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### Table of Contents

Upcoming Technical Meetings .....	1
• 2001 CCD & AIS	• 2001 IITC
• 2001 ICMTS	• 2001 IVEC
Message From the President .....	2
Society News .....	6
• Report on the Educational Activities Committee	
• Three IEEE Members Win Nobel Prize	
• IEEE Divisions I & IV Region 8 Chapters Meeting	
• EDS Members Named Winners of 2001 IEEE Technical Field Awards	
• 1999 Transactions on Semiconductor Manufacturing Best Paper Award	
• William R. Cherry Award	
• Nomination Kits for Class of 2002 IEEE Fellows Available	
• Call for Nominations – 2001 EDS Graduate Student Fellowship	
• Obituaries	
Regional & Chapter News .....	12
EDS Meetings Calendar .....	19

### 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

## 2001 Workshop on Charge-Coupled Devices and Advanced Image Sensors (CCD & AIS)

Image sensors have suddenly become a very hot topic and may become a major category of high volume semiconductor production. This is due to the imminent introduction of imaging device in high volume (>150 million aggregate units/year) consumer applications such as cell phones, PDAs, automobiles, PC-based video teleconferencing, smart toys, and of course, digital still cameras. CMOS-based active-pixel sensors have nearly supplanted charge-coupled devices (CCDs) in most low cost applications, and will be the technology of choice for low power portable applications. The past two years has seen the start up of many small companies in this area, as well as the movement of electronics giants into this CMOS image sensor arena. However, CCDs are still preferred for digital photography, camcorders, and broadcast applications due to their very high quality and maturity, and today still dominate the world marketplace.

The 2001 IEEE Workshop on Charge-Coupled Devices and Advanced Image Sensors will be held June 7-9, 2001 at the Cal-Neva Resort on Lake Tahoe near Reno, Nevada. This year's meeting marks the 15th anniversary of the founding of this workshop. The purpose of this very focused workshop is to bring together researchers in the image sensor community to have in-depth discussions on technical issues, to present recent research results, and to stimulate thinking on new research directions and activities. The program consists of regular oral presentations, and an extended poster session. Attendance is typically limited to approximately 100 persons on a first-come basis to preserve the workshop atmosphere, although priority is given to paper authors. The workshop has become the premiere venue for very high quality state-of-the art presentations and for the discussion of image sensor technology future directions. The proceedings are not published to encourage more open and up-to-date discussion.

Key technical personnel of companies engaged in CMOS and CCD image sensor activities are encouraged to email their intent to participate as soon as possible to the address below. Participation by university faculty and their students is also encouraged.

The workshop is organized by an executive committee, consisting of Dr. Albert Theuwissen of Philips in Eindhoven, Netherlands, Dr. Nobukazu Teranishi of Matsushita, Kyoto, Japan, and Dr. Eric Fossum of Photobit Corporation, Pasadena, California, USA. This year, the general chairman is Eric Fossum. You can be added to the workshop mailing list by emailing your name, position, affiliation and contact information to fossum@photobit.com.

*Eric R. Fossum  
 Photobit Corporation  
 Pasadena, CA*

### 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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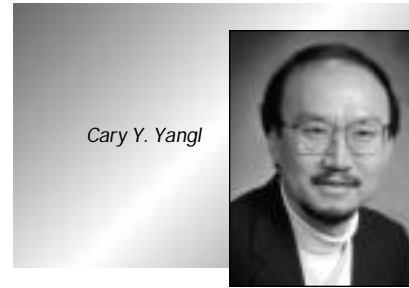
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## Message From the President



Cary Y. Yang

As I promised in my previous message which appeared in the July 2000 issue, I am happy to report to you highlights of progress made in our most recent initiatives. You will hear more about these and others in the current and upcoming issues of this Newsletter.

Our Educational Activities Committee, led by Ilesanmi Adesida (Ade, as he prefers to be called), has pioneered two new programs, namely, Independent Short Courses and Graduate Student Fellowship. You can read more about the details in Ade's article in this issue. These two programs were designed to serve two critical, albeit slightly overlapping, segments of our profession. The Short Courses, as offered in 2000 and planned for 2001, cover topics in the forefront of technologies related to electron devices and are intended for working professionals as well as senior graduate students. The Graduate Student Fellowship Program offers financial support and recognition to outstanding graduate students worldwide. Subject to final approval by the IEEE Board of Directors, this program will commence in 2001.

The editors of the two major EDS periodicals, *Electron Device Letters* and *Transactions on Electron Devices*, are now receiving full administrative support from the centralized publications section of our Executive Office. The three-person staff handles all correspondences with authors and reviewers, and facilitates the timely publication of manuscripts. This important transition, which took place seamlessly over the past 18 months, is the result of dedicated efforts by the Editors-in-Chiefs, Yuan Taur (EDL), Renuka Jindal (T-ED - outgoing), and Doug Verret (T-ED - incoming), our Publications Chair, Steve Hillenius, and the EDS Publications Staff.

The first fully on-line only periodical within IEEE, *Transactions on Device and Materials Reliability* (T-DMR), received final approval from the IEEE Board of Directors last February and began receiving submissions this past Fall. The new *Transactions* is a joint initiative of the EDS and the IEEE Reliability Society. I would like to thank the Chair of the EDS Device Reliability Physics Committee, Lu Kasprzak, for championing this initiative and to the EDS Executive Director, Bill Van Der Vort and his staff for their excellent administrative support. Tony Oates has been appointed as the first Editor-in-Chief of this new on-line journal.

The Regions/Chapters Committee, chaired by Hiroshi Iwai, has undergone major restructuring and presently consists of Regions/Chapters Committee Coordinators (RCCCs). Each RCCC is responsible for one or more of the 10 IEEE Regions and assigns Partners to interface with chapters which require assistance. The intent of this new structure is to further strengthen the tie with our

(continued on page 4)

### EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

#### 2000

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

#### 2001

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

#### \*2002

C. L. Claeys (1)  
J. A. Dayton, Jr. (1)  
M. Fukuma (1)  
K. M. Lau (1)  
K. Lee (1)  
M. L. Ostling (1)  
D. L. Pulfrey (1)  
K. Shenai (2)

Number in parenthesis represents term.

\* Members elected 12/99

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# Upcoming Technical Meetings

## The 14th International Conference on Microelectronic Test Structures (ICMTS)

The Conference will be sponsored by the Institute of Electronics, Information and Communication Engineers, and The Japan Society of Applied Physics, with technical co-sponsorship from the Electron Devices Society. The Conference will be held at the International Conference Center Kobe, Hyogo, Japan, March 19-22, 2001. The conference will be preceded by a one-day Tutorial Short Course on Microelectronic Test Structures on March 19.

The test structures for new process, device and circuit developments become important as the feature size is scaled down into deep submicron; introduction of new materials such as high k or low k dielectrics, new CMOS or SOI devices with high performance and high reliability, and high frequency and precise digital/analog circuit design. Furthermore, an advantage of test structures, which can provide the rapid transfer and quick yield improvement of new LSIs from the R&D section to factories, as well as between factories, becomes widely recognized. The well-designed test structures will support the worldwide distribution of IP (Intellectual Properties) for SOC (System-On-a-Chip) in the 21st century.

The purpose of the conference is to bring together designers and users of test structures to discuss recent developments and future directions. Original papers presenting new developments of microelectronic test structure research, implementation, and application, as well as test structures aimed at new materials/devices characterization in both silicon and compound semiconductors 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 2001 is organized by: General Chairperson, T. Ohzone (Toyama Pref. Univ.); Technical Chairperson, H. Hazama (Toshiba Corp.);



Local Arrangements Chairperson, J. Komori (Mitsubishi Electric Corp.); Tutorial Chairperson, S. Okamura (Fujitsu Labs.); and Equipment Chairperson, S. Habu (Agilent Tech. Japan).

The conference will consist of approximately 8 oral sessions and 1 poster session. Session topics will include: "CD Metrology", "Device Characterization", "Process Characterization", "Yield", "Matching", "Reliability", "Parameter Extraction", and "RF measurements". The poster session is preceded by a short oral presentation by the author to guide conference participants to topics of the specific interest. The best paper of ICMTS 2001 will be announced at the end of the conference, and the formal award will be presented at ICMTS 2002.

The one-day Tutorial Short Course instructors have many years of experience in the field of test structure design, measurements 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 R&D technology and the production technology, which may contribute improved process control, higher product yield and rapid product introduction. The ICMTS 2001 Tutorial will cover 1. Key Note Presentation (Y. Hagiwara, Sony), 2. CD-Measurements (L. W. Linholm, NIST), 3. TCAD (H. Masuda, Hitachi), 4. Parameter Extraction (H. Aoki, Agilent Tech. Japan), 5. SOI Devices (Y.

Sato, NTT), 6. Reliability (S. Shimaya, NTT Electronics), 7. RF Measurements (T. Sugawara, Cascade Microtech). Participants will receive copies of all visual presentations.

There will be an equipment exhibition relating to the latest test structure measurements: measurement instruments, wafer probing equipment, computer software for data analysis, parameter extraction and measurement control.

The Kobe City is situated on the middle of Honshu, the main island of Japan, and Japan's 7th largest city with a population of about 1.4 million. Kobe

is one of the most modern and prominent trading ports in the world. Japan closed the country to foreigners for about 300 years, and then several selected ports, Kobe is one of them, were opened about 130 years ago to the external trade. Thus, historical buildings related to the foreigners are well preserved such as Ijin-kan (Foreigner's Mansion) and Old Settlement. Kobe is located near Japanese historically important tourist areas; such as the castle in Himeji, temples in Kyoto and Nara. In 1981, Kobe City built a convention complex, fully equipped with an international conference center, exhibition hall and hotel, on Port Island—the world's first "Cultural City on the Sea". The ICMTS and a banquet will be held at the International Conference Center Kobe, and the Kobe Portpia Hotel, respectively. Traveling by train, limousine bus or ship from Kansai International Airport near Osaka may be the most convenient and economical way for people from overseas.

For further information concerning the conference, please contact the ICMTS 2001 Secretariat, c/o Center for Academic Societies Japan, Osaka: 1-4-2 Shinsenrihigashi-machi, Toyonaka 560-0082, Japan. TEL: +81-6-6873-2301; FAX: +81-6-6873-2300; E-MAIL: o-conf@bcasj.or.jp or look on the World Wide Web at <http://www.ee.ed.ac.uk/ICMTS>.

*Takashi Ohzone  
Toyama Prefectural University  
Toyama, Japan*

## 2001 International Interconnect Technology Conference (IITC)

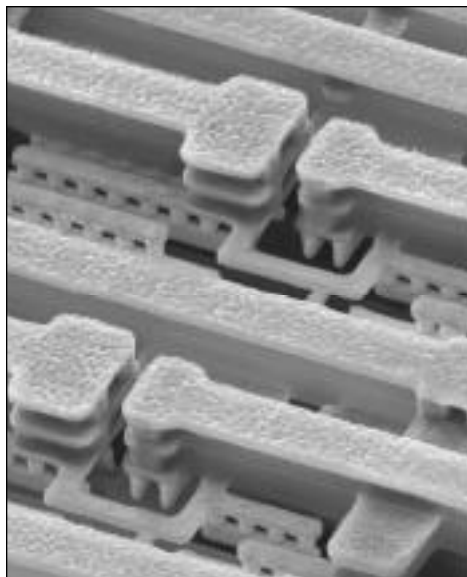
The fourth annual IITC (International Interconnect Technology Conference), the premier conference dedicated to advanced interconnect technology, will be held June 4-6, 2001 at the San Francisco Airport Hyatt Regency Hotel, conveniently located 20 minutes from Silicon Valley or downtown San Francisco.

The IITC was established with the support of the Electron Devices Society to provide an international forum to address interconnect issues from a system level viewpoint. The ever-increasing demand for higher integrated circuit density and performance has led to a crisis in connectivity, and has shifted the design, 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 provides a unique forum for professionals in the semiconductor industry and academia to present and discuss interconnect-related issues and new technology for the fabrication of advanced interconnects in monolithic ICs, multi-chip modules (MCMs) and state-of-the-art packages.

The conference provides several venues for learning and professional interaction. The ever-popular short course addressing advanced interconnect process, design and reliability issues will once again be offered on the day preceding the conference (June 3), and participation is strongly encouraged by those wishing to keep abreast of the latest interconnect technology. Without doubt, the cost and performance of ULSI circuits strongly depend on the capability and productivity of interconnect materials and processing equipment. In recognition of this critical role, supplier exhibits and seminars are included as an integral part of the IITC technical program and will be held on the first and second days of the conference. The exhibits and seminars offer additional learning and networking opportunities, and provide alternative forums to address specific technological challenges.

Oral presentations and poster papers offered during the conference span a broad range of interconnect technology topics which 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, 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, met-

al/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-related circuit performance modeling and high frequency characterization; interconnect system integration, including system-on-a-chip (SoC) and advanced packaging concepts (flip-chip, chip-on-chip, MCM); novel device architectures; advanced interconnect concepts (3D, rf, optical, superconductors, etc.).

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 to novel interconnect schemes.

Professionals involved in interconnect-related activities are strongly encouraged to participate in this exciting new conference. Detailed information can be obtained from the IITC website: <http://www.ieee.org/conference/iitc>. For additional information or inquiries regarding supplier exhibits and seminars please contact Wendy Walker, IITC Administrator, Widerkehr & Associates, TEL: 301-527-0900 Ext. 104, FAX: 301-527-0994, E-MAIL: [iitc@his.com](mailto:iitc@his.com).

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### President's Message

*(continued from page 2)*

chapters worldwide, as well as to promote the formation of new ones.

Our technical committees are presently under the coordination of Vice President Steve Hillenius. Subject to an AdCom vote in December, 2000 to change our Constitution and Bylaws, the committee chairs will receive voting privileges. We have formed a new Technical Committee on Nanotechnology as part of an IEEE-wide initiative to take the lead among professional societies in this emerging

multidisciplinary field.

I urge you, as EDS members, to participate in some or all of these new activities. It has been my great pleasure and privilege to serve you in the past year. On behalf of all AdCom members, I thank all of you for being part of the EDS family in the year 2000.

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

## 2001 International Vacuum Electronics Conference (IVEC)



The second International Vacuum Electronics Conference (IVEC) will be held at the Huis Ter Duin on the shore of the North Sea in Noordwijk, The Netherlands, April 2-4, 2001, under the sponsorship of the European Space Agency (ESA) with the IEEE Electron Devices Society (EDS) serving as technical co-sponsor. IVEC 2001 will build on the momentum established by the first IVEC, which drew nearly 400 participants from throughout the world to Monterey, CA in May, 2000.

The format planned for IVEC 2001 will begin with a half-day plenary session followed by two days of parallel oral sessions, space for concurrent poster presentations and a plenary closing session. Two page abstracts for IVEC 2001 should be submitted electronically to [www.estec.esa.int/CONFANNOUN/IVEC2001](http://www.estec.esa.int/CONFANNOUN/IVEC2001) by November 10, 2000. Marco Guglielmi of ESA will serve as General Chair of IVEC 2001. Guglielmi will be assisted by the IVEC 2001 Programme Committee, consisting of Richard Carter of Lancaster University, UK; Georges Faillon of TTE, France; Gunter Kornfeld of TTEG, Germany; Hans Frischolz of CERN, Switzerland; Vladimir Savvin of Moscow State University, Russia; Manfred Thuum of FZK, Germany, and Clifford Weatherup of Marconi, UK.

IVEC 2001 will be organized around the principle applications of vacuum devices, which are space, telecommunications, radar, displays and ISDM (industrial, scientific and medical). The technical topics of the conference will include classic vacuum devices, vacuum microelectronics, systems and subsystems, theory and supporting technologies.

IVEC 2001 will seek papers on a wide range of classic vacuum devices, including

traveling wave tubes, crossed field devices, klystrons, inductive output tubes, fast wave devices, free electron lasers, pulse compression devices, high pulsed power devices, plasma filled amplifiers, triodes, tetrodes, pentodes and switches. In the area of vacuum microelectronics, IVEC is seeking papers on microwave and millimeter wave devices, displays, sensors, field emitter arrays and microwave devices. Under systems and subsystems, IVEC is including component parts (guns, collectors etc.), microwave power modules, electronic power conditioners, power supplies, linearizers, amplifier/antenna coupling, device and subsystem integration, reliability and life. Under the heading of theory and technologies, IVEC is seeking papers on computer analysis and modeling, novel materials, electron emission, RF and high voltage breakdown, linearity, intermodulation, noise, measurement techniques, miniaturization and thermal control.

IVEC will meet annually, rotating between the USA, Europe and Asia. The Space TWTA Workshop, previously sponsored by ESA in 1989, 1991, 1994 and 1997, has been expanded in scope to become the European leg of IVEC. Similarly, the Monterey Power Tube Conference, which had been held every other year since 1978, has been expanded in scope and participation to become the US leg of IVEC. In 2002, IVEC will return to Monterey and in 2003, IVEC is scheduled to meet in Korea.

IVEC had its origins in the Fall of 1997 when EDS organized the Technical Committee on Vacuum Devices. The purpose of the committee is to advise EDS on publication and conference policies and on trends in technology. From the beginning, there was a strong sentiment within the committee to create an international conference focused exclusively on vacuum electronics. James A. Dayton, Jr., formerly of NASA Lewis Research Center and now with Hughes Electron Dynamics in Torrance, CA, organized the Technical Committee and serves as its Chair. The other members of the Technical Committee and their affiliations follows:

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Banaras Hindu University,  
Varanasi, India

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Seoul National University,  
Seoul, Korea

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Naval Research Laboratory,  
Washington, DC, USA

Vladimir Savvin,  
Moscow State University,  
Moscow, Russia

Armand Staprans,  
Communications and Power Industries,  
Palo Alto, CA, USA

Richard B. True,  
Litton Systems Inc.,  
San Carlos, CA, USA

# Society News

## Report on the EDS Educational Activities Committee

Ilesanmi Adesida



The Educational Activities Committee is one of the standing committees of the Society. Its broad charge is to provide opportunities and the forum for members to expand their knowledge of our technical fields. The Committee also seeks to provide opportunities for the society to attract new members and to assist in promoting student activities. These objectives have provided the road map for the activities of the Educational Activities Committee for the year 2000. The members of the Committee are appointed by the Chair and approved by the President of the Society and the current membership strength is twenty. The Chair is Ilesanmi Adesida of the University of Illinois at Urbana-Champaign and the other members are April Brown (Georgia Tech), K. S. Chari (India), M. Estrada del Cueto (Mexico), G. Golan (Israel), Y. Hagiwara (Japan), W. M. Huang (Motorola), K. Kornegay (Cornell University), R. Koudelka (Yale University), L. Lunardi (JDS Uniphase), N. R. Nikolov (Bulgaria), S. A. Parke (Boise State University), J. S. Prasad (Micrel Inc.), M. D. Profirescu (Romania), A. A. Santos (National Semiconductors), E. A. Sopensky (Iris Corporation), S. Tyagi (Intel), C. R. Viswanathan (UCLA), and J. C. S. Woo (UCLA). The wide geographical distribution of the membership reflects the intense globalization efforts of the Society over the past few years.

The Committee meets twice a year during the Spring and Fall AdCom meetings. Businesses during the intervening period are conducted by e-mails, phone calls, faxes, and other communication means. This year we have mostly used the e-mail route.

At the beginning of the year, the committee mapped out four areas of initiatives and activities that we will focus our attention on for the years 2000 and 2001. Subcommittees were created to handle the four initiatives which are the EDS Distinguished Lecturer (DL) Program, Graduate Fellowships, Short Courses, and Outreach. We

have made progress on all fronts. In this article, we will report our progress on the Graduate Fellowships and Short courses. However, we should brief the Society about our objectives on the others. We seek to establish some useful metrics for the effectiveness of our DL program. Under the leadership of the previous EduCom Chair, Professor Jerry Woodall of Yale University, the DL Program was expanded to include members of the AdCom and other approved individuals as Distinguished Lecturers. It is our intention to review the program and to quantify (if possible) the satisfaction of our Chapters' Chairs and the membership, so as to sustain and improve the program. Lecturers will also be polled on their presentations and opinions on the program. Another subcommittee under the leadership of K. Kornegay is looking into mechanisms for reaching out to minority schools and engineering organizations, as well as to women's engineering societies to engage in collaborative programs. A particular focus will be to assist minority schools to create viable EDS Student Chapters. Reports on these activities will be made in the future.

Unlike other IEEE Societies, the EDS did not have a program on Graduate Fellowships. The creation of such Fellowships has been discussed for a few years with no outcomes. However, this year we decided that it was time to move, and to that end, a subcommittee was constituted under the leadership of Arlene Santos and with representatives from other standing committees to work out the modalities and guidelines for the award of Fellowships to graduate students in the technical areas under the purview of EDS. It is my pleasure to report that the subcommittee has done an excellent job! The guidelines that they drafted were presented and then approved by the Executive and Administrative Committees at the Spring Meeting in Toulouse. Further, the IEEE Technical Activities Board Awards and Recognition Committee has approved the guidelines and budget for the Fellowships. The detailed Call for Nominations can be found in this issue of the EDS Newsletter.

As the readers of the last issue of this Newsletter would have seen, the EDS has established the Vanguard Series of Independent Short Courses! This was the result

of intensive activities of a subcommittee within the EduCom. Although, the subcommittee is chaired by myself, the successful launching of the Vanguard Series is due to the tireless Emily Sopensky and essential contributions by the EDS President, Cary Yang. The format is to provide one-day intensive short courses on leading edge technologies to experienced engineers. The courses and locations are designed such that the costs are modest on the part of the participants. The first six-hour course on "Circuit Designs and Technology for RF-CMOS" was conducted by Professor Asad Abidi of UCLA in Austin, Texas on July 27, 2000. This was attended by over eighty participants from universities and industry. Two other courses in the series were each presented by Professors J. Campbell and S. Banerjee of the University of Texas at Austin in October 2000. The tentative plan is to conduct four courses in 2001. Two courses on Dielectrics and Packaging have been identified and will be given in April and July, respectively. More information on the short courses can be obtained from Emily Sopensky at [e.sopensky@ieee.org](mailto:e.sopensky@ieee.org) and on [www.ieee.org/shortcourses/](http://www.ieee.org/shortcourses/).

If you have any suggestions or information on our current activities or other activities that you may want us to engage in, please contact me at [i.adesida@ieee.org](mailto:i.adesida@ieee.org).

Ilesanmi Adesida  
University of Illinois  
Urbana-Champaign, IL

### Three IEEE Members Win Nobel Prize

IEEE/EDS Members, Jack Kilby and Herbert Kroemer won the 2000 Nobel Prize for physics, along with IEEE Member Zhores Alferov. The Nobel Prize this year was awarded "for basic work on information and communication technology." The citations are as follows:

*Jack Kilby* - "for his part in the invention of the integrated circuit"

*Zhores Alferov and Herbert Kroemer* - for developing semiconductor heterostructures used in high-speed- and opto-electronics"

These individuals were research pioneers in the technology which underlies today's mobile phones, CD players and fiber optics tele-communications. Check the next issue of the EDS Newsletter for further details on this award.

## IEEE Divisions I & IV Region 8 Chapters Meeting — Paris, France



The Divisions I and IV Region 8 Chapters Meeting was held in Paris, France on October 1, 2000, in conjunction with the European Microwave Conference (EuMC). This is an annual meeting to allow the chapters and societies to get together and discuss the issues of Region 8 which covers Europe, the Middle East and Africa. This is the fifth annual meeting which started as an initiative to promote chapter formation and particularly to promote participation in Eastern Europe and the former Soviet Union. The goal of this year's meeting was to help chapters in the region serve the membership and to determine ways that societies can help less active chapters increase their activity.

