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Editor-in-Chief: Ninoslav D. Stojadinovic

IEEE Electron Devices Society Newsletter

2003 IEEE International Vacuum Electronics Conference (IVEC)



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Seoul, Korea will be the site of the Fourth International Vacuum Electronics Conference (IVEC) from May 28 to 30, 2003 under the sponsorship of the IEEE Electron Devices Society (EDS). Dr. Gun-Sik Park of Seoul National University will serve as General Chair, and the conference is being co-organized by the Korean Physical Society, the Korean Accelerator and Plasma Research Association, and the Seoul National University School of Physics. Management oversight of IVEC is provided by the IEEE EDS Technical Committee on Vacuum Devices, which is described in detail in another article in this issue of the Newsletter.

Previously, IVEC has met in the USA in Monterey, California in 2000 and 2002 and in Noordwijk, The Netherlands in 2001. These earlier meetings built on the established traditions of the US Microwave Power Tube Conference and the European Space Agency TWT/TWTA Workshop. However, as the conference moves to Asia for the first time, it will be establishing a new venue in that region as well as fulfilling its mission to serve the global vacuum electronics community. IVEC 2003 is being scheduled in tandem with the International Conference on Plasma Science, which will meet on Jeju Island, Korea on June 2 through 5, to reduce the travel costs for those who wish to attend both meetings. Presently, IVEC is scheduled to return to Monterey in 2004 and to Noordwijk in 2005.

In its short history, IVEC has become the premier international venue for the presentation of work in the field of vacuum electronics. A highlight of the meeting will be the presentation at the conference banquet of the IVEC Award for Excellence in Vacuum Electronics. Details of the award nomination and selection process can be found at the IVEC 2003 website at

(continued on page 3)

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

Issue	Due Date
January	October 1st
April	January 1st
July	April 1st
October	July 1st

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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Message from the EDS President



Steven J. Hillenius

With this message, I would like to update you all on the EDS activities with respect to our plans for the future. At the June 2002 EDS Administrative Committee (AdCom) Meeting Series, we held a strategic planning meeting to discuss where would like the Society to be in the next five years. The IEEE, semiconductor industry, universities, research institutions and the world in general are undergoing many changes that the Society needs to recognize and adapt to. The planning meeting involved the EDS Executive Committee (ExCom) and was meant to be a time to take a high level view of where we are going and put a few key actions in place to get us there. We went through a lot of discussion and finally agreed upon two key thrusts to our future activities.

The first thrust was to broaden the base of technical areas of interest and restructure the EDS technical committees. This is an effort to have the EDS be more flexible in its ability to respond quickly to technical shifts in the community and to allow the technical committees to have more leverage in influencing the Society's directions. We came up with some specific changes to generate paths for exercising that leverage, such as predefining representatives from the technical committees to serve as meeting and journal volunteers. We also proposed to add a voting position on AdCom for a Technical Committees Chair whose function would be to represent all the EDS technical committees. This position would also be included within the membership of the EDS ExCom.

The second thrust was to ensure EDS activities reflect the current and future global trends. This represents a continuing concern that we keep the globalization of the EDS as a priority. Particularly as the pace of change for the global economy continues to accelerate, we must be sure to position the EDS to be responsive to these changes. We resolved to develop and promote activities in currently under-served regions and to maintain proportional volunteer representation in regards to all the regions. In the future, there will probably be more consolidation within IEEE Societies, so there is a need to look at overlaps and how they will affect EDS. These initiatives all require specific actions to commit to and to track so it was decided to use the ExCom meetings to monitor this progress. A strategic planning discussion item will be added to each ExCom agenda, with about one hour of time allotted. During this time, the Society's position statements developed during the Strategic Planning Meeting will be reviewed.

I will report back to the membership on the progress in future communications. I would appreciate any comments you have and I invite the entire membership to participate in this activity.

EDS ADCOM ELECTED MEMBERS-AT-LARGE

Term Expires:

2002

C. L. Claey's (1)
J. A. Dayton, Jr. (1)
M. Fukuma (1)
K. M. Lau (1)
K. Lee (1)
M. L. Ostling (1)
D. L. Puffrey (1)
K. Shenai (2)

2003

I. Adesida (2)
T. Hiramoto (1)
L. Lunardi (1)
A. A. Santos (2)
S. C. Sun (2)
H. S. P. Wong (1)
P. K. L. Yu (2)

*2004

M. Estrada del Cueto (1)
K. F. Galloway (2)
S. J. Hillenius (2)
C. Jagadish (2)
J. K. O. Sin (1)
R. Singh (2)
N.D. Stojadinovic (1)

Number in parenthesis represents term.
* Members elected 12/01

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Upcoming Technical Meetings

IEEE IVEC

(continued from page 1)

<http://ivec2003.snu.ac.kr>.

Two page abstracts should be submitted electronically to ivec2003@plaza.snu.ac.kr in either Adobe Acrobat (pdf format) or Microsoft Word (doc format) by January 25, 2003. Topics covered at IVEC include traditional vacuum electron devices, vacuum microelectronics, systems and subsystems, supporting technologies, and applications of vacuum devices. A detailed list is available in the Call for Papers that can be found at the IVEC 2003 website.

The 2003 conference will feature 14 plenary talks, one evening poster session and 16 oral technical sessions. One afternoon has been set aside for personal exploration of the city. The meeting place, Hotel Lotte, is conveniently located in the heart of Seoul within walking distance of a variety of restaurants, shops and historic places. There are many other attractions which you can learn about from the IVEC 2003 website.

The Local Program Committee consists of Gun-Sik Park, Seoul National University, General Chair; Myeun Kwon, Korea Basic Science Institute, Technical Program; Yoonho Seo, Kwangwoon University, Finance; Sang June Hahn, Chung-Ang University, Publications; Eun Ha Choi, Kwangwoon University, Entertainment; Jung-Sik Choi, Dongshin University, Publicity; Byung-Chul Lee, Korea Atomic Energy Research Institute, Registration; and James A. Dayton, Jr., Genvac Corp., Awards.

IVEC 2003 has attracted a number of Technical Co-Sponsors. These include the Institution of Electrical Engineers, the European Space Agency; the US Electronic Industries Association Microwave Vacuum Electronics Division; the US DoD Advisory Group on Vacuum Devices; the US DoD Microwave Tube Executive Agent; the Institute of Electronics, Information and Communications Engineers; the Japan Society of Plasma Science and Nuclear Fusion Research; the Chinese Vacuum Electronics Society; the Korean Vacuum Society; the Korean Atomic Energy Research Institute; the Polong Accelerator Laboratory; the Korea Basic Science Institute; the Korea Electrotechnology Research Institute; the Samsung Electronics Co.; L. G. Electronics,

Inc.; and Vitzro Technology, Ltd.

The members of the International Program Committee are Ivor Brodie, SRI International, USA; Jon A. Christensen, Boeing EDD, USA; James A. Dayton, Jr., Genvac, USA; Carol L. Kory, Analex/NASA Glenn Research Center, USA; Neville C. Luhmann, Jr., University of California at Davis, USA; W. Deveraux Palmer, Army Research Office, USA; Robert K. Parker, Naval Research Laboratory, USA; Armand Staprans, Communication and Power Industries, USA; Richard B. True, Northrop-Grumman Electron Devices, USA; Richard G. Carter, Lancaster University, UK; Alan Phelps, University of Strathclyde, UK; David Wilcox, E2V Technologies Ltd., UK; Philippe Thouvenin, Thales Electron Devices, France; Guenter Kornfeld, Thales Electron Devices GmbH., Germany; Manfred Thumm, Forschungszentrum Karlsruhe and University of Karlsruhe, Germany; Pierre Waller, European Space Agency ESTEC, The Netherlands; G. Fergus Brand, University of Sydney, Australia; Takao Kageyama, NEC Corp., Japan; Keishi Sakamoto, Japan Atomic Energy Research Institute, Japan; K. Yokoo, Tohoku University, Japan; Sheng Gang Liu, UEST of China, China; Fu Jiang Liao, BVERI, China; Kwo

Ray Chu, National Tsing Hua University, Taiwan; B.N. Basu, Banaras Hindu University, India; S.N. Joshi, CEERI, India; Dmitry I. Trubetskov, Saratov State University, Russia; Saeyoung Ahn, Seoul National University, Korea; Moo-Hyun Cho, POSTECH, Korea; Byung-Ho Choi, Korea Atomic Energy Research Institute, Korea; Chie-Kyu Choi, Cheju National University, Korea; Kie-Hyung Chung, Seoul National University, Korea; Sang Hee Hong, Seoul National University, Korea; Chul Kim, Samsung Electronics Co., Korea; Gyung-Soo Lee, Korea Basic Science Institute, Korea; Hongsik Lee, KERI, Korea; Jae Koo Lee, POSTECH, Korea; Won Namkung, POSTECH, Korea; Soo Yong Park, POSTECH, Korea; Jong-Gwan Ryu, LG Electronics, Inc., Korea; Han Sup Uhm, Ajou University, Korea; Ki-Woong Whang, Seoul National University, Korea; Moohyn Yoon, POSTECH & PAL, Korea; and Tae Sun You, Agency for Defense Development, Korea.

James A. Dayton, Jr.
EDS Vacuum Devices Committee Chair
Cleveland, OH, USA

Gun-Sik Park
Seoul National University
Seoul, Korea

2003 IEEE International Conference on Microelectronic Test Structures (ICMTS)

The 2003 IEEE International Conference on Microelectronic Test Structures (ICMTS) will be held at the DoubleTree Hotel in Monterey, California, USA on March 18-20 2003. The conference will be preceded by a one day Tutorial Short Course on Microelectronic Test Structures on March 17, 2003.

Semiconductor manufacturing feature sizes have been reduced on a constant path over the last 30 years, which has allowed designers to put more and more devices and circuit components on a single chip. With every newly introduced technology node,



Fisherman's Wharf, Monterey

such designs will run faster as well. Given today's design and manufacturing complexity, it is crucial to maintain the bridge

between chip design and manufacturing process steps to guarantee functionality, performance and yield. Designing chips requires more accurate simulations, not just of the single devices and parts of circuits, but also a timing and performance simulation of the entire chip. The complexity of systems on a chip even more challenges simulation capabilities due to the mixture of digital logic design, memory components as well as analog circuits. All these simulations rely on models that need a constantly increasing number of calibration variables, which have to be extracted from a semiconductor manufacturing process. Chips containing a variety of test structures are the main vehicles used to extract such variables as well as to calibrate and control each individual manufacturing process step.

Since 1988, the International Conference on Microelectronic Test Structures (ICMTS) that is sponsored by the IEEE Electron Devices Society has presented the latest trends on the extraction of semiconductor manufacturing technology data and models that are required to ensure future chip design and manufacturability. The ICMTS focuses on:

- Development of test structures & measurement methods for material &

process characterization

- Dimension and electrical integrity of features
- Device and circuit modeling
- Failure analysis
- Reliability analysis
- Process control
- Yield enhancement
- Measurement utilization strategy

The conference format provides a single program track of ten Sessions (without parallel sessions) including the Poster Session, which will be held as a reception to provide a unique opportunity for a less formal and more in depth discussion with the authors. The Tutorial Short Course, which will precede the Conference, will give participants guidelines on superior test structure design, efficient and precise test methods, and state of the art data analysis. There will also be an equipment exhibition for evaluation of the latest versions of measurement equipment, data analysis software, and other test structure related products.

ICMTS has had wide international participation. To encourage this, the conference rotates its location between North America, Asia, and Europe. The 2001 meeting was held in Kobe, Japan and the 2002 meeting was held in Cork,

Ireland. For 2003, ICMTS will return to the Monterey Peninsula, which is being called the perfect meeting of land, sea, and sky. This beautiful seaside resort community provides the charm of small town America and an endless variety of recreational and cultural activities. Monterey's rich history, such as the saga of California's Mission Trail, historic Fisherman's Warf and Cannery Row, unique variety of shops and galleries, and spectacular assortment of parks and natural areas combine to provide a truly unrivaled backdrop for ICMTS2003. Monterey is also home of a world-class aquarium, where this year's ICMTS banquet will be held.

For more information, please contact Wendy Walker, the ICMTS 2003 Conference Secretariat; 16220 South Frederick Ave., Suite 312; Gaithersburg, MD 20877 USA; phone +1-301-527-0900, ext. 315; FAX: +1-301-527-0994; email: wendy.walker@widerkehr.com. In addition, general information including the conference program may be found on our web site at <http://www.ee.ed.ac.uk/ICMTS/>.

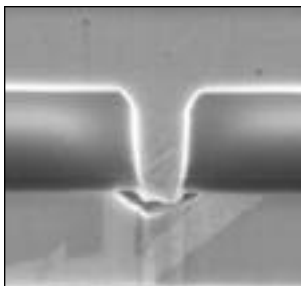
*Christopher Hess
PDF Solutions
San Jose, CA, USA*

2003 IEEE International Reliability Physics Symposium (IRPS)

The International Reliability Physics Symposium (IRPS), the premier symposium for the scientific exploration of microelectronic reliability will be accepting papers for the 2003 IRPS from March 30 through April 3, 2003 at the Hyatt Regency Hotel in Dallas, Texas. Submission deadline is October 1, 2002 with an extended deadline in December. This year, the IRPS will feature special presentations by the following individuals:

- Shiang-yi Chiang, TSMC, Sr. VP of R&D will speak on Foundry Reliability and Technology
- Mark Bohr, Intel Fellow and Director of Process Architecture will speak on IDM Reliability and Technology
- Larry Hornbeck, Texas Instruments Fellow, Digital Light Processing will speak on the future of MEMs based projection display systems.

For the past 40 years, IRPS has been one of the leading meetings for engineers in the area of electronic component reliability.



IRPS promotes the comprehension of reliability and performance of integrated circuits and microelectronic assemblies through an improved understanding of failure mechanisms in the user's environment. Originally started in the early 1960's by the military and aerospace community, IRPS is now sponsored by IEEE Reliability Society and IEEE Electron Devices Society.

"Along with providing the latest reliability findings, this symposium also offers a unique opportunity for attendees to meet with peers, discuss the most up-to-date industry information and share advice and expertise with others," says IRPS 2003 General Chair Eric Snyder. "Those presenting a paper will have the opportunity to provide valuable information to attendees, through their lecture and subsequent discussions."

This year, the conference will emphasize the most recent developments in reliability for the following areas: High-k gate dielectrics; dual gate

devices; Low-k and Cu; NBTI; SOI; Foundry Reliability as well as Product Reliability and Burn-in; Non-Volatile Memory; Qualification Strategies; Assembly and Packaging; Failure Analysis; MEMS; Device Dielectrics; Interconnects; Transistor; Process Induced Damage; Device and Process; ESD and Latch-up.

The IRPS planning committee has agreed to accept paper submissions of both draft papers and abstracts. Draft paper submissions are unrestricted in length and may represent the final manuscript. Abstract submissions should include sufficient information to indicate the path of development for the final paper. Due to the success of last year's poster session, submissions are once again being accepted. Posters, limited to two pages, are presented at a special reception, specifically designed for the display and discussion of this work. For further information about the conference and submission guidelines visit www.irps.org or contact the session chair:

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Sandia Technologies, Inc
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2003 IEEE International Conference on Indium Phosphide and Related Materials (IPRM)



The IEEE International Conference on Indium Phosphide and Related Materials (IPRM) will be held 12-16 May 2003 in Santa Barbara, CA. IPRM will continue its tradition of highlighting a variety of important developments in InP-related materials, devices, processing and system applications. The conference venue will be at the Fess Parker Doubletree Resort just 1 mile from downtown Santa Barbara. The conference site is located on some of Southern California's most beautiful coastline just a few steps away from a sandy beach for swimming, volleyball and sailing. Santa Ynez Mountains are just a short drive from the conference site. Also nearby are the Santa Barbara Mission, zoological gardens, museums, great shopping, and Stearns Wharf.

An important feature of this meeting will be the participation of the leading purveyors of equipment, materials, and substrates showcasing their latest products. As has been the tradition, several of the important conference events will be sponsored or hosted by these companies. A conference banquet is being organized which promises to be a unique and entertaining event that you will not want to miss! Other excursions include a wine tasting tour, a boat tour of the waters around the Santa Barbara area, and the traditional golf tournament. The following five topical areas comprise the scope of the Conference and papers:

- Optoelectronics – Sessions will highlight new levels of performance improvements in VCSEL technology. Advances in optical modulators and

amplifiers, waveguide-based devices, quantum structures, photodetectors, photonic and optoelectronic integration of devices, and high-speed receivers are also solicited. New devices for optical switching, networking and signal processing are of interest as well as papers describing the properties and performance of photonic-bandgap structures for enhanced optical signal processing.

- Electron Devices – Papers are solicited that show marked improvements in HEMT, PHEMT, JFET, HFET, HBT, or RTD device and circuit performance. Topics include low-noise, low-voltage, power, and switching characteristics as well as scaling issues and the development of integration techniques employing HEMTs, HBTs, RTDs, etc. Contributions describing unique electron-device concepts based on tunneling, quantum confinement, mesoscopic, or single-electron phenomena are encouraged.
- Epitaxy – Sessions will deal with advances in growth methods, the understanding of epitaxial and heteroepitaxial growth processes, and selective-area growth. Topics related to the growth of low-dimensional structures including quantum dots are also encouraged. Papers describing growth and characterization of lattice-mismatched heteroepitaxial materials, and other InP-based and related materials, e.g. TlInGaP, GaInNaS, InGaAsSb are of interest. Epitaxy sessions will also focus on methods of monitoring, self-assembly processes, and growth-mode control.
- Processing and Materials Integration – Sessions will highlight advances in etching, lithography, metalization, dielectrics, and planarization, as well as wafer-bonding, compliant-substrates and transferred-substrate techniques. Topics include Schottky and ohmic contacts, low-damage deposition processes, passivation, and reliability issues. Papers are also solicited describing innovation in nanostructure fabrication

techniques for realization of arrays of quantum wires and boxes, harmonized processing for integration of heterogeneous devices, in-situ processing, and novel selective etching methods.

- Characterization and Bulk Materials – Papers will focus on novel methods and new results on the characterization of materials (both bulk and epitaxial) and devices as well as in-situ control of processing steps with emphasis on quality control and reproducibility. Sessions will also focus on advances in bulk crystal growth technology. New characterization methods for impurity identification, improvements in homogeneity and purity in crystals, and wafer annealing are of interest.
- InP Circuits and Applications – Papers emphasizing demonstration of circuits and application using InP devices are encouraged. Application areas include fiber optic data communication circuits, mixed signal data converters, microwave and millimeter wave MMICs.

The IPRM will also offer four Short Courses:

- InP Electron Devices, Dr. Peter Asbeck, University of California at San Diego
- InP IC Fabrication, Dr. Chanh Nguyen, GCS
- InP epitaxy for Microwave Devices, Dr. Noren Pan, MicroLink
- InP optical devices - TBD

The IEEE Lasers and Electro-Optics Society (LEOS) and IEEE Electron Devices Society (EDS) are the sponsors of the conference. For additional conference program and registration information, please view our website at <http://www.ieee.org/leos>, <http://www.ece.ucsb.edu/IPRM03/> or contact IEEE LEOS at: Tel: 732-562-3897; FAX: 732-562-8434; E-MAIL: leosconferences@ieee.org.

*Joseph F. Jensen
HRL Laboratories
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Society News

Announcement of the EDS Graduate Student Fellowship Winners for 2002



Ilesanmi Adesida

In 2000, the IEEE approved the establishment of the Electron Devices Society Graduate Student Fellowship Program. It is designed to promote, recognize, and support graduate level study and research within the Electron Devices Society's field of interest: Compact Modeling, Compound Semiconductor Devices and Circuits, Device Reliability Physics, Displays, Electronic Materials, Microelectromechanical Systems, Nanotechnology, Optoelectronic Devices, Photovoltaic Devices, Power Devices and ICs, Semiconductor Manufacturing, Technology Computer-Aided Design, Vacuum Devices, VLSI Technology and Circuits.



Arlene A. Santos

EDS proudly announces the four 2002 EDS Graduate Fellows. Brief biographies of the 2002 recipients are included in this article. Detailed articles about each graduate fellow and his work will appear in the forthcoming issues of the EDS Newsletter.

Jack Chen, received two B.S. degrees in mechanical engineering and electrical engineering from the University of Illinois at Urbana-Champaign, in May 2000, and an M.S. degree in electrical engineering in August 2002. As an undergraduate, his research focused on fabricating microdischarge devices in silicon. He is currently pursuing a Ph.D. in electrical engineering at the Micro and Nanotechnology Laboratory at the University of Illinois where he is researching micromachined sensors.



Jack Chen

Yung Fu Chong, graduated with a B.A. Sc. Degree (First Class Honors) in Materials Engineering from Nanyang Technical University, Singapore in 1999. He is currently working towards a Ph.D. degree in the Department of Electrical and Computer Engineering at the National University of Singapore (NUS). His research interests are primarily in the area of front-end processing, which includes the formation of ultrashallow junctions, self aligned silicides and advanced gate structures using laser thermal processing. He has authored or co-authored more than 10 publications and holds for United States patents. Yung Fu is a recipient of the NUS University Graduate Fellowship.



Yung Fu Chong

Ofir Degani, (S'97) was born in Ashkelon, Israel, on April 17, 1974. He received the B.Sc. degree in electrical engineering and the B.A. degree in physics (both Summa Cum-Laude) in 1996 and the M.Sc. degree in electrical engineering in 1999, all from the Technion - Israel Institute of Technology, Haifa, Israel. He is currently working toward the Ph.D. degree in electrical engineering at the Technion.



Ofir Degani

He investigates motion sensing and actuation mechanisms in micro-opto-electromechanical systems (MOEMS). His research focuses on the coupled energy domain modeling as well as noise modeling of MOEMS including: electrostatic actuation, magnetostatic actuation and optical motion sensing. He is involved in the development of micromachined inertial (acceleration and rate) sensors employing integrated optical sensing. Other fields of interest are: analog readout and control interfaces, sili-

con optical benches and thermal sensors.

David Michael Fried, was born on July 5, 1976 in Madison, WI but grew up in Madison, NJ. He graduated Madison High School in 1994 and attended Cornell University. After receiving a Bachelor of Science degree in Electrical Engineering in December of 1997, he remained at Cornell until receiving his Master of Engineering degree in Electrical Engineering, under the guidance of Professor J. Peter Krusius, in December of 1998. In January of 1999, David began working in the ASICs Development organization at IBM Microelectronics in Essex Junction, Vermont. There, he worked on modeling the effects of semiconductor process variations on ASIC circuit timing models. In August of 2000, David moved into the Technology Development organization of IBM Microelectronics, also in Essex Junction, Vermont. There, he participated in the development of the FinFET, a novel vertical double-gate MOSFET. In January of 2002, David returned to Cornell University to begin his PhD research in the Advanced Integrated Microsystems (AIMS) research group, led by Professor Kevin T. Kornegay. His research focuses on the analog, RF and mixed-signal applications of double-gate CMOS devices. David has co-authored several papers published at both Device Research Conference (DRC) and International Electron Devices Meeting (IEDM), and over 20 US and international patent applications.



David Michael Fried

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Urbana, IL, USA*

*Arlene A. Santos
EDS Graduate Student Fellowship Chair
National Semiconductor Corporation
Annapolis, MD, USA*

Congratulations to the EDS Members Elected to the National Academy of Engineering (NAE)

The U.S. National Academy of Engineering (NAE) elected nineteen IEEE members in 2002. Two of the nineteen members elected are EDS members.

A private, nonprofit institution, the NAE has more than 2,000 peer-elected members and foreign associates- senior professionals in business, academia and government who are among the world's most accomplished engineers.

The EDS members elected in 2002 were, Fellow, Evelyn L. Hu, and Fellow,

Bernard S. Meyerson.

The other seventeen IEEE members elected were: Member, Michael J. Carey, Member, Morris Chang, Life Fellow, Henry Cox, Member, John H. Crawford, Fellow, Robert E. Fontana Jr., Honorary Member, Robert W. Galvin, Associate Member, Fred W. Glover, Fellow, Martin E. Hellman, Life Fellow, Bede Liu, Fellow, A. Stephen Morse, Fellow, Gerard A. Mourou, Member, P. Hunter Peckham, Fellow, Arye Rosen, Fellow, Edmond O.

Schweitzer III, and Senior Member, Elaine J. Weyuker.

Fellow, Brian D.O. Anderson and Member, Brian W. Kernighan were elected NAE Foreign Associates.

Our congratulations to all the IEEE members elected to this prestigious institution.

*Alfred U. Mac Rae
Mac Rae Technologies
Berkeley Heights, NJ, USA*

Call for Nominations

2003 IEEE 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: Compact Modeling, Compound Semiconductor Devices and Circuits, Device Reliability Physics, Displays, Electronic Materials, Microelectromechanical Systems, Nanotechnology, Optoelectronic Devices, Photovoltaic Devices, Power Devices and ICs, Semiconductor Manufacturing, Technology Computer Aided Design, 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 a doctorate degree 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 his/her significant ability to perform independent research in the fields of electron devices and a proven history of academic excellence.

