



President's Message

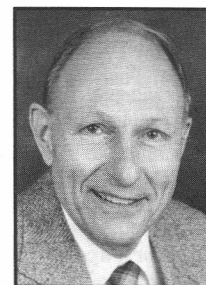


by Reynold Kagiwada

Microwave Week in Albuquerque was an outstanding success due to the hard work of Jerry Hausner, Bob Hutchins, Alex Chu, Ho Huang, Michael Little, John Rooks and their respective committee members. The MTT-Society is truly indebted to them for their outstanding effort. Everyone is probably recovering from the great surge of microwave activities at Albuquerque. Perhaps it's now a good time to reflect about the future of our society. In the mid-sixties to early seventies there was a strong emphasis on parametric amplifiers, MASERS and diodes. From the mid-seventies to early eighties the focus was on MESFET devices and the beginnings of Computer Aided Design (CAD). From the mid-eighties to today, CAD seemed to blossom and, along with it, Monolithic Microwave Integrated Circuit (MMIC) development. The advent of the Defense Advanced Research Projects Agencies (DARPA) Microwave and Millimeter-wave Monolithic Integrated Circuits (MIMIC) program accelerated the development of CAD and MMICs. Thus in the past 30 years microwave activities have evolved from two-terminal devices to three-terminal devices and to MMICs. What does the future hold? In this regard, one can look at the papers presented at Albuquerque during Microwave Week.

At the opening session of the Microwave and Millimeter-wave Monolithic Symposium, there was a great deal of excitement and interest in the two outstanding invited papers. The first invited paper by B. Canbou addressed the "Manufacturing of GaAs ICs for the Wireless Telecommunication Market-Utilization of Silicon Expertise." The second invited paper was presented by S. Watanabe on the "Technical Transfer of High-Frequency Devices for Consumer Electronics: Concerns and Expectations." A very interesting development was that there were also two sessions on "Vehicle Communication and Control Systems" in the International Microwave Symposium. Thus there seems to be a strong and growing interest in applications of microwave technology. Commercial applications are of special interest. In the future I expect commercial applications to play a much larger role in our MTT society. However, I believe that there will still be a good amount of device development. One DoD agency is slightly increasing

R. C. Hansen Elected to National Academy of Engineering



R. C. Hansen

R. C. Hansen, an MTT AdCom member from 1959-68, and MTT member for many years, was elected to the National Academy of Engineering in 1992. IEEE activities include Chair of a Standards Sub-Committee, member of Publications Board and Director IEEE. He is a Life Fellow of IEEE and a Fellow of IEE and is a member of Tau Beta Pi, Sigma Xi, Eta Kappa Nu, and Phi Kappa Phi. He was awarded an honorary Doctor of Engineering degree by the University of Missouri-Rolla in 1975. The University of Illinois Electrical Engineering Department gave him a Distinguished Alumnus award in 1981, and the College of Engineering awarded a Distinguished Alumnus Service medal in 1986. The IEEE AESS Barry Carlton best paper prize was awarded to Dr. Hansen in 1991.

After working in the University of Illinois antenna lab and receiving the PhD degree, he went to Hughes Aircraft in Culver City. Subsequently he worked for Aerospace Corporation in satellite control. This was followed by a period with Kip Segal in KMS Industries. In 1971, he became an independent consultant.

Hansen has been an Associate Editor of Microwave Journal since 1960, was Associate Editor of Radio Science (1967-69), Associate Editor of Microwave Engineer's Handbook (1971), Editor of Microwave Scanning Antennas, Vol. I (1964), Vols. II and III (1966), Editor of Significant Phased Array Papers (1973), Geometric Theory of Diffraction (1981), and Moment Methods in Antennas and Scattering (1990).

research and development funding. I believe that there will be a new DARPA initiative that will follow the MIMIC program.

In summary, I believe that our MTT society will see a stronger commercial application thrust while still maintaining a strong device development aspect in the years ahead.

Table of Contents

President's Message.....	1
R. C. Hansen Elected to National Academy of Engineering.....	1
Master Calendar	2
Attending the MTT Symposium	2
Applications Papers for the <i>MTT-S Transactions</i>	3
AdCom Highlights	4
Phased Arrays: A Technology Assessment.....	4
Technical Committee on Microwave Systems (MTT-16)	5
Report of Long Range Planning Committee.....	6
MTT-S Meetings & Symposia Committee Report	6
MTT-S Membership Services Committee Report	7
IEEE TAB Periodicals Council and PUB	8
Viewpoints	8
Report of the Division IV Director	9
ARFTG Highlights	10
IEEE Publications Products	11
Did the Salado Have Free Pizza Prior to 1300 AD?.....	12
MTT Society Ombudsman	12
GaAs '92 European Gallium Arsenide and Related III-V Compounds Applications Systems	13
The 3rd International Workshop on Millimeter Waves.....	14
Call for Papers: 1993 SBMO International Microwave Conference/Brazil	15
Call for Papers: Combined Optical-Microwave Earth and Atmosphere Sensing	17
Revisions to 1992 Committee Directory	18
<i>MTT-Transactions</i> Survey.....	19
Call for Papers: IEEE MTT-S International Microwave Symposium	21
Call for Papers: Asia-Pacific Microwave Conference '93	23
Workshop: WARC-92—Impact on Microwave and Millimeter Wave Developments	25
Call for Papers: Measurement and Design of Packages and Interconnects	26
Recognizing IEEE-USA—What It Is and Why It Is	27
MTT Constitution & Bylaws	28
1993 IEEE Microwave Theory and Techniques Society Graduate Fellowships	36
IEEE Press—Microwave Titles	36