Region 8 Director, Rolf Remshardt, introduced the region consisting of over 260 chapters and 35 different countries. He and Tony Davies, who is the Region 8 Chapter Coordinating Committee Chair, reported on the great success that the region has had in the last several years in creating new chapters. The concern is that some of the new chapters need to be more active to be effective. Guidelines to identify and help inactive chapters for chapter rejuvenation are being set-up. The minimum need for a chapter to be active is to hold 2 meetings a year. Most active chapters do much more to bring in DLs and to organize seminars and other events.

Society presidents, Roger Sudbury of MTTs, Cary Yang of EDS, Joe Butler of EMCS and Tom Milligan of APS and representatives of LEOS, CPMTS, CES, CASS, NPSS, and SSCS all reported on the activities of the societies in the region. All of the societies reported on the specific efforts to get more society influence into the chapters and all have a strong interest in globalization. Chapters can get significant support from each of the societies for activities. The EDS society gave nearly \$16K for DL support alone.

Peer Martin Larsen of the Denmark Section, discussed the member development on the chapter level. He made the point that each chapter is sponsored by both the society and the section. The sections coordinators can help the chapters in regional issues for the recruitment, retention, recognition and recovery

of members. Such practices as being sure that there is membership promotional material available at each chapter and section meeting was emphasized. The IEEE Operations Center in Brussels is set up to serve as a local information source for chapters in the region. It is also a source of merchandise information that can be used for recognition and promotional events.

Ralph Wyndrum, Division I Director, reported on the technical future of the IEEE. He reported that at the board level of IEEE there is a serious discussion on how to deal with the changes going on in the industry and the new areas. Both at the technical advisory board and the organizational level of the IEEE, there is active discussion on how to adapt to the technical changes and opportunities available now. There is also

serious discussion on how the IEEE should be organized which may affect the structure of the regions and divisions.

Michael Lightner, Chair of the TAB Products Committee discussed the new products that this committee is exploring. These products will be geared towards improving the convenience of creating and distributing the publication packages. Although IEEE is competitive with others, the world of web based distribution and more competition from commercial publications is challenging the model of how we do things.

The afternoon was spent reviewing and discussing each chapter and examining best practices. Eighteen chapters reports were heard from (Georgia, Moscow, Novosibirsk, St. Petersburg, Ukrain, East Ukraine, West Ukraine, France, Ireland, Germany, South Africa, Italy, UK, Bulgaria, Hungary, Egypt, Israel, and Yugoslavia) in which each chapter reviewed recent activities and issues. The best practices: in the areas of, newsletters, student recruiting, meetings, close relationships with research departments of universities, student competitions and awards, were all reviewed and shared.

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

## EDS Members Named Winners of the 2001 IEEE Technical Field Awards

Four EDS Members were among the winners of the 2001 IEEE Technical Field Awards. They are:

Dr. P. Daniel Dapkus, professor at the University of Southern California, won the IEEE David Sarnoff Award. His citation states, "For contributions both to the establishment of MOCVD as a dominant technology for epitaxial materials growth, and to the first MOCVD quantum well laser."



Dr. P. Daniel  
Dapkus

Internationally recognized as distinguished researcher, Dr. P. Daniel Dapkus has been a key leader in the development of metalorganic chemical vapor deposition (MOCVD) practically since the technology's inception. His research has had a

major impact on the devices, circuits, and systems that are crucial to technologies such as telecommunications and high-speed computer interfaces.

Dr. Dapkus joined Rockwell International in 1976, where he led a group that was largely responsible for making MOCVD a viable technology for heterojunction devices. His leadership and collaboration resulted in many pioneering demonstrations of new devices using MOCVD, including a groundbreaking quantum well laser. He also played a key role in establishing that MOCVD was capable of producing high-purity materials and high-efficiency solar cells.

In 1982, Dr. Dapkus joined the faculty of the University of Southern California (USC), where he is now the W.M. Keck Professor. There, he established a leading

(continued on page 8)

## Field Awards

(continued from page 7)

research program in photonics using MOCVD as a tool in his research. He has directed research in many subjects, including photonic materials and devices, reaction rates and growth mechanisms, and new regimes of growth, such as atomic layer epitaxy. Recently, his research has been key in the development of vertical cavity surface emitting lasers, a technology that has become important to telecommunications and computer interconnects.

Paul Daniel Dapkus was born on 26 January 1944, in Chicago. He earned a B.S. with honors in Engineering Physics, an M.S. in Physics, and a Ph.D. in Physics from the University of Illinois at Urbana-Champaign in 1966, 1967, and 1970, respectively. Dr. Dapkus joined Bell Laboratories in 1970, where his work was a key to developing certain light-emitting diodes, which were later commercialized very successfully.

Co-founder of the USC's Center for Photonic Technology, Dr. Dapkus has served as the Director for several terms. He was also a leader of the National Center for Photonic Technology, a multi-university consortium funded by DARPA to advance photonic technology.

Dr. Dapkus is a Fellow of the IEEE and the Optical Society of America. He holds several patents and has published over 300 refereed papers in scientific journals. The many honors he has earned include the Engineering Achievement Award and Distinguished Lecturer title of the Lasers and Electro-Optics Society, and the USC Lockheed Senior Research Award.

Dr. R. Fabian W. Pease, professor in the Department of Electrical Engineering at Stanford University, won the IEEE Cleo Brunetti Award. His citation states, "For advancing high resolution patterning technologies,



Fabian W. Pease

high performance thermal management, and scanning electron microscopy for microelectronics."

Through inspired work and innovative leadership, Dr. Fabian Pease has repeatedly made seminal contributions to high-resolution patterning technologies, high-performance thermal management, and scanning electron microscopy.

Dr. Pease's contributions date to the early 1960s, when, as a Ph.D. student, he

developed a groundbreaking scanning electron microscope, which demonstrated 10nm resolution. Since then, he has continued to fuel major progress in his field, including pioneering advances in low-energy electron beams, process development for manufacturing scale mask production, heat-sinking for device cooling, and the use of proximal probes for patterning.

In 1967, Dr. Pease joined the technical staff of Bell Laboratories, where he led a group that developed the processes for electron beam lithographic mask manufacture, and demonstrated a pioneering LSI circuit built with electron beam lithography. In 1978, he was appointed Professor of Electrical Engineering at Stanford University, where he remains today.

R. Fabian W. Pease was born on 24 October 1936, in Cambridge, England. He served as a radar officer in the Royal Air Force from 1955 to 1957, and received his B.A., M.A., and Ph.D. degrees from Cambridge University in 1960, 1962, and 1964, respectively. After graduating, he was an Assistant Professor of Electrical Engineering at UC Berkeley for three years.

On sabbatical in 1993 and 1994, Dr. Pease conducted research on the synthesis of DNA microarrays at Affymetrix Corporation. From 1996 to 1998, he was assigned to the Defense Advanced Research Projects Agency, where he initiated programs in Advanced Microelectronics and in Molecular-Level Printing. He has served as a consultant to IBM, Xerox, Etec Systems, and Lawrence Livermore Labs and is on the Technical Advisory Boards of Ultratech Stepper, San Jose, CA and Affymetrix, Santa Clara, CA.

A Fellow of the IEEE, Dr. Pease has served the Institute in a variety of capacities. He is also a member of the National Academy of Engineering. With his student, David Tuckerman, he received the first IEEE Paul Rappaport Award. Numerous other honors include the Richard P. Feynman Prize for Microfabrication, which he shared with a student, for writing a page of text with 25nm linewidths; the Golden Eagle Award for advancement of lithography development from Ultratech Stepper; the Dean's Award for Academic Achievement; and the Title A Fellowship from Trinity College, Cambridge.

Dr. Katsutoshi Izumi, professor at the Research Institute for Advanced Science and Technology at Osaka Prefecture University, won the IEEE Daniel E. Noble Award. His citation states, "For pioneering development of Separation by Implant-

ed Oxygen (SIMOX) technology."

Dr. Katsutoshi Izumi pioneered SIMOX technology decades ago and has been a leader in making the technology a commercial success ever since. This technology now has important applications in the manufacture of everything from high-performance computers and wideband networks to low-power, portable devices.

Early in his career, Dr. Izumi spearheaded the development of a technique to implant energetic oxygen ions into silicon to form a buried oxide layer, called SIMOX. The surface silicon layer is used to fabricate transistors, and has proven to be especially relevant as the industry strives to develop high-speed, low-power integrated circuits. In addition, Dr. Izumi pioneered the design of a high-current, high-speed implantation machine, which helped to make the process commercially viable, and has led the development of numerous leading structures and devices that incorporate SIMOX technology.

Dr. Izumi joined the Musashino Electrical Communication Laboratory, NTT, in 1972. There, he performed research on high-resistivity, thin-film materials, and pioneered aspects of SIMOX, including the basic concepts, specifics of fabrication, and applications. More recently, he was responsible for research and development of SIMOX technology, including devices, processes, and materials for VLSI use, as well as other research and development activities based on SIMOX. He has repeatedly demonstrated record-breaking speeds from low-power CMOS circuits.

Katsutoshi Izumi was born on 3 July 1943, in Ehime Prefecture, Japan. He earned an M.S. in Electrical Engineering from Nagoya Institute of Technology in 1972, and a Ph.D. in Electronics from Tokyo Institute of Technology in 1988. Dr. Izumi retired from NTT in 1999, and is currently a Professor at the Research Institute for Advanced Science and Technology, Osaka Prefecture University.

Dr. Izumi is a member of the IEEE; the Institute of Electrical Engineers of Japan; the Institute of Electronic, Information, and Communication Engineers of Japan; the Japan Society of Applied Physics; the Materials Research Society; and the Electrochemical Society. He holds 27 patents, has published more than 50 papers, and has played a key role as an organizer and leader of numerous important conferences and symposiums. The



Katsutoshi Izumi



many honors he has received include the Notable Invention Prize of the Japanese Government's Science and Technology Agency, and the SSDM Award of the International Conference on Solid-State Devices and Materials.

Dr. Al F. Tasch, Chairs one of the Cockrell Family Regents in Engineering at the University of Texas at Austin, won the IEEE Andrew S. Grove Award. His citation states "For contributions to MOS technology, and ion implantation and device modeling."



Al F. Tasch

A leader in both industrial and academic fields, Dr. Al F. Tasch has been an insightful, creative, and groundbreaking contributor to MOS technology, ion implantation, and device modeling. His countless contributions to MOS research laid the groundwork for many of the field's most promising innovations.

Dr. Tasch joined the Central Research Laboratories of Texas Instruments in Dallas, in 1969. During his 13 years there,

he made major contributions in the understanding and conception of new MOS dynamic memory cell structures, laser-recrystallized silicon-on-insulator, and submicron MOSFET structures.

In 1982, Dr. Tasch moved to Motorola, where he headed the start-up of a Motorola MOS IC manufacturing facility. In 1984, he was appointed Director of the Advanced Products Research and Development Laboratory, which was responsible for the MOS technology development for Motorola's MOS IC products. He was later appointed Vice President of the Technical Staff in Motorola.

In 1986, Dr. Tasch joined the Department of Electrical and Computer Engineering at the University of Texas at Austin, where he currently occupies one of the Cockrell Family Regents' Chairs in Engineering. There, he has played a major role in expanding the silicon-based education and research program. Dr. Tasch and his graduate students have made major contributions to the areas of deep submicron MOS device analysis and modeling, and in the understanding and modeling of ion implantation in silicon.

Al Tasch was born on 12 May 1941, in Corpus Christi, Texas. He received his B.S. degree from the University of Texas at Austin, and his M.S. and Ph.D. degrees in Physics from the University of Illinois at Urbana-Champaign. His graduate thesis research laid the groundwork for the widely known Deep Level Spectroscopy and related approaches in use today for characterizing impurities in semiconductors.

Dr. Tasch is a Fellow of the IEEE, a Texas Instruments Fellow, and a member of the National Academy of Engineering. He holds 38 U.S. patents and has published over 380 papers. He has received numerous awards, including the IEEE Electron Devices Society J.J. Ebers Award, the Model and Software Development Award from SEMATECH, the Technical Excellence Award from the Semiconductor Research Corporation, the Hocott Distinguished Centennial Engineering Award from the University of Texas at Austin, and the University Leadership Award from the Semiconductor Industry Association, and the Electronics Division Award from the Electrochemical Society.