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 under-graduate and graduate transcripts/grades. Please provide an explanation of the grading system if different from the A-F format
- 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, 2003
- Recipients will be notified by July 15, 2003
- Monetary awards will be given by August 15, 2003
- Formal presentation of the awards will take place at the IEDM Awards Ceremony in December 2003.
- Nominations packages can be submitted by mail, fax or e-mail, but a hard copy must be received at the EDS Office.

Send completed package to:

IEEE Operations Center
EDS Executive Office
EDS Graduate Student Fellowship Program
445 Hoes Lane
Piscataway, NJ 08854 USA
<http://www.ieee.org/eds/fellowship>

For more information contact:

edsfellowship@ieee.org

EDS Vacuum Devices Technical Committee Report

James A. Dayton, Jr.



It was mid afternoon in Europe and early morning in the eastern US on February 11, 1998 as the EDS Technical Committee on Vacuum Devices began its first meeting, a virtual meeting conducted via teleconference. To accommodate all of the international members, the teleconference was conducted in two stages, the second stage taking place on the evening of February 12 (the morning of February 13 in Asia). The matters discussed that day have set much of the agenda for the work of the Technical Committee in the subsequent four years.

The Technical Committee on Vacuum Devices had been formally established by EDS only a few days earlier on February 3. The membership of the committee represented not only diverse geographic regions, but also the wide range of technical disciplines that are embodied within vacuum electronics. They came from industry, from academia and from government labs. It was a mixture of old friends and strangers, arch competitors and longtime collaborators, ranging in age from over 70 to under 30. And yet, from this diverse group came one clear and unifying message: the field of vacuum electronics must have an annual international conference rotating between Europe, Asia and the USA.

Subsequent teleconferences in March and April and numerous conversations within the vacuum electronics community resulted in the formulation of a plan for what has become the EDS International Vacuum Electronics Conference (IVEC). An article which features plans for the fourth IVEC to be held in May in Seoul, Korea can be found elsewhere in this issue of the Newsletter.

In establishing IVEC, there was a strong sentiment within the Technical Committee to avoid adding yet another date to a sometimes crowded calendar of meetings by drawing specialized meetings and local conferences into IVEC. Within Europe this was readily accomplished. The European

Space Agency had previously sponsored workshops on traveling wave tubes for space applications, and they very generously offered to expand the technical scope of this venue, which had always been open to international participation, to become the European leg of IVEC. The second IVEC conference was held in Noordwijk, The Netherlands in 2001. In Asia there was no competing precedent for a large general conference in the field. The challenge for IVEC was to establish a viable international venue within the USA.

For more than 20 years the US vacuum electronics community had been holding biennial meetings of the Microwave Power Tube Conference in Monterey, CA under the sponsorship of the DoD Advisory Group on Electron Devices with the assistance of the US vacuum device industry. Early on, this had been a classified conference that was restricted to US nationals. Over the years the conference had ceased to be classified, but the restriction to participation only by US citizens and permanent US residents had continued. Under DoD sponsorship, the Monterey Conference was a hybrid technical conference and military business meeting.

This military emphasis had become less relevant as significant commercial and civilian applications of vacuum devices had emerged, particularly in the 1990's with the rapid growth of telecommunications. Nonetheless, when speaking collectively, US industry was absolutely opposed to any change in the US only format, and it appeared for a time that a US leg of IVEC would be in direct competition with the traditional Monterey Conference. Quite surprisingly, a different picture emerged in private conversations with US industry leaders, who nearly unanimously supported the change to international participation, but assumed that they were alone in that opinion.

And so, the technical aspects of the old Monterey Conference became the US leg of IVEC, but the power of tradition must never be underestimated. Monterey, CA has continued to be the site of the US leg of IVEC in 2000, 2002 and 2004. As one European committee member put it, "If, after 20 years, you Americans are finally going to let us come to the Monterey Conference, you had better hold it in Monterey."

The second most visible accomplishment of the Technical Committee has been to establish the IVEC Award for

Excellence in Vacuum Electronics. The detailed mechanics of the award process are described on the IVEC 2003 website at ivec2003@plaza.snu.ac.kr. Briefly, the award is to be presented each year at IVEC; any living person or group within the vacuum electronics community can be a candidate; the nomination process is patterned after the IEEE Fellow nomination; and selection is made by a vote of the Technical Committee. The award was presented for the first time at IVEC 2002 to Dr. Armand Staprans of Communications and Power Industries, Inc.

The training of the next generation of vacuum device engineers has also been a significant concern of the Technical Committee from its inception. The Technical Committee has used the vehicle of the IVEC Plenary Sessions to promote exchanges of information about successful educational programs and to survey the perceptions of the younger members of the profession regarding their training experiences and opportunities for professional growth.

The present members of the Technical Committee are B.N. Basu of Banaras Hindu University, Varanasi, India; Ivor Brodie, SRI International, Menlo Park, CA; Richard G. Carter, Lancaster University, Lancaster, UK; Jon A. Christensen, Boeing Electron Dynamic Devices, Torrance, CA; Kwo Ray Chu, National Tsing Hua University, Hsinchu, Taiwan; James A. Dayton, Jr. (Chairman), Genvac Corp and Consultant, Cleveland, OH; Takao Kageyama, NEC Corp. Sagamihara, Japan; Gunter Kornfeld, Thales Electron Devices GmbH, Ulm, Germany; Carol L. Kory (Executive Assistant), NASA/Analex Corp., Cleveland, OH; Sheng Gang Liu, University of Electronic Science and Technology, Chengdu, China; Neville C. Luhmann, Jr., University of California, Davis, CA; W. Devereux Palmer, Army Research Office, Durham, NC; Gun-Sik Park, Seoul National University, Seoul, Korea; Robert K. Parker, Naval Research Laboratory, Washington, DC; Armand Staprans, Communications and Power Industries, Palo Alto, CA; Philippe Thouvenin, Thales Electron Devices, Velizy, France; Richard B. True, Northrop Grumman Electron Devices, San Carlos, CA; and Pierre Waller, ESA/ESTEC, Noordwijk, The Netherlands.

James A. Dayton, Jr.
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IEEE Transactions on Semiconductor Manufacturing Presents the 2001 Best Paper Award

Advances in semiconductor manufacturing go hand in hand with new developments in devices, materials, fabrication technology, and metrology. The mission of the IEEE TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING is to publish papers critical to the practicing engineer and to the researcher involved in the broad, interdisciplinary challenges of IC manufacturing. In recognition of the importance of work in this area, each year the Transactions makes a Best Paper Award to the authors of that paper considered by the TRANSACTIONS' Editorial Staff and reviewers to be the outstanding paper published during the year. The Award is based on the accuracy, originality, and importance of the technical concepts, as well as the quality and readability of the manuscript. The Best Paper is also based on the immediate or potential impact that this work will have on the overall semiconductor manufacturing industry.

The Award for the 2001 TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING Best Paper goes to "Specular Spectroscopic Scatterometry" by Xinhui Niu, Nickhil Jakatdar, Junwei Bao, and Costas J. Spanos. This paper, which appeared in the May 2001 issue, was chosen because it represents the improvements that can be gained by the development and application of advanced metrology in semiconductor manufacturing. The paper describes the measurement of the diffraction response of light at a fixed angle of incidence for multiple wavelengths, and the coupling of this information with diffraction models to extract topographic profile information from one-dimensional periodic structures. Comparisons between in-situ spectroscopic scatterometry-based measurements and extractions in lithography and etch technology are compared with CD-SEM and CD-AFM measurements. The approach is suggested to be extendible to future sub-100 nm technology generations. The work is already having a substantial impact within the semiconductor community; several of the authors are now with Timbre Technologies, Inc., where this work is being advanced and brought to users in the industry.

In ceremonies on October 15th at the 2002 International Symposium on Semiconductor Manufacturing (ISSM) in Tokyo, Japan, David Hodges made the award to the authors. Prof. Hodges, chairman of the T-SM Steering Committee and Founding Editor, presented certificates and award checks, and highlighted both the contributions of the paper and the continuing relationship between the TRANSACTIONS and the annual ISSM and Advanced Semiconductor Manufacturing Conferences (ASMC).

Xinhui Niu received the B.S. degree in electrical engineering from the University of Science and Technology of China, Hefei, China, in 1990. He studied two years in the graduate program in the Computer Sciences at Tsinghua University, Beijing, China. He received the M.S. degree

in computer sciences and engineering from the University of Notre Dame, Notre Dame, IN, in 1994, and the Ph.D. degree in electrical engineering and computer sciences from the University of California, Berkeley, in 1999. He is currently the Chief Scientist at Timbre Technologies, Inc. He is an expert on simulation, metrology, and process control for semiconductor manufacturing. Apart from his experience in electrical engineering, he is also interested in computer languages, numerical analysis, user interfaces, databases, Internet computing, operating systems, and distributed systems.

Nickhil Jakatdar received the Bachelor's degree in electrical engineering (with distinction) from the University of Pune, India, where he received the best graduating senior award from the School



Nickhil Jakatdar

of Engineering. He received both the Master's degree and the Ph.D. degree in electrical engineering and computer sciences from the University of California, Berkeley. He is currently the Chief Technology Officer of Timbre Technologies, Inc. He has conducted research on simulation, metrology, and process control for semiconductor manufacturing processes at various technology companies. He has also consulted for metrology companies. He has ten patents pending in the field of lithography and metrology and has more than 20 publications in this area.

Junwei Bao received the B.S. degree in physics from Beijing University, Beijing, China, in 1996, and the M.S. degree in electrical engineering from the University of California, Berkeley, in 2000. He is working toward the Ph.D. degree in metrology for process control, lithography process characterization, and monitoring in the Berkeley Computer Aided Manufacturing (BCAM) group. He has research experience in the area of metrology, lithography process simulation and monitoring, and integrated optical device simulation.



Junwei Bao

He was working as intern engineer at National Semiconductor, Santa Clara, CA, on lithography process development during the summer of 1998, and at Advanced Micro Devices, Sunnyvale, CA, on scatterometry characterization during the summer of 2000.

Costas J. Spanos (S'79-M'81-SM'96-F'00) was born in 1957 in Piraeus, Greece. He received the electrical engineering diploma (with honors) from the National Technical University, Athens, Greece in 1980 and the M.S. and Ph.D. degrees in electrical and computer engineering from Carnegie Mellon University, Pittsburgh, PA, in 1981 and 1985, respectively, working on the development of Statistical Technology CAD systems. From June 1985 to July 1988, he was with the advanced CAD development group of Digital Equipment Corporation in Hudson MA, where he worked on the statistical characterization, simulation and diagnosis of VLSI processes.



Costas J. Spanos

In 1988, he joined the faculty at the department of Electrical Engineering and Computer Sciences of the University of California, Berkeley, where he is now a Professor, and was the Director of the Berkeley Micro fabrication Laboratory until the summer of 2000. He has served in the technical committees of the IEEE Symposium on VLSI Technology, the International Semiconductor Manufacturing Sciences Symposium, the Advanced Semiconductor Manufacturing Symposium and the International Workshop on Statistical Metrology. He was the editor of the IEEE TRANSACTIONS ON SEMICONDUCTOR MANUFACTURING from 1991 to 1994. He has published more than 100 referred publications and has received best paper awards in 1992 and 1997. His research interests include the development of flexible manufacturing systems, the application of statistical analysis in the design and fabrication of integrated circuits, and the development and deployment of novel sensors and computer-aided techniques in semiconductor manufacturing. In 2000, he was elected Fellow of the IEEE for contributions and leadership in semiconductor manufacturing.

Duane Boning
T-SM Editor
MIT

Cambridge, MA, USA

EDS Distinguished Lecturer/Chapter Partner Visits West Ukraine

The visit to Lviv by Prof. Chennupati Jagadish, our EDS Chapter partner and EDS Distinguished lecturer was held on May 17, 2002. During his stay in Lviv, Prof. Jagadish visited the Institute of Applied Problems of Mechanics and Mathematics (IAPMM), NASU, and the National University "Lviv Politechnic" (NULP).

The first part of his visit was held at the IAPMM. The Institute director, Prof. Grgory Kit, introduced Prof. Jagadish to the Institute structure and main fields of scientific researches.

Dr. Mykhaylo Andriychuk, the West Ukraine Chapter Chair, talked about the current activities, future plans, and the existing problems. The attendees had the possibility to become more familiar with the Chapter history and its achievements, as well as obtain information about the Conferences supported by the Chapter last year and the advertising of the Chapter activities in the IEEE Newsletter and Magazine issues.

Then Prof. Jagadish talked shortly about the Australian National University, the National Institute of Physical Sciences, and the Research School of Physical Sciences and Engineering. He also spoke about the current scientific investigations in areas of quantum physics and devices, photonics and lasers, nuclear physics, nanoscience and nanotechnology, and other fields of physics that were developed at the National Institute of Physical Sciences.

Creative discussions resulted regarding the following initiatives of the Chapter:

- establishment of the IEEE Student Branch and the IEEE ED-S Student Chapter,



Prof. Jagadish, presenting his EDS Distinguished lecturer at the Radio Engineering Faculty of NULP.

- joining the IEEE LEO Society,
- involving the invited lecturer from the ED-S Distinguished Lecturer Program to the Conferences supported by the Chapter.

The second part of Prof. Jagadish's visit took place at the NULP. He presented his distinguished lecture on "Quantum Well Intermixing for Optoelectronic Device Integration" at the Radio Engineering Faculty of NULP. In his speech, Prof. Jagadish presented a survey of the various quantum well intermixing techniques and their suitability for various applications. He said that integration of optoelectronic devices is of current interest due to its application in communica-

tion systems for the fabrication of wavelength division multiplexing sources and photonic integrated circuits. The attendees listened attentively to the results on multi-wavelength lasers and quantum well infrared photodetectors, and the potential of this technique for the integration of devices with quantum dots in the active regions.

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Nomination kits for class of 2004 IEEE Fellows available

The IEEE Fellow Nomination Kit for the 2004 class of IEEE Fellows is now available. The Fellow Kit can be downloaded at www.ieee.org/fellows/ or requested in hard copy format by sending an email to 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. NOTE: IEEE affiliate membership does not apply.

The deadline for receipt of complete IEEE Fellow Nominations is 15 March 2003.

EDS DISTINGUISHED LECTURER PROGRAM - LECTURERS RESIDING IN ASIA & P

ACIFIC

The EDS Distinguished Lecturer Program exists for the purpose of providing EDS Chapters with a list of quality lecturers who can potentially give talks at local chapter meetings. To arrange for a lecture, the EDS chapters should contact the Distinguished Lecturer directly. A general guideline for the visit, but not the absolute rule, is that the lecturer should be able to include the meeting site with an already planned travel schedule at a small incremental cost to the travel plan. Alternatively, a prior coincident travel plan would not be required if the lecturer is already located within an approximate fifty mile radius of a meeting site. Although the concept of the program is to have the lecturers minimize travel costs by combining their visits with planned business trips, EDS will help subsidize lecturer travel in cases where few/no lecturers will be visiting an area and/or a chapter cannot pay for all the expenses for a lecturer trip. For a full listing of EDS Distinguished Lecturers and travel plans please contact Laura Riello of the EDS Executive Office (Tel: 1-732-562-3927, Fax: 1-732-235-1626, E-Mail: l.riello@ieee.org).

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 -MOSFET Compact I-V Modeling for Deep-Submicron Technology Development
 -Hetero-Material Gate Field-Effect Transistors (HMGFET's)
 -Mixed-Signal Multi-Level Circuit Simulation: An Implicit Mixed-Mode Solution
 -Subpicosecond Electrical Pulse Generation by Nonuniform Gap Illumination

EDS SENIOR MEMBER PROGRAM

The Electron Devices Society established the EDS Senior Member Program to grant IEEE/EDS members the opportunity to elevate their IEEE membership grade to Senior Member. This is the highest IEEE grade for which an individual can apply and is the first step to becoming a Fellow of IEEE. If you have been in professional practice for 10 years, you may be eligible for Senior Membership.

New Senior Members receive a wood and bronze plaque and a credit certificate for up to US\$25 for a new IEEE society membership. Upon your request, the IEEE Admission & Advancement Department will send a letter to your employer recognizing this new status as well. In addition, the Electron Devices Society has a program whereby your local EDS chapter can also benefit from your successful elevation to Senior Member. All that is required is for you to indicate on your Senior Member application form that EDS is your nominating entity. If you are approved for elevation to Senior Member, then your local EDS chapter will receive US\$25 from EDS within approximately six to eight months of your elevation. Also, as a result of indicating EDS as your nominating entity, EDS will also receive US\$10 from the

IEEE as part of the IEEE's Nominate-a-Senior-Member Initiative.

For more information concerning Senior Membership, please visit http://www.ieee.org/membership/grades_cats.html#SENIORMEM. To apply for Senior Member grade, please complete an application form which is available at <http://www.ieee.org/organizations/rab/md/smelev.htm>. You can also request a hard copy Senior Member packet via mail or fax by contacting IEEE Admissions and Advancements Department, 445 Hoes Lane, Piscataway, NJ 08854, USA, Fax: +1 732 981 0225.

We strongly encourage you to apply for IEEE Senior Membership to enhance your career. At the same time, you will be helping your local EDS chapter. To take full advantage of this opportunity, please be certain to indicate EDS as the nominating entity on your application form.

Thank you for supporting IEEE and ED.

*James B. Kuo
University of Waterloo
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IEEE Transactions on Device and Materials Reliability Call for Papers

In an era of rapidly increasing density and integration of devices, IEEE Transactions on Device and Materials Reliability (T-DMR) is dedicated to providing leading information that is critically relevant to the creation of reliable products. This fully peer-reviewed archival publication is available online and via quarterly library subscription. The broad scope of T-DMR includes, but is not limited to:

- The reliability of electronic, optical & magnetic devices, MEMs devices Microsystems & packages
- The reliability of the materials used in these devices, micro-systems and packages
- Properties of the interfaces, surfaces, and microstructure that impact the reliability of materials
- Fabrication processes that modulate materials and device reliability Original work is solicited on the measurement, physical analysis, and fundamental understanding of the reliability of electronic devices and materials from the concept stage through research and development, and during manufacture. Papers to be published in the IEEE Transactions on Device and Materials Reliability are sought in the following areas:
 - Mechanisms of failure of electronic devices and materials
 - Influence of fabrication processes on failure mechanisms
 - Theoretical modeling and simulation of failure mechanisms
 - Reliability testing and screening methodologies for materials and devices
 - Reliability impact of device and circuit design, material, and process selection

The intent of the T-DMR is to facilitate rapid dissemination of new research findings. The Editorial Board strives to expedite publication to ensure rapid dissemination of new results. Manuscripts will appear online shortly after acceptance for publication. Current publication statistics for T-DMR indicate that first reviews are complete in less than 2 months while accepted man-

uscripts are published on-line on average in less than 4 months. Manuscript submission details and instructions for authors can be obtained at www.ieee.org/tdmr/emanuscript.

Congratulations to the EDS Members Recently Elected to IEEE Senior Member Grade!

Edward G. Bogus
Michael Ciraula
Ahmad B. Dowlatabadi
Jian Hu
Tian-Wei Huang
Derwin L. Jallice
Xu Jiang*
Youngmin Kim*
Lawrence A. Larson
Joy Laskar

Peter Maurice Lee
Curt A. Richter
Timothy T. Rueger
W. Jorge Sitkewich
John J. Talvacchio
Frank Thiel
Thomas A. Teel
Jean-Pierre A. Voortman
Shalom J. Wind
Jianhua Zhao*

* = Individual designated EDS as nominating entity

If you have been in professional practice for 10 years, you may be eligible for Senior Membership, the highest grade of membership for which an individual can apply. New senior members receive a wood and bronze plaque and a credit certificate for up to US \$25 for a new IEEE society membership. In addition, a letter will be sent to employers, recognizing this new status.

For more information on senior member status, visit http://www.ieee.org/membership/grades_cats.html#SENIORMEM. To apply for senior member status, fill out an application at <http://www.ieee.org/organizations/rab/md/smelev.htm>.

Regional and Chapter News

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

ED Washington/Northern Virginia

- by Michael Hurt

On September 18, the Washington / Northern Virginia EDS Chapter hosted National Medal of Technology Laureate and IEEE EDS Distinguished Lecturer, Dr. Jerry Woodall. Dr. Woodall gave a lively presentation entitled "An InAs Based Transistor Approach to Terahertz Electronics: Concepts and Materials Science." The talk took place at George Mason University in Fairfax, VA. The Chapter's web site is http://ewh.ieee.org/r2/no_virginia/eds/.

In this talk, Dr. Woodall described InAs as an appealing candidate for low power and ultra-high speed (THz) device applications due to the material's electronic properties including small band gap, high electron mobility, and high saturation drift velocity. Historically, InAs has not been well studied because of the lack of a suitable lattice-matched substrate or lattice-matched heterostructure to facilitate the design and fabrication of desirable transistors. Specifically, InAs substrates are "lousy" in that they are soft and have an n-type bare surface. The approach of Dr. Woodall and his research team has been to grow InAs and related alloys on GaP substrates. GaP is a key enabler being that the substrate material is very common (used for LEDs), can be semi-insulating, and acts as a high-k dielectric.

InAs on GaP is a metamorphic process (lattice matched) as opposed to pseudomorphic (strained). At the InAs/GaP interface, 90 degree edge misfit dislocations appear. These "dreidle" defects at the interface act as shallow dopants by contributing donor level states. However, without optimization of the epitaxial structure, the sheet carrier concentration and resulting mobility varies as a function of Si depth, instead of being independent of Si depth (based on electrochemical profiles of n, p dop- ing in InAs on GaP).

A key feature of InAs grown on GaP

is the self annihilation of threading dislocations generated by the 11% lattice mismatch between InAs and GaP. This annihilation results in differential electron mobilities of 20,000 cm²/volt-sec for only 2 microns of epilayer growth, a surprising and happy result in the quest of THz devices. Simulated results of an improved epitaxial structure containing an InAs buffer layer and 0.5 um lithography predict InAs devices having $f_t=9.6E11$ Hz and $f_{max}=1.1E12$ Hz.

Dr. Woodall is the C.Baldwin Sawyer Professor of Electrical Engineering Yale University in New Haven, Connecticut. His approach as a professor is to mesh the academic environment with business models, so that his students are able to apply traditional university research methods with practical applications in mind. The areas of interest for his research include epitaxial growth, thermochemistry, and device applications.



Dr. Jerry M. Woodall,
EDS Distinguished
Lecturer

ED Mid-Hudson Valley

- by Michael Hargrove

The IEEE Mid-Hudson Valley Electron Devices Chapter has had a busy 2002 Spring term and looks forward to exciting Fall and Winter terms. Since summertime is typically a quiet time of year for the Chapter due to vacations, etc., we usually kick off the Fall term by participating in the annual barbecue/picnic sponsored by the local IEEE Section in late August.

This activity provides us with the opportunity to not only get the Chapter together, but also meet with the other local members of the IEEE who participate. It is at this meeting that we organize and plan for the upcoming year and decide what chapters are responsible for obtaining speakers and coordinating specific monthly meetings. Our ED Chapter usually sponsors two meetings and cosponsors one to two other meetings,

usually in collaboration with the Computer Society Chapter. We had our barbecue/meeting on September 12th this year. At this meeting, we planned our first general public meeting for the upcoming Fall 2002. Our Chapter will be sponsoring the meeting and the present plan is to have Dr. Casimer DeCusatis of IBM Poughkeepsie speak on Fiber Optical Networks. This meeting is slated for the third week in October 2002. We look forward to hearing Dr. DeCusatis talk.

—Murty Polavarapu, Editor

ED/SSC Kitchener-Waterloo

- by Arokia Nathan

The newly formed ED/SSC Chapter has been very active over the last year in hosting several very interesting and well-received lectures at the University of Waterloo:

- Dr. Wim Geens, IMEC, Belgium – The Challenges and Limitations of Organic Solar Cells (November 23, 2001).
- Dr. Ali Keshavarzi, Intel Corp., USA – Design and Test of Low Voltage CMOS Circuits (November 26, 2001).
- Dr. Hector de la Santos, Coventor Inc., USA – Applications of MEMS technology to RF/Microwave Systems (November 29, 2001).
- Prof. Ghassan E. Jabbour, Optical Sciences Center, University of Arizona – Photonic Organic Materials and Devices (February 13, 2002).
- Dr. Mitsuhiro Nagata, Yamatake-Honeywell Corporation, Japan – Micromachined Sensors and Their Industrial Implementation (April 16, 2002).
- Dr. Mike Liu, Honeywell, USA – Radiation Hard SOI CMOS VLSI Technology (May 2, 2002).
- Prof. Ghassan E. Jabbour, Optical Sciences Center, University of Arizona – Plastic and Hybrid Photonics and Optoelectronics (June 25, 2002).
- Prof. Henry Baltes, ETH Zürich, Switzerland – Progress in Gas Microsensors (July 19, 2002).
- Dr. Jens Mueller, IMTEK, University of Freiburg, Germany – An Adaptive Finite Element Method for Multi-Layer MEMS (August 12, 2002).
- Dr. Paul Conway, Leeds Metropolitan

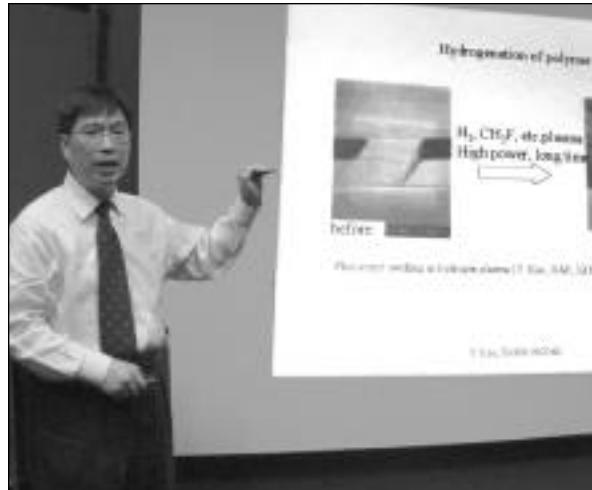
University, UK (August 27, 2002)

- The Use of Infra-red Scatterometry for Analogue Optical Instrumentation Systems in its Application to Medical and Food Technology Monitoring.
- The Application of Random Dither to High Resolution Sensing for Applications.

Starting Fall 2002, the ED/SSC Chapter will be co-hosting a seminar series on Giga-to-Nano Electronics, which will be held at the University of Waterloo. The series addresses new and emerging research areas in large area electronics on glass and flexible plastic substrates, and are intended for multi-disciplinary researchers, including graduate students, from the Faculties of Engineering and Science. A list of internationally renowned scientists will participate as guest speakers:

- Prof. Yue Kuo, Texas A&M University – Challenges in Sub-0.1 Micron VLSI Devices: Advanced High k and Low k Materials and Processes (September 27, 2002).
- Prof. Ruud E.I. Schropp, Utrecht University, The Netherlands – Large Area Electronics and Photovoltaics Using Hot Wire CVD (October 4, 2002).
- October 11, 2002 – TBA – please see <http://ece.uwaterloo.ca/~a-sidic> for speaker and topic details.
- Prof. Gehan Amaratunga, Cambridge University, UK – Carbon Nanotubes for Electronics (October 18, 2002).
- Dr. Michael Hack, Universal Display Corp., New Jersey, USA – High Efficiency OLED Technology (October 23, 2002).
- Prof. William Milne, Cambridge University, UK – Growth and Field Emission Applications of Aligned Multiwall Carbon Nanotubes (October 28, 2002).
- Prof. Sigurd Wagner, Princeton University, USA – Amorphous Silicon Transistors Under Mechanical Strain (November 4, 2002).
- Prof. John Rowlands, University of Toronto, Canada – Medical X-ray Imaging: Past, Present and Future (November 11, 2002).
- Dr. Francesco Lemmi, FlexICs, California, USA – Large-Area Imaging Systems on Glass and Plastic Substrates (November 18, 2002).
- Prof. Safa Kasap, University of Saskatchewan, Canada – Noise in Electronic Devices (November 25, 2002).

—Arokia Nathan, Editor



The Giga-to-Nano Seminar series at the University of Waterloo kicked-off to a flying start with Prof. Yue Kuo's lecture on low- and high-k materials and Cu metallization. The event was jointly sponsored by IEEE, University of Waterloo, IGNIS Innovation Inc., and Communications Information Technology Ontario (CITO).

ED México

-by Rodolfo Quintero Romo

The Mexico City Electron Devices Chapter announces the "Lectures on Semiconductor Device Physics, Characterization and Simulation" to be held at the "Benemérita Universidad Autónoma de Puebla" in Puebla, Mexico, on November 14th, 2002. These lectures will include presentations by three IEEE-EDS distinguished lecturers. Professor Dieter K. Schroder, from Arizona State University, will present a talk entitled "Materials/Device Characterization Challenges". Professor C.L. Claeys, from IMEC Leuven, Belgium, will give a presentation on "Grown-in and Process-Induced Defects in Silicon - Nucleation, Growth Kinetics and Impact on Electrical Device Properties". Finally, Professor Ramesh K. Agarwal, from Washington University in St. Louis, USA will discuss "Computational Electromagnetics and Semiconductor-Device Simulation". For further information, please contact Professor Rodolfo Quintero Romo <rquinter@mail.cinvestav.mx> from CINVESTAV-IPN, DF Mexico or visit <http://www.sees.cinvestav.mx/conferencia/default.html>.

ED South Brazil

- by J. W. Swart

The ED South Brazil Chapter was founded on December 28, 2001. The Chapter Chair, Prof. Jacobus W. Swart, attended the EDS Region 9 Chapter Meeting in Aruba, April 17, 2002. Details on the chapters present and their future activities can be found on the ED

South Brazil home page <http://www.ccs.unicamp.br/ieeed>. The first important Chapter activity for South Brazil was its involvement in the 17th SYMPOSIUM ON MICROELECTRONICS TECHNOLOGY AND DEVICES, (SBMICRO-2002), also called CHIP IN THE PAMPA, which was successfully held from 8 to 14 September 2002, at Porto Alegre, BRAZIL. The SBMicro, which is held annually in Brazil, is a forum dedicated to fabrication of integrated circuits and devices. The goal of the symposium is to bring together researchers in the areas of process, materials, characterization, modeling and TCAD of integrated circuits and MEMS. This conference was organized by the Brazilian Microelectronics Society, with technical co-sponsorship from IEEE EDS and

others. About 200 participants from South America, USA, Mexico and Europe attended the conference. Prof. Cor Claeys, from IMEC Leuven, Belgium, who is the Partner of the Brazilian Chapter, attended the conference. His visit was organized with support of the EDS Distinguished Lecture Program. During his visit he gave two lectures: "Grown-in and Process-Induced Defects in Silicon Nucleation, Growth Kinetics and Impact on Electrical Device Properties" and "Technology Challenges Related to Ultimate CMOS and the End-of-Roadmap Microelectronics". A special IEEE chapter meeting of EDS was hosted on the evening of 12 September. For additional information, please visit the conference web site at: <http://www.sbmicro.org.br/sbmicro/sbmicro2002/index.html>, or send an email to Jacobus W. Swart at Jacobus@led.unicamp.br

—Adelmo Ortiz-Conde, Editor



From left to right: Jacobus W. Swart and Cor Claeys.

Europe, Middle East & Africa (Region 8)

MTT/ED/CPMT/COM/SSC

Novosibirsk

- by Vyacheslav P. Shuvalov

Now we would like to present the technical, professional and business activity of the Joint Novosibirsk ED/MTT/CPMT/COM/SSC Chapter from September 1, 2001 to October 1, 2002.

First of all, at the elections held in October, 2001, I was elected as Chair of the Joint Chapter and Associate professors Alexander Gridchin and Vasily Snournitsin were elected to be vice-chairs for the ED/CPMT and MTT/SSC groups accordingly.

The total membership of the chapter is 65, with the total IEEE membership in Novosibirsk being about 120. There are 2 chapters and 2 student branches at Novosibirsk State Technical University (NSTU) and Siberian State University of Telecommunication and Informatics (SibSUTI).

The recent technical activity of the chapter included:

- Organizing and participating in the 3rd IEEE-Russia International Conference '2001 Microwave Electronics: Measurements, Identification, Applications' (MEMIA'2001), September, 2001, Novosibirsk, Russia (one volume of Proceedings, CD copy, IEEE Catalog No.01EX474, 47 papers, 77 speakers).
- Participation in the 6th Korea-Russian International Symposium on Science and Technology 2002 (KORUS'2002), June, 2002, Novosibirsk State Technical University, Novosibirsk, Russia.
- Sponsorship and participation in the 3rd Annual Siberian Russian Student Workshop and Tutorial on Electron Devices and Materials, EDM'2002, Novosibirsk State Technical University, Erlagol, Altai, July, 2002, (two volumes of Proceedings, CD copy, IEEE Catalog No.02EX518, 94 papers, over 100 participants).
- Sponsorship and participation in the 6th International Conference on Actual Problems of Electronic Instrument Engineering APEIE-2002, Novosibirsk State Technical University, September, 2002 (7 volumes of Proceedings, IEEE Catalog No.02EX546, about 400 papers from about 1000 authors and co-authors)
- Presentation of the Joint Chapter resources and activity in the International

Trade Industrial Exhibition 'Electron-Sib', Siberian Fair, September, 2002. Such presentation was organized for the first time in the history of IEEE in Siberia due to the strong connection with the Administration of the Novosibirsk region. The great success of such a presentation shows the great interest IEEE activities and Societies in Russia and provides a new way for the development of IEEE in Siberia.

- 2 technical meetings (November, 2001 and September, 2002) were organized for members of the Joint chapter. The representative activities of the Joint chapter were:
 - Presentation of IEEE resources and the Joint chapter activity for recruiting new members (SibSUTI, June, 2001, NSTU, September, 2002)
 - Visit to the 9th Exhibition of Educational and Training Technologies 'Education in Siberia', March, 2001, Siberian Fair, Novosibirsk, Russia.
 - Visit of Chapter representatives to the 2002 Student Branch Congress, Cairo, Egypt, May, 2002
 - Creating web sites for Joint chapter and SibSUTI Student Branch. They are: <http://www.neic.nsk.su/~ieeee/jch/eng/jch.html> <http://www.neic.nsk.su/~ieeee/sbeng/sb.html>. The business activity consists of holding ExCom meetings once per month.
- The contacts with the other Russian regions and IEEE chapters and student branches are developing. Now our chapter has contacts with specialists from many cities of the Siberian Region (Omsk, Tomsk, Krasnoyarsk, Irkutsk, etc.) as well as from Moscow, St. Petersburg, Saratov (Russia) and Kiev, Lviv and Vinnica (Ukraine).
- Our further plans are:
 - Technical and financial co-sponsorship of the 4th IEEE-Russia International Conference '2003 Microwave Electronics: Measurements, Identification, Applications', Novosibirsk, Russia, September, 2003
 - Technical and financial co-sponsorship of the 4th Siberian Russian Workshop and Tutorial on Electron Devices and Materials EDM'2003, NSTU, Altai, Erlagol, July, 2003
 - Presentation of IEEE resources and Joint chapter activity at the International Scientific and Technical Exhibitions SibPolyTech-2002 and 'Science in Siberia', Siberian Fair, Novosibirsk, Russia, October, 2002

- Presentation of IEEE resources and Joint chapter activity at the 10th International Exhibition on Telecommunication Equipment and Technologies SibTeleCom'2002, Novosibirsk, Russia, September, 2002

Preparing the first issue of the IEEE Siberia Newsletter. The frequency of this Newsletter is planned to be 4 or 6 times per year.



Chapter Chair and Vice-chair Vyacheslav Shuvalov (right) and Alexander Gridchin (left) near the exposition of IEEE resources, Siberian Fair, Novosibirsk

AP/ED/EMC/MTT/COM Tomsk Joint Chapter & Student Branch

- by Oleg V. Stoukach and Eugene I. Golovin

During March 19-20, 2002 in Tomsk, Russia, the IEEE-Siberian Conference on Electron Devices and Materials SIBEDEM-2002 was successfully held. The SIBEDEM was organized by the Tomsk Chapter & ED/MTT/CPMT/COM/SSC Student Branch with support of the Russian Foundation for Basic Research, and with IEEE EDS technical co-sponsorship. The Conference was also organized by the IEEE Novosibirsk Chapter, the IEEE Student Branch of Novosibirsk State Technical University and the GOLD Affinity Group of the Russian Section.

The plenary meeting was opened by professor Stanislav Shandarov, head of the Electron Devices department. His workshop was devoted to modern advances in UHF electronics, medical electronics, etc.

The conference sessions included a wide spectrum of topics like the methods of computing for studying the physical phenomena in electronic devices and materials. Also, the application of electron devices to biomedicine was highlighted. The aura of the conference was warm and friendly. As a result of this, we had a great experience in interaction with foreign colleagues and now feel the need for further international cooperation.

—Alexander V. Gridchin, Editor

**10th International Conference
MIXED Design of Integrated
Circuits & Systems - MIXDES
2003**

- by *Andrzej Napieralski*

The Department of Microelectronics and Computer Science of the Technical University of Lodz is organizing, the 10th International Conference, MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS - MIXDES 2003, which is also co-organized by the IEEE CAS & ED Chapters of the Polish Section.

The conference gathers teachers, scientists, professional organizations and industry leaders from around the world to continue the dialogue on education, teaching experience, training and technology transfer in the domain of mixed design and the application of integrated circuits and microsystems.

