

2002 MTT-S Awards

Peter W. Staecker, *Fellow, IEEE*

THE International Microwave Symposium (IMS) of the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) attracted over 11 000 participants to its Seattle, WA, venue in June 2002, and was an appropriate site to recognize the service and technical excellence of its members. IEEE MTT-S President John Barr presided over awards ceremonies at a number of venues, including the Awards Banquet and Plenary Session. The following summarizes the awards and recognition activities, which was held in Seattle, WA, on 2–7 June, 2002.

IEEE USA HARRY DIAMOND MEMORIAL AWARD

Robert J. Trew

The IEEE USA Harry Diamond Memorial Award is publicized in the *IEEE Spectrum* and *The Institute*. The process and nomination forms are also available on the web.¹ Nominations can be made by anyone to recognize deserving individuals for the various awards. This award honors individuals for distinguished technical contributions in the field of electrotechnology while in U.S. government service. The recipient for 2002 is Prof. Robert J. Trew. He is an IEEE Fellow, and member of the IEEE MTT-S, whose citation reads:

FOR TECHNICAL CONTRIBUTIONS TO THE THEORY AND DESIGN OF MICROWAVE POWER DEVICES, AND FOR HIS LEADERSHIP IN MANAGING DOD'S BASIC RESEARCH PROGRAMS.



Robert J. Trew (S'71–M'74–SM'87–F'91) received the Ph.D. degree from The University of Michigan at Ann Arbor, in 1975.

He is currently the Willis G. Worcester Professor of Engineering and Head of the Electrical and Computer Engineering Department, Virginia Polytechnic Institute and State University, Blacksburg. From 1997 to 2001, he was Director of Research for the U.S. Department of Defense (DoD), with management oversight responsibility for the \$1.3 billion yearly basic research programs of the DoD. He was Vice-Chair of the U.S.

Government interagency committee that implemented the U.S. National Nanotechnology Initiative. From 1992 to 1997, he served as a Program Manager in the Electronics Division, Army Research Office. His academic career includes 17 years with North Carolina State University, and four years as George S. Dively Distinguished Professor of Engineering and Chair of the Electrical Engineering and Applied Physics Department, Case Western Reserve University. He has authored or coauthored over 140 publications, 14 book chapters, and has given over 290 technical and programmatic presentations. He holds four patents.

Dr. Trew is a member of the Materials Research Society, the Electromagnetics Academy, the American Association for the Advancement of Science (AAAS), the American Society for Engineering Education (ASEE), Sigma Xi, Eta Kappa Nu, and Tau Beta Pi. He serves on the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) Administration Committee (AdCom). He was editor-in-chief of the IEEE TRANSACTIONS ON MICROWAVE THEORY



2002 IEEE MTT-S President John Barr presents 2001 IEEE MTT-S President's Plaque to Charlie Jackson (*right*).



IEEE Division IV Director Peter Staecker with Robert J. Trew (*right*), 2002 IEEE USA Harry Diamond Memorial Award Recipient.

AND TECHNIQUES from 1995 to 1997. He is currently inaugural co-editor of the *IEEE Microwave Magazine*. He is also a member of the Editorial Board of the PROCEEDINGS OF THE IEEE. He was an IEEE Microwave Distinguished Lecturer from 1997 to 2000. He was the recipient of an IEEE Third Millennium



MTT-S Class of 2002 Fellows at the Plenary Session.

Medal Award, the 1998 IEEE MTT-S Distinguished Educator Award, the 1991 Alcoa Foundation Distinguished Engineering Research Award, and a 1992 Distinguished Scholarly Achievement Award presented by North Carolina State University.

Class of 2002 IEEE Fellows

The member grade of Fellow is conferred in recognition of unusual and outstanding professional distinction. It is awarded at the initiative of the IEEE Board of Directors following a rigorous nomination and evaluation process. Individuals receiving this distinction have demonstrated extraordinary contributions to one or more fields of electrical engineering, electronics, computer engineering, and related sciences. This grade is not conferred automatically on nomination; only a fraction of those nominated are elected.

Twelve IEEE MTT-S members who were evaluated by the IEEE MTT-S were elected to the grade of Fellow, effective 1 January 2002, and their citations are as follows:

John Tilman Barr, IV: *For contributions and leadership in RF and microwave component measurements and instrumentation for design and manufacturing.*

Jens Bornemann: *For contributions to the modeling of design of waveguide components and planar structures.*

Richard John Cameron: *For contributions to the exact synthesis techniques for microwave filters.*

Edward L. Griffin: *For leadership in the development and application of MSAG GaAs processes for novel MMIC circuits.*

Osami Ishida: *For leadership in research and development of microwave devices for mobile communication.*

Stephen James Nightingale: *For contributions to planar microwave and millimeter wave circuits.*

Zoya Popović: *For contributions to the development of active antenna arrays and quasi-optical power combining techniques.*

Ulrich Lothar Rohde: *For contributions to and leadership in the development and industrial implementation of microwave computer-aided design technology.*

David E. Root: *For contributions to nonlinear modeling of active semiconductor devices.*

James Carson Stewart: *For leadership in education and academic research in the field of microwave and millimeter-wave devices and circuits.*

Robert Weigel: *For contributions to microwave acoustic, radio frequency integrated circuits, and microwave circuits and their applications.*

Dylan Forrest Williams: *For contributions to advancements in microwave measurement.*

In addition, the following 13 IEEE MTT-S members of the Class of 2002 Fellows were evaluated by other societies:

Joachim N. Burghartz: *For contributions to integrated high-speed and radio-frequency silicon devices and components.*

Chi Ho Chan: *For contributions to computational electromagnetics.*

Christos G. Christodoulou: *For contributions to the application of neural networks in adaptive antenna arrays.*

Ramesh Garg: *For contributions to microstrip antenna technology.*

Albin John Gasiewski: *For contributions to passive microwave sounding within clouds and precipitation, and passive polarimetric microwave imaging.*

Allen W. Glisson: *For contributions to the development of numerical solution methods in electromagnetic scattering by complex surfaces.*

Hiroyoshi Ikuno: *For contributions to the development of new numerical methods and asymptotic techniques in computational electromagnetics.*

Neville Clinton Luhmann: *For advances in millimeter/sub-millimeter wave plasma diagnostics, intense microwave plasma interactions, and coherent radiation generation.*

Leda M. Lunardi: *For contributions to the development of high-performance 1.55 μm monolithically integrated photoreceiver for optical communication.*

Eric Michielssen: *For contributions to the advancement of computational electromagnetics.*

Edl Schamiloglu: *For contributions to the generation and propagation of intense pulsed charged particle beams.*

Staffan Einar Strom: *For contributions to null field approach to multiple scattering problems.*

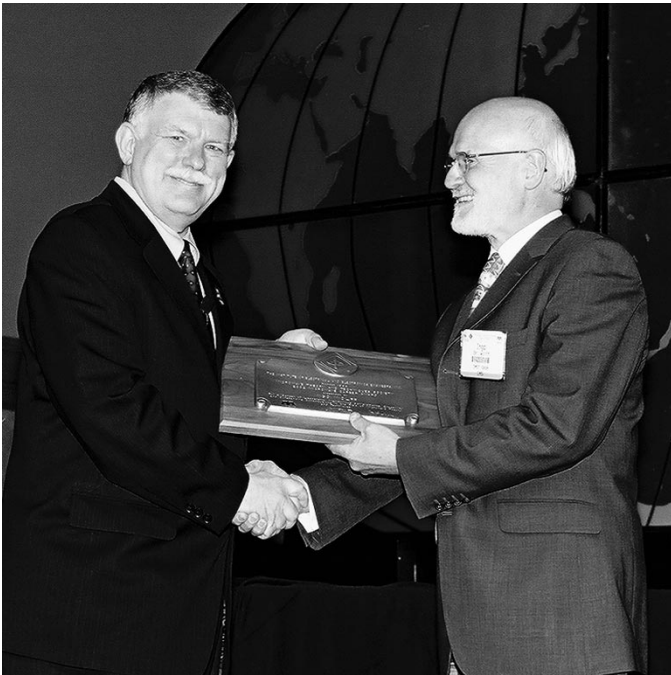
Manfred Kaspar Andreas Thumm: *For contributions to the development and application of gyrotron oscillators, oversized microwave mode converters, and transmission line components.*

IEEE MTT-S Technical Awards

The nomination processes for the IEEE MTT-S awards are publicized in *IEEE Microwave Magazine*, a publication of the IEEE MTT-S. Nomination forms for the IEEE MTT-S awards are available on the web,² and nominations may be submitted by anyone to recognize deserving individuals for the various awards. The selection process for the 2002 IEEE MTT-S awards started after the nomination deadline of 1 July 2001 and the results of the selection process were first announced in the IEEE MTT-S's Fall Administrative Committee (AdCom) Meeting. A listing of the annual IEEE MTT-S awards was published in the official program of the 2002 IEEE MTT-S IMS and in the 2002 *IEEE MTT-S International Microwave Symposium Digest*.

At the Awards Banquet of the 2002 IEEE MTT-S International Microwave Symposium, held in Seattle, WA, on 5 June

²[Online]. Available: <http://www.mtt.org>



John Barr presents the 2002 MTT-S Microwave Career Award to Ingo Wolff (right).

2002, IEEE MTT-S AdCom President John Barr presented the following IEEE MTT-S Technical Awards.

2002 MICROWAVE CAREER AWARD Ingo Wolff

The Microwave Career Award is the highest honor bestowed by the IEEE MTT-S. It recognizes a career of meritorious achievement and outstanding technical contribution by an individual in the field of microwave theory and techniques. Our honored recipient is Dr. Ingo Wolff. He is an IEEE Fellow, whose citation reads:

FOR A CAREER OF LEADERSHIP, MERITORIOUS ACHIEVEMENT, CREATIVITY, AND OUTSTANDING CONTRIBUTIONS IN THE FIELD OF MICROWAVE THEORY AND TECHNIQUES.



Ingo Wolff (M'75–SM'85–F'88) was born in Köslin, Germany, in 1938. He studied electrical engineering at the Technical University Aachen, Aachen, Germany. He concentrated his study on communication techniques and high-frequency techniques and soon focused on electromagnetic field theory. He received the Diplom-Engineer (Dipl.-Ing.) degree, Dr.-Ing. degree, and Habilitation degree in high-frequency techniques from the Technical University in Aachen, in 1964, 1967, and 1970, respectively.

Following his studies, he remained with the Technical University of Aachen as a member of the Institute of High Frequency Techniques. He investigated ferrite materials and their applications at millimeter-wave frequencies (140 GHz). In 1974, he became a Full Professor of electromagnetic field theory at Duisburg University, Duisburg, Germany, a position that he still holds today. For over 27 years, he has headed research activity in the area of numerical electromagnetic-field calculation and simulation and its application to the design of planar microwave circuits and antennas. He has authored or coauthored ten books and approximately 400 scientific papers, a great many of which have appeared in the IEEE TRANSACTIONS ON

MICROWAVE THEORY AND TECHNIQUES. In 1987, he founded and, until 1991, subsequently led a special research activity (Sonderforschungsbereich) on III–V semiconductor circuits at Duisburg University. This group of nearly 80 scientists investigated monolithic microwave circuits. His own research during this time was in the area of coplanar microwave circuit design. In this research group, 40 students received their doctoral degree under him.

Dr. Wolff is a member of MTT-1 (Computer-Aided Design) and MTT-15 (Microwave Field Theory). For many years, he was a member of the Technical Program Committee of the IEEE Microwave Theory and Techniques Society (MTT-S) International Microwave Symposium (IMS), for which he organized and chaired various sessions and workshops. In 1983, he began a second career parallel to his professorship at Duisburg University. He founded a publishing company and bookshop, which specializes in technical literature and microwave software development. In 1987, he founded ArguMens GmbH, a company on microwave measurement techniques and technology. Finally, in 1991, he founded the IMST GmbH, an organization known worldwide for its achievements in industrial research and development in mobile and satellite communication, mobile Internet technologies, and hardware development for global system for mobile communications (GSM) and universal mobile telecommunications system (UMTS) systems. He also still runs the publishing company as well as an additional bookshop and Internet bookshop in Aachen, Germany. In 1999, he was elected President of Duisburg University. In 2002, he returned to research in the area of microwave theory and techniques. He has been the recipient of numerous awards. His dissertation "Material Parameter Measurements of Ferrite Materials at Millimeter Wave Frequencies Using Dynamical Modes in Spherical Resonators," was awarded the Springorum Plaque for an excellent dissertation from the Technical University Aachen. He authored *Fields and Waves in Gyrotropic Microwave Structures*, which was awarded the Nachrichtentechnische Gesellschaft (NTG) Award of the Verean Deutscher Elektrotechniker (VDE), the German Association of Electrical Engineers. He was the recipient of the Heinrich Hertz Award of the University Karlsruhe, Karlsruhe, Germany, in 1998. He was also the recipient of a 1999 Certificate of Recognition from the IEEE MTT-S for his dedication to the IEEE MTT-S IMS.

2002 DISTINGUISHED SERVICE AWARD H. John Kuno

The Distinguished Service Award is presented to recognize an individual who has given outstanding service for the benefit and advancement of the IEEE MTT-S. This year's recipient is Dr. H. John Kuno, whose citation reads:

FOR HIS OUTSTANDING AND DEDICATED SERVICE TO THE SOCIETY.



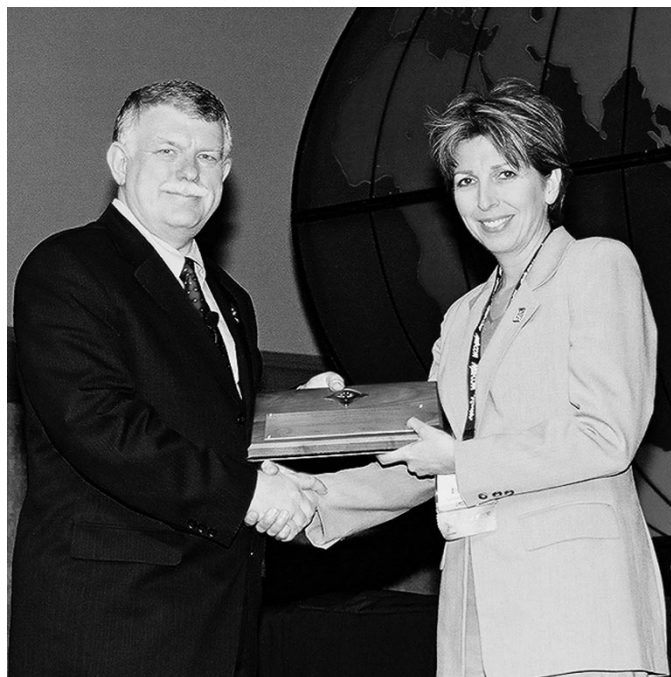
H. J. Kuno (S'61–M'63–SM'75–F'77) was born in Osaka, Japan. He received the B.S., M.S., and Ph.D. degrees from the University of California at Los Angeles (UCLA), in 1961, 1963, and 1966, respectively.

His career as an engineer began in 1961 as a Computer Circuit Engineer with the Electronics Division, NCR, Hawthorne, CA. He has developed various high-speed digital circuits, thin-film memories, and optical character readers. In 1966, he became a Microwave Engineer when he joined the RCA David Sarnoff Research Center, Princeton, NJ, where his research and

development projects covered microwave propagation in solid-state plasmas and solid-state microwave devices and circuits that included Gunn, IMPATT, and microwave integrated circuits (MICs). From 1969 to 1993, he was with Hughes Aircraft Company, Torrance, CA, where he held various management positions, including Department Manager, Product Line Manager, Program Manager, and Assistant Division Manager. While with Hughes Aircraft Company, he was one of the principal members who developed the millimeter-wave technology, product line, and business, and later established the GaAs monolithic microwave integrated circuit (MMIC) technology and foundry. In 1993, he co-founded QuinStar Technology, Torrance, CA. The company, with its business in the design, development, and manufacturing of microwave and millimeter-wave products, multichip modules, and subsystems for communications and sensor systems, has steadily grown to become an established corporation. He has authored/coauthored or presented over 100 papers in various technical journals, book chapters, and conferences. He holds several patents, which were awarded on a wide range of topics such as digital circuits, high-speed memories, optical character readers, and microwave



2002 MTT-S Distinguished Service Award recipient H. John Kuno.



John Barr presents the 2002 IEEE MTT-S Distinguished Educator Award to Linda P. B. Katehi (right).

devices. He has organized and taught a number of short courses and seminars on microwave and millimeter-wave technology and applications.