## 1999 IEEE Transactions on Semiconductor Manufacturing Best Paper Award

The IEEE *Transactions on Semiconductor Manufacturing* (TSM) Best Paper Award is presented annually to the authors of the paper considered by the TSM Editorial Board 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 potential or immediate impact that this work could have on the semiconductor manufacturing industry. This award, presented at the annual Advanced Semiconductor Manufacturing Conference, recognizes the ongoing partnership of this conference and the IEEE.

The Editorial Board is pleased to announce that the paper entitled "Automated Generation of Thin Film Process Flows - Part I: Basic Algorithms" by M. Zaman, E. Carlen, and C. Mastrangelo has been recognized as the best paper published in the 1999 Transactions. This paper, which appeared in the February issue, describes algorithms used in the development of Michigan synthesis tools for integrated circuits (MISTIC). a planar device process

compiler that automatically generates process flows from schematics. The unique capabilities of the MISTIC TCAD package have been demonstrated using a BiCMOS technology example with very encouraging results.

Edwin Carlen received the B.S. and M.S. degrees in electrical engineering from Oakland University and is currently working towards the Ph.D. degree in electrical engineering at the University of Michigan. He has been working as a Research Assistant in the Solid-State Electronics Laboratory at the University of Michigan since 1996. Currently his research involves solid state microsensor and device technology.



Edwin Carlen

Carlos H. Mastrangelo was born in Buenos Aires, Argentina, in 1960. He received the B.S., M.S., and Ph.D. degrees in electrical engineering and computer science from the University of California, Berkeley, in 1985, 1988, and 1991, respectively.

His graduate work concentrated on the applications of microbridges in microsensor technology. He worked at the Scientific Research Laboratory, Ford Motor Co., Dearborn, MI, from 1991 through 1992 developing microsensors for automotive applications. He is currently an Associate Professor of electrical engineering and computer science at the Center for Integrated Microsystems, University of Michigan, Ann Arbor, and the Vice President of Engineering at IntelliSense Corporation. His research focuses on microsensor and microelectromechanical system applications and technology, microfluidic systems, and integration, design, and modeling of complex fabrication processes.



Carlos H. Mastrangelo

Dr. Mastrangelo received the AT&T Ph.D. fellowship award in 1987. In 1991, he received the Sakrisson award for the best dissertation in the department. He received

(continued on page 10)

## Best Paper Award

(continued from page 9)

the 1991 Counsel of the Graduate Schools/University Microfilms Distinguished Dissertation Award for the best technical dissertation in the United States and Canada. He received a 1993 NSF Research Initiation Award and a 1994 NSF Young Investigator Award.

Mohammed H. Zaman received the B.S.E. degree in electrical and electronic engineering in 1991 from Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh. He received the M.S.E. and Ph.D. degrees in electrical

engineering and computer science in 1995 and 1997, respectively, from The University of Michigan, Ann Arbor. His graduate work concentrated in the development of planar process compilation methods and their implementation in MISTIC (Michigan Synthesis Tools for Integrated Circuits).

From 1991 to 1993, he was a Lecturer in the Department of Computer Science and Engineering, BUET. From 1997 to 1999, he was with Microcosm Technolo-



Mohammed H.  
Zaman

gies, Cambridge, MA, where he worked on the development of AutoMM, a tool for automatic generation of macro-models for Micro-Electro-Mechanical Systems (MEMS). In early 2000, he joined the Communications Division of Analog Devices, Wilmington, MA, where he is involved in the design and formal verification of DSP chips for RF and Wireless Systems. His research interests include automation of deep sub-micron IC design, device-process interaction, electronic and technology CAD.

Dr. Zaman is a Member of Tau Beta Pi.

Gary S. May

Georgia Institute of Technology  
Atlanta, GA

## William R. Cherry Award



Dr. Christopher R.  
Wronski

During the 28th Photovoltaic Specialists Conference held in Anchorage, Alaska the week of September 18th, Dr. Christopher R. Wronski, was recognized as the recipient of the William R. Cherry Award. The award is named in honor of William R. Cherry, a founder and pioneer of the photovoltaic community. In the 1950s, he was instrumental in establishing solar cells as the ideal satellite space power source and for recognizing, advocating, and nurturing the use of photovoltaic systems for terrestrial applications. The award was instituted in 1980, at the 14th IEEE PVSC,

shortly after Bill Cherry's death.

In his introduction of the 15th recipient of this award, Dr. Larry L. Kazmerski observed that the award recognizes Dr. Wronski for his lifetime of work and for outstanding contributions to the advancement of our solar electric technology.

'Chris' Wronski is the Leonhard Professor of Microelectronic Materials and Devices with a joint appointment in Electrical Engineering, Engineering Science and Mechanics, and the Materials Research Laboratory. Before joining the Pennsylvania State University in 1987, he carried out research on optoelectronic materials and devices in industrial laboratories between 1963 and 1986. In 1976, Dr. Wronski co-invented with Dr. David Carlson the hydrogenated amor-

phous silicon solar cell. This important development in solar energy led to worldwide effort in applied and fundamental research of amorphous silicon based technologies. His work resulted in several key discoveries of novel optoelectronic phenomena (e.g. the Staebler-Wronski Effect), as well as improved understanding of new materials such as amorphous silicon based superlattices. For this pioneering work on amorphous silicon solar cells, he was awarded the prestigious IEEE Morris N. Liebmann Memorial Award in 1984. He is a Fellow of both the IEEE and the APS.

John D. Meakin

University of Delaware  
Newark, DE

## Nomination Kits for Class of 2002 IEEE Fellows Available

The IEEE Fellow Nomination Kit for the 2002 class of IEEE Fellows will be available starting November 2000. The Fellow Kit can be downloaded at [www.ieee.org/about/awards/fellows/](http://www.ieee.org/about/awards/fellows/) or requested in hard copy format by sending an email to [fellow-kit@ieee.org](mailto:fellow-kit@ieee.org). Please include your name, mailing address, telephone number and the number of kits you would like to receive.

Any person, including non-members, are eligible to serve as a nominator with the following exceptions: members of the IEEE Board of Directors, members of the IEEE Fellow Committee, IEEE Technical Society/ Council Fellow Evaluating Committee Chairs, members of IEEE Technical Society/Council Evaluating Committees reviewing the nomination, or IEEE Staff.

A Candidate must be an IEEE Senior Member at the time the nomination is submitted, his/her IEEE membership dues must be current, and he/she must have completed five years of service in any grade of IEEE Membership.

The deadline for receipt of complete IEEE Fellow Nominations is 15 March 2001.

-IEEE Awards Department

# Call For Nominations - 2001 Electron Devices Society Graduate Student Fellowship

**Description:** One year fellowships awarded to promote, recognize, and support graduate level study and research within the Electron Devices Society's field of interest: Compound Semiconductor Devices and Circuits, Device Reliability Physics, Displays, Electronic Materials, Microelectromechanical Systems, Optoelectronic Devices, Photovoltaic Devices, Power Devices and ICs, Semiconductor Manufacturing, Vacuum Devices, VLSI Technology and Circuits.

At least one fellowship will be awarded to students in each of the following geographical regions every year: Americas, Europe/Mid-East/Africa, Asia-Pacific.

**Prize:** US\$5,000 to the student, US\$1,000 grant to the student's department, US\$1,000 grant to the student's faculty advisor in support of the student's project, travel subsidy of up to US\$3,000 to each recipient to attend the IEDM for presentation of award plaque. The EDS Newsletter will feature articles about the EDS Graduate Fellows and their work over

the course of the next year.

**Eligibility:** Candidate must: be an IEEE EDS student member at the time of nomination; be pursuing graduate education within the EDS field of interest on a full-time basis; and continue his/her studies at the current institution with the same faculty advisor for twelve months after receipt of award. Sponsor must be an IEEE EDS member. Previous award winners are ineligible.

**Basis for Judging:** Demonstration of significant ability to perform independent research in the fields of electron devices, proven history of academic excellence in engineering or physics curriculum through awards and prizes.

**Nomination Package:**

- Nominating letter by an EDS member
- Two-page (maximum) statement by the student describing his or her education and research interests and accomplishments
- One-page biographical sketch of the student
- One copy of the student's transcripts

- Two letters of recommendation from individuals familiar with the student's research and educational credentials

**Timetable:**

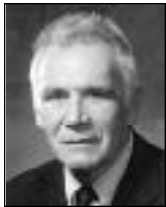
- Nomination packages will be due at the EDS Executive Office no later than May 15, 2001
- Recipients will be notified by July 15, 2001
- Monetary awards will be given by August 15, 2001
- Formal presentation of the awards will take place at the IEDM Awards Ceremony in December 2001.

Send completed package to: IEEE Operations Center, EDS Executive Office, EDS Graduate Student Fellowship Program, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 USA.

**For more information contact:** Dr. Ilesanmi Adesida at [i.adesida@ieee.org](mailto:i.adesida@ieee.org).

*Ilesanmi Adesida  
University of Illinois  
Urbana-Champaign, IL*

## Obituaries



Marion Hines

Marion E. Hines, an electronics engineer whose career spanned fifty-four years of outstanding achievement in the field of microwave theory and techniques, died of cancer at the age of 81 at his summer home in Marstons Mills, MA.

Mr. Hines was born in Bellingham, Washington. He received the B.S. degree in Applied Physics in 1940 from the California Institute of Technology; the B.S. degree in Meteorology in 1941, and the M.S. degree in Electrical Engineering in 1946. He served in the Army Air Force as a weather officer in WWII.

Marion's aptitude for physics preceded and went far beyond his formal education. His physical insight into things electronic allowed him to intuitively grasp the answer even before he could prove it. This talent plus an insatiable curiosity led him to a life of inventions. His contributions resulted in over 50 technical papers and oral presentations, and he held over 40 patents.

From 1946 to 1960, Mr. Hines was a

member of the Technical Staff at Bell Telephone Laboratories. He worked in areas of microwave tubes, solid-state power generation devices and stripline propagation using ferrites. With H.E. Elder in 1957, he demonstrated the first negative-resistance varactor (Originally named by Marion to describe variable reactance devices) diode parametric amplifier.

In 1960, he joined Microwave Associates, Inc. in Burlington, MA. With his co-workers he established many of the fundamental principles of varactor harmonic generation and developed practical microwave power sources using these principles. He made important contributions to the theory and practical implementation of microwave power switching and phase shifting using semiconductor diodes. He led development of harmonic-generator-type microwave sources, high-power signal-control devices, and solid-state microwave oscillators and amplifiers. He was a pioneer in developing theoretical understanding of IMPATT and Gunn-effect diodes. These developments had major impact in the development of military radar systems, and later in compact microwave

electronics for commercial wireless applications.

Mr. Hines' technical prowess and outstanding abilities as a teacher and mentor enabled him to nurture the successful careers of many talented individuals with whom he has worked. With all these attributes, Marion was first and foremost an engineer. His professional life was devoted to discovering, inventing, and/or improving applications for the engineering community. His thoughts were clear, had no political agenda, were available to the public, and delivered with unmistakable conviction.

Marion received the Outstanding Paper Award from the IEEE Solid State Circuits Conference in 1967, and was elected IEEE Fellow in 1968. He is the only person to have received the IEEE Microwave Theory and Techniques Society's Microwave Prize twice, first for his 1971 paper on ferrite propagation, and again as a co-author in 1978 for a paper on phase-locked amplification. In 1976, Mr. Hines was awarded the J.J. Ebers Award from the IEEE Electron Devices Society. In 1983, he received the

*(continued on page 12)*

# Regional and Chapter News

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

### MTT/ED/AP/CPMT/SSC Nizhny Novgorod Chapter

- by Yuri Belov

During this Fall, our Chapter organized small exhibitions of IEEE magazines at small private firms, "Commercial Information Networks", and at the Institute of Electronics Measurements, "Kwarz". The importance of the project is the fact that the Chapter subscribers do not frequently use some copies of IEEE magazines (Transactions and others). It depends on a concrete practical interest. Thus, owners of the copies permitted the collection and use of them at a "mobile magazine exhibition" during the fourth quarter of the year. An advertisement about the planned event was presented during the Chapter annual meeting. In a short period after the meeting, the copies of the mentioned magazines were donated to the Chapter Chair's office. The idea is that a member of the Chapter, who is responsible for the exhibition event, makes calls to institutions and organizations which do not belong to the Chapter and suggests the borrowing by them of the collected copies of magazines for a period of 2-3 weeks. The delivery and return of the mobile library is performed by interested organizations. The benefit to the Chapter is an expected growth of subscribers to IEEE publications during the 2000 year campaign.