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MTT-S Newsletter Staff

Editor:	
John Wassel	Phone (214) 995-3216
Texas Instruments	Fax (214) 995-3347
13510 N. Central Expressway	
P.O. Box 655474 M/S 245	
Dallas, TX 75265	
Associate Editor:	
David Zimmermann	Phone (214) 995-8190
Texas Instruments	Fax (214) 995-4347
13510 N. Central Expressway	
P.O. Box 655474 M/S 255	
Dallas, TX 75265	
Feature Articles Editor:	
John Eisenberg	Phone (415) 941-7426
Eisenberg Associates	
25 Parsons Way	
Los Altos, CA 94022	
Region 8 Editor:	
Rolf Jansen	Phone 011-49-2102-83095
Industrial Microwave and	or 011-49-2102-83030
RF Techniques Inc.	Fax 011-49-2102-842391
Bürohaus am See	
Am Brüll 17, W-4030 Ratingen 1	
Germany	

Master Calendar

MTT-S Sponsored Conferences¹

1992		
Name	Date/Location	Involvement
• IEEE GaAs IC Symposium	October 4-7	(C) (*)
Miami Beach, FL		
• International Conference on Ultrawide Band Short Pulse Electromagnetics	October 8-10	(C)
	New York, NY	
• MM '92 (Was Military Microwaves)	October 14-15	(C)
	Brighton, England	
• Automatic RF Techniques Group	December 3-4	(C) (*)
	Orlando, FL	
1993		
• Microwave and Optical Remote Sensing	March 22-25	(CS)
• Microwaves in Medicine	Albuquerque, NM	
	April (?)	(C) (*)
	Rome, Italy	
• Microwave and Millimeter-Wave Monolithic Circuits Symposium	June 14-15	(S) (*)
• MTT-S International Microwave Symposium	June 14-18	(S) (*)
• Automatic RF Techniques Group	June 17-18	(C) Affiliated (*)
	Atlanta, GA	
• International Microwave Conference/ Brazil (SMBO)	July 26-29	(C)
• 23rd European Microwave Conference	September 6-9	(C) (*)
	Madrid, Spain	
• Asia Pacific Microwave Conference	October 18-21	(C) (*)
• Automatic RF Techniques Group	Hsinchu, Taiwan	
	December 2-3	(C) (*)
	San Jose, CA	

¹Meetings listed are those that have been officially sponsored by MTT-S (i.e., AdCom approved). There are many other microwave related meetings (chapter sponsored, commercial, etc.) that are not listed.

²MTT-S conference involvement: (S) Sponsor, (CS) Co-sponsor, (P) Participate, (C) Cooperate, (*) Continuous

Attending the MTT Symposium

<i>An Engineer who wants to live informed, and stay competitive, attends, in spite of tedium, the MTT Symposium.</i>	<i>Back home, with Digest and Transactions, the Engineer computes, splits fractions, designs a MMIC on GaAs and thinks: "A piece of cake it was!"</i>
<i>Instead of lofty inspirations the Engineer absorbs equations and formulas for everything from C.A.D. to packaging;</i>	<i>The Engineer is getting wise: "Now it's my turn to publicize!" Writes papers for posterity, submits them to the MTT.</i>
<i>Receives, instead of straight solutions, Green's functions and their convolutions with sources one does not yet know! The Engineer feels pretty low.</i>	<i>At next year's well attended sessions the Engineer makes deep impressions: instead of simple explanations discusses . . . integral equations.</i>
<i>But downstairs in the exhibition the Engineer gets the suspicion that upstairs' talk of recent years as novel product now appears.</i>	

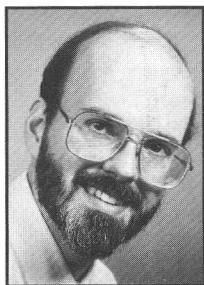
W.J.R. Hoefler
June 6, 1992

The MTT Newsletter staff is interested in obtaining feature articles dealing with current topics in the technical and professional areas of interest to MTT members. These articles should provide members with a general understanding of the topic and its significance in current and future activities in the microwave field. I would like to emphasize, however, that these special articles should cover topics in a broad, general sense. Specific design techniques and applications will be covered in the papers appearing at the MTT Symposium and in the *Transactions*.

If you know of a topic that is current and/or you are willing to contribute an article to the Newsletter, please contact:

John Eisenberg
25 Parson Way • Los Altos, CA 94022 • (415) 941-7426

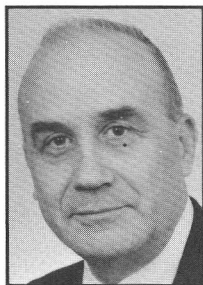
Applications Papers for the *MTT Transactions*



Steve Maas
Publications
Committee
Chairman



Derry Hornbuckle
Publications Vice-
Chairman



Dan Masse
MTT
Transactions
Editor

If you cannot—in the long run—tell everyone what you have been doing, your doing has been worthless.

Erwin Schrödinger

Strange as it may seem, there was once a time when applications papers—papers that deal with aspects of the design and application of practical microwave hardware—were the dominant ones in the *IEEE MTT Transactions*. Even as recently as a dozen years ago, the issues of the *Transactions* had subtitles that alternated between “Accent on Applications” and “Accent on Theory.” We don’t do that anymore. We can’t, because we don’t receive enough applications papers. Somewhere in the last fifteen years the *Transactions* began an inexorable slide from the solid reality of brass, plastic and semiconductors to the ephemera of thoughts, mathematics and bits in a computer. Microwaves, at least as portrayed in our flagship journal, moved from the sunny pleasures of the laