encouraged to join the mailing list by using E-MAIL: simc@ux5.lbl.gov. Please include your e-mail address and your postal address for

inclusion in the conference mailing list. Abstracts and questions can be sent to the Conference Chair, Dr. Zuzanna Liliental-Weber, Lawrence Berkeley National Laboratory, 1 Cyclotron Road MS 62-203, Berkeley, CA 94720, USA; TEL: (510) 486-6276; FAX: (510) 486-4995; E-MAIL: simc@ux5.lbl.gov.

Zuzanna Liliental-Weber
Lawrence Berkeley National Laboratory
Berkeley, CA

EDS Members Named Winners of 1998 IEEE Technical Field Awards

Eight EDS members were among the winners of the 1998 IEEE Technical Field Awards. They are as follows:

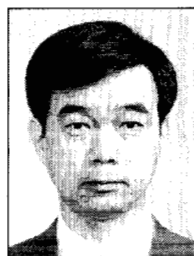


Richard S. Muller



Roger T. Howe

Dr. Richard S. Muller and Dr. Roger T. Howe, both professors in the Department of Electrical Engineering and Computer Science, University of California, Berkeley, won the Cleo Brunetti Award "for leadership and pioneering contributions to the field of microelectromechanical systems." They inaugurated polysilicon surface micromachining based on integrated-circuit materials and processes. The merger of microelectromechanical systems (MEMS) with MOS electronics led the way to integrated microsystems for sensing and actuating. Both Dr. Muller and Dr. Howe are Fellows of the IEEE.



Naoki Yokoyama

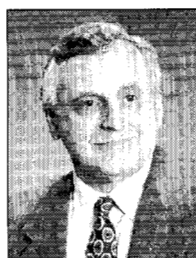
Dr. Naoki Yokoyama, Director of the Quantum Effect Devices Laboratory at Fujitsu Laboratories Ltd., won the Morris N. Liebmann Memorial Award "for contributions to and leadership in the development of self-aligned refractory-gate gallium arsenide MESFET integrated circuits." He proposed and demonstrated the self-aligned refractory-gate GaAs MESFETs in which Schottky gates act as implantation masks for self-aligned high-dosage source and drain regions. This technological innovation permitted production of GaAs LSIs for communication and consumer applications. Dr. Yokoyama is a senior member of the IEEE.

Dr. Isamu Akasaki, professor emeritus of Nagoya University and professor at Meijo University, won the Jack A. Morton Award "for contributions in the field of group-III nitride materials and devices." His co-recipient, Dr. Shuji Nakamura of Nichia Chemical Industries, is not a member of the IEEE. Dr. Akasaki's contributions include the significant improvement of the crys-

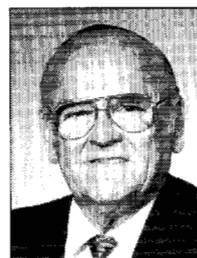


Isamu Akasaki

talline quality of nitrides by pioneering the low-temperature deposited buffer layer technology as well as the annealing of acceptor doped layers to obtain p-type conductivity. These innovations were commercialized at Nichia Industries for the production of high efficiency blue and green LEDs as well as cw blue lasers. Dr. Akasaki is a senior member of the IEEE.



Larry W. Sumney



Robert M. Burger



William C. Holton

Mr. Larry W. Sumney, President and

Chief Executive Officer of the Semiconductor Research Corporation (SRC), Dr. Robert M. Burger, retired Vice President and Chief Scientist at SRC, and Dr. William C. Holton, retired Vice President for Research Operations at SRC, won the Frederik Philips Award "for leading a pioneering cooperative industry-university research effort in silicon technology." They organized and managed the SRC industry-funded university research effort of the North American semiconductor industry. It is the largest continuing industry-driven university research program in the United States. Mr. Sumney and Dr. Holton are Fellows of the IEEE and Dr. Burger is a Life Fellow of the IEEE.



Nicky C. Lu

Dr. Nicky C. Lu, president and chief technical officer, Etron Technology, Hsinchu, Taiwan, won the Solid-State Circuits Award "for pioneering contributions to high speed dynamic memory design and cell technology." His co-invention and pioneering work of a 3D-DRAM technology, the Substrate-Plate Trench (SPT) capacitor cell and the array architecture, have been used in 4 Mb and 256 Mb DRAMS. Dr. Lu is an IEEE Fellow.

H. Craig Casey
Duke University
Durham, NC

The IEEE Transactions On Semiconductor Manufacturing Best Paper Award

The Best Paper Award for the *IEEE Transactions on Semiconductor Manufacturing* is presented to the authors of that paper considered by the TRANSACTIONS Editorial Staff and reviewers to be the most outstanding paper published during the year. The Award is based on the accuracy, originality, and importance of the technical concept, as well as the quality and readability of the manuscript. The Best Paper is also based on the immediate or potential impact that this work will have on the overall semiconductor manufacturing industry.

The *IEEE Transactions on Semiconductor Manufacturing* Best Paper Award, which was presented at the annual Advanced Semiconductor Manufacturing

Conference and Workshop, recognizes the on-going partnership of this conference and the IEEE.

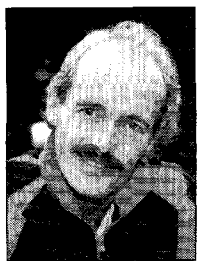
The Editorial Staff is pleased to announce that the paper entitled "Analysis of Mixed Signal Manufacturability with Statistical Technology CAD(TCAD)," by D. A. Hanson, R. J. G. Goossens, M. Redford, J. McGinty, J. K. Kibarian and K. W. Michaels has been recognized as the best paper published in the 1996 *Transactions on Semiconductor Manufacturing*. This paper, which appeared in the November issue, has been chosen because it represents a novel method to integrate CAD tools and methods with statistical analysis to simulate real world manufacturability of

IC processes. The technique enables a limited data set to be used to generate device models with subsequent use of the tools for yield enhancement as the technology matures. These tools and techniques tie together the marketing, manufacturing, and design communities with a common language and data set.



David A. Hanson

David A. Hanson (A'85) received the B.S. degree in chemistry from Chico State University, Chico, CA, in 1978. In 1979, he joined the technical staff of Fairchild Semiconductor Research Center, Palo Alto, CA, where he worked on charge-coupled device fabrication, and conducted basic studies on the plasma chemistry of halocarbon discharges. From 1982 to 1987, he held several supervisory positions in the area of memory device development and fabrication. In 1988, he began a three-year assignment at SEMATECH, a semiconductor manufacturing research consortium in Austin, TX, where he managed 0.5- μ m process development (DFM). He has published more than 15 conference and journal papers and has applied for one patent. He is presently Director of Business Process Improvement for National Semiconductor's product development process.



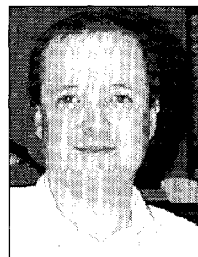
Ronald J. G. Goossens

Ronald J. G. Goossens (M'91) was born and raised in The Netherlands. He received the M.S. degree in particle physics and astronomy in 1980 and the Ph.D. degree in solid-state physics in 1984, both from Utrecht State University, Utrecht, The Netherlands.

After five years in Device Physics with Philips Research Laboratories, Eindhoven, The Netherlands, he joined Stanford University, Stanford, CA, in 1989, initially as an Industrial Visitor and later as a Senior Research Scientist. In 1993, he joined National Semiconductor as Modeling Manager for the Analog Division. From 1994 to 1996, he served on the SEMATECH FTAB for TCAD, the last two years as Industrial Chair. Since June 1996, he has been assigned to the SRC as Director of the Center for Semiconductor Modeling and Simulation (a CRADA between SRC

and the National Labs) and as Director of TCAD Sciences.

Dr. Goossens presently serves on the IEDM Program Committee for Modeling and Simulation and on the TCAD-TWG for the 1997 National Technology Roadmap for Semiconductors.



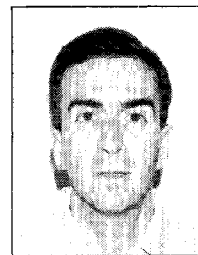
Mark Redford

Mark Redford received the B.S. (honors) degree in electronics from the University of Dundee, Scotland. He has been with National Semiconductor (U.K.) Ltd., Greenock, Scotland, since 1983 and his background is in product device engineering. He now holds the position of Process Technology Development Manager looking at bipolar, CMOS, DMOS, and BiCMOS technologies, down to 0.8 μ m, for the analog marketplace. His interests include design for manufacturability involving TCAD and design of experiments. He has published 12 papers to date on the subject of design for manufacturability.



Jim McGinty

Jim McGinty received the B.S. (honors) degree in electronics from the University of Paisley, Scotland, and the M.S. degree in VLSI design from Bournemouth University, U.K. He has been with National Semiconductor (U.K.) Ltd., Greenock, Scotland, since 1991 and his background is in TCAD and device physics. He now holds the position of Modeling Team Leader in the Analog Process Technology group. His interests include design for manufacturability, involving statistical TCAD and DOE. He has published six papers to date on the subject of TCAD.



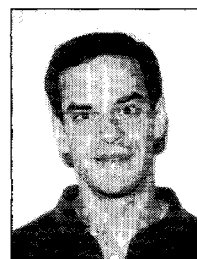
John K. Kibarian

John K. Kibarian (S'84 - M'90) received the B.S., M.S., and Ph.D. degrees in electrical and computer engineering from Carnegie Mellon University, Pittsburgh, PA, in 1986, 1988, and 1991, respectively.

In 1991, he founded PDF Solutions, San Jose, CA, to provide services and software for IC yield improvement. Presently,

he is President of PDF Solutions. Prior to his current position, he held summer positions at Texas Instruments, Cherry Semiconductor, and General Motors. His research interests include prediction and diagnosis of IC yields.

Dr. Kibarian received the best paper award from *IEEE Transactions on Semiconductor Manufacturing* in 1991 for his paper entitled, "Using Spatial Information to Analyze Correlations Between Test Structure Data". He is a member of Eta Kappa Nu and Tau Beta Pi.



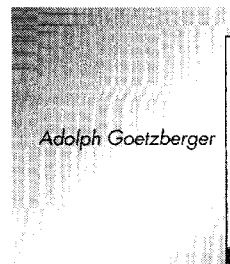
Kimon W. Michaels

Kimon W. Michaels (S'85 - M'92) received the B.S. degree in electrical engineering in 1987, and the M.S. and Ph.D. degrees in electrical and computer engineering in 1989 and 1993, all from Carnegie Mellon University, Pittsburgh, PA.

He is currently Vice President, PDF Solutions, Inc., San Jose, CA, and has previously held summer positions at Texas Instruments and Westinghouse. His research interests include statistical SPICE model characterization and semiconductor manufacturability analysis. Dr. Michaels is a member of Eta Kappa Nu and Tau Beta Pi.

Gary C. Cheek
Analog Devices
Wilmington, MA

William R. Cherry Award



Adolph Goetzberger

The William R. Cherry Award was presented to Adolf Goetzberger at the 26th IEEE Photovoltaic Specialists Conference on September 30th, 1997. Professor Goetzberger was honored for his over twenty years of research in photovoltaics. In 1981 he was founder and first director of the Institute for Solar Energy Systems. He is an Honorary Professor

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William R. Cherry Award

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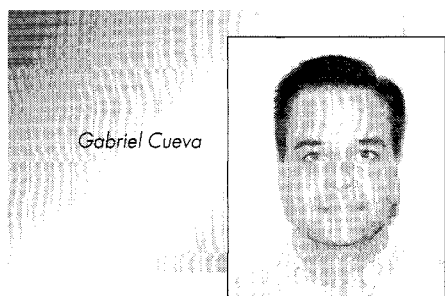
of the University of Freiburg and Fellow of IEEE.

The William R. Cherry Award was established in 1980 in recognition of the key role played by Bill Cherry in establishing solar cells as the ideal power source for space and for vigorously advocating

development of photovoltaics for terrestrial uses. It is awarded at each Specialists Conference to an individual who has made outstanding contributions to the advancement of photovoltaic science and technology.

John D. Meakin
University of Delaware
Newark, DE

EDS University of Illinois at Urbana-Champaign Student Branch Chapter



Gabriel Cueva

The University of Illinois has been home to a student chapter of the IEEE for many years. The chapter is very active in hosting speakers from industry and sponsoring social events, but the membership consists largely of undergraduates, and their activities are targeted to their interests. Last year, a number of graduate students in the Microelectronics Laboratory took on the task of forming a student branch chapter of the EDS, in order to further their professional development and to provide a forum for students interested in semiconductor research and related topics to meet, exchange ideas, and attend seminars and talks. Over the summer, many of those founding members graduated and have taken advantage of the excellent job climate that currently exists for electrical engineers. Graduates have gone on to work for companies such as Intel Corporation, Tri-Quint Corporation and TRW. This Fall, after reorganizing and electing new officers, David Amhari, Gabriel Cueva, and Anu Mahajan, are making a concentrated effort to recruit new members, both among graduate students and undergraduates, with the assistance the Faculty Advisor for our chapter, Professor Ilesanmi Adesida.

Last year, besides the regular chapter meetings, our activities included sponsoring a number of seminars and talks,

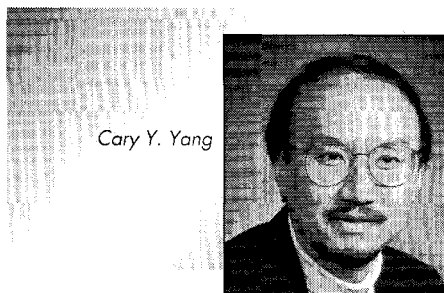
including a seminar by Professor Roger Howe on MEMS (Micro Electro-Mechanical Systems) research done at the University of California, Berkeley, and a talk by Professor Bart Van Zeghbroek of the University of Colorado at Boulder, on Silicon-Carbide/Gallium Nitride Heterojunction Bipolar Transistors. In addition to these seminars, the chapter took advantage of the EDS video lending library of the IEDM technical short courses, and sponsored a showing of the IEEE video Low Voltage/Low Power Devices. Not all of our activities were technical in nature, as we included a few dinners at international restaurants in the area, including a meal in the Teppan Room at a local Japanese restaurant, Kamakura, and a visit to Bayern Stube, a German restaurant in Gibson City, IL.

This year, we will be expanding our list of activities. The group will be spon-

soring a series of seminars for the Electrical and Computer Engineering Department here at the University of Illinois that students may attend for class credit. Former chapter members, now working in industry, will be invited to share their experiences with those of us still in school. Additionally, distinguished members of industry will also be invited to conduct seminars in their areas of specialty. Speakers from the IEEE/EDS Distinguished Lecturers Program have been contacted regarding future seminars. The chapter is also supporting BOAST, the Bouchet Outreach and Achievement in Science and Technology, which is a science education outreach program that targets pre-college minority students and aims to stimulate their interest in science. Chapter member Chris Youtsey has been active in BOAST for a number of years, and will be heading our volunteers' efforts. We will also participate in the department's "Look into Graduate School Night," where undergraduate students interested in graduate school are encouraged to continue their schooling by talking with professors and graduate students about their graduate school experiences. We will be offering tours of the clean rooms, and an overview of our research activities to interested undergraduate students.

Gabriel Cueva
Chair, EDS Student Branch Chapter
University of Illinois at
Urbana-Champaign Urbana, IL

EDS Launches Chapter Partners Program



Cary Y. Yang

At the May 4, 1997 Administrative Committee (AdCom) meeting, it was decided to implement a new initiative called the EDS Chapter Partners Program. All 22 'elected' AdCom Members are required to participate in this Program by partnering with two or three EDS chapters. All Officers, Jr. & Sr. Past Presidents and 'Ex-Officio'

AdCom members are invited and encouraged to be 'Partners', although for them, it is not required. The primary objective of the program is that within the next few years, AdCom will have contacted and stimulated activities for all EDS chapters.

EDS Chapter Partners have several responsibilities: establish a continuing dialogue (via e-mail and/or telephone) with the chapter chair and other members of the chapter; attend or arrange for a lecturer/AdCom member to attend at least one chapter meeting per year to give a technical talk and/or presentation concerning IEEE and EDS; whenever possible, meet with chapter chairs/officers at a regional chairs chapter meeting scheduled in conjunction with an EDS-sponsored conference; and provide annual reports to the

EDS Regions/Chapters Committee.

Over the past two months, the EDS Executive Office and I have been compiling the responses to this Program, and have produced a list of Partners. We now have a total of 30 partners covering 86 chapters. All partners and chapters have been notified of their assignments and have already begun interacting with one another. We hope that continual interaction with an EDS AdCom member proves to be a helpful and valuable experience

for each EDS chapter.

If you have any questions/comments about the EDS Chapter Partners Program, or would like to become a Partner, please contact Amanda Ferraioli at the EDS Executive Office; TEL: (732) 562-6549; FAX: (732) 235-1626; E-MAIL: a.ferraioli@ieee.org.

Cary Y. Yang
Santa Clara University
Santa Clara, CA

to be shipped in March of 1998.

The Electron Devices Society was one of the four charter societies that participated in the initiative to access IEEE journals on-line (OPeRA). There are currently 9 societies participating in the OPeRA Program, with 25 journals available on-line. Members, regardless of their society affiliation, have access to bibliographical information for all the journals included in the OPeRA Program and access to the full article for the publications to which they subscribe. 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 all publications to which they currently subscribe. There is also a demo site available for members without subscriptions to those publications included in OPeRA.

The use of these on-line capabilities has grown from 3,638 total requests in January, 1997 to 23,950 requests in August, 1997. In August alone, *Transactions on Electron Devices* had 3,820 requests which made it the most accessed journal of the 22 participating journals. We encourage all members of the society to explore this exciting new option for getting your journals.

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

1997 Issues of ED Letters & Transactions to be available on CD ROM

EDS is participating in the IEEE project to disseminate transactions, journals and letters publications on a secure World-Wide Web site for society member subscribers. The project, dubbed "OPeRA" (On-line Periodicals and Research Area), has been available to subscribers of *Transactions on Electron Devices* (T-ED) and *Electron Device Letters* (EDL) since January 1997. Each issue is available for eighteen months from the date the corresponding print version is mailed.

We have recently enhanced this initiative by offering subscribers the option of receiving the on-line version and a CD

ROM of T-ED and EDL in lieu of the print version. The first offering of this new option, the 1997 EDS CD ROM Package, includes a CD containing all 1997 issues of T-ED and EDL, and the 1997 International Electron Devices Meeting (IEDM) Technical Digest, as well as on-line access to 1997 and 1998 issues of T-ED and EDL. The Package can be requested via your 1998 IEEE membership renewal bill. If you have already renewed your memberships and subscriptions for 1998, you can contact the EDS Executive Office for an order form (see page 2 for contact information). The 1997 CD ROM Package is scheduled

Chapters Meeting

(continued from page 2)

chapter affiliations with four more in progress. In this context, Adler stated that the overall purpose of the meeting was to insure that these new chapters would be properly supported so that they would flourish in the long run. In particular, the meeting goals were to help improve communications between the chapters themselves and between the chapters and their society officers, and to highlight areas where the societies could help to support the chapters. An added feature of this meeting was the tutorial to help chapters run high quality technical meetings.

William Duff introduced the Division IV societies, emphasizing the need to support chapter activities as a key to future growth of the IEEE. Maurice Papo, Region 8 Director, highlighted two important elements for the future of the IEEE: its technical activities and strong support of students to insure the vitality of the Institute

in the future. Papo pointed out that Region 8 had the highest ratio of any region for society memberships. He also noted that sections are vital and he challenged chapter representatives to get involved in section activities. He also challenged societies in other divisions to become more active in Region 8.

Anthony C. Davies, Chair of the Region 8 Chapter Coordinating Committee, challenged the chapters to offer activities for its members and potential members. Without the latter, there would be little incentive for people to join the IEEE. He also emphasized the need to increase the number of chapters and to strengthen society and chapter ties. Like Papo, Davies challenged societies in other divisions to increase their activities in Region 8.

Society representatives then outlined their support for chapters. Bruce Griffing discussed EDS chapter support programs as well as several new initiatives. A primary initiative was the start of a Chapter Partners Program whereby AdCom mem-

bers are responsible for mentoring two to three chapters to help them achieve their goals. He also outlined a way to help chapters organize a single to multi-day mini-symposium using several invited speakers.

Paul Jespers introduced the newest IEEE society, the Solid State Circuits Society (SSCS), and he encouraged the representatives present to consider adding the SSC affiliation to their respective chapters. Jozef W. Modelski and Adalbert Beyer, the MTTs Transnational Committee Co-Chair and Region 8 Coordinator, respectively, noted that the new Eastern European chapters were doing well and were entering into a critical phase of their existence where aspects of their activities were important to insure their survival. He encouraged chapters to cooperate in joint activities to strengthen the appeal of programs to their membership. He also looked forward to MTTs hosting the next Division I and Division IV meeting in Ams-

(continued on page 16)

Regional and Chapter News

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



Prof. James D. Meindl delivering the Keynote speech at the 1997 SOI Conference.

SOI Conference

— by Subramanian Iyer

The 1997 IEEE International SOI conference took place at the Tenaya Lodge near the magnificent Yosemite National Park October 6-9. Nearly 250 registrants attended the conference, where 90 technical papers, encompassing the fields of SOI materials, device physics, and circuit and system applications were presented.

Two excellent invited presentations by J. Schankler (Honeywell) and J. Lapham (Analog Devices), and the one day short course, highlighted the predominance of application related papers. Over the last few years, the focus of the conference has shifted steadily from materials towards device issues and now towards circuit and system related issues. At the rump session, the discussion centered on yield issues and SOI specific processing and manufacturing issues.

From the circuit point of view, the consensus was that SOI specific designs with acceptable solutions to the floating body effects were likely to win out over simple bulk remaps. The lack of reliable device models was no doubt inhibiting SOI-optimized design. Low power and of course rad-hard applications were expected to lead the way for SOI commercialization. While many felt that bulk Silicon was steamrolling ahead, several were opti-

mistic that mainstream applications in SOI would debut successfully within the next two years.

A. Agarwal and co-workers (Oak Ridge, Lucent and Xerox) won the best paper award for their work on the role of co-implanted species hydrogen and helium on Si exfoliation - a technique used to manufacture thin bonded SOI wafers.

Prof. Jim Meindl (Georgia Tech) gave a very stimulating banquet speech on the evolution of low power electronics through the seminal developments of vacuum tubes, the semiconductor transistor, bipolar ICs, NMOS and CMOS. Clearly, SOI could be the next big development. The Conference Proceedings are available from the IEEE (Catalog # 97CH36069).

AP/ED/CAS/SP Pullman-Moscow Chapter

— by Mohamed Osman

The IEEE AP/ED/CAS/SP Pullman-Moscow Joint Chapter was approved in April 1997. An election was held in late April for the Chapter chair. The Chapter started its activities this summer by making use of the EDS video library. A video on SOI was borrowed in June and made available to the members. A general meeting will be held in October to plan 1997/98 activities, outreach programs to high schools and middle schools, identifying other videos of interest to members, and other activities. The chapter is also planning to sponsor a Symposium on Giga Scale Integration Technology as a part of the 35th Annual Technical Meeting of Society for Engineering Science in September 27-30, 1998 in Pullman, Washington.

For further information, please contact the Chapter Chair, Dr. Mohamed A. Osman; School of Electrical Engineering and Computer Science, Washington State University, Pullman, WA 99164-2752, TEL: (509) 335-2301; FAX: (509) 335-3818; E-MAIL: osman@eecs.wsu.edu.

AP/ED/MTT San Diego Chapter

— Paul Yu

An election was held in December, 1996. The new Chapter Chair is Jon Roussos, Vice Chair is Mark Hoffman, and the Treasurer/Secretary is Robert Welch. Since the establishment of the chapter in 1991, this is the first team that does not involve the original chapter officers. The new team

has worked enthusiastically with the exchairs for the transfer of responsibility and the design of new chapter activities.

Since January of this year, five chapter meetings have been held; all were well attended.

- On January 13, Professor Kawthar A. Zaki of the University of Maryland gave a presentation on "New Filter Configurations and Design Techniques". Professor Zaki discussed many new filter designs and their relation to communication applications.
- On February 19, Mr. Paul Draxler of Qualcomm, San Diego, gave a presentation on "RF Circuit and System CAE Tools". Various simulation tools, including LIBRA, Ansoft's EM-simulator and other commercial programs were discussed for particular design applications.
- On March 18, Mr. Robb A. Johnson of the University of California, San Diego, gave a presentation on "Silicon-on-Sapphire MOSFET Technology for Microwave Circuit Applications". In his talk, Robb provided insight on the speed and power features of advanced SOI devices, citing many of the joint research results from Naval Command, Control & Ocean Surveillance Center in San Diego, and the University of California, San Diego.
- On May 20, Mr. Ernie Ozaki of Qualcomm, San Diego, gave a presentation on "Antennas for Wireless Communication". This talk provided information on the various antenna designs that were deployed in the field for both the handsets and the stations.
- On Sept. 23, Mr. Alan Lindner of Strat-Edge, San Diego gave a presentation on "Packaging Demands for Microwave, Millimeter Wave, and High Speed Digital Circuits". Advances in hermetic sealed package and plastic package for MMICs were presented.

On October 25, the first chapter workshop on RF/Microwave Computer Aided Engineering, will be held. The coordinator is Paul Draxler of Qualcomm. This is a full day workshop and workshop notes will be provided. For further information, please contact Jon Roussos by TEL: (619) 592-3708; FAX: (619) 592-3870; E-MAIL: jonroussos@smtp.rc.ttw.com.

Dr. Hiroshi Iwai's visit to the United States

— by Kenneth O



IEEE Distinguished Lecturer Hiroshi Iwai (left) and Kenneth O. (right).

The IEEE Gainesville, Florida Section had the pleasure of hosting an IEEE Distinguished Lecturer, Dr. Hiroshi Iwai from Toshiba Corporation, Japan at the campus of the University of Florida on September 26, 1997. Dr. Iwai gave an inspiring lecture entitled, "Silicon MOSFET Scaling Beyond 0.1 micron." The lecture was attended by over 60, including students, professors, and local professionals. The lecture was one and a half hours long. The attendees were riveted by Dr. Iwai's vision of the future of the MOS technologies.

— Paul Yu, Editor

Conference Announcement

The Engineering Foundation Conference on High Temperature Electronic Materials, Devices and Sensors will be held February 22-27, 1998 in San Diego, CA. The purpose of the conference (Ilan Golecki, Elzbieta Kolawa and Bernard Gollomp) is to provide a forum for discussion and exchange of ideas among scientists and engineers from different disciplines who are interested in researching and using electronics beyond 125°C. The 4-1/2 day program consists of a combination of invited and contributed paper presentations, and proceedings of the refereed papers will be published by the IEEE. The conference is receiving technical sponsorship from the ED and IM societies. Major topics will include Silicon-On-Insulator, SiC, III-V and other materials and devices, metallizations, packaging, passive components, reliability and novel approaches to high temperature electronics. For further information, please contact the Engineering Foundation at TEL: 212-705-7836; FAX: 212-705-7441; E-MAIL: engrfnd@aol.com; or on the web at <http://www.engrfd.org>.

Europe, Middle East & Africa (Region 8)

ED/SSC Yugoslavia Chapter Report On 21st International Conference On Microelectronics (MIEL '97)

— by Ninoslav Stojadinovic

The 21st International Conference on Microelectronics (MIEL'97) was held September 14-17, 1997 at the Faculty of Electronic Engineering, University of Nis, Yugoslavia. The conference was organized by the ED/SSC Yugoslavia Chapter in cooperation with the Faculty of Electronic Engineering, University of Nis and Ei Holding Co. Nis, under the technical co-sponsorship of the IEEE Electron Device Society. Two workshops (on Technology CAD and on Microsystems Technologies) and the short course "Power Semiconductor Device Design and Application" by Krishna Shenai, organized on September 14, attracted a lot of interest and were an excellent introduction to the main technical program. This program consisted of 9 technical sessions: Semiconductor Physics and Characterization, Device Physics and Modeling, Process and Device Simulation, Power Technologies and Devices, Microsystems Technologies and Devices, Device Reliability and Characterization, Circuit Design and Application, and System Design and Testing. For each of above topics, 2-3 keynote invited papers by the world leading experts were provided, which formed the backbone of the technical program. This year, 219 high-quality contributed papers were submitted, and it was not easy for the Program Committee to select 158 papers: 79 for oral and 79 for poster presentation. 143 participants

attended from 33 countries all over the world. Three plenary sessions were held. At the opening session, Malcolm Penn, Future Horizons, UK, gave the talk "Yugoslavia in Global Microelectronics World". The other four plenary speakers were Hiroshi Iwai, Toshiba, Japan ("Silicon MOSFET scaling beyond 0.1 micron"), Rajendra Singh, Clemson University, USA, ("Sub-Quarter Micron Silicon Integrated Circuits and Single Wafer Processing"), Michael Pecht, University of Maryland, USA ("Decreasing the Time to Market Through Virtual Risk Assessment and Risk Mitigation") and Tadahiro Shibata, University of Tokyo, Japan ("New Development in Four Terminal Device Concept"). The Best Paper Award was given to Predrag Habas, IMEC, Belgium ("Analytical Model and Qualitative Analysis of the Interface-Trap Charge Pumping Characteristics of MOS Structure"). H. Wong and M.C. Poon, City University of Hong Kong, China ("Modeling of Gate Dielectric Breakdown due to Drain Avalanche Injection in MOSFETs") received the Best Poster Paper Award, and Laura Perron, Polytechnic of Milano, Italy ("Switching Characteristics and Static Parameter Extraction in PD SOI MOSFETs") was awarded for Best Student Paper. Last, but not least, the scientific program was accompanied by very exciting social program, which MIEL conferences are already famous for. The hospitality of the conference and the people from Nis, may be an additional reason for many of MIEL '97 participants to attend MIEL '99, in September 1999.

For additional information, please contact: Prof. Ninoslav Stojadinovic, MIEL Conference Chairman, TEL: +381 18 49 155; FAX: +381 18 46 180; E-MAIL: ino@unitop.elfak.ni.ac.yu.



Left to right: H. Iwai, S. Selberherr, N. Stojadinovic, R. Singh, Gady Golan, K. Shenai, K. Arshak.

ED Sweden Chapter

— by Mikael Östling

The fall semester has brought many new changes to the chapter activities. At the annual board meeting in September, it was decided to expand the Chapter committee and appoint a new assistant Chapter chairman, Dr. Ted Johansson from Ericsson Components AB. We also launched a new news bulletin to be published at least twice a year. A stronger effort on web publishing of the chapter activities was decided.

In order to overcome a geographical problem in the Swedish ED activities, i.e. two main regions with ED interests separated 500 km in Stockholm and Gothenburg respectively, the Chapter appointed Prof. K. Jeppson at Chalmers University responsible for the Swedish west coast activities.

The Chapter sponsored the student Best Paper Award at the International Conference on Silicon Carbide and III-nitrides in Stockholm on Sept. 97. The winner was Mr. Alexandre Ellison from Linköping University. In October, two interesting talks were presented. Dr. Fritz Gaensslen (IEEE Fellow), retired from IBM, presented a lecture on "MOS scaling limits and low temperature microelectronics" and Dr. Hans Markus from Lucent Technologies, Huizen, The Netherlands, presented "Low frequency noise in modern transistors".

During the Fall of 1997, the activities planned and conducted were: the sponsoring of Best Paper Award at GigaHertz '97 on October 23-24 and Stockholm One video short course on RF bipolar technologies Celebration of BJT 50 year anniversary in December.

The Swedish chapter now has a partnership with Prof. K. Shenai, EDS Newsletter Editor-in-Chief, which has led to many new fruitful activities.

— Mikael Östling, Editor

MTT/ED/AP/LEO UK&RI Chapter

— by Neil Williams

Professor Christopher M. Snowden presented his EDS Distinguished Lecture "Terahertz Technology - Fact or Fiction?" during the evening of 18th September at The University of Leeds, following the September Chapter AdCom Meeting. The lecture was very well attended and promoted much discussion. After the lecture, many attendees joined the evening dinner for delegates attending the 1997 High Frequency Postgraduate Student Colloquium 19th September. This one day colloquium, originated by the Chapter and now in its third year, is growing in popularity and University participation; for the first time the program included contributions by

overseas Speakers/Universities. Some 40 delegates enjoyed a well organized, very informative technical program, including 18 oral and 10 poster papers, representing 15 Universities.

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

ED/MTT Greece Chapter

— by Nikolaos Uzunoglu

The NATO "ASI on Computational Electromagnetics: State of the Art and Future Developments" Summer School, was held over the period July 26 to August 6, 1997 at the East Aegean Research and Training Institute in the island of Samos near Karlovassi. More than 110 scientists from the USA, Europe and Eastern Countries participated. Topics covered were: Computational Electromagnetics (methods of moments-integral equation techniques, finite element-volume, finite difference-time domain and transmission line method), computation of MIC/MMIC structures, EMC/EMI studies, inverse scattering problems and parallel processing methods. The training of students from neighboring countries included intensive courses for 10 students from the PreAzovian Technical University of Ukraine (5-15 September), on Software Tools and in particular to DBMS systems. Seminars were held on MMIC design at NTUA (5 hours duration), September 20-24, 1997.

Chapter Chair, Professor Nikolaos K. Uzunoglu, National University of Athens, Dept. Electrical & Computer Eng., Division of Electroscience, Heroon Polytechniou 9 Street, Zografou 15773, Athens, Greece. TEL: 30-1-77223556, FAX: 30-1-7723557, E-MAIL: nuzu@zeus.central.ntua.gr.

ED Israel Chapter

— by Gady Golan

At the time of preparing this report, the IEEE-EDS and the Israeli Vacuum Society (IVS) planned a joint meeting with the title "Topics in the modern ULSI technology", for December 4, 1997, at Tel Aviv University.

In parallel to our meeting, we will have the ICCG 12/ICVGE 10 (Israel Conference on Crystal Growth and Israel Conference on Vacuum Growth Epitaxy). The guest lecturer in ICCG 12 is Prof. Margaritondo, who will speak about Bandgap discontinuities in crystal growth, and Ultra bright X-rays. All ED engineers and materials engineers are invited.

The web page of IEEE-EDS Israel is at

<http://homes.openu.ac.il/~gady/eds>. For more information, contact Chapter Chair Professor Nathan Croitoru, Tel-Aviv University, Faculty of Engineering, Dept. of Physical Electronics, Tel-Aviv 69978, Israel. TEL: 972-3-640-8138; FAX: 972-3-642-3508; E-MAIL: croitoru@eng.tau.ac.il.

— Terry Oxley, Editor

Asia & Pacific (Region 10)

ED/LEO Australia Chapter

— by Chennupati Jagadish

A chapter web page has been created. The Web address is: <http://www.physics.mq.edu.au/~goldys/home.htm>. All future activities will be posted on the Web. Thanks to Webmaster Dr. Ewa Goldys for the creation and maintenance of the Chapter Home Page.

The Conference on Optoelectronic and Microelectronic Materials and Devices (COMMAD '98) will be held during 14-16, December 1998 in Perth, WA. The abstract deadline is 31 August, 1998. Further information can be obtained from COMMAD '98 Chair Prof. Laurie Faraone (faraone@ee.uwa.edu.au), FAX: 61-8-9380-1065, TEL: 61-8-9380-3104. COMMAD Home Page address is: <http://www.ee.uwa.edu.au/~COMMAD98/>

For further information about chapter activities, please contact Chapter Chair: C. Jagadish, TEL: 61-2-6249-0363; FAX: 61-2-6249-0511; E-MAIL: c.jagadish@ieee.org

ED/MTT India Chapter

— by K.S. Chari

Prof. Rajendra Singh, Professor of Electrical and Computer Engineering and Director of Material Science and Engineering Program at Clemson University, USA, visited the Chapter during 4-5th August 97 under the IEEE Distinguished Lecturer program, and delivered the 2nd DL workshop of the year on semiconductor manufacturing. The workshop was attended by participants from industry and academic research groups in the country. A few cases of on hand issues were discussed by the participants and the interactive sessions were appreciated by the participants.

The Chapter executive committee met on 25th Sept. '97 to review the overall progress of activities and energize the various activities further. The issues of raising additional financial support through the chapter's own fund raising by several tech-

nical efforts were discussed and few modalities arrived at.

The Chapter executive committee had considered the pros-and-cons of creating more ED/MTT chapters within the country for enhancing the technical activities further and they came to the conclusion that the time is not yet ripe for this effort. It was resolved to seek liberal support from Head Quarters while the Chapter strives to generate additional resources locally.

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

ED Malaysia Chapter

— by *Burhanuddin Yeop Majlis*

For the year 1998, ED Malaysia will organize an international conference, 1998 IEEE International Conference on Semiconductor Electronics (ICSE '98) Nov. 24-26, 1998. The conference will be held in the Hotel Equatorial, Bangi, Selangor, Malaysia. This conference will be the third one organized by the ED Malaysia Chapter. The scope of the conference covers the area related to semiconductor physics, technology, devices, modeling etc. The deadline for the submission of abstracts is July 1, 1998 and full paper is September 1, 1998.

For further information about Chapter activities, please contact Chapter Chair: Burhanuddin Yeop Majlis, TEL: 603-829-2928; FAX: 603-825-9080; E-MAIL: burhan@eng.ukm.my.

ED/R/CPMT Singapore Chapter

— by *Daniel S.H. Chan*

The year 1997 has been a busy one for the chapter. Apart from the usual technical talks, we have also been running two series of short courses, one on IC Failure Analysis & Reliability (with 11 short courses) and the other on Electronic Packaging (with 6 courses). But the two big events this year have been the two conferences which we organized in Singapore. These were the 6th International Symposium on the IC Failure Analysis & Reliability (IPFA) held in July 97 and the 1st Electronic Packaging Technology Conference (EPTC) in October 97. This report will give a brief summary on the 6th IPFA and a report on the EPTC will be given on the next occasion.

IPFA has been running biennially for 10 years. This year it was held at the Raffles City Convention Centre, Singapore July 21-25, 1997. It is organized by the Singapore ED/R/CPMT Joint Chapter in

cooperation with the Centre for Integrated Circuit Failure Analysis & Reliability at the National University of Singapore and the Institute of Microelectronics. It is also technically co-sponsored by the IEEE Electron Devices Society. The Proceedings can be obtained from IEEE Customer Service.

This year we had about 180 participants listening to 41 oral presentations and 14 poster papers from 12 countries. The participants came from (in descending number of participants) Singapore, Malaysia, USA, Japan, Korea, France, Taiwan, Germany, Belgium, Ireland, Philippines, Indonesia, Finland, Netherlands and Thailand. In addition to the paper presentations, there were two days of tutorials with the four following topics and speakers:

- Les Avery, David Sarnoff Research Centre, USA- "On Chip ESD Protection and Testing Issues for the Late 1990s"
- P.B. Ghatge, TestChip Technologies, USA- "Electromigration Induced Failures in VLSI Interconnections"
- Michael Pecht, University of Maryland, USA- "Physics of Failure : An Approach to Reliability Design and Assessment"
- Ken Scott Wills, BeamIt, USA- "Advanced Failure Analysis Techniques"

The 7th IPFA conference is being planned for July 1999. For further information about chapter activities, please contact Chapter Chair: Daniel S.H. Chan, TEL: 65-772-6509; FAX: 65-779-1103; E-MAIL: elecshd@nus.sg.

— *Chennupati Jagadish, Editor*

Report on the IVMC'97

— by *Jae Soo Yoo*

The 10th International Vacuum Microelectronics Conference (co-sponsored by EDI-

RAK) was held in Kyongju, Korea during August 17 - 21, 1997. The conference marked the 10th anniversary, as it started in 1988. The 289 participants from 15 countries registered, and the 169 high-quality papers out of 213 submitted papers were presented at the conference with 4 invited papers on the theory of field emission and applications of field emitter arrays. After the opening speech of Professor Jong Duk Lee of Seoul National University, Dr. Ivor Brodie of SRI International gave the key note speech on "Vacuum Microelectronics-the Next Ten Years", followed by 4 invited talks, 59 oral presentations, and 110 poster presentations. The highlight of the conference was the panel session on FEDs moderated by Dr. I. Brodie. The prospects and challenges of FED commercialization were reported and discussed by panelists from Candescent, ETL, Fujitsu, Futaba, Micron, Samsung, and SRPC Istok. Also, the questionnaires were distributed to all participants and the results were analyzed to let them conjecture the future of FED at the end of panel session. For details, contact the Chairman, Prof. J.D. Lee, E-MAIL: ljd@smdl03.snu.ac.kr.

The IVMC '98 will be held in Asheville, North Carolina, USA. For more information, check out <http://www.mat.ncsu.edu/ivmc>.

Report of MNC'97

— by *Shinji Okazaki*

The 1997 International Microprocesses and Nanotechnology Conference (MNC '97) was held at Nagoya Congress Center in Nagoya, Japan from July 7 to 10. This Conference was formerly called the Microprocess Conference. To reflect the inclusion of nanotechnology, the title of this conference was changed this year. More than 230 people participated from 7 coun-



Panel Session.

tries. 111 papers, including 17 invited papers, were presented in 13 oral sessions, and 1 poster session. Two special symposia were organized. One was a symposium of nanotechnology to encourage discussions in this field. Three invited papers and 6 contributed papers were presented in this symposium.

The other special symposium was entitled, "Challenges in ULSI Technology towards the 21st Century". The activities of consortia for ULSI development in the United States, Europe and Japan were introduced and the details of the Japanese consortium ASET were reported. An informal panel discussion entitled, "Advanced Etching Plasma Sources for 0.1 μ m Devices", was also held.

Two major MNC awards were presented at the plenary session. The outstanding paper of MicroProcess Conference '96 award was presented to Dr. Y. Kawai and the most impressive poster of MicroProcess Conference '96 award was presented to Dr. M. Despont. The MNC '98 will be held in Kyongju, Korea from July 13 to 16, 1998.

For more information on MNC '98, contact Professor Jinho Ahn, #M-301 Department of Materials Engineering, Hanyang University, 17 Haengdang-dong, Seong-

dong-gu, Seoul 133-791, Korea, TEL: +82-2-296-8035; FAX: +82-2-291-1130; E-MAIL: MNC98@hymail.hanyang.ac.kr

Report of SSDM'97

— Makoto Yoshimi

The 1997 International Conference on Solid State Devices and Materials (SSDM '97), sponsored by the Japan Society of Applied Physics and technically co-sponsored by the IEEE Electron Devices Society was held at "Act City Hamamatsu", Hamamatsu, Japan, Sept. 16 - 19, 1997. The number of participants was 581, with 18% being from overseas. All of the 238 papers which were selected from 395 submitted papers were presented orally, together with 48 invited papers.

At the plenary session, Dr. I. Akasaki of Meijo University, and Dr. Y. Nishi of Texas Instruments in the US gave invited talks on "Progress in Crystal Growth and Conductivity Control of Group III Nitride Semiconductors" and "Silicon Based IC Technology for Giga-Scale Integration Era", respectively. SSDM '98 is scheduled to be held in Hiroshima, Japan, during Sept. 7 - 10, 1998.

For more information <http://www.bcasj.or.jp/conference/ssdm/> or reach the SSDM Secretariat at TEL: +81-3-5814-5800; FAX: +81-3-5814-5823; E-MAIL: confg3@bcasj.or.jp.

— Hiroshi Iwai, Editor

ED Taipei Chapter

— by S.C. Sun

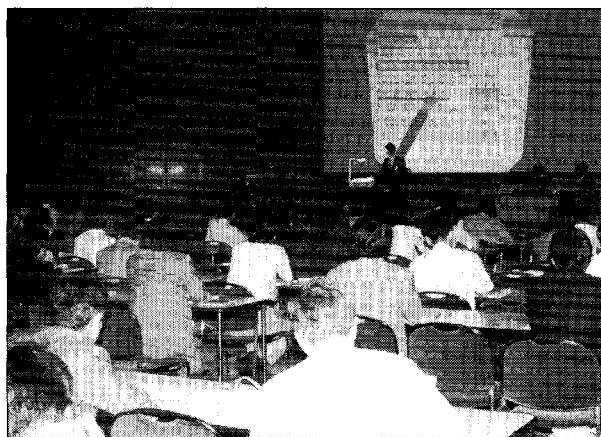
The 5th Semiconductor Manufacturing Technology Workshop (SMTW) will be held in Hsinchu, Taiwan, R.O.C. on June 16-17, 1998. The workshop is co-sponsored by IEEE Electron Devices Society Taipei Chapter, United Microelectronics Corp., Taiwan Semiconductor Associa-

tion, and IEEE Electron Devices Society. The technical program Committee chairman is S. W. Sun from UMC and co-chairman is S. C. Sun from TSMC. The SMTW provides a unique forum for practitioners and researchers from different disciplines but working in the same area of semiconductor manufacturing to exchange experiences and ideas on manufacturing technology advancement. SMTW will feature on increased emphasis in the areas of virtue fab, 300mm manufacturing, and the impact of emerging technology on future semiconductor manufacturing. Two panel discussions are planned with the first one being "Industry safety - How to prevent fire in the fab and crisis management." The second discussion is on "International Technology Alliance". Papers are solicited in all aspects of semiconductor manufacturing including, but not limited to:

- resource saving and cost reduction
- risk management and safety
- fab design concept and construction
- chemical management and waste treatment
- yield and cycle time improvement
- CIM system and quality system
- manufacturing logistics system re-engineering
- technology transfer from R&D to manufacturing
- virtue fab
- 300mm manufacturing
- vendor/subcontractor management
- advanced process technology

To present a paper, please submit 20 copies of 200-300 words abstract in English to S. W. Sun - Program Chairman by Feb. 28, 1998. For further information, please contact: Shih-Wei Sun, UMC, Advanced TD (Fab III), Science-Based Industrial Park Hsinchu, Taiwan, R.O.C. E-MAIL: s_w_sun@umc.com.tw, TEL: 886-35-789158 ext. 33150, FAX: 886-35-776889

— S. C. Sun, Editor



Session.

Chapters Meeting

(continued from page 11)

terdam which is to be the site of the European Microwave Week of Conferences.

Ralph W. Wyndrum, Jr., CPMTS President, noted the growth of ten chapters in Region 8 in 1997 for his society as a result of the cooperative Division I and Division IV initiative. He also observed that CPMT membership was the fastest growing of all the societies in the IEEE. He also

noted that CPMT was extending the current chapter growth initiative to ten more chapters in Region 8.

Edward F. Labuda, the Executive Director of LEOS, spoke to the many new chapters formed in the last year and encouraged further growth. He noted that all LEOS publications are now on CD ROM.

Erik H.M. Heijne, from the Nuclear and Plasma Sciences Society, introduced his society which concentrates in the area of

nuclear detectors and instrumentation. He highlighted the problem of knowing where related chapter/society activities exist by region and where NPSS could engage in joint activities.

The Chapter Best Practices are as follows:

- Chapters noted an increasing level of joint activities across the countries/sections.

(continued on page 19)

EDS Meetings Calendar

(As of November 25, 1997)

U.S., Canada & Latin America (Regions 1-6, 7 & 9)

Feb. 5 - 7, 1998, **IEEE INTERNATIONAL SOLID-STATE CIRCUITS CONFERENCE**, Location: San Francisco Marriott Hotel, San Francisco, CA, Contact: Nicole Rath, Tel: (202) 973-8867, Fax: (202) 973-8722, E-mail: isscc@courtesyassoc.com, Deadline: Past Due

Feb. 22 - 27, 1998, **CONFERENCE ON HIGH TEMPERATURE ELECTRONIC MATERIALS, DEVICES & SENSORS**, Location: Bahia Hotel, San Diego, CA, Contact: Engineering Foundation, Tel: (212) 705-7837, Fax: (212) 705-7441, E-Mail: engfnd@aol.com, Deadline: Past Due

March 2 - 4, 1998, **IEEE INTERNATIONAL CARACAS CONFERENCE ON DEVICES, CIRCUITS AND SYSTEMS**, Location: Margarita Hilton Hotel, Margarita Island, Venezuela, Contact: Francisco J. Garcia-Sanchez, Tel: 58-2-9064010, Fax: 58-2-9064025, E-Mail: iccdcs@usb.ve, Deadline: Past Due

March 30 - Apr. 2, 1998, **IEEE INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM**, Location: Reno Hilton Hotel, Reno, NV, Contact: Ann N. Campbell, Tel: (505) 844-7452, Fax: (505) 844-2991, E-Mail: ancampbe@sandia.gov, Deadline: Past Due

April 6 - 8, 1998, **INTERNATIONAL CONFERENCE ON MODELING AND SIMULATION OF MICROSYSTEMS, SEMICONDUCTORS, SENSORS AND ACTUATORS**, Location: Santa Clara Marriott, Santa Clara, CA, Contact: Andreas Wild, Tel: (602) 952-3108, Fax: (602) 952-3786, E-Mail: tdcc03@email.sps.mot.com, Deadline: Past Due

May 11 - 14, 1998, **IEEE CUSTOM INTEGRATED CIRCUITS CONFERENCE**, Location: Westin Hotel/Santa Clara Convention Center, Santa Clara, CA, Contact: Melissa Widerkehr, Tel: (301) 527-0902, Fax: (301) 527-0994, E-Mail: cicc@his.com, Deadline: Past Due

May 26 - 29, 1998, **INTERNATIONAL CONFERENCE ON ELECTRON, ION AND PHOTON BEAM TECHNOLOGY & NANOFABRICATION**, Location: Westin Hotel, Chicago, IL, Contact: Al Wagner, Tel: (914) 945-1962, Fax: Not Available, E-Mail: awagner@watson.ibm.com, Deadline: 1/12/98

June 1 - 3, 1998, **IEEE INTERNATIONAL INTERCONNECT TECHNOLOGY CONFERENCE**, Location: Hyatt Regency Hotel, San Francisco Airport, San Francisco, CA, Contact: Wendy Walker, Tel: (301) 527-0900, Fax: (301) 527-0994, E-Mail: iitc@his.com, Deadline: 1/23/98

June 1 - 5, 1998, **IEEE SEMICONDUCTING AND INSULATING MATERIALS CONFERENCE**, Location: Berkeley Marina Marriott Hotel, Berkeley, CA, Contact: Zuzanna Liliental-Weber, Tel: (510) 486-6276, Fax: (510) 486-4995, E-Mail: simc@ux5.lbl.gov, Deadline: Past Due

June 3 - 5, 1998, **INTERNATIONAL SYMPOSIUM ON PLASMA PROCESS-INDUCED DAMAGE**, Location: Hilton Hawaiian Village Hotel, Honolulu, HI, Contact: Della Miller, Tel: (408) 737-0767, Fax: (408) 737-2403, E-Mail: della@technicalmarketing.com, Deadline: 1/30/98

June 7, 1998, **IEEE INTERNATIONAL WORKSHOP ON STATISTICAL METROLOGY**, Location: Hilton Hawaiian Village Hotel, Honolulu, HI, Contact: Harold Hosack, Tel: (972) 995-4942, Fax: (972) 995-1724, E-Mail: hosack@spdc.ti.com, Deadline: 2/15/98

June 7 - 8, 1998, **IEEE SILICON NANO-ELECTRONICS WORKSHOP**, Location: Hilton Hawaiian Village Hotel, Honolulu, HI, Contact: Gary H. Bernstein, Tel: (219) 631-6269, Fax: (219) 631-7983, E-Mail: berstein.1@nd.edu, Deadline: 2/2/98

June 7 - 9, 1998, **IEEE RADIO FREQUENCY INTEGRATED CIRCUITS SYMPOSIUM**, Location: Baltimore Convention Center, Baltimore, MD, Contact: Jim Moniz, Tel: (914) 892-8905, Fax: (914) 892-6300, E-Mail: j.moniz@vnet.ibm.com, Deadline: Past Due

June 9 - 11, 1998, **IEEE SYMPOSIUM ON VLSI TECHNOLOGY**, Location: Hilton Hawaiian Village Hotel, Honolulu, HI, Contact: Melissa Widerkehr, Tel: (301) 527-0902, Fax: (301) 527-0994, E-Mail: vlsi@aol.com, Deadline: 1/7/98

June 11 - 13, 1998, **IEEE SYMPOSIUM ON VLSI CIRCUITS**, Location: Hilton Hawaiian Village Hotel, Honolulu, HI, Contact: Melissa Widerkehr, Tel: (301) 527-0902, Fax: (301) 527-0994, E-Mail: vlsi@aol.com, Deadline: 1/7/98

June 14 - 19, 1998, **INTERNATIONAL HIGH TEMPERATURE ELECTRONICS CONFERENCE**, Location: Albuquerque Marriott Hotel, Albuquerque, NM, Contact: Debbie Marchand, Tel: (505) 266-5678 ext. 308, Fax: (505) 260-1163, E-Mail: marchand@techreps.com, Deadline: Past Due

June 22 - 24, 1998, **IEEE DEVICE RESEARCH CONFERENCE**, Location: University of Virginia, Charlottesville, VA, Contact: Emmanuel Crabbe, Tel: (914) 892-2056, Fax: (914) 892-2568, E-Mail: crabbe@watson.ibm.com, Deadline: 3/2/98

June 22 - 25, 1998, **INTERNATIONAL POWER MODULATOR SYMPOSIUM**, Loca-

tion: Westin Mission Hills Resort, Rancho Mirage, CA, Contact: Janice Brooks, Tel: (703) 413-3882, Fax: (703) 413-1315, E-Mail: j.brooks@washing-ton.palisades.org, Deadline: 2/16/98

July 19 - 24, 1998, **IEEE INTERNATIONAL VACUUM MICROELECTRONICS CONFERENCE**, Location: The Grove Park Inn Resort, Asheville, NC, Contact: Rene Gielen, Tel: (919) 515-2378, Fax: (919) 515-7724, E-Mail: rene_gielen@ncsu.edu, Deadline: 5/98

Aug. 2 - 6, 1998, **INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE**, Location: Sheraton Colorado Springs Hotel, Colorado Springs, CO, Contact: Samim Anghaie, Tel: (352) 392-1427, Fax: (352) 392-8656, E-Mail: anghaie@inspi.ufl.edu, Deadline: 12/15/97

Aug. 2 - 6, 1998, **IEEE NON-VOLATILE SEMICONDUCTOR MEMORY WORKSHOP**, Location: Hyatt Regency Hotel, Monterey, CA, Contact: Arthur Wang, Tel: (408) 232-8811, Fax: (408) 232-8805, E-Mail: awang@hea.com, Deadline: 4/3/98

Aug. 10 - 12, 1998, **INTERNATIONAL SYMPOSIUM ON LOW POWER ELECTRONICS AND DESIGN**, Location: Monterey Convention Center, Monterey, CA, Contact: Anantha Chandrakasan, Tel: (617) 258-7619, Fax: (617) 253-5053, E-Mail: anantha@mit.edu, Deadline: Not Available

Sept. 23 - 25, 1998, **IEEE/SEMI ADVANCED SEMICONDUCTOR MANUFACTURING CONFERENCE AND WORKSHOP**, Location: Copley Plaza (Fairmont Hotel), Boston, MA, Contact: Scott McClure, Tel: (802) 769-9380, Fax: (802) 769-8724, E-Mail: scottmc@vnet.ibm.com, Deadline: 1/2/98

Sept. 27 - 29, 1998, **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: 3/30/98

Oct. 5 - 7, 1998, **IEEE INTERNATIONAL CONFERENCE ON COMPUTER DESIGN: VLSI IN COMPUTERS AND PROCESSORS**, Location: Marriott Hotel at the Capital, Austin, TX, Contact: Mary-Kate Rada, Tel: (202) 371-1013, Fax: (202) 728-0004, E-Mail: m.rada@computer.org, Deadline: 3/16/98

Oct. 5 - 8, 1998, **IEEE INTERNATIONAL SOI CONFERENCE**, Location: Indian River Plantation Marriott Resort, Stuart, FL, Contact: Sandra Grawet, Tel: (310) 316-5153, Fax: (310) 316-0713, E-Mail: 70541.1225@compuserve.com, Deadline: 5/8/98

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

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

Europe, Middle East & Africa (Region 8)

Feb. 24 - 26, 1998, ✓ **NATIONAL RADIO SCIENCE CONFERENCE**, Location: Helwan University, Helwan, Cairo, Egypt, Contact: Ibrahim A. Salem, Tel: (202) 594-1306, Fax: (202) 594-1270, E-Mail: isalem@brainy1.ie-eg.com, Deadline: Past Due

May 20 - 22, 1998, ✓ **INTERNATIONAL CONFERENCE ON MICROWAVES AND RADAR**, Location: Krakow, Poland, Contact: Edward Sedek, Tel: 48-22-102-571, Fax: 48-22-102-571, E-Mail: sedek@pol.pl, Deadline: 12/15/97

June 2 - 5 1998, ✓ **INTERNATIONAL CONFERENCE ON MATHEMATICAL METHODS IN ELECTROMAGNETIC THEORY**, Location: Kharkov State University, Kharkov, Ukraine, Contact: Alexander I. Nosich, Tel: 380-572-377380, Fax: 380-572-441105, E-Mail: alex@emt.karkov.ua, Deadline: 3/25/98

June 7 - 12, 1998, ✓ **INTERNATIONAL CONFERENCE ON HIGH-POWER PARTICLE BEAMS**, Location: International Conference Center, Haifa, Israel, Contact: Joseph Shiloh, Tel: 972-4-8795016, Fax: 972-4-8795315, E-Mail: jshiloh@rafael.co.il, Deadline: Past Due

June 14 - 19, 1998, ✓ **INTERNATIONAL CONFERENCE ON HIGH-POWER ELECTROMAGNETICS**, Location: Dan Panorama Hotel, Tel-Aviv, Israel, Contact: Joseph Shiloh, Tel: 972-4-8795016, Fax: 972-4-8795315, E-Mail: jshiloh@rafael.co.il, Deadline: Past Due

June 24 - 26, 1998, ✓ **EUROPEAN WORKSHOP ON LOW TEMPERATURE ELECTRONICS**, Location: Study Center "I Cappuccini" of the Miniato Savings Bank Ltd., San Miniato, Tuscany, Italy, Contact: Daniel V. Camin, Tel: 39-2-2392-303, Fax: 39-2-2392-624, E-Mail: wolte@mi.infn.it, Deadline: Past Due

July 6 - 10, 1998, @ **IEEE WORLD CONFERENCE ON PHOTOVOLTAIC ENERGY CONVERSION**, Location: Hofburg Kongresszentrum, Vienna, Austria, Contact: Sheila G. Bailey, Tel: (216) 433-2228, Fax: (216) 433-6106, E-Mail: sheila.bailey@lerc.nasa.gov, Deadline: Past Due

Aug. 31 - Sept. 4, 1998, ✓ **INTERNATIONAL CONFERENCE ON MOLECULAR BEAM EPI-TAXY**, Location: Cannes (Alpes-Maritimes, South of France), Contact: Frederic Raymond, Tel: 33-04-93-95-42-17, Fax: 33-04-93-95-83-61, E-Mail: raymond@lucrece.unice.fr, Deadline: Not Available

Sept. 2 - 4, 1998, @ **IEEE INTERNATIONAL CONFERENCE ON SIMULATION OF SEMICONDUCTOR PROCESSES AND DEVICES**, Location: Auditorium Pieter De Somer, Leuven, Belgium, Contact: Timshel, Tel: 32-16-281322, Fax: 32-16-281214, E-Mail: info@timshel.be, Deadline: 2/16/98

Sept. 7 - 9, 1998, ✓ **INTERNATIONAL CONFERENCE ON ACTUAL PROBLEMS OF ELECTRON DEVICE ENGINEERING**, Location: Saratov State Technical University, Saratov, Russia, Contact: Alexander A. Zakharov, Tel: 7-845-2-506760, Fax: 7-845-2-504540, E-Mail: aaz@star.sstu.runnet.ru, Deadline: Not Available

Sept. 7 - 11, 1998, ✓ **IEEE INTERNATIONAL SYMPOSIUM/WORKSHOP ON ADVANCED TECHNOLOGIES**, Location: Lausanne, Switzerland, Contact: Alain Vachoux, Tel: 41-21693-6984, Fax: 41-21693-4663, E-Mail: alain.vachoux@leg.de.epfl.ch, Deadline: Not Available

Sept. 7 - 11, 1998, ✓ **EUROPEAN SOLID-STATE DEVICE RESEARCH CONFERENCE**, Location: Bordeaux, France, Contact: Herbert Gruenbacher, Tel: 43-1-58801-8150, Fax: 43-1-586-9697, E-Mail: hg@visvie.tuwien.ac.at, Deadline: 4/10/98

Sept. 15 - 17, 1998, ✓ **INTERNATIONAL SYMPOSIUM ON PHYSICS AND ENGINEERING OF MILLIMETER AND SUB-MILLIMETER WAVES**, Location: Kharkov State University, Kharkov, Ukraine, Contact: Alexander Nosich, Tel: 380-572-448595, Fax: 380-572-441105, E-Mail: alex@emt.kharkov.ua, Deadline: 4/15/98

Sept. 20 - 23, 1998, # **INTERNATIONAL SYMPOSIUM ON ULTRA CLEAN PROCESSING OF SILICON SURFACES**, Location: Thermae Palace Hotel, Oostende, Belgium, Contact: Marc Heyns, Tel: 32-16-281348, Fax: 32-16-281315, E-Mail: heyns@imec.be, Deadline: 3/31/98