During the past years, MIXDES has been expanding and adapting its topics to meet the needs of contemporary electronic and microsystems engineers. The number of participants has grown continuously, starting at 40 in 1994 and reaching 140 at the last conference in 2002.

In a relatively short period of time, the conference has become a significant event in Central Europe, encompassing research in design, modelling, simulation, testing and manufacturing in micro- and nanoelectronics, semiconductors, sensors, actuators and power devices.

In 2003, the MIXDES Conference will celebrate its 10th anniversary. The conference will be held from 26 - 28 June in Lodz - the organizers' home city. Lodz is not only known for its textile, electronic and electrical industry but is also a cultural centre of many theatres, an opera house, museums and several university level schools. Lodz is well known for its modern shopping area and it is also noted for the beauty of its attractive surrounding countryside and forests. It has the largest wood park in the city area in Europe. The organizers plan the following topics during the conference:

1. Design of Integrated Circuits and Microsystems - Design methodologies. Digital and analogue synthesis. Hardware-software co-design. Reconfigurable hardware. Hardware description languages. Intellectual property-based design. Design reuse.

2. Thermal Issues in Microelectronics - Thermal and electro-thermal modelling, simulation methods and tools. Thermal mapping. Thermal protection circuits.



*Dr. Oleg Stoukach is presenting his lecture
'The IEEE: Networking the World'*

3. Analysis and Modelling of IC and Microsystems - Simulation methods and algorithms. Behavioural modelling with VHDL-AMS and other advanced modelling languages. Microsystems modelling. Models reduction. Parameters identification.

4. Microelectronics Technology and Packaging - New microelectronic technologies. Packaging. Sensors and actuators.

5. Testing and Reliability - Design for testability and manufacturability. Measurement instruments and techniques.

6. Power Electronics - Design, manufacturing, and simulation of power semiconductor devices. Hybrid and monolithic Smart Power circuits. Power integration.

7. Signal Processing - Digital and analogue filters, telecommunication circuits. Neural networks. Artificial intelligence. Fuzzy logic. Low voltage and low power solutions.

8. Medical Applications - Medical and biotechnology applications. Thermography in medicine.

9. Education - Education methodology, software, and tools. Web-based teaching.

Following suggestions made at the previous MIXDEX meetings, a new topic, Medical Applications will be introduced at the conference in 2003.

The deadline for the full paper submission is 28 February 2003. Papers will be accepted in electronic form (MS Word, PostScript or pdf) only. More information can be found at <http://www.mixdes.org>. Any questions can be sent to mixdes@dmcs.p.lodz.pl.

—*Andrzej Napieralski, Editor*

ED Israel

- by *Nathan Croitoru and Gady Golan*

On Sunday, July 7, 2002, at the Holon Inst. of Technology (HAIT) - Holon. Subject of meeting: "TUNABLE

PHOTONIC CRYSTALS", Guest lecturer was Prof. Peter Halevi from Instituto Nacional de Astrofisica, Optica Electronica, Mexico. Chairmen of the meeting: Prof. Nathan Croitoru and Dr. Gady Golan -30 people, students and academic staff, attended the meeting in Holon. In his lecture, Prof. Halevi focused on an emerging topic of interest which is the tunable PCs, that is, making use of some external agent in order to change the optical response of the PC.

Here he focused on two such methods, proposed recently:

A. Semiconductor with a substantial density of free carriers. By raising the temperature or by charge injection, one can increase the density of electrons or holes, thereby altering the optical properties of the PC. This behavior can be described by means of a simple plasma model.

B. Based on a 2D array of cylindrical holes in some host material. If these holes are infiltrated by means of a liquid crystal, then an external electric field will change the optical properties of the PC. A simple description of the dielectric response of the liquid crystal, enclosed by a cylinder, leads to considerable sensitivity of the photonic band structure on the applied electric field.

MTT/ED/AP/LEO UK&RI

-by *Terry Oxley*

The 7th IEEE High Frequency Postgraduate Student Colloquium (HFP-SC2002) was hosted by Imperial College and held at The Imperial Hotel in London, on the 8th and 9th of September 2002. Coordinated by Dr Stavros Lucyszyn (Imperial College London), the event was organised by Imperial College London and the Chapter, with technical co-sponsorship from MTT-S and EDS.

The first day consisted of an Invited Talk given by Professor Iain Thayne from the University of Glasgow, with the title, "The high frequency of RF techniques in contemporary systems, from GHz PCs through UWB/software radio to autonomous sensor networks". Professor Thayne gave an excellent high-level view of current and future technologies for underpinning modern RF applications; this not only included descriptions of what is possible, but also highlighted technological problem areas for future



Yicheng Lai (Winner of the Student Prize) and Dr Stepan Lucyszyn (Chairman of the HFPSC 2002).

researchers to address. Later that evening a lively reception dinner was held within the hotel.

The second day saw the main business of the Colloquium. Opened by an address from the Conference Chairman, Dr Stepan Lucyszyn (Imperial College London), the technical programme presented some 20 papers in four sessions covering the topics of Passive Microwave Components, Microwave Circuits and Systems, Millimetre-Wave Components and Applications, and Optical Components and Circuits. Presentations included contributions from Imperial College London, UMIST, The Queens University of Belfast, Sheffield Hallam University, Aston University, Lancaster University, City University and the Universities of Essex, Glasgow, Surrey, Leeds, Liverpool and Glamorgan. The Colloquium Prize of a certificate and £100 went to Yicheng Lai, from Aston University, for his paper entitled, "High frequency signal generation for fibre-radio applications based on a novel fibre laser structure". This paper was co-authored by W. Zhang and J. A. R. Williams, under a joint collaboration with Aston University and Indigo Photonics Ltd. The paper will also be reprinted in *Microwave Engineering Europe*, published by CMP Europe. Yicheng Lai, from Singapore, is a second year PhD student and he gave an excellent presentation of his work. The paper describes an all-fibre optical device for producing a stable millimetre-wave beat frequency at 32.5 GHz. Potentially, this work could dramatically reduce the cost of generating

millimetre-wave power, as it does not require extensive feedback control or an external frequency synthesizer.

The 8th HFPSC (HFP-SC2003) will be hosted by The Queen's University of Belfast. Please contact Prof. Vincent Fusco for further details: vf.fusco@ee.qub.ac.uk

For further information on Chapter news, please contact the Chapter Chairman: Ali A Reza-zadeh, Professor of Microwave Engineering, Dept. of Electrical Engineering and Electronics, University of Manchester Institute of Science and Technology (UMIST), P.O. Box 88, Manchester M60 1QD, UK.

Tel: +44 (0)161 200 4708 (Sec.4801).

E-Mail: a.rezazadeh@umist.ac.uk

—Gady Golan, Editor

Asia & Pacific Region 10

AP/ED Bombay

- by Prof. V. Ramgopal Rao

On July 2, 2002, Dr. Malay Trivedi (Primarion, USA) gave a talk entitled "Digital Multiphase Power: Changing the landscape of processor power" at IIT Bombay which was attended by over 100 students. The Chapter also organized an All India EDS Chapters meeting in Bombay on July 20, 2002. All the EDS India chapters were represented at this meeting. The India EDS chapters' partners, Dr. Renuka Jindal (University of Louisiana at Lafayette, USA), Dr. Radhakrishnan (Philips, Singapore) and Prof. J. Vasi (IIT Bombay), participated in the deliberations. Various issues concerning the EDS activities in India and their functioning were discussed.

On July 20, the Chapter and the IEEE Bombay Section jointly organized an IEEE EDS Distinguished Lecture given by Dr.

Jindal at IIT Bombay. Dr. Jindal discussed the Nano-FET fluctuation physics and random noise and its manifestation in the MOSFET structure.

On August 6, the Chapter organized a Seminar given by Prof. Gianchandani of the University of Michigan entitled "Microplasmas, Microactuators, Microscopy: A Cross-Section of MEMS Structures". The talk was extremely well received by the students. On September 5, a seminar was given by Prof. Sheila Prasad of Northeastern University on "High Frequency Characterization of HBTs".

On September 30, a one day Microelectronics workshop was held at the Thadomal Shahani College of Engineering. Over 100 students registered for this workshop from all over Bombay.

For more information, please contact Prof. Ramgopal Rao, Electrical Engineering Department, IIT Bombay, Powai, Mumbai 400076, India, Fax: 91-22-5783480, Email: rraol@ee.iitb.ac.in

ED/SSC Bangalore

-by Prof. Navakant Bhat

A one day workshop entitled "VLSI: Challenges and Opportunities in the Nanometer Era" was organized on 6 July 2002 with 4 seminars: 'Design challenges in Nanometer era', given by V. Menzes (Texas Instruments); 'Technology



The All India EDS Chapters Meeting held in Bombay. Standing from left to right: M.B. Patil, ED Bombay chapter, Navakant Bhat, ED Bangalore chapter, Ramgopal Rao, ED Bombay Chapter, Govind, India ED Chapter, New Delhi, Sarkar, IEEE Calcutta Section representative, and Shaligram, ED Bombay Chapter. Seated from left to right: India EDS Chapters' partners. J.Vasi, Renuka Jindal and M.K. Radhakrishnan.

challenges in Nanometer node', given by P.R. Suresh (Texas Instruments); 'Impact of transistor mismatch on sense amplifier design', presented by N. Bhat (Indian Institute of Science) and 'Quantum Electronics devices', given by P. Ray (National Semiconductor). This workshop was attended by more than 100 students.



From left to right: Navakanta Bhat, (Chair) , Renuka P. Jindal (Chapter partner), R. Suresh (Vice chair) and Santosh Salunkhe (Treasurer/Secretary)

The IEEE Distinguished Lecture "Nano-FET Fluctuation Physics", was presented by R. Jindal on 22 July 2002. The ED/SSC Bangalore chapter co-operated with the VLSI Society of India in arranging "VLSI Design and Test Workshops 2002" from 29 to 31 August at the Indian Institute of Science. There were more than 300 delegates attending this event. The Chapter organized a special session on MEMS and set-up an IEEE exhibit booth for the delegates, showcasing various publications of the ED and SSC societies.

The Chapter organized a short course on "Quantum Electronics Devices" to enable the students and professionals to learn about this fascinating field. This course was conducted by Dr. Partha Ray of National Semiconductor. The response was very good with about 70 attendees in the first lecture.

For more information, please contact Prof. Navakant Bhat, ECE Department, Indian Institute of Science, Bangalore, India-560012, Email: navakant@ece.iisc.ernet.in.

ED/MTT India

- by Dr. K.S. Chari

The Chapter participated in the All-India EDS Chapters' Meeting at IIT Bombay on 20 July and discussed issues such as organizing joint international conferences, diversifying chapter activities, international collaboration between chapters, membership upgra-

dation, awards, etc.

Dr. R. Jindal visited the Chapter on 24 July. Various issues were discussed such as raising resources from industry and the parent India council/Delhi section, and spreading regional activities. The Chapter organized a DL Talk, "Silicon on Insulator MOSFETS for Analog Applications", given by Prof. Juzer Vasi on 23 August. The Talk was attended by 30 participants.

Prof. Ajay Malshe of the University of Arkansas gave a lecture on "Interrogated Micro and Nano systems – Challenges & Opportunities" at Delhi on 6 August. The talk was attended by 40 participants.

The Chapter jointly organized, with Shanmugha Arts, Science, Technology & Research Academy, a 3 day National Workshop on Embedded Systems during September 12-14, 2002. The Workshop received an overwhelming response with 134 registered delegates. The Chapter Chair visited the University of Hyderabad on 19 September and addressed the students and faculty members on the importance of IEEE/EDS activities.

CPMT/ED/R Singapore

- by M.K. Radhakrishna

The 9th International Conference on Physical and Failure Analysis of

Integrated Circuits (IPFA 02), which was held from 8 to 12 July, at Raffles City Convention Centre, was a great success. Four tutorials by four experts in the field were given and attended by more than 100 engineers /managers from the industry in Singapore and the region. The symposium had 51 papers presented in 12 sessions, including 5 invited papers and 2 Best Paper exchanges between ESREF and ISTFA. About 150 participants from 16 countries attended the symposium. An equipment exhibition was held along with IPFA.

The Chapter donated a Book Prize at the School of Electrical and Electronics Engineering, Nanyang Technological University (NTU), Singapore to reward the best student in microelectronics. The book prize is given yearly and is known as the IEEE R/CPMT/ED Chapter Book Prize.