The Chapter has started preparatory activities for two main events being planned for next year. The first of these events is the Scanning Probe Microscopy International Workshop (SPM 2001). It is being organized by the Institute for Physics of Microstructures of the Russian Academy of Sciences, with the aim of disseminating the results of research groups and exchanging experience in the solid surface research by means of scanning probe microscopes. The SPM-2001, the fifth in the series of All-Russia annual workshops, will take place in the ancient Russian city Nizhny Novgorod 25-28 February 2001, and for the second time it is technically supported by IEEE. The scope of the meeting will include presentations in the areas of scanning tunneling microscopy and spectroscopy, atomic-force microscopy, optical near-field microscopy, physics of microcontacts, probe microscopes as applied to development and study of nanostructure properties, and original microscope designs and novel methods of surface research.

A second event, which is planned to be held in September 2001, is the 5th All-Russian Workshop, "Semiconductors-2001" (300-400 participants are expected). It is a great meeting, also organized by the Institute for Physics of Microstructures of the Russian Academy of Sciences, while the MTT/ED/AP/CPMT/SSC Nizhny Novgorod Chapter participates as a co-sponsor. Other main co-sponsors of the workshop are the Russian

Ministry for Industry, Science and Technology, the Russian Fund for Basic Research, and other institutions. Basic scientific and engineering topics of the "Semiconductors-2001" workshop will be: Heterostructures and superlattices; 2-D structures; electronic and magnetic properties, tunneling phenomena; epitaxy and related surface phenomena; quantum wells; Surface and thin films; scanning probe microscopies, surface atomic process; 1-D structures and quantum dots; mesoscopic and low dimensional transport; wide band-gap semiconductors: new technology and devices; Lasers and LEDs; new photodiodes; new transistors, etc.

Details of both meetings are available at the web site <<http://www.ipm.sci-nnov.ru/>>.

### Report from the 5th International Conference on Actual Problems of Electronics Instruments Engineering (APEIE'2000)

-by Boris Kapilevich and Lilija Lisitsina

During the last five years, the Novosibirsk State Technical University in Novosibirsk-city, Russia, has regularly organized the International Conference on Actual Problems of Electronics Instruments Engineering in co-operation with the Joint IEEE MTT/ED/CPMT/COM/SSC Chapter. This year, the APEIE'2000 has attracted both Russian and foreign specialists for discussions concerning some selected topics of their academic and industrial interests.

## Obituaries

(continued from page 11)

IEEE Lamme medal, as well as the Microwave Career Award. He received the IEEE Centennial Medal in 1984.

Marion Hines approached life with vigor, purpose, honesty, and humility. He held strong opinions, but was always a gentleman, and a gentle man.



Donald Scharfetter

Scharfetter, Donald Lee, resident of Los Altos Hills and Spanish Bay passed away on September 23rd after an inspirational battle with cancer at the age of 66.

He is survived by Marie, his devoted wife of 45 years and eternal soul mate; his 3 darling daughters Lou Anne McKeefery of Milpitas, Linda Santos of Scotts Valley and Deborah Scharfetter of Los Altos; his 6 adored grandchildren Catherine and Martin McKeefery, Teresa and Trevor Santos, Nathan and Renée Jebe; his loyal sons in-law James McKeefery and Walter Jebe.

After being the first in his family to receive a high school diploma, Don completed four years in the Air Force. Utilizing the GI Bill, he entered Carnegie Mellon University, in Pittsburgh PA, in 1956. He set a University record by receiving his BS degree in 1960, his MS in 1961 and his Ph.D. in 1962 in Electrical Engineering. After college Don joined Bell Labs in New

Jersey where he spent the first 14 years of his notable career. During this time he was awarded the prestigious status of IEEE Life Fellow and recognized for his invention of the Scharfetter-Gummel algorithm. Following Bell Labs, Don was a tenured professor at Carnegie, then moved to Los Altos Hills, California in 1978 to direct the formation of the IC Prototyping Lab at Xerox PARC. He spent one year as a MacKay Professor at UC Berkeley prior to joining Intel in 1987. Don retired from Intel in April 1999. He was currently enjoying his retirement as a Consulting Professor at Stanford University.

Don will be remembered for his honesty, integrity and generosity, as well as his many contributions to the electronics industry.

The Conference was developed quite successfully and demonstrated a higher activity of professionals.

Vol. 1 – Selected papers covering basic Conference's topics;

Vol. 2 – Electronic-physics processes including Gas Discharge, Vacuum Tubes and Manufacturing Technologies Facilities;

Vol. 3 – Liquid Crystals and their applications. Materials for Electronic Instrument Engineering. Devices and Control Systems;

Vol. 4 – Sensor Electronics. Power Electronics. Design and Fabrication Features;

Vol. 5 – Medical Electronics including Lasers, Microwaves and their Application in Biology and Medicine;

Vol. 6 – Measurements in Electronics Engineering including Microwaves and RF range;

Vol. 7 – Radio Engineering including Electric Hydroacoustics and Hydrolocation Signals Processing. Modeling and Computing Techniques.

The total number of papers submitted to APEIE'2000 increased to 400. The number of speakers participating in different session presentations was about 1,000 from 40 cities in both Russia and abroad.

Based on the active support provided by mother Societies, the appropriate professional groups have been formed by a local Chapter that consists of about 80 members at present. By permanently contacting local professionals, we have understood that there is a good potential for increasing IEEE membership in West Siberia. The APEIE'2000 has recently assisted in consolidating our efforts in this area. As a result, the Novosibirsk Chapter has recently been expanded to include the Solid State Circuits Society. A new LEOS Chapter has been formed in Novosibirsk, as well as an ED Student Branch. Also, a new ED/AP/COM/MTT/EMS Chapter in Tomsk has recently been organized.

We are sure that numerous speakers and attendees of APEIE'2000 have definitely brought new knowledge and a stimulus for future R&D in this fast growing field of modern Science and Technology. There are no doubts that APEIE'2000 has enhanced new contacts between representatives of educational and industry organizations making the Conference a success.

#### **ED Romania Chapter**

- by *Gheorghe Brezeanu*

For the past several months, the activities of the ED Romania Chapter included some interesting events, the most impor-



*Participants of the APEIE Conference at the Plenary session.*

tant of which was the organization of the CAS 2000 Conference. In April 2000, our chapter organized a technical meeting on High Voltage Diodes on SiC at the Romanian Academy of Sciences. The distinguished lecturers made an outstanding review of the historical developments of SiC devices from the discovery phase and basic technology to modern SiC devices. Future trends of devices based on this semiconductor were also discussed. Over 25 participants from universities, research institutes and the Academy appreciated the benefits of such a meeting.

In May, the ED Romania Chapter organized the annual professional student contest "Tudor Tanasescu" at "Politehnica" University, Bucharest. A total of 35 undergraduate students from all Romanian technical universities took part in two sections of this event: Analog Integrated Circuits and Signals, Circuits and Systems. The examination consisted of analysis and design problems. Eleven students were awarded with PC Peripherals (HDDs, CD-RW units, monitors, printers, etc.), technical books, and IEEE/EDS membership vouchers. The ED Society and Romanian Microelectronics firms sponsored the contest. A significant number of the ED Chapter members were involved in the contest preparation and a strong impact on the students was achieved.

Our chapter is deeply involved in the organization of the 23rd edition of the International Semiconductor Conference (CAS 2000), which is financially supported by EDS. Ten student papers from France, United Kingdom, Belgium and Romania were selected from among more than 25 submitted for this edition. Our chapter will cover the conference fees and accommodation expenses for some of the authors of accepted papers. The excellent response to our Student Paper action for CAS 2000 Conference is the reason for us to consider it as the Best Practice of the EDS Romania Chapter in this year.

#### **MTT/ED Moscow Chapter**

- by *Vadim Kaloshin*

The joint IEEE MTT/ED Moscow Chapter was founded in 1996 as the first Russian IEEE chapter. The chapter currently has 39 members. The Chapter Chair is Vadim Kaloshin (E-mail: vak@mail.cplire.ru) and the Vice-Chair is Vladimir Cherepenin (E-mail: cher@cplire.ru).

The level of chapter activities has been steadily increasing during the recent years. The main chapter activity in 2000 was the organization of workshops and recruiting of new IEEE members.

The chapter was a technical sponsor of four monthly workshops: Solid State Electronics (Chair Prof. Vladimir Mokerov), Electromagnetism and Materials (Chair Dr. Alexey Vinogradov), Electrodynamics (Co-Chair Prof. Victor Shevchenko) and Computational Electromagnetism (Co-Chair Prof. Yuri Shestopalov). In 2000, the chapter has organized 2 administrative meetings and a total of 14 technical meetings, which were held in the form of seminars with several 30-45 minute reports. The technical meetings included 7 seminars on Physics and Technology of Solid Micro and Nanostructures (held in the period January-June 2000), 4 seminars on Electromagnetism and Materials (February-June 2000), and 3 seminars on Electrodynamics of Condensed Ambiences (held in May, June and September 2000).

#### **ED/SSC Yugoslavia Chapter**

- by *Ivica Manic*

The ED/SSC Yugoslavia Chapter began its activities in 2000 with an annual chapter meeting, held on the 21st of January at the Faculty of Electronic Engineering, University of Nis. Professor Ninoslav Stojadinovic, Chapter Chair, presented the report for 1999 and plan of activities for 2000, which both were supported and adopted. A traditional promotion of new chapter members, followed by a cocktail party, was organized.

The next chapter meeting, at which videotapes from the 1998 IEDM Short Course, "New Generation TCAD," were shown, was held at the University of Nis on the 7th of April. The tapes were borrowed from the EDS Videotape Lending Library and were also used in the STAR program activities. This was a whole day meeting, with a lunch break. Besides chapter members, all postgraduate students from the Department of Microelectronics attended the meeting.

The most important activity of the ED/SSC Yugoslavia Chapter in 2000 was the organization of the 22nd International Conference on Microelectronics (MIEL 2000), that was held 14-17 May 2000 at the Faculty of Electronic Engineering, University of Nis, Yugoslavia. A detailed report on the conference has already been published in the October issue of the EDS Newsletter.

Our chapter was greatly involved in the organization of the Session "Microelectronics and Optoelectronics", which was held at the 44th Yugoslav Conference on Electronics, Telecommunications, Computer Science, Automatics, and Nuclear Science (ETRAN 2000, Soko Banja, 26-29 June 2000). In total, 42 high quality contributed papers were presented in addition to one invited lecture entitled, "Noise in Microelectronics" given by Prof. Milan Jeftic (Institute of Physics, Belgrade).

The EDS/SSC Yugoslavia Chapter, in co-operation with the Yugoslav Simulation Society, organized the 1st Small Systems Simulation Symposium (SSSS 2000), which was successfully held on 4-5 September at the Faculty of Electronic Engineering, University of Nis. Well-known specialists in the field from five countries (UK, France, Switzerland, Austria, and Yugoslavia) presented eleven papers (four invited and seven contributed). Taking into account the initial success, as well as the interest of prospective participants, our intention is to apply for IEEE technical co-sponsorship for the next issue of SSSS.