Dr. Kuno has served the IEEE MTT-S over a period of three decades in numerous facets of the activity in which the society is engaged, including conference organization, publication and editing, administration, fiscal matters, technical matters, membership services, liaison with other parts of the IEEE, and services to the local chapters of the IEEE MTT-S. He has served on the IEEE MTT-S Administrative Committee (AdCom) for four terms, has chaired the Membership Committee, provided leadership to the IEEE MTT-S Technical Committee, as well as to the Technical Coordinating Committee; served as editor of the *IEEE MTT-S Newsletter*, served on the Steering Committee of five different IEEE MTT-S International Microwave Symposia (IMS) and five different Microwave and Millimeter-Wave Monolithic Circuits Symposia, has been the editor of two Special Issues of the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, has served on local chapter committees, as well as at the international level as a delegate to the Popov Society, and has provided over a dozen types of service to the IEEE MTT-S IMS. Another area of his contribution has been vigorous recruitment of other volunteers for the IEEE MTT-S activities on the west coast. He has recruited for the IEEE MTT-S, not only for a large number of volunteers, but also for many outstanding and dedicated workers who went on to become IEEE MTT-S Technical Committee chairs, local chapter chairs, Special Issue editors, IMS and other conference organizers, and numerous other office holders.

2002 DISTINGUISHED EDUCATOR AWARD Linda P. B. Katehi

This award was inspired by the untimely death of Prof. F. J. Rosenbaum (1937–1992), an outstanding teacher of microwave science and a dedicated IEEE MTT-S AdCom Member and contributor. The award recognizes a distinguished educator in the field of microwave engineering and science who best exemplifies the special human qualities of Fred Rosenbaum, who considered teaching a high calling and demonstrated his dedication to the IEEE MTT-S through tireless service. This year's recipient is Linda P. B. Katehi, whose citation reads:

FOR OUTSTANDING ACHIEVEMENTS AS AN EDUCATOR, MENTOR AND ROLE MODEL OF MICROWAVE ENGINEERS AND ENGINEERING STUDENTS.



Linda P. B. Katehi (S'81–M'84–SM'89–F'95) received the B.S.E.E. degree from the National Technical University of Athens, Athens, Greece, in 1977, and the M.S.E.E. and Ph.D. degrees from the University of California at Los Angeles (UCLA), in 1981 and 1984, respectively.

In September 1984, she joined the faculty of the Electrical Engineering and Computer Science Department, The University of Michigan at Ann Arbor, as an Assistant Professor. She then became an Associate Professor in 1989 and a Professor in 1994. In January 2002, she joined Purdue University, West Lafayette, IN, as the John A. Edwardson Dean of Engineering and Professor of the Electrical and Computer Engineering Department. She has authored or coauthored over 450 papers published in referred journals and symposia proceedings. She holds five patents. She has advised 41 graduate students and has graduated 27 Ph.D. students.

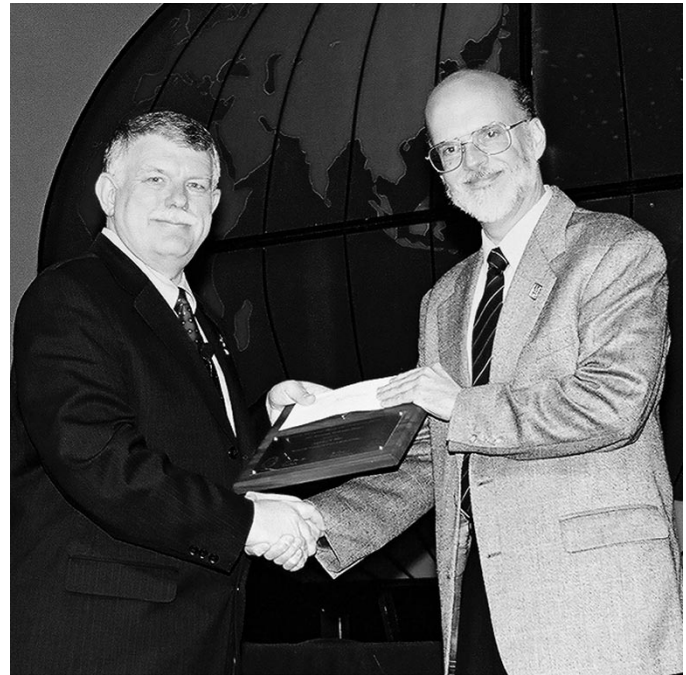
Dr. Katehi is a member of IEEE Antennas and Propagation Society (IEEE AP-S), the IEEE Microwave Theory and Techniques Society (IEEE MTT-S), Sigma XI, Hybrid Microelectronics, and URSI Commission D. She was a member of the IEEE AP-S AdCom from 1992 to 1995 and a member of the IEEE MTT-S AdCom from 2001 to 2002. She was an associate editor for the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES and the IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION. She was the recipient of the IEEE AP-S W. P. King (Best Paper Award for a Young Engineer) in 1984, the IEEE AP-S S. A. Schelkunoff Award (Best Paper Award) in 1985, the NSF Presidential Young Investigator Award in 1987, the URSI Booker Award in 1987, the Humboldt Research Award in 1994, The University of Michigan Faculty Recognition Award in 1994, the IEEE MTT-S Microwave Prize in 1996, the International Microelectronics and Packaging Society (IMAPS) Best Paper Award in 1997, the IEEE Third Millennium Medal in 2000, and the Institution of Electrical Engineers (IEE) Marconi Prize in 2001.

2002 MICROWAVE PIONEER AWARD John R. Tucker

The Microwave Pioneer Award recognizes an individual or a team not exceeding three persons having made outstanding pioneering technical contributions that advance microwave theory and techniques and described in an archival paper published at least 20 years prior to the year of the award. This year's recipient is Prof. John R. Tucker, whose citation reads:



Tony Kerr accepts the 2002 IEEE MTT-S Microwave Pioneer Award for John R. Tucker.



John Barr presents the 2002 IEEE MTT-S Application Award to Stephen Maas (right).

FOR GENERALIZING MICROWAVE MIXER THEORY TO INCLUDE PHOTON-ASSISTED TUNNELING AND DISCOVERING NEW EFFECTS LEADING TO QUANTUM-NOISE-LIMITED MILLIMETER WAVE RECEIVERS.