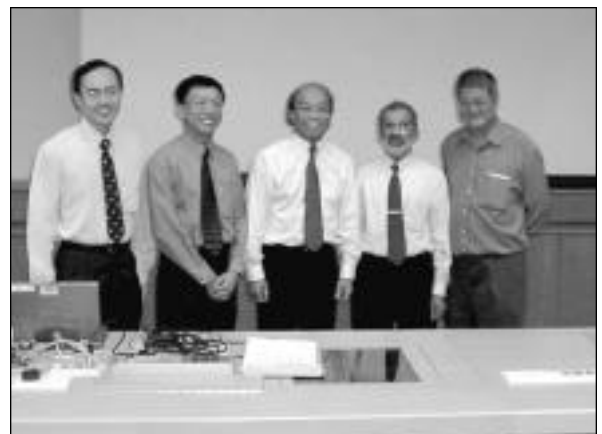
An EDS distinguished lecturer, was given by Prof. Juzer Vasi on 8 July 2002, at the Indian Institute of Technology, Bombay on "Silicon-on Insulator MOSFETS for Analog Applications", which was organized in collaboration with the National University of Singapore. The lecture was attended by more than 30 people from academia and industry.

For more information on Chapter activities, please contact Chapter Chair: Dr. Radhakrishnan, email: radhakrishnan@ieee.org.

ED Malaysia

- by Burhanuddin Yeop Majlis

The ED Malaysia chapter has organized a workshop on Design and Analysis of Experiment at the Faculty of Engineering, Universiti Kebangsaan



NTU Book Prize MOU signing: Prof. Er Meng Hua, NTU Dy. President and the Head of Departments with Chapter Chairman and Vice-Chair.



Attendees of the workshop on Design and Analysis of Experiment held 16-17 July 2002 at the Universiti Kebangsaan Malaysia.

Malaysia on July 16-17, 2002. The workshop was attended by postgraduate students and lecturers from local universities and research officers from research institutions. The analysis of variance (ANOVA) technique was used to analyze observational as well as experimental data. Hands on exercises and interpretation of results from SPSS package were stressed, so as to instill a thorough understanding of the underlying ANOVA techniques. An introduction on the important concepts in designing an experiment was also discussed. The workshop was led by Dr. Abu Hassan Shaari Mohd from the Universiti Kebangsaan Malaysia.

For more information, please contact Prof. Majlis, Department of Electrical, Electronics and System Engineering, Universiti Kebangsaan Malaysia. Tel: 603-89265861, FAX: 603-89259080, Email: burhan@eng.ukm.my.

—Wee Kiong Choi, Editor

ED Japan

- by Yuu Watanabe

The Chapter has started to fund an "EDS Japan Chapter Award" to encourage and support the research activities of young student members in the chapter. The award is given to the individuals who make distinguished contributions to the electron devices engineering. The Japan

Chapter will select the winner of the award in December based on the papers presented at the international conferences such as IEDM, Symposium on VLSI Technology, Device Research Conference and other electron devices related Symposiums. It is not necessary to submit an application form, but recommendations are welcome.

The first winners of the "EDS Japan Chapter Award" will be honored at the annual chapter meeting held in January 2003, Tokyo, Japan, presented with prize money and memorial plates.

For more information, please contact Y. Watanabe, email: yuu.watanabe@jp.fujitsu.com.

ED Kansai

- by Hiroshi Nozawa

The ED Kansai Chapter held a technical meeting and an administrative meeting for the third quarter of 2002. The Chapter held the Kansai Colloquium Electron Devices Workshop at Osaka Univ. Convention Center, Osaka, Japan on 11 July 2002. There were 25 participants



Dr. A. Misaka of Matsushita Electric Industry, the winner of MFSK Award

including students. At the opening, the first winner of the MFSK (Message From Spirited Kansai) Award, Sigenobu Maeda of Mitsubishi Electric Corporation, was honored with an engraved memorial wall plaque.

At the Kansai Colloquium Electron Devices Workshop a contest was held for the second MFSK (Message From Spirited Kansai) Award. The nominated candidates were 9 persons who presented technical papers. The chair of the award, H. Inoue filling in for T. Nishimura, organized an evaluation committee of 6 referees. The referees independently ranked the candidates based on technical level, impact for the future and presentation skill. The evaluation committee selected fairly, A. Misaka of Matsushita Electric Industry, as the winner. The title of his paper was "Super-Resolution Enhancement Method With Phase-Shifting Mask Available for Random Patterns". The Executive Committee of the ED Kansai Chapter, which held a meeting in conjunction with the workshop, approved the award procedure after critical examination. The winner of the second MFSK Award will be honored at the next Kansai Colloquium Electron Devices Workshop, January 2003 with an engraved memorial wall plaque. In addition, the ED Kansai Chapter is in cooperation with three technical meetings. One was a workshop sponsored by JSAP, at Osaka, June 2003. The other two are international conferences, 2003 SISPAD in Kobe and 2003 SSDM in Nagoya. The ED Kansai Chapter contributes to circulating information about these conferences to



Dr. Naoki Yokoyama,
Japan Council,
ED Chapter Chair



ED Distinguished Lecturers J. B. Kuo and J. J. Liou, members of IEEE ED Hong Kong Chapter and other participants at the 2002 Hong Kong Electron Devices Meeting.

EDS members and many members contribute to the organization and paper presentation.

—Hisayo S. Momose, Editor

ED/SSC Hong Kong -by Hei Wong

The ED Hong Kong Chapter reaches a major milestone this year, as we enter our 10th year as a chapter. To enhance the collaboration with the solid-state circuits experts, to reflect the broad interests of our EDS members, and to further boost the number of local members, the Chapter has now evolved into a new joint chapter, the ED/SSC joint chapter. In addition, to organize more high-quality technical activities in both areas, our new role and mission will be facilitating interaction between ED and SSC members.

We had organized several major technical activities this year. On February 18-21, 2002, a short course, "Thin Film Science and Technology & The State-of-Art Applications", was run by Professor Huey-Liang Hwang of the National Tsinghua University. On June 22, 2002, we organized our annual major event, The Hong Kong Electron Devices Meeting. Two EDS distinguished lecturers, J. B. Kuo and J. J. Liou, were invited to deliver invited talks on the latest development on "modeling of fringing effect in SOI NMOS devices" and "RF/microwave transis-

tors", respectively at the Conference. We will also sponsor the IEEE International Conference on Field-Programmable Technology (FPT) to be held during 16-18 December 2002.

To celebrate the 10th Anniversary of the IEEE ED Hong Kong Chapter and the establishment of the new ED/SSC joint Chapter, the new Chapter is organizing a three-day international conference, the IEEE Conference on Electron Devices and Solid-State Circuits. The Conference will be held at the New World Renaissance Hotel from July 3 to 5, 2003. The three-day program comprises broad areas in electron devices, materials and solid-state circuits. The aims of this conference are to bring together scientists, engineers, and students to discuss the latest achievements in electron devices and solid-state circuit designs and to facilitate interactions among local researchers as well as their international counterparts. Tentative invited talks of the Conference include: The Sisoft project (C. Y. Chang, National Chiao Tung Univ., Taiwan); Nonvolatile RAMs in silicon carbide (S. Dimitrijevic, Griffith Univ., Australia); Design of SONOS memory transistor for terabit scale EEPROM (V. A. Gritsenko, Inst. of Semicon. Phys., Russia); Ultralow-voltage memory technology: Current status and future trends (K. Itoh, Hitachi, Japan); Advanced CMOS Technologies for technology nodes of sub-70 nm and below (H. Iwai, Tokyo Inst. of Techno., Japan);

Recent progress in compound semiconductor photonic integrated circuits (C. Jagadish, Australian National Univ., Australia); Challenges of SOI CMOS VLSI (J. B. Kuo, Waterloo Univ., Canada); Trapping centers in hafnium and zirconium oxide/silicon systems (P. Lenahan, Penn. State Univ., USA); RF CMOS: Recent advances and future applications (J. J. Liou, Univ. of Central Florida, USA); Challenges and recent advances in SiC device technology (M. Ostling, Royal Inst. of Technol., Sweden); Semiconductor manufacturing in the 21st century: Trends and impact of potential disruptive technologies (R. Singh, Clemson Univ., USA); Effects of electrical stressing in power VDMOSFETs (N. Stojadinovic, Univ. of Nis, Yugoslavia); Biologically inspired smart vision sensors in CMOS technology (J. Van der Spiegel, Univ. of Penn., USA); A possible roadmap for nanoelectronics (K.L. Wang, HK Univ. of Sci. & Technol., Hong Kong); and Beyond the conventional transistor (H.-S. Philip Wong, IBM, USA)

For further information, please contact: Dr. Hei Wong, General Chair of EDSSC'03, Dept. of Electronic Engineering, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong. Fax: (852) 2788 7791, Email: eehwong@cityu.edu.hk; Or visit our Conference Web Site: http://www.eeust.hk/ieee_eds/EDSSC.htm

—Tahui Wang, Editor

EDS Meetings Calendar

(As of 4 November 2002)

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

January 21 - 24, 2003, T **Topical Workshop on Heterostructure Microelectronics** Location: Bankoku-Shinyokan, Okinawa, Japan Contact: Daisuke Ueda, Matsushita Electric, , Japan Tel: Not Available Fax: Not Available E-Mail: ueda@erl.mec.mei.co.jp Deadline: Not Available www:TBD

February 9 - 13, 2003, # **IEEE International Solid-State Circuits Conference** Location: San Francisco Marriott Hotel, San Francisco, CA, USA Contact: Anantha Chandrakasan, MIT, 50 Vassar Street, Bldg 38-107, Cambridge, MA, USA 02139 Tel: +1 617 258 7619 Fax: +1 617 253 5053 E-Mail: anantha@mit.mit.edu Deadline: 9/4/02 www:<http://www.isscc.org/isscc>

February 15, 2003, T **Workshop on Photonics & Its Applications** Location: The National Institute of Laser Enhanced Sciences, Cairo, Egypt Contact: Ibrahim Salem, Academy of Scientific Res & Tech, Dept. of Scientific Societies & Int'l Unions, 101 Kasr EL-Eini St, Cairo, Egypt Tel: +20 2 258 0256 Fax: +20 2 792 1270 E-Mail: ia.salem@ieee.org Deadline: Not Available www: Not Available

February 16 - 20, 2003, @ **IEEE Non-Volatile Semiconductor Memory Workshop** Location: Hyatt Regency Hotel, Monterey, CA, USA Contact: Krishna Parat, Intel, M/S RN3-01, 2200 Mission College Blvd., Santa Clara, CA, USA 95054 Tel: +1 408 765 9381 Fax: +1 408 765 9206 E-Mail: Krishna.Parat@intel.com Deadline: 10/25/02 www:<http://ewh.ieee.org/soc/eds/nvsmw>

February 18 - 22, 2003, T **International Conference on the Experience of Designing and Application of CAD Systems in Microelectronics** Location: National University "Lviv Polytechnic", Slavske, Ukraine Contact: Vasyli Tesliuk, National University "Lviv Polytechnic", CAD/CAM Department, St Bandera 12, Lviv, Ukraine 79013 Tel: +38 (0322) 72 29 72 Fax: +38 (0322) 72 29 72 E-Mail: cadsm2003@polynet.lviv.ua Deadline: 10/15/02 www: Not Available

February 19 - 21, 2003, T **Euroregional Workshop on Thin Silicon Devices** Location: Centro de

Congressos, Institute Superior Tecnico, Lisbon, Spain Contact: Joao Conde, Institute Superior Tecnico, Av. Rovisco Pais, Dept of Materials Eng, Lisbon, Portugal Tel: +351 21 8418134 Fax: +351 21 8499242 E-Mail: joao.conde@ist.utl.pt Deadline: Not Available www:<http://www.inesc-mn.pt/workshop>

February 23 - 27, 2003, T **International Conference on Modeling and Simulation of Microsystems** Location: Grand Hyatt, San Francisco, CA, USA Contact: Sarah Wenning, Applied Computational Research Society, 4847 Hopyard Road, Suite 4-381, Pleasanton, CA, USA 94588 Tel: +1 925 743 9466 Fax: +1 925 696 6416 E-Mail: wenning@dnai.com Deadline: 9/13/02 www: <http://www.cr.org/MSM2003/CFP2003.pdf>

March 17 - 20, 2003, @ **IEEE International Conference on Microelectronic Test Structures** Location: Double Tree Hotel, Monterey, CA, USA Contact: Wendy Walker, Widerkehr & Associates, 16220 South Frederick Avenue, Suite 312, Gaithersburg, MD, USA 20877-4020 Tel: +1 301 527 0900 ext. 104 Fax: +1 301 527 0994 E-Mail: wendyw@widerkehr.com Deadline: 8/23/02 www:<http://www.ee.ed.ac.uk/ICMTS>