The chapter has an ambitious plan for the next period. Several chapter events will be organized on the occasion of the 40th Anniversary of the Faculty of Electronic Engineering in Nis in November, 2000. The initial activities concerning the organization of the MIEL 2002 conference has already begun, and the list of invited speakers and first call for papers will be ready by the end of 2000. The Session "Microelectronics and Optoelectronics" at the ETRAN 2001 conference will be organized, as well. Regular chapter meetings with invited lectures and videotape presentations will also be arranged. As during last year, the chapter will be actively engaged in the STAR program and in supporting the activities of University of Nis ED/SSC Student Branch Chapter.

For more information, please contact the Chapter Chair, Prof. Ninoslav Stojadinovic; E-MAIL: nino@unitop.elfak.ni.ac.yu.

### **MTT/AP/ED Czechoslovakia Chapter** *by Vitezslav Benda*

The 5th International Seminar on Power Semiconductors ISPS'2000, was organised by the IEE Czech Centre in co-operation with the IEEE Czechoslovakia Section and Department of Electrotechnology of the Czech Technical University in Prague. The seminar took place at the Faculty of Electrical Engineering in Prague, Czech Republic, from 30 August to 1 September 2000. All together, 41 participants from 11 countries of three continents took part in this event.

The Seminar provided a forum for technical discussion in the area of power semiconductor devices. During the Seminar, four invited keynote papers, 14 papers in oral sessions (under the headings Device Physics and Technology, Power Bipolar Devices, Voltage Controlled Devices and Power Integration) and 22 papers in Dialogue Session 1 and Dialogue Session 2 presented results of research work.

Papers presented at the ISPS'2000 were of very good quality and a high number (more than 75% of participants) took part in all sessions. Each paper presentation was followed by a rich and interesting discussion. All presented papers were published in the ISPS'2000 Proceedings, and the best papers will be published in a special issue of the Microelectronics Journal.

Besides paper presentations, a round table discussion dealing with present problems of education and research in the field of power semiconductors took place within the programme of the conference. Participants discussed both present problems and future trends to a system approach. The discussion will be summarized by N. Stojadinovic, and important points and conclusions will be published in the Microelectronics Journal.

As a related scientific event, the Short Course on "How to Design Power Semiconductor Devices to meet Challenges of the New Millennium" was given by K. Shenai.

All participants in the ISPS'2000 appreciated the Seminar as a very interesting meeting which provided a good opportunity to discuss important problems connected with the present state of technology and to make contacts in both research and education. The participants also appreciated the friendly atmosphere of the Seminar. They evaluated the ISPS2000 to be one of the best non-commercial conferences in the field of Power Semiconductors and recommended organization of similar events in the future. Vitezslav Benda was delegated to organize the 6th International Seminar on Power Semiconductors in Prague in the

beginning of September 2002. Information about the ISPS'02 will be given in the Spring of 2001.

—Ninoslav Stojadinovic, Editor

### **ED Sweden Chapter**

*- by Mikael Östling*

After the Summer, the ED Sweden chapter arranged a technical seminar entitled, "Next Generation TCAD for Advanced RF Micro-electronics" by Robert W. Dutton, Professor of Electrical Engineering, Stanford University. The seminar was highly appreciated and attracted about 30 participants.

A huge effort by students and senior researchers from the ED Chapter resulted in a very successful arrangement of the 26th European Solid State Circuits Conference (ESSCIRC 2000). During September 18-22, ESSCIRC 2000 was organized by the Royal Institute of Technology in the research center Electrum, Kista. This year's conference attracted more than 400 participants which was a record high. The conference's main topic this year was circuits for wireless applications. The location to the "Wireless valley" Kista in Scandinavia helped in attracting so many participants. The technical program of the ESSCIRC 2000 included 8 invited papers, 66 oral presentations and 50 posters, out of 217 submitted contributions from all over the world. In addition, 4 workshops were devoted to "Design Techniques for Mobile Equipment", "CAD for Mixed Analogue-Digital and RF ICs", "RF-Circuits" and "Systematic Analogue Design". In addition to co-arranging the conference, the Chapter also sponsored the best poster paper contest won by F. Bruccoleri, E.A.M. Klumperinck and B. Nauta for the paper, "Generating All 2-Transistor Circuits Leads to New Wide-Band CMOS LNAs".

—Mikael Östling, Editor

### **ED Israel Chapter**

*-by Gady Golan*

The Elected President of IEEE (2001), Prof. Joel Snyder, visited Israel in March 30-31.

Prof. Ady Seidman, Chairman of the IEEE Israel Section, joined him throughout his professional visits to Israeli universities (Technological Inst. of Holon), as well as to some of the Israeli leading industries. Prof. Snyder gave a lecture at the Technological Institute of Holon to the Faculty of Electrical Engineering students. Following his lecture, a discussion was opened on the trends in the electrical engineering industry worldwide. At the end of his trip to Holon, Prof. Snyder visited the Microelectronics Center,



*ISPS 2000 Participants*

directed by Dr. Gady Golan.

The ED Israel Chapter arranged a meeting at the Technological Academic Institute - Holon on May 4th, 2000. The main event at this meeting was a lecture of Mr. Alex Axelevitch (a Ph.D. student) on "Bilayer structure of Pd-Al<sub>2</sub>O<sub>3</sub> thin films for UV vidicon applications". The meeting was organized by Dr. Gady Golan and Prof. Nathan Croitoru, Chair of IEEE-EDS Israel Chapter. The audience was mostly composed of local students from the Faculty of Electrical Engineering at the Technological Inst. of Holon.

The ED Israel Chapter arranged a meeting at the Technological Academic Institute - Holon in June 1st, 2000. The main event at this meeting was a lecture by Dr. Gady Golan, secretary of ED Israel Chapter on: "Atomic Force Microscopy Investigation of Dislocations Structure and Deformation Characteristics In Neutron Irradiated Silicon Detectors". The audience was mostly composed of local students from the Faculty of Electrical Engineering at the Technological Inst. of Holon.

—Gady Golan, Editor

### **ED/MTT France Chapter**

-by Daniel Pasquet

The ED/MTT France chapter consists of 350 members. It has organized a lot of events in 1999 and 2000. The cooperation with other European chapters has been enhanced. In particular, the 1999 annual chapter's workshop has been co-organized in Saint-Malo with the AP/MTT Germany chapter, the AP/MTT Benelux chapter and the ED Central and South Italy chapter. The topic was "New Semiconductor Materials for Telecommunication and Microwave".

A series of 3 summer schools on "Interaction between Microwaves and Optics"

have been held in 1998, 1999 and 2000 in the French Alps under Prof. Béatrice Cabon's responsibility. A summer school on "Systems in Radio-Frequencies" has been organized by Prof. M'hamed Drissi in Rennes in September 2000. All these events have had around 40 attendees.

The 12th "International Symposium on Power Semiconductors and ICs", organized by Dr. Georges Charitat, in Toulouse in May 2000, gathered 300 participants.

The huge European Microwave Week was held in Paris in October 2000 and attracted about 1,500 persons. This week consisted of three major European Conferences (European Microwave Conference, Gallium Arsenide Application Symposium and European Conference on Wireless Technologies) and 14 short courses and workshops. The Week involved a large part of the Chapter members.

In conjunction with some events, two IEEE meetings were organized: the EDS AdCom in May, 2000 in Toulouse, the Divisions I & IV Region 8 Chapters Meeting in October in Paris.

It has been decided to publish twice a year a Chapter's Letter entitled Flash-Info. The first issue was published in June, 2000. This is the opportunity to show to the whole MTT and ED communities the dynamism of their activities. We hope that the IEEE membership does not only coincide with a simple Transactions subscription.

A student branch is being constituted in Toulouse (ENSEEIH). It will be used as an example for the other French regions.

### **ED Germany Chapter**

-by Franz-Josef Tegude

The chapter organized two workshops both held at the Gerhard Mercator University in Duisburg:

- Heterostructure Bipolar Transistor Workshop, October 9-10, in combination with the
- 12th III-V Semiconductor Device Simulation Workshop, October 10 – 11.

This combination offered a suitable forum for discussion and an exchange of results between experts in the field of simulation and those of HBT technology.

The device simulation workshop has a long tradition with meetings previously held in Lille (1983, 1991, 1999), Leeds (1985, 1993), Duisburg (1986, 1994), Leuven (1988), Torino (1989, 1997), and Eindhoven (1996).

Topics of interest, with special emphasis on III/V, were simulation and modelling of III/V devices (HEMT, MESFET, HBT, resonant tunneling devices, quantum devices etc.) including noise aspects and process simulation. The HBT-Workshop covers all relevant areas from epitaxy, process technology, characterization to circuit design and mixed signal issues.

Workshop organization: Dr.-Ing. Wolfgang Brockerhoff, Dipl.-Ing. Michael Agethen and Prof. Dr. rer. nat. Franz-Josef Tegude  
E-MAIL: Brockerhoff@hlt.uni-duisburg.de.

### **ED Central & South Italy Chapter**

-by Salvatore Bellone

During the last year the chapter organized a series of seminars:

In November, 1999, Prof. Mikael Ostling of the Royal Institute of Technology, Stockholm, (Sweden) as EDS distinguished lecturer, gave two talks on "Silicon Carbide Based Devices" and "Silicon Carbide: Material and Processing," respectively held at the University of Salerno and the University of Naples. Besides a profound introduction into material and process problems, an excellent overview regarding SiC-based new high power and high frequency devices was given. These lectures were attended by about 30 scientists of the region and more than 200 students. The event was also used to present the IEEE/EDS activities to the audience, which resulted in the following affiliation of more than 30 new students to the EDS.

In May, 2000, Prof. Martin Green, from the University of New South Wales, Sydney (Australia), gave two lectures, titled "Photovoltaics: Important Issues and Applications of the Next Decade" and "High Efficiency Silicon Solar Cells" also within the EDS Distinguished Lecturer Program. These lectures, held in Salerno and Portici and jointly organized with the National Research Centre for Photovoltaics (ENEA, Portici), gave the opportunity to listen to an excellent overview regarding the state-of-the-art of Silicon based photovoltaics, and stimulated discussions between local electron device specialists and students and Prof. Green about the future developments in photovoltaics.

Another event sponsored and co-organized by our chapter was a seminar cycle (June, 2000) in Naples and Salerno

regarding information technology. One aim of this event was to bring together academics with the local semiconductor industry. Ing. Giuseppe Savarese, Micron (Avezzano), spoke about "Recent developments regarding semiconductor memories" Ing. Roberto Sabella, Ericsson Research Centre (Rome), introduced questions regarding the "Technology and evolution of telecommunication networks" and Dr. Massimo Melanotte, ST Microelectronics (Catania), gave a lecture on "Non-volatile memories: technology and future developments". In connection with this seminar cycle, also attended by a great student number, the possibility of graduating students to develop their thesis subject in collaboration with industries was discussed.

### ED Spain Chapter

-by Ramon Alcubilla

With the technical co-sponsorship of the EDS, the 7th Euroregional Workshop on Thin Film Silicon Solar Cells was held in Barcelona on October 26 and 27. This workshop brought together the European Groups with research activity on amorphous, nanocrystalline and microcrystalline silicon solar cells.

In addition, the CDE 01 (Electron Devices Conference 2001) will take place in Granada the 15 and 16 February. This Conference, in its third edition, congregates the Spanish groups working on the electron devices field.

—Christian Zardini, Editor

## Asia & Pacific (Region 10)

### ED/LEO Victoria Chapter

-by Dolma Novak

The Victorian ED/LEO Chapter held a seminar at the University of Melbourne on July 10, 2000. The speaker was Dr. Gunnar Edwall from Ericsson Sweden who gave an overview of photonics research activities at Ericsson. More than 30 people attended the excellent presentation.

### AP/ED Bombay Chapter

-by Juzer Vasi

On August 1, 2000, the Bombay Chapter organized a talk on "Key challenges in gate module for deep submicron CMOS technologies", by Dr. Lucky Vishnubhotla of International SemaTech, Austin, Texas, USA. The talk, which focussed on gate dielectrics in the 1.5 – 3 nm regime, including unconventional dielectrics, was attended by about 80 people.