John R. Tucker (M'99–SM'99) was born in Seattle, WA. He received the B.S. degree from the California Institute of Technology, Pasadena, in 1966, and the Ph.D. degree in physics from Harvard University, Cambridge, MA, in 1972.

Since 1981, he has been with the Department of Electrical Engineering and Computer Engineering, University of Illinois at Urbana-Champaign. He began his work on microwave photon-assisted tunneling at the Aerospace Corporation in 1974. "Super-Schottky" diodes were being used to set new records for

detector sensitivity at $T \sim 1$ K, based upon a very strong nonlinearity below the energy gap of a superconductor metal contact. It was questioned by Dr. Michael Millea whether this device could be improved indefinitely at lower temperature, and it was soon demonstrated that the current responsivity would approach a fundamental limit of one electron per absorbed photon as the I - V nonlinearity becomes sharp on the scale of the quantum energy. A complete quantum mixer theory was subsequently developed, and new phenomena were predicted that violate well-known theorems of classical mixer analysis. The most important of these, noiseless amplification in heterodyne down-conversion, was confirmed in experiments on superconductor-insulator-superconductor (SIS) tunnel junctions by Prof. P. L. Richards, University of California at Berkeley. Early SIS mixer results by T. G. Phillips, Bell Laboratories/California Institute of Technology, T. Claeson, Göteborg, A. R. Kerr and M. J. Feldman, NASA Goddard, and H. J. Hartfuss, K. H. Gundlach, and R. Blundell, Garching, also demonstrated important aspects of this technique. He assisted A. R. Kerr at the NASA Goddard Institute for Space Studies in 1980, adapting quantum mixer theory to the design of ultra-low-noise astronomical receivers. Instruments operating on these principles are now mounted on most of the world's millimeter and submillimeter telescopes with receiver noise temperatures approaching the quantum limit at frequencies in the 100–1000-GHz range. Based on the success of these instruments, Europe, North America, and Japan have recently begun construction on a giant 64-element array of transportable 12-m telescopes on a 16 000-ft plain in Chile, each equipped with ~ 8 –10 SIS receivers for probing initial stages of planetary and star formation and evolution of the early universe. Scheduled for completion in 2010, this Atacama Large Millimeter Array (ALMA) will be

one of the first truly global projects in the history of fundamental science. He was recruited to Illinois in 1981 by John Bardeen, and has remained there ever since. Since 1989, he has collaborated with Dr. T.-C. Shen on ultra-high vacuum scanning tunneling microscope (STM) research. This work centers on developing a fabrication process for atom-scale electronic devices in silicon, using the STM's low-energy electron beam to expose bare dangling bonds on a hydrogen-terminated silicon surface. This process has recently become the focus of efforts toward building a silicon quantum computer. A new metal silicide source/drain MOS transistor proposed by him operates by field-induced tunneling, and currently holds the world record for smallest CMOS at ~ 20 nm \times 25 nm. His future research is aimed at integrating these devices with atom-scale donor patterns for silicon nanoelectronics and quantum logic.

**2002 MICROWAVE APPLICATION AWARD
Stephen Maas**

The Microwave Application Award recognizes an individual or team for outstanding application of microwave theory and techniques. This year's recipient is Stephen Maas, whose citation reads:

FOR PROPOSING, ANALYZING, AND DEMONSTRATING THE FET RESISTIVE MIXER.



Stephen Maas (S'80–M'83–SM'89–F'93) received the B.S.E.E. and M.S.E.E. degrees in electrical engineering from the University of Pennsylvania, Philadelphia, in 1971 and 1972, respectively, and the Ph.D. degree in electrical engineering from the University of California at Los Angeles (UCLA), in 1984.

Since 1984, he has been involved in research, design, and development of low-noise and nonlinear microwave circuits and systems at the National Radio Astronomy Observatory (where he designed the receivers for the Very Large Array), Hughes Aircraft Company, TRW, the Aerospace Corporation, and the Department of Electrical Engineering, UCLA. He subsequently worked as an engineering consultant and founded Nonlinear Technologies Inc., a consulting company, in 1993. He recently became Chief Scientist with Applied Wave Research Inc., El Segundo, CA. He has been a Visiting Professor with the Helsinki University of Technology, Chalmers Institute, Göteborg, Sweden, and the Swiss Federal Technical Institute, Zürich, Switzerland, and has participated as an examiner in doctoral exams at those universities, as

well as Iborg University, Iborg, Denmark. He has authored *Microwave Mixers* (Norwood, MA: Artech House, 1986 and 1992), *Nonlinear Microwave Circuits* (Norwood, MA: Artech House, 1988; 2nd edition in preparation), and *The RF and Microwave Circuit Design Cookbook* (Norwood, MA: Artech House, 1998).

Dr. Maas was the Editor-in-Chief of the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES from 1990 to 1992. From 1990 to 1993, he was an IEEE Microwave Theory and Techniques Society (IEEE MTT-S) Administrative Committee (AdCom) member and publications chairman of the IEEE MTT-S. He was the recipient of the 1989 Microwave Prize for his work on distortion in diode mixers.