Sept. 23 - 26, 1998, ✓ **INTERNATIONAL CONFERENCE ON ACTUAL PROBLEMS OF ELECTRONIC INSTRUMENT ENGINEERING**, Location: Novosibirsk State Technical University, Novosibirsk, Russia, Contact: Liliya I. Lisitsina, Tel: 7-3832-460619, Fax: 7-3832-465061, E-Mail: nrec@redhouse.nstu.nsk.su, Deadline: 3/10/98

Sept. 29 - Oct. 2, 1998, ✓ **INTERNATIONAL SYMPOSIUM ON SIGNALS, SYSTEMS, AND ELECTRONICS**, Location: Palazzo dei Congressi, Pisa, Italy, Contact: Roberto Sorrentino, Tel: 39-75-585-2658, Fax: 39-75-584-7149, E-Mail: mgwl@unipg.it, Deadline: Not Available

Oct. 2 - 9, 1998, ✓ **INTERNATIONAL SCHOOL ON CHAOTIC OSCILLATIONS AND PATTERN FORMATION**, Location: Holiday Hotel, Saratov, Russia, Contact: Dmitry I. Trubetskoy, Tel: 7-8452-514294, Fax: 7-8452-240446, E-Mail: true@cas.ssu.runnet.ru, Deadline: Not Available

Asia & Pacific (Region 10)

Jan. 14 - 17, 1998 ✓ **INTERNATIONAL CONFERENCE ON COMPUTERS AND DEVICES FOR COMMUNICATION**, Location: Science City, E-M Bye Pass, Calcutta, India, Contact: P.K. Basu, Tel: 91-33-350-9413, Fax: 91-33-351-5828, E-Mail: codec@cucc.ernet.in, Deadline: Past Due

March 23 - 26, 1998, * **IEEE INTERNATIONAL CONFERENCE ON MICROELECTRONIC TEST STRUCTURES**, Location: Kanazawa City-monde Hotel, Ishikawa, Japan, Contact: Masakazu Shimaya, Tel: 81-462-40-2628, Fax: 81-462-40-4219, E-Mail: Not Available, Deadline: Past Due

May 11 - 15, 1998, @ **IEEE INTERNATIONAL CONFERENCE ON INDIUM PHOSPHIDE AND RELATED MATERIALS**, Location: University of Tsukuba, University Hall, Tsukuba, Japan, Contact: Melissa Estrin, Tel: (732) 562-3896, Fax: (732) 562-8434, E-Mail: m.estrin@ieee.org, Deadline: Past Due

June 3 - 6, 1998, @ **IEEE INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & INTEGRATED CIRCUITS**, Location: Rihga Royal Hotel, Kyoto, Japan, Contact: Yoshitaka Sugawara, Tel: 81-6-494-9736, Fax: 81-6-494-9728, E-Mail: None, Deadline: Past Due

June 16 - 17, 1998, ✓ **SEMICONDUCTOR MANUFACTURING TECHNOLOGY WORKSHOP**, Location: China Trust Hotel, Hsinchu, Taiwan, Contact: Rachel Huang, Tel: 886-3-5917232, Fax: 886-3-582-0056, E-Mail: rachel@erso.itri.org.tw, Deadline: Not Available

July 13 - 16, 1998, ✓ **INTERNATIONAL MICROPROCESS AND NANOTECHNOLOGY CONFERENCE**, Location: Hotel Hyundai, Kyungju, Korea, Contact: Hiroaki Masuko, Tel: 03-5814-5800, Fax: 03-5814-5823, E-Mail: config@bcasj.or.jp, Deadline: 3/15/98

Aug. 18 - 20, 1998, ✓ **INTERNATIONAL CONFERENCE ON MICROWAVE AND MILLIMETER WAVE TECHNOLOGY**, Location: Beijing, China, Contact: Mengqi Zhou, Tel: 86-10-68283463, Fax: 86-10-68283458, E-Mail: mqzhou@public.bta.net.cn, Deadline: 3/17/98

Aug. 29, 1998, ✓ **HONG KONG ELECTRON DEVICES MEETING**, Location: Hong Kong University of Science & Technology, Hong Kong, Contact: Charles Surya, Tel: 852-2766-6220, Fax: 852-2362-8439, E-Mail: ensurya@polyu.edu.hk, Deadline: Not Available

Aug. 30 - Sept. 2, 1998, ✓ **TOPICAL WORKSHOP ON HETEROSTRUCTURE MICROELECTRONICS FOR INFORMATION SYSTEM APPLICATIONS**, Location: Shonan Village Center, Hayama-Machi, Kanagawa, Japan, Contact: Dimitris Pavlidis, Tel: (313) 647-1778, Fax: (313) 763-9324, E-Mail: pavlidis@umich.edu, Deadline: Not Available

Sept. 7 - 10, 1998, ✓ **INTERNATIONAL CONFERENCE ON SOLID-STATE DEVICES AND MATERIALS**, Location: International Conference Center Hiroshima, Hiroshima, Japan, Contact: Shoso Shingubara, Tel: 81-824-24-7645, Fax: 81-824-22-7195, E-Mail: shingu@ipc.hiroshima-u.ac.jp, Deadline: 5/22/98

Chapters Meeting

(continued from page 11)

- Many of the chapters spoke to increased activities involving students and have instituted contests to encourage membership, such as best paper and best thesis. The prizes in these contests were such things as free IEEE memberships.
- The chapters spoke of the usefulness of video tapes made available from the society based workshops and short courses. They also spoke about the success of the distinguished lecturer programs.
- Many of the chapters spoke about forming an internet web site and newsletters to promote chapter activities.
- As part of the ED and MTT Student-Teacher and Research Engineer/Scientist Program (STAR), several of the chapters noted successful projects to encourage girls/young women to pursue careers in science and engineering.
- Many of the chapters spoke about successful multi-day workshops and conferences as a means to attract a large number of members.

Chapter Issues and Problems are:

- Chapters continued to speak of difficulties in obtaining up-to-date and accurate lists of members in a form that is needed for European addresses. Maurice Papo strongly suggested that chapters work with their sections on this. If the section was not participating in the IEEE SAMIEEE Program (Section Access to membership information), they should find a PC-literate person and have he/she become the chapters' contact for obtaining lists/labels or even offer to the section to be the section contact for the IEEE SAMIEEE Program. The chapter can also consult the IEEE Brussel's Office or IEEE Operations Center in Piscataway, NJ for help.
- The chapter representatives spoke of the proliferation in meetings and the difficulty in attracting their members to meetings, particularly short evening meetings. Several chapters noted that their members were spread over a large geographical area and it was difficult to get members to travel to meetings. Strong suggestions were made for the chapters to work together to form multi-chapter meetings and to use the distinguished lecturer programs from societies to develop meetings that would draw



From left: Hans Bernd Fischer, Siemens; Klaus Heime, ED Germany Chapter; and Hans Hartnagel, MTT/AP Germany Chapter, listen to the various reports with other attendees of the Chapters Meeting.

large attendances. Ed Labuda noted that LEOS has a mini symposium program to help chapters form strong full day or multiple day events that would draw members.

- A general problem was noted that chapters were finding it difficult to appeal to industrial engineers to join the IEEE. The issue was that they had little to offer these engineers. An observation was made that this is a universal IEEE issue and that the IEEE should develop training material that would attract engineers interested in continuing education.
- Another problem was found in attracting students to the IEEE, which is seen as a major way to sustain membership growth in the future. The programs noted above, such as contests for students and lower dues, will help in this regard, but the IEEE needs to develop programs that will attract students. An observation was made that as the IEEE offers more on-line services, this will draw more students to become members.
- The trend to form multiple society chapters is attractive from the standpoint of building a large base of membership and support. The downside is that the chapters typically do not offer programs that appeal to all of their members. A suggestion was made that these chapters have a steering committee made up of representatives of all of the societies involved in order to set program strategies to appeal to all of their members.
- There was an observation that many of the regional IEEE programs were unknown to the chapters, such as sup-

port for travel to conferences, region-wide student contests, and, in general, chapter support programs. A suggestion was made for the region to publicize its programs more in their newsletters and to encourage sections to communicate more with chapters.

Recommendations for Future Chapter Meetings:

- There was a strong consensus that having the multiple society/division meetings was valuable due to the fact that most of the chapters were so constituted. In addition, most of the issues raised were broad in scope, rather than being associated with a single society.
- The suggestion was made to streamline the chapter reports and limit them to a maximum of ten minutes. There was also a suggestion to increase the amount of instructional content such as running meetings, running chapters, and improving section/chapter/society coordination.
- A suggestion was made to request topical subjects and problems in advance of the meeting and to structure events such as panel discussions to develop solutions to the problems among the participants.
- A suggestion was made to continue the meeting yearly, but to encourage attendance of different people each year to maximize the training and the communication among chapters.

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**Effective 1, June 1997, the area
code of the telephone number
for the EDS Executive Office was
changed to 732.**