On August 27, 2000, the Bombay Chapter organized a one-day workshop on "Microelectronics", jointly with the IEEE student branch of the V.E.S. Institute of Technology in Bombay. The workshop presented tutorial and advanced material on several aspects of microelectronics: physics, technology, simulation and design. The target audience was the student body in Bombay, and the goal was to popularize microelectronics among students. The workshop was very successful, and attracted over 150 students from many engineering colleges in Bombay.

The Chapter arranged a screening of the 1999 IEDM Short Course videos on "Sub-100 nm CMOS" on August 29 and 30, 2000. This was attended by about 50 researchers and students working in the area of MOS devices.

On September 6, 2000, the Chapter organized a 2-hour long panel discussion on "Careers in VLSI in India". The panelists included 4 persons from leading VLSI industries in India, and 2 from academia. This event, which attracted about 150 people, was also extremely successful, and helped create awareness about exciting careers opportunities in VLSI now available in India.

### ED/MTT India Chapter

-by K.S. Chari

A national Seminar-cum-exhibition titled, "Fibrecomm 2000-Future of Telecommunication: Fibre optics, the road to Convergence", was organized by the Chapter jointly with the Fibre Optic Association Inc., India Chapter. The event, which was held at Rama International, Aurangabad on the 1st and 2nd of July, 2000, featured a series of presentations on Fibre optics technology and implementation, fibre optic applications in convergence, fibre optic communication and trends and advances in fibre optics technology and components. The seminar was inaugurated by Mr. Shyamal Ghosh (Secretary, Department of Telecommunications). It contained an exhibition of fibre optics and related device products by leading industries in the area. Dr. Mansoor Saifi (USA), Mr. Michael Magon (Alcatel, France), Mr. Jack Bottoms (Sterlite International Operations), Mr. Akhil Agarwal (Ministry of Railways), Mr. Anuj Srivastava

(Dept Telecommunications Delhi), Mr. Anand Jatkar (RPG Cables Mumbai), Mr. S N Gupta (IRCON Intl Ltd.), Col Sachin Dasgupta, (ASCON, MOD), Mr. S K Gupta (VSNL Mumbai), Dr. Anand Srivastava (CDOT Delhi), Dr. Shevegaonkar (IIT Mumbai) and Mr. Ranjan Sen (CGCRI) presented their papers at the Seminar. Dr. KS Chari and Dr. Shroff presented a paper entitled, "Trends and Advances in Fibre Optic Technology: Photonics - Connectivity and Beyond". The Seminar was well attended by 200 participants from industry, research institutes and academia. Dr. Satyan Prakash, Mr. Ashok Panjwani and Mr. Navin Aggarwal and Dr. C G Ravi have taken a lead role in organizing the event.

A 2-day national workshop on "Broadband Photonics links" was organized by the National Centre for Radio Astrophysics (NCRA) at the Tata Institute of Fundamental Research (Pune) during the 27th - 28th August, 2000, with sponsorship from Ministry of Information Technology and the Chapter. The workshop covered areas of broadband photonics networks, fibre optics data links, high speed access networks, Broadband WDM systems, microwave photonics and optical fibre communications. The Workshop also had an interactive session with the industry, research and the academia on the future and trends of photonics. The experts that addressed the Workshop were: Prof. R Nityananda (Director NCRA), Prof. Ananthkrishnan (Director GMRT), Dr. Kumar Sivarajan (Tejas Networks, Bangalore), Dr.V.Sambasiva Rao (Space Applications Centre, Bangalore), Dr. Anand Srivastava (CDOT Delhi), Mr. Vishwanathan (DOT Mumbai), Mr. R Sankararaman, Mr. A Praveenkumar, Mr. R Balasubramaniam, Mr. S Sureshkumar, Mr. Ajith Kumar and Dr. Y Gupta (NCRA Pune). The Workshop attracted about 150 participants across the country from industry, research and academic groups.

Two lectures titled, "Introduction to 2D



Fibrecomm 2000 delegates.



Semiconductor Process Modeling" by Mr. N B Singh (Scientist, CEERI Pilani) and "CMOS Technologies at Semiconductor Complex" by Dr. D N Singh (Executive Director (VLSI), SCL Chandigarh) were held on the 7th and 11th of September, 2000, respectively, in the Process Characterization Laboratory, Ministry of Information Technology, New Delhi. About 30 researchers attended these discussions.

The Chapter Chair visited the current STAR Schools (Aggarsain Public School, D.A.V Public School and Maharana Pratap Public School) at Kurukshetra on 30th August, 2000. To introduce the STAR program to more regions, schools in Andhra Pradesh are likely to join the STAR batch soon. There was overwhelming response this year and the STAR program attracted about 200 students. The principals of the Kurukshetra schools, Mrs. P. Singh, Mrs. Anita Rawal and Mrs A. Phillip and their STAR faculties participated and planned for STAR events for the next year.

To further the membership drive, the Chapter Chair visited the Electronics and Communication Department of Maharashtra Institute of Technology (Pune) and Electronics Science Department of Kurukshetra University on 29th and 30th August, respectively. As a consequence of these visits, 6 new enrollments to IEEE/EDS were made. A web page for the Chapter has been designed to better inform members, and to encourage members to participate in chapter activities.

#### **CPMT/ED/R Singapore Chapter**

-by Y. C. Ng

The main activities for this quarter are the preparation by the sub-committee of the 8th International Symposium on the Physical & Failure Analysis of Integrated Circuits (IPFA 2001). This event will be held 9 - 13 July, 2001. The first Call for Papers was sent out both by mail and electronic means (e-mail/internet web). The IPFA is organized by a volunteer committee. Currently, it is a bi-annual conference. Looking forward to the millennium challenge, a team is working to make this event as an annual conference.

IPFA 2001 is organized by the Chapter in co-operation with the Centre for Integrated Circuit Failure Analysis and Reliability (CICFAR) of the National University of Singapore (NUS) and the Institute of Microelectronics (IME). The Symposium is technically co-sponsored by the IEEE Electron Devices Society. The Symposium will be devoted to the fundamental understanding of the physical mechanisms of device

failures and issues pertaining to device reliability, especially those related to advanced process technologies. The areas that are covered in the Symposium are: advanced failure analysis techniques, dielectric and hot-carrier reliability, packaging and metallization related failure mechanisms, EOS/ESD and CMOS latchup, practical Issues in built-in reliability, reliability and failure analysis in specialist devices (e.g. power semiconductor devices, optoelectronic devices, compound semiconductors and micro electro-mechanical systems). A 3-day exhibition of physical analysis equipment and services will be held concurrently with the Symposium. More information can be obtained from the IPFA web site at <http://www.ewh.ieee.org/reg/10/ipfa>.

For further information, please contact Dr. SH Ong, TEL: +65-5592-452; E-MAIL: soon.huat.ong@nsc.com,

-W. K. Choi, Editor

#### **ED Korea Chapter**

-by Se-Geun Park

The second chapter meeting was held at Inha University on September 25, 2000 after showing videotapes of the IEDM short course. The tapes were borrowed from the IEEE EDS Executive Office. The number of attendees was 35. The agenda of the meeting was how to effectively take part in the events that the Chapter sponsors next year, and how to encourage scientists and engineers in Korea to join the IEEE.

One of the events that the Chapter has sponsored is the 'Korean Conference on Semiconductor'. It will be held at COEX Convention Center in Seoul, Korea starting February 14, 2001, and now has announced a call for papers. If interested you can visit the web site - <http://kcs.cosar.or.kr>.

Another conference is the '2001 Asia-Pacific Workshop.' It was held at Okinawa, Japan this year, and is scheduled at Jeju Island, Korea in July next year. It has been jointly organized by the Institute of Electronics Engineer of Korea (IEEK), the Institute of Electronics, Information and Communication Engineers (IEICE) of Japan, and IEEE ED Japan Chapter. More information on



*TWHM'00 Excursion*

this Workshop can be obtained from the Secretary, Professor Roh of Sunkyunkwan University, E-MAIL: [yhroh@yurim.skku.ac.kr](mailto:yhroh@yurim.skku.ac.kr).

#### **Report of the 2000 International Microprocesses and Nanotechnology Conference (MNC 2000)**

-by Masanori Komuro

The 2000 International Microprocesses and Nanotechnology Conference was held in Tokyo from July 11 to 13 with a satellite symposium of "Application of Synchrotron Radiation to Studies of Nanostructures Materials" prior to the conference. A total of 303 people attended the conference from Japan, Korea, USA, Taiwan, China and other countries. Three special symposia for discussing recent topics were organized; "VUV-EUV Lithography as the Optical Solutions beyond 100 nm Devices", "High-Throughput EB Lithography" and "Bio MEMS, Lab on a Chip". The conference was composed of 23 distinguished invited talks and 123 regular papers as oral and poster presentations. The conference proceedings will be published in the Japanese Journal of Applied Physics through the reviewing procedure. This year, two new awards, the Most Impressive Presentation and Young Author's Award were established in addition to the Outstanding Paper and the Most Impressive Poster Awards. The winners will be honored in next year's conference. The next conference will be held in Matsue-City, a beautiful city facing the Japan Sea in west Japan in November, 2001. For details, please contact Mr. Hiroaki Masuko, Secretariat for MNC 2000, c/o Business Center for Academic Societies Japan, TEL: +81-3-5814-5800, FAX: +81-3-5814-5823, E-MAIL: [mnc@bcasj.or.jp](mailto:mnc@bcasj.or.jp) and look at the MNC 2001 Web Site: <http://www.nano.ee.es.osaka-u.ac.jp/mnc/>

*(continued on page 19)*

# EDS Meetings Calendar

(As of 6 November 2000)

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

February 2001, T **Conference on High-Temperature Electronic Materials, Devices and Sensors**, Location: Calamarian Hotel, San Diego, CA, USA Contact: Barbara Hickernell Tel: +1 212 591 7836 Fax: +1 5212 591 7441 E-Mail: engfnd@aol.com Deadline: 11/30/00 www: <http://www.engfnd.org>

February 15 - 16, 2001, T **Electron Devices Conference**, Location: University of Granada, Granada, Spain Contact: Juan Roldan Aranda Tel: +011 34 958 244071 Fax: +011 34 958 243230 E-Mail: jroldan@ugr.es Deadline: 10/30/00 www: <http://gcd.ugr.es/cde-2001>

February 26 - March 2, 2001, T **Russian Scientific-Practical Conference of Students, Young Scientists and Specialists** "Modern Technique & Technology" Location: Tomsk Polytechnic University, Tomsk, Russia Contact: Oleg Stoukatch, Tel: +011 7 3822 233077 Fax: +011 7 3822 223262 E-Mail: ird@tusur.ru Deadline: 11/15/00 www: Not Available

March 5 - 7, 2001, T **European Workshop on Materials in Advanced Metallization** Location: Stockholm, Sweden Contact: Margreth Hellberg, Tel: +011 46 8 752 1128 Fax: +011 46 8 752 1240 E-Mail: mh@ele.kth.se Deadline: Not Available www: Not Available

March 14 - 16, 2001, T **Conference on Advanced Research in VLSI** Location: Salt Lake City, Utah, USA Contact: Erik Brunvand, Tel: +1 801 581 4345 Fax: +1 801 581 5843 E-Mail: elb@cs.utah.edu Deadline: 10/10/00 www: [www.arvlsi.org](http://www.arvlsi.org)

March 19 - 22, 2001, @ **IEEE International Conference on Microelectronic Test Structures** Location: International Conference Center Kobe, Kobe, Japan Contact: Tomoko Hamada, Tel: +81 6 6873 2301 Fax: +81 6 6873 2300 E-Mail: thamada@bcasj.or.jp Deadline: 8/25/00 www: <http://www.ee.ed.ac.uk/ICMTS>

March 19 - 21, 2001, T **International Conference on Modeling and Simulation of Microsystems, Semiconductors, Sensors & Actuators** Location: Hilton Oceanfront Resort, Hilton Head, SC, USA Contact: Sarah Wenning, Tel: +1 925 847 9152 Fax: +1 925 847 9153 E-Mail: wenning@dnai.com Deadline: 9/17/00 www: <http://www.cr.org/MSM2001>

March 25 - 30, 2001, T **Symposium on ULSI Process Integration** Location: Washington, D.C., USA Contact: Cor Claeys, Tel: +011 3216 28 1328 Fax: +011 3216 28 1510 E-Mail: c.claeys@ieee.org Deadline: 9/15/00 www: Not Available

March 27 - 29, 2001, T **National Radio Science Conference** Location: Mansoura University, Mansoura, Egypt Contact: Ibrahim Salem, Academy of Scientific Res & Tech, Dept. of Scientific Societies & Int'l Unions, 101 Kasr EL-Eini St, Cairo, Egypt Tel: 011 20 2 258 0256 Fax: 011 20 2 792 1270 E-Mail: ia.salem@ieee.org Deadline: 11/1/00 www: <http://conf.mans.eun.eg>

April 2 - 4, 2001, @ **IEEE International Vacuum Electronics Conference** Location: Grand Hotel Huis ter Duin, Noordwijk, The Netherlands Contact: Guglielmi Marco, Tel: +011 31 71 565 3493 Fax: 011 31 71 565 4596 E-Mail: mgugliel@estec.esa.nl Deadline: 11/10/00 www: [www.estec.esa.int/CONFANNOUN/ivec2001](http://www.estec.esa.int/CONFANNOUN/ivec2001)

April 18 - 20, 2001, T **International Symposium on VLSI Technology, Systems and Applications** Location: Taipei International Convention Center, Taipei, Taiwan Contact: Daniel Chen Tel: +011 886 3 5417232 Fax: +011 886 3 582 0257 E-Mail: daniel.chen@itri.org.tw Deadline: 10/20/00 www: <http://www.erso.itri.org.tw/VLSI-TSA/>

April 24 - 26, 2001, \* **IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop** Location: International Congress Center Munich, Munich, Germany Contact: Margaret Kindling Tel: +1 202 289 0440 Fax: +1 202 289 0441 E-Mail: mkindling@semi.org Deadline: 9/11/00 www: <http://www.semi.org/web/wevents.nsf/url/E01CFPA>

April 30 - May 3, 2001, \* **IEEE International Reliability Physics Symposium** Location: Wyndham Palace Resort and Spa, Orlando, FL, USA Contact: Anthony Oates, Tel: +1 407 371 7536 Fax: +1 407 371 7639 E-Mail: a.s.oates@lucent.com Deadline: 9/15/00 www: <http://www.irps.org/>

May 6 - 9, 2001, T **IEEE Custom Integrated Circuits Conference** Location: Town and Country Hotel, San Diego, CA, USA Contact: Melissa Widerkehr, Tel: +1 301 527 0900 ext. 101 Fax: +1 301 527 0994 E-Mail: melissaw@

widerkehr.com Deadline: 11/29/00 www: <http://www.his.com/~cicc/>

May 13 - 15, 2001, T **International Symposium on Plasma Process Induced Damage** Location: Doubletree Hotel/Monterey Conference Center, Monterey, CA, USA Contact: Della Miller, Tel: +1 408 246 3600 Fax: +1 408 246 7700 E-Mail: della@vacuum.org Deadline: 2/2/01 www: <http://www.p2id.org>

May 14 - 18, 2001, @ **IEEE International Conference on Indium Phosphide and Related Materials** Location: Nara New Public Hall 101, Kasugano-cho, Nara, Japan Contact: Samantha Padilla Tel: +001 732 562 3894 Fax: +001 732 562 8434 E-Mail: s.padilla@ieee.org Deadline: 11/28/00 www: [www.kntec.com/IPRM01](http://www.kntec.com/IPRM01)

May 20 - 22, 2001, T **IEEE Radio Frequency Integrated Circuits Symposium** Location: Phoenix, AZ, USA Contact: David Lovelace, Tel: +1 480 759 0200 ext. 213 Fax: +1 480 704 1500 E-Mail: d.k.lovelace@ieee.org Deadline: 11/27/00 www: <http://www.ims2001.org/rfic>

May 29 - June 5, 2001, # **International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication** Location: JW Marriott Hotel, Washington, D.C., USA Contact: Doug Resnick Tel: +1 480 413 3984 Fax: +1 480 413 7281 E-Mail: ayv150@email.mot.com Deadline: Not Available www: Not Available

June 1, 2001, T **International Symposium on Physics & Engineering of Millimeter & Sub-Millimeter Waves** Location: Kharkov State University, Kharkov, Ukraine Contact: Alexey Kostenko, Tel: Not Available Fax: +011 380 572 441105 E-Mail: kostenko@ire.kharkov.ua Deadline: Not Available www: <http://www.ire.kharkov.ua>

June 3 - 6, 2001, \* **IEEE International Interconnect Technology Conference** Location: Hyatt Regency San Francisco Airport Hotel, Burlingame, CA, USA Contact: Wendy Walker, Tel: +001 301 527 0900 ext. 104 Fax: +001 301 527 0994 E-Mail: wendyww@widerkehr.com Deadline: 1/19/01 www: [www.ieee.org/conference/iitc](http://www.ieee.org/conference/iitc)

June 4 - 8, 2001, @ **IEEE International Symposium on Power Semiconductor Devices & Integrated Circuits** Location: Osaka International Convention Center, Osaka, Japan Contact: Toshiaki

Yachi, Tel: +011 81 422 59 3129 Fax: +011 81 422 59 2347 E-Mail: yachi@ilab.co.jp Deadline: 10/15/00 www: <http://www.rdd.kepco.co.jp/ispsd>

June 5 - 8, 2001, T **European Conference on High Temperature Electronics** Location: Grand Hotel, Oslo, Norway Contact: Ovidiu Vermesan, Tel: +011 47 22 06 75 06 Fax: +011 47 22 06 73 50 E-Mail: ovidiu.vermesan@ecy.sintef.no Deadline: 1/15/01 www: [www.oslo.sintef.no/hiten01](http://www.oslo.sintef.no/hiten01)

June 7 - 9, 2001, \* **IEEE Workshop on Charge-Coupled Devices & Advanced Image Sensors** Location: Cal-Neva Resort, Crystal Bay, Nevada, USA Contact: Eric Fossum, Tel: +1 626 683 2200 Fax: +1 626 683 2220 E-Mail: fossum@photobit.com Deadline: Not Available www: <http://www.calnevaresort.com>

June 10, 2001, @ **IEEE International Workshop on Statistical Methodology for VLSI Design and Fabrication** Location: Kyoto, Japan Contact: Kenji Maeguchi, Tel: +011 81 45 770 3601 Fax: +011 81 770 3573 E-Mail: kenji.maeguchi@toshiba.co.jp Deadline: 1/26/01 www: Not Available

June 10 - 11, 2001, @ **IEEE Silicon Nanoelectronics Workshop** Location: Rihga Royal Hotel,

Kyoto, Japan Contact: Toshiro Hiramoto, Tel: +011 81 3 3402 0873 Fax: +011 81 3402 0873 E-Mail: hiramoto@nano.iis.u-tokyo.ac.jp Deadline: Not Available www: Not Available

June 10 - 14, 2001, @ **IEEE TRANSDUCERS - International Conference on Solid-State Sensors and Actuators** Location: Gasteig Cultural, Educational & Conference Cntr, Munich, Germany Contact: Conference Secretariat, Tel: +49 8142 570183 Fax: +49 8142 54735 E-Mail: transducers@csm-congress.de Deadline: 12/1/00 www: <http://www.transducers01.de>

June 12 - 14, 2001, @ **IEEE International Symposium on VLSI Technology** Location: Rhiga Royal Hotel, Kyoto, Japan Contact: Phyllis Mahoney, Tel: +1 301 527 0900 ext. 103 Fax: +1 301 527 0994 E-Mail: phyllism@widerkehr.com Deadline: 1/10/01 www: <http://www.vlssymposium.org>

June 14 - 16, 2001, @ **IEEE International Symposium on VLSI Circuits** Location: Rihga Royal Hotel, Kyoto, Japan Contact: Phyllis Mahoney, Tel: +1 301 527 0900 ext. 103 Fax: +1 301 527 0994 E-Mail: phyllism@widerkehr.com Deadline: 1/10/01 www: <http://www.vlssymposium.org>

June 15, 2001, \* **IEEE University/Government/ Industry Microelectronics Symposium** Location: Viginia Commonwealth University, Richmond, VA, USA Contact: Robert Pearson, Tel: +1 804 827 7627 Fax: +1 804 828 4269 E-Mail: repearso@vcu.edu Deadline: Not Available www: Not Available

June 20 - 23, 2001, T **Conference on Insulating Films on Semiconductors** Location: University of Udine, Udine, Italy Contact: Enrico Sangiorgi Tel: +39 0432 558284 Fax: +39 0432 558251 E-Mail: sangiorgi@uniud.it Deadline: Not Available www: <http://www.uniud.it/infos2001>

June 27 - 30, 2001, T **International Semiconductor Technology Conference** Location: Shanghai Pudong Shanfri-La Hotel, Shanghai, China Contact: Brian Rounsavill, Tel: +001 609 737 1902 ext. 108 Fax: +001 609 737 2743 E-Mail: brian@electrochem.org Deadline: 11/1/00 www: <http://www.electrochem.org/ecstasi/>

July 3 - 7, 2001, T **Siberian Russia Student Workshop on Electron Devices and Materials** Location: Novosibirsk State Technical University, Novosibirsk, Russia Contact: Alexander Gridchin, Tel: +7 3832 46 0877 Fax: +7 3832 46 0209 E-Mail: algrid@ref.nstu.ru Deadline: Not Available www: Not Available

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

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

## Regional & Chapter News

(continued from page 17)

### Report of the 2000 Topical Workshop on Heterostructure Microelectronics (TWHM'00)

-by Takashi Mizutani

The 2000 Topical Workshop on Heterostructure Microelectronics (TWHM'00) sponsored by the IEEE Electron Devices Society, The Institute of Electronics, Information and Communication Engineers, and The Japan Society of Applied Physics, was held at Kyoto Research Park, Kyoto, Japan during August 20 - 23, 2000. The workshop focused on HEMT and HBT technologies based upon a range of heterostructure material systems including III-Vs (e.g. GaAs, InP, GaN) and group IV (e.g. SiGe) which have broad applications in the areas of wireless systems, global grid communications, as well as signal and data processing. More than 130 people from 6 countries participated and 52 papers including 21 invited papers were presented. The next



Dr. Zhou Xing (EDS Distinguished Lecturer)

workshop, TWHM'02 will be held in Japan. For more information, please contact the next general co-chair, Dr. Daisuke Ueda, Matsushita Electronics Corporation, E-Mail: [ueda@erl.mec.mei.co.jp](mailto:ueda@erl.mec.mei.co.jp).

-Hisayo Momose, Editor

### ED Beijing Chapter

-by Jin-Jun Feng

The following are the activities of ED Beijing Chapter for last three months:

1. On July 30, 2000, Dr. Dieter. M. Gruen (from Argonne National Lab. of USA), visited ED Beijing Chapter, and

gave a lecture titled "Application of diamond film in vacuum microelectronics and MEMS", above twenty researchers from Beijing Vacuum Electronics Research Institute and Beijing Artificial Crystal Institute attended the meeting.

2. From August 1 to 4, EDS Beijing held her working meeting in WeiHai City of ShanDong Province. Chapter Chair Prof. Fu-Jiang Liao, Chapter Vice-Chair Prof. Shan-Hong Xia, Chapter Treasurer Dr. Jin-Jun Feng and Secretary Qing-An Huang attended the meeting, as well as Southwest Area Liaison and Northwest Liaison. In this meeting, we discussed the present status of the Chapter, promotion of new Student Branch and members, and also the academic activities in the future.

3. On Sept. 8, 2000, Dr. Zhou Xing (EDS DL) from Nanyang Technological University of Singapore, visited ED Beijing Chapter and talked to our members, his speech title is "Subpicosecond Electrical Pulse Generation by Nonuniform Gap Illumination".

-Tahui Wang, Editor



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