2002 OUTSTANDING YOUNG ENGINEER AWARD

Ke Wu

The IEEE MTT-S Outstanding Young Engineer Award recognizes an outstanding young IEEE MTT-S member who has distinguished himself/herself through achievement(s), which may be technical (within the IEEE MTT-S field of interest), may be exemplary service to the IEEE MTT-S, or may be a combination of both. In this, the inaugural year of this award, our recipient is Ke Wu, whose citation reads:

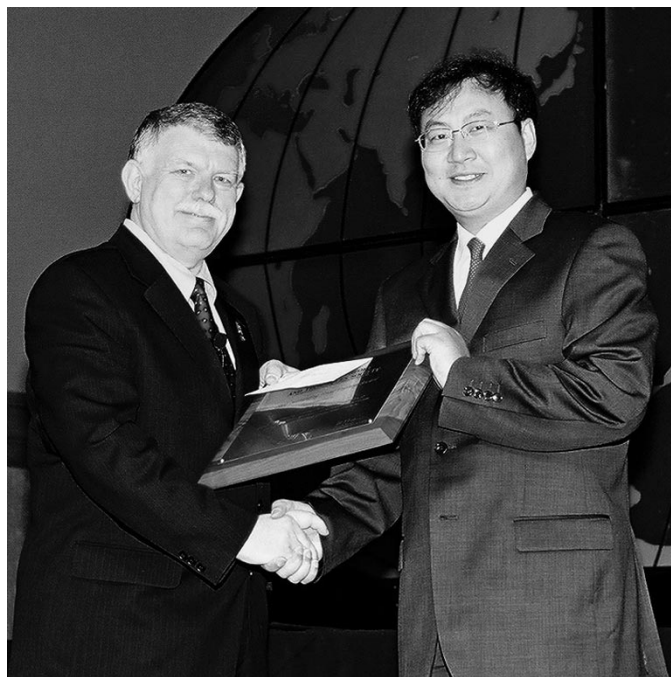
FOR OUTSTANDING CONTRIBUTIONS TO HYBRID INTEGRATION OF PLANAR AND NON-PLANAR MICROWAVE AND MILLIMETER-WAVE CIRCUITS, AND THE THEORY AND PRACTICE OF GUIDED-WAVE STRUCTURES.



Ke Wu (M'87-SM'92-F'01) was born in Liyang, Jiangsu Province, China. He received the B.Sc. degree (with distinction) in radio engineering from the Nanjing Institute of Technology (now Southeast University), Nanjing, China, in 1982, and the D.E.A. degree and Ph.D. degree (with distinction) in optics, optoelectronics, and microwave engineering from the Institut National Polytechnique de Grenoble (INPG), Grenoble, France, in 1984 and 1987, respectively.

He conducted research in the Laboratoire d'Electromagnetisme, Microondes et Optoelectroniques (LEMO), Grenoble, France, prior to joining the Department of Electrical and Computer Engineering, University of Victoria, Victoria, BC, Canada. He subsequently joined the Department of Electrical Engineering, Ecole Polytechnique de Montréal, Montréal, QC, Canada, as an assistant professor, and is currently a Full Professor. He held visiting or guest professorships at Telecom-Paris, Paris, France, and INPG, the City University of Hong Kong, Hong Kong, the Swiss Federal Institute of Technology (ETH-Zürich), Zürich, Switzerland, the National University of Singapore, Singapore, the University of Ulm, Ulm, Germany, and many short-term visiting professorships with other universities. He also holds an Honorary Visiting Professorship with the Southeast University. He has been the Head of the FCAR Research Group of Quebec on RF and microwave electronics, the Director of the Poly-Grames Research Center, and the Founding Director of the newly developed Canadian Facility for Advanced Millimeter-Wave Engineering (FAME). He has authored or coauthored over 300 referred papers and several book chapters. His research interests involve hybrid and monolithic planar/nonplanar integration techniques, active and passive circuits, antenna arrays, advanced field-theory-based computer-aided design (CAD) and modeling techniques, and development of low-cost RF and millimeter-wave transceivers. He is also interested in the modeling and design of microwave photonic circuits and systems. He has served on the Editorial Board of *Microwave and Optical Technology Letters*.

Dr. Wu is a member of the Electromagnetics Academy. He has held many positions in and has served on various international committees, including having been the Technical Program Committee (TPC) vice chairperson of the 1997 Asia-Pacific Microwave Conference, the general co-chair of the 1999 and 2000 SPIE International Symposium on Terahertz and Gigahertz Electronics and Photonics, and the general chair of the 8th International Microwave and Optical Technology (ISMOT'2001). He was the recipient of a URSI Young Scientist Award, the Institution of Electrical Engineers (IEE), U.K., Oliver



John Barr presents the 2002 IEEE MTT-S Outstanding Young Engineer Award to Ke Wu (right).

Lodge Premium Award, the Asia-Pacific Microwave Prize, the University Research Award Prix Poly 1873 pour l'Excellence en Recherche presented by the Ecole Polytechnique, and the Urgel-Archambault Prize in the field of Physical Sciences, Mathematics and Engineering presented by the French-Canadian Association for the Advancement of Science (ACFAS). He has served on the Editorial or Review Boards of various technical journals, including the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, the IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION, and IEEE MICROWAVE AND GUIDED WAVE LETTERS. He served on the 1996 IEEE Admission and Advancement Committee and the Steering Committee for the 1997 joint IEEE AP-S/URSI International Symposium. He has also served as a TPC member for the IEEE MTT-S International Microwave Symposium. He has been elected into the Board of Directors of Canadian Institute for Telecommunication Research (CITR). He serves on the Technical Advisory Board of Lumenon Lightwave Technology Inc. He is chair of the joint IEEE chapter of the IEEE MTT-S/AP-S/LEOS in Montréal, QC, Canada.

2002 MICROWAVE PRIZE

Emad Gad, Roni Khazaka, Michel S. Nakhla,
and Richard Griffith

The Microwave Prize recognizes, on an annual basis, the most significant contribution by a published paper to the field of interest of the IEEE MTT-S. Papers under consideration are those published during the period from 1 January to 31 December of the year preceding the Fall Meeting of the IEEE MTT-S AdCom at which the award is considered. This year's recipients are Emad Gad, Roni Khazaka, Michel S. Nakhla, and Richard Griffith, whose citations read:

FOR A SIGNIFICANT CONTRIBUTION TO THE FIELD OF ENDEAVOR OF THE IEEE MTT SOCIETY IN THE PAPER ENTITLED "A Circuit Reduction Technique for Finding the Steady-State Solution of Nonlinear Circuits," IEEE Transactions on Microwave Theory and Techniques, MTT-48, pp. 2389-2396 (2000)



2002 IEEE MTT-S Microwave Prize recipients Roni Khazaka, Emad Gad, and Michel S. Nakhla (absent: Richard Griffith).



Emad Gad (S'99) was born in Alexandria, Egypt, in 1969. He received the B.Eng. degree from Alexandria University, Alexandria, Egypt, in 1986, the M.Eng. degree in the area of neural networks for his work on developing a novel and fast algorithm for training piecewise linear neural nets from Cairo University, Cairo, Egypt, in 1997, and is currently working toward the Ph.D. degree on developing model-reduction algorithms for efficient simulation of linear and nonlinear circuits at Carleton University, Ottawa, ON, Canada.

He was a Research Engineer with the Electronics Research Institute, Cairo, Egypt. He has authored and coauthored several papers on the use of model-reduction techniques for fast simulation of both linear and nonlinear circuits. His main research interests are circuit simulation, numerical algorithms, scientific computations, and learning theory.

Mr. Gad was the recipient of the Ontario Graduate Scholarship in Science and Technology (OGSST 1999–2000), the Ontario Graduate Students Scholarship (OGSS 1999), the Ontario Graduate Scholarship (OGS 2000–2001), and the Ontario Graduate Students Scholarship in Science and Technology (OGSST 2000–2001).



Roni Khazaka (S'92) received the B.A.Sc. and M.A.Sc. degrees from Carleton University, Ottawa, ON, Canada in 1995 and 1997, respectively, and is currently working toward the Ph.D. degree on model-reduction techniques for nonlinear and linear circuits at Carleton University. His masters research focused on a novel simulation approach for incident electromagnetic-field coupling to transmission lines.

He has authored and coauthored several papers on the simulation of high-speed interconnects and RF circuits, and spent a work term with Nortel Networks,

where he developed a prototype system-level simulation tool. His current research interest is the analysis and simulation of RF integrated circuits (RF ICs), high-speed interconnects, and optical networks.

Mr. Khazaka was the recipient of the Natural Sciences and Engineering Research Council (NSERC) Scholarship (at the masters and doctoral levels), Carleton University's University Medal in Engineering, the Nortel Networks Scholarship, the IBM Cooperative Fellowship, and the Best Student Paper Award presented at the Electrical Performance of Electronic Packaging EPEP2001 Conference. He was also the recipient of the 2001 Japan Foundation Study Tour Award for outstanding students of the Japanese language, and the Embassy of Japan's Japanese Speech Contest in Ottawa (1998). He has served on several IEEE committees. He was Canada's (Region 7) student representative on the IEEE Student Activities Committee from 1995 to 1998, served on the IEEE Region 7 Council, and contributed to local section and student branch activities.



Michel S. Nakhla (S'73–M'75–SM'88–F'98) received the M.A.Sc. and Ph.D. degrees in electrical engineering from University of Waterloo, Waterloo, ON, Canada, in 1973 and 1975, respectively.

He is currently Professor and Chairman of the Electrical Engineering Department, Carleton University. From 1976 to 1988, he was with Bell-Northern Research, Ottawa, ON, Canada, as the Senior Manager of the Computer-Aided Engineering Group. In 1988, he joined Carleton University, as a Professor and the Holder of the Computer-Aided Engineering Senior

Industrial Chair established by Nortel Networks and the Natural Sciences and Engineering Research Council of Canada. He is the founder of the High-Speed Computer-Aided Design (CAD) Research Group, Carleton University, and is a frequent invited speaker on the topic of high-speed interconnects. He has served as technical consultant for several industrial organizations and is the principal investigator for several major sponsored research projects. His research interests include CAD of very large scale integration (VLSI) and microwave circuits, modeling, and simulation of high-speed interconnects, nonlinear circuits, multidisciplinary optimization, thermal and electromagnetic (EM) emission analysis, microelectromechanical systems (MEMS), and neural networks.



Richard Griffith (S'92–M'00) received the Diploma in electrical technology and the B.Eng. degree in electrical engineering from Lakehead University, Thunder Bay, ON, Canada, in 1984 and 1986, respectively, the M.Eng. degree from Carleton University, Ottawa, ON, Canada, in 1997, and is currently working toward the Ph.D. degree at Carleton University.

He was a Research Engineer with Carleton University, from 1987 to 1997. He is a CAD Specialist with SiGe Semiconductor, Ottawa, ON, Canada, where he contributes to the design of custom analog integrated circuits. His research interests include VLSI CAD and numerical algorithms.

THE STUDENT AWARDS PROGRAM (Graduate Fellowships and Student Paper Competition)

Several Graduate Fellowships are awarded each year, based on a submission process described on the web.³ This year, six Ph.D. candidates were selected for fellowships, and were presented with their awards at the Student Awards Program Luncheon on 6 June 2002. Their names, affiliations, and research areas are listed below.

Dimitri Olegovich Ledenyov, James Cook University, North Queensland, Australia: *Research topic: High temperature superconducting (HTS) thin films with enhanced microwave properties for wireless communication.*

Alexander Leonidovich Chizh, Institute of Electronics, National Academy of Sciences, Minsk, Belarus: *Research topic: Modeling and characterization of high-speed photodiodes for microwave photonic applications.*

Christopher D. Moss, Massachusetts Institute of Technology, Cambridge, MA: *Research topic: Use of FDTD to study meta-materials that exhibit negative permittivity and negative permeability at microwave frequencies.*

Younkyu Chung, University of California at Los Angeles: *Research topic: Design of AlGaIn/GaN HEMT High-output power and high-efficiency amplifiers, advanced RF front-end applications, and characterization of large-signal behavior of the AlGaIn/GaN HEMTs using load-pull measurements.*

Matthew Alexander Morgan, California Institute of Technology, Pasadena: *Research topic: Development of monolithic millimeter-wave integrated circuits for use in*

³[Online]. Available: <http://www.mtt.org>

atmospheric radiometers, spacecraft telecommunications, and radio astronomy.

Dijana Popovic, University of Calgary, Calgary, AB, Canada: *Research topic: Development and test of a clinical prototype of a CMI breast detection system.*

The student paper competition has become an important part of the IEEE MTT-S IMS. This year, 241 student papers were submitted as contributed papers, 140 were accepted and, of those, 24 were selected as semifinalists, whose travel to the IEEE MTT-S IMS was subsidized by the IEEE MTT-S and National Science Foundation (NSF). Final judging was done during the IEEE MTT-S IMS. The competition winners are listed below.

First Place:

Christian Fager, Chalmers University, Göteborg, Sweden
Paper title: Uncertainty Estimation and Optimal Extraction of Intrinsic FET Small Signal Model Parameters.

Second Place:

Jonathan D. Fredrick, University of California at Los Angeles
Paper title: A Time-Hopping Smart Antenna Receiver Array Using a Single RF Channel and Digital Beamforming.

Ashwin K. Iyer, University of Toronto, Toronto, ON, Canada
Paper title: Negative Refractive Index Metamaterials Supporting 2-D Waves.

Third Place:

Ramesh Abhari, University of Toronto, Toronto, ON, Canada
Paper title: Suppression of the Parallel-Plate Noise in High-Speed Circuits Using a Metallic Electromagnetic Band-Gap Structure.

Gilles Cibiel, LAAS-CNRS, Toulouse, France
Paper title: Ultra Low Phase Noise SiGe HBT. Application to a C-Band Sapphire Resonator Oscillator.

Guenter Ritzberger, Technische Universität Wien, Vienna, Austria
Paper title: 45 GHz Highly Integrated Phase-Locked Loop Frequency Synthesizer in SiGe Bipolar Technology.

Honorable Mention:

Ronald M. Reano, The University of Michigan at Ann Arbor
Paper title: Field-Tunable Probe for Combined Electric and Magnetic Field Measurements.

Hsiao-Ping Tsai, University of California at Los Angeles
Paper title: Analysis of Guided Wave Structures Using 3-D Envelope-Finite Element (EVFE) Technique.

Dimitrios Peroulis, The University of Michigan at Ann Arbor
Paper title: Low Contact-Resistance Series MEMS Switches.

Youngoo Yang, Pohang University of Science and Technology, Pohang, Kyungbuk, Korea
Paper title: New Linearization Method for Modulated Signals With High Peak-to-Average Ratio: Peak-To-Average Ratio Reduction and Expansion.

Baki Acikel, University of California at Santa Barbara
Paper title: A New X-Band 180° High Performance Phase Shifter Using (Ba,Sr)TiO₃ Thin Films.

IEEE MTT-S AdCom Awards and Recognition

In addition to the IEEE honors and IEEE MTT-S Awards, the Awards Committee and the President, in consultation with var-

ious IEEE MTT-S AdCom and Technical Committees, recognize the achievements of those key individuals who have given extraordinary service to the IEEE MTT-S by presenting them with Certificates of Recognition. These awards were announced during Microwave Week and were presented by President John Barr during the IEEE MTT-S AdCom Dinner, the IEEE MTT-S IMS Plenary Session, the Technical Program Committee Luncheon, and the Awards Banquet.

1999–2001 DISTINGUISHED MICROWAVE LECTURERS

The IEEE MTT-S established the office of Distinguished Microwave Lecturer as a service to its members in 1967. Qualified speakers are chosen to bring topics of current interest to the microwave community, specifically to IEEE MTT-S, student, and other society chapters. These speakers have multiyear commitments and make 6–7 lecture trips per year. Four Distinguished Microwave Lecturers finishing their three-year terms of service this year, and their lecture topics, are as follows.

Joseph F. Jensen *High Speed Analog-to-Digital Converters*
Roger B. Marks *Standards for Broadband Wireless Access Systems*

2002 MERITORIOUS SERVICE AWARDS

Michael Heutmaker *For extended leadership as Technical Program Chair and Conference Chair to the Radio and Wireless Conference (RAWCON) for the years 1997 through 2002.*

Roger B. Marks *For organizing the first Wireless Communications Conference in 1996, which later evolved to the Radio and Wireless Conference (RAWCON), and serving as General Chair for the years 1996–1999.*

Leo Young *For his leadership in organizing the 2002 50th Anniversary Issue of the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES.*

CERTIFICATES OF RECOGNITION

IEEE MTT-S Administrative Committee
Charlie M. Jackson, 2001 President
Roger B. Marks, Member 1999–2001
Frank J. Sullivan, Member 1999–2001
S. Jerry Fiedziuszko, Member 1995–2001
Wayne A. Shiroma, 2001 Secretary
John Wendler, Chair, IEEE MTT-S Electronic Information Committee, 1999–2002

2001 IEEE International Microwave Symposium
Samir El-Ghazaly, General Chair
Stephen Goodnick, Vice-General Chair
Vijay Nair, Technical Chair
Charles Weitzel, Technical Vice-Chair
Howard Patterson, Local Arrangements Chair
Michael Majerus, Local Arrangements Vice-Chair

Other Symposia and Meetings
Charles Wilker, Conference Chair 57th ARFTG Conference
David Lovelace, General Chair, 2001 RFIC Symposium
Bahram Jalali, Conference Chair, 2001 International Topical Meeting on Microwave Photonics