March 18 - 20, 2003, T **National Radio Science Conference** Location: The Atomic Energy Authority, Nasr City, Cairo, Egypt Contact: Ibrahim Salem, Academy of Scientific Res & Tech, Dept. of Scientific Societies & Int'l Unions, 101 Kasr EL-Eini St, Cairo, Egypt Tel: +20 2 258 0256 Fax: +20 2 792 1270 E-Mail: ia.salem@ieee.org Deadline: 10/15/02 www: Not Available

March 20 - 21, 2003, T **Workshop on Ultimate Integration of Silicon Devices** Location: University of Udine, Udine, Italy Contact: Enrico Sangiorgi, Universita' di Bologna, Il Facolta di Ingegneria, Forli, Italy Tel: +39 0543 374418 Fax: +39 0543 374477 E-Mail: esangiorgi@deis.unibo.it Deadline: 12/31/02 www:<http://www.diegm.uniud.it/ulis2003/>

March 30 - April 3, 2003, * **IEEE International Reliability Physics Symposium** Location: Hyatt Regency Dallas, Dallas, TX, USA Contact: Eric Snyder, Sandia Technologies, 6003 Osuna

Road NE, Albuquerque, NM, USA 87109 Tel: +1 505 872 0011 Fax: +1 505 872 0022 E-Mail: Eric_Snyder@PDQ-ST.com Deadline: 10/1/02 www:<http://www.irps.org>

March 31 - April 1, 2003, * **IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop** Location: International Congress Center Munich (ICM), Munich, Germany Contact: Margaret Kindling, SEMI, 1401 K Street NW, Suite 601, Washington, D.C., USA 20005 Tel: +1 202 289 0440 Fax: +1 202 289 0441 E-Mail: mkindling@semi.org Deadline: 9/18/02 www: <http://www.semi.org/web/wcontent.nsf/url/ASMCHome>

April 14 - 17, 2003, @ **IEEE International Symposium on Power Semiconductor Devices & Integrated Circuits** Location: Cambridge, United Kingdom Contact: Gehan Amaratunga, Cambridge University, Trumpington Street, Cambridge CB2 1PZ, United Kingdom Tel: +44 1223 332638 Fax: +44 1223 332616 E-Mail: ga@eng.cam.ac.uk Deadline: 10/1/02 www:<http://www.ISPSD.org>

April 18 - 30, 2003, T **Symposium on ULSI Process Integration** Location: Salon des Exposition, Paris, France Contact: Cor Claeys, IMEC, Kapel dreef 75, Leuven, B-3001 Tel: +3216 28 1328 Fax: +3216 28 1510 E-Mail: c.claeys@ieee.org Deadline: 10/1/02 www: Not Available

April 23 - 25, 2003, T **International Symposium on VLSI Technology, Systems and Applications** Location: Ambassador Hotel, Hsinchu, Taiwan Contact: Rachel Huang, ITRI, 195-4, Sec 4, Chung Hsing Road, Chutung, Hsinchu, Taiwan R.O.C. Tel: +886 3 591 3478 Fax: +886 3 582 0221 E-Mail: vlsitsa@itri.org.tw Deadline: 10/20/02 www:<http://vlsitsa.itri.org.tw>

April 23 - 25, 2003, * **IEEE International Symposium on Plasma- & Process-Induced Damage** Location: Altis Semiconductor, Paris, France Contact: (Charles) Kin Cheung, Rutgers University, 94 Brett Road, Piscataway, NJ, USA 08854 Tel: +1 732 445 0680 Fax: +1 732 445

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May 11 - 18, 2003, @ **World Conference on Photovoltaic Energy Conversion** [Location](#): Osaka International Convention Center, Osaka, Japan [Contact](#): Americo Forestieri, 74 Barberrly Drive, Berea, OH, USA 44017 [Tel](#): +1 440 234 1574 Fax: +1 440 234 1574 [E-Mail](#): moeforestieri@att.net Deadline: 10/31/02 [www](http://www.wcpec3.org):http://www.wcpec3.org

May 11 - 18, 2003, # **International Photovoltaic Science & Engineering Conference** [Location](#): Osaka International Convention Center, Osaka, Japan [Contact](#): Americo Forestieri, 74 Barberrly Drive, Berea, OH, USA 44017 [Tel](#): +1 440 234 1574 Fax: +1 440 234 1574 [E-Mail](#): moeforestieri@att.net Deadline: 10/31/02 [www](http://www.wcpec3.org):http://www.wcpec3.org

May 11 - 18, 2003, T **European Photovoltaic Solar Energy Conference and Exhibition** [Location](#): Osaka International Convention Center, Osaka, Japan [Contact](#): Americo Forestieri, 74 Barberrly Drive, Berea, OH, USA 44017 [Tel](#): +1 440 234 1574 Fax: +1 440 234 1574 [E-Mail](#): moeforestieri@att.net Deadline: 10/31/02 [www](http://www.wcpec3.org):http://www.wcpec3.org

May 12 - 16, 2003, @ **IEEE International Conference on Indium Phosphide and Related Materials** [Location](#): Fess Parker's Doubletree Resort, Santa Barbara, CA, USA [Contact](#): Conf Mgt Group LEOS, IEEE, 445 Hoes Lane, Piscataway, NJ, USA 08854 [Tel](#): +1 732 562 3899 Fax: +1 732 562 8434 [E-Mail](#): leosconferences@ieee.org Deadline: 12/3/02 [www](http://www.):

May 15 - 17, 2003, * **IEEE Workshop on Charge-Coupled Devices & Advanced Image Sensors** [Location](#): Schloss Elmau, Elmau, Germany [Contact](#): Albert Theuwissen, Kleine Schoolstraat, 9, B-3960 BREE, Belgium, Germany [Tel](#): +32 89 472 672 Fax: Not Available [E-Mail](#): a.theuwissen@pi.be Deadline: 2/21/03 [www](http://www.): Not Available

May 27 - 29, 2003, # **International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication** [Location](#): Tampa Marriott Waterside Hotel & Marina, Tampa, FL, USA [Contact](#): Timothy Groves, Goschwitzer Strasse 25, 07745 Jena, Germany [Tel](#): + 011 49 3641 651900 Fax: + 011 49 3641 651922 [E-Mail](#): Timothy.Groves@Leica-Microsystems.com Deadline: Not Available [www](http://www.eipbn.org):http://www.eipbn.org

May 28 - 30, 2003, @ **IEEE International Vacuum Electronics Conference** [Location](#): Hotel Lotte, Seoul, Korea [Contact](#): Gun Sik Park, Seoul

National University, Shinlim-dong, Kwana-ku, Seoul, Korea 151-742 [Tel](#): +82 2 880 7749 Fax: +82 2 882 9374 [E-Mail](#): gunsik@plaza.snu.ac.kr Deadline: 1/25/03 [www](http://ivec2003.snu.ac.kr):http://ivec2003.snu.ac.kr

June 1 - 4, 2003, * **IEEE International Interconnect Technology Conference** [Location](#): Hyatt Regency at the San Francisco Airport, Burlingame, CA, USA [Contact](#): Wendy Walker, Widerkehr & Associates, 16220 South Frederick Avenue, Suite 312, Gaithersburg, MD, USA 20877-4020 [Tel](#): +1 301 527 0900 ext. 104 Fax: +1 301 527 0994 [E-Mail](#): wendyw@widerkehr.com Deadline: Not Available [www](http://www.): Not Available

June 8 - 12, 2003, @ **IEEE TRANSDUCERS - International Conference on Solid-State Sensors and Actuators** [Location](#): Marriott Copley Place, Boston, MA, USA [Contact](#): G. Hocker, Honeywell Technology Center, 12001 State Highway 55, Plymouth, MN, USA 55441-4799 [Tel](#): +1 763 954 2745 Fax: +1 763 954 2504 [E-Mail](#): benjamin.hocker@honeywell.com Deadline: Not Available [www](http://www.transducers03.org): http://www.transducers03.org

June 8 - 13, 2003, T **IEEE Radio Frequency Integrated Circuits Symposium** [Location](#): Philadelphia Convention Center, Philadelphia, PA, USA [Contact](#): Natalino Camilleri, RF & Wireless Design Services Inc., 10812 Wilkinson Ave, Cupertino, CA, USA 95014 [Tel](#): +1 408 252 615 Fax: +1 408 252 6590 [E-Mail](#): natalinoc@yahoo.com Deadline: 9/7/02 [www](http://www.rfic2003.org/index.html):http://www.rfic2003.org/index.html

June 10 - 12, 2003, @ **Symposium on VLSI Technology** [Location](#): Rihga Royal Hotel, Kyoto, Japan [Contact](#): Phyllis Mahoney, Widerkehr & Associates, 16220 South Frederick Avenue, Suite 312, Gaithersburg, MD, USA 20877-4020 [Tel](#): +1 301 527 0900 ext. 103 Fax: +1 301 527 0994 [E-Mail](#): phyllism@widerkehr.com Deadline: 1/8/03 [www](http://www.vlssymposium.org):http://www.vlssymposium.org

June 12 - 14, 2003, # **Symposium on VLSI Circuits** [Location](#): Rihga Royal Hotel, Kyoto, Japan [Contact](#): Phyllis Mahoney, Widerkehr & Associates, 16220 South Frederick Avenue, Suite 312, Gaithersburg, MD, USA 20877-4020 [Tel](#): +1 301 527 0900 ext. 103 Fax: +1 301 527 0994 [E-Mail](#): phyllism@widerkehr.com Deadline: 1/8/03 [www](http://www.vlssymposium.org):http://www.vlssymposium.org

June 16 - 18 2003, * **IEEE University/Government/Industry Microelectronics Symposium** [Location](#): Boise State University, Boise, ID, USA [Contact](#): Stephen Parke, Boise State University, 1910 University Drive, Boise, ID, USA 83725 [Tel](#): +1 208 426 3842 Fax: +1 208 426 4800 [E-Mail](#): sparke@boisestate.edu Deadline: Not Available [www](http://coen.boisestate.edu/ugim03): http://coen.boisestate.edu/ugim03

June 23 - 25, 2003, T **Device Research Conference** [Location](#): University of Utah, Salt Lake City, Utah, USA [Contact](#): Michael Packard, TMS Meeting Services, 184 Thorn Hill Road, Warrendale, PA, USA 15086 [Tel](#): +1 724 776 9000 x225 Fax: +1 724 776 3770 [E-Mail](#): packard@tms.org Deadline: Not Available [www](http://www.tms.org/Meetings/Specialty/DRC/2003/DRC-2003-Home.html):http://www.tms.org/Meetings/Specialty/DRC/2003/DRC-2003-Home.html

June 26 - 28, 2003, T **International Conference on Mixed Design of Integrated Circuits and Systems** [Location](#): Hotel Grand, Lodz, Poland [Contact](#): Andrzej Szajfler, Technical University of Lodz, Al Politechniki 11 93-590, Lodz, Poland [Tel](#): +48 (42) 631 26 55 Fax: +48 (42) 636 0327 [E-Mail](#): jzajfler@dmcs.p.lodz.pl Deadline: Not Available [www](http://www.mixdes.org): http://www.mixdes.org

July 7 - 11, 2003, @ **International Vacuum Microelectronics Conference** [Location](#): Senri Life Science Center, Toyonaka, Osaka, Japan [Contact](#): Mikio Takai, Osaka University, Machikaneyama 1-3, Toyonaka, Osaka, Japan 506-8531 [Tel](#): +81 6 6850 6693 Fax: +81 6 6850 6662 [E-Mail](#): takai@rcem.osaka-u.ac.jp Deadline: 3/15/03 [www](http://ivmc2003.rcem.osaka-u.ac.jp):http://ivmc2003.rcem.osaka-u.ac.jp

August 18 - 22, 2003, T **International Conference on Noise in Physical Systems and 1/F Fluctuations** [Location](#): Czech Noise Research Laboratory, Prague, Czech Republic [Contact](#): Josef Sikula, Czech Noise Research Lab, Brno University of Technology, Technicka 8, Czech Republic 616 00 BRNO [Tel](#): +420 5 4114 3328 Fax: +420 5 4114 3398 [E-Mail](#): sikula@feec.vutbr.cz Deadline: Not Available [www](http://www.cnr1.cz/ICNF):http://www.cnr1.cz/ICNF

August 25 - 27, 2003, * **IEEE International Symposium on Compound Semiconductors** [Location](#): University of California San Diego, La Jolla, CA, USA [Contact](#): Conf Mgt Group LEOS, IEEE, 445 Hoes Lane, Piscataway, NJ, USA 08854 [Tel](#): +1 732 562 3899 Fax: +1 732 562 8434 [E-Mail](#): leosconferences@ieee.org Deadline: Not Available [www](http://www.i-leos.org):http://www.i-leos.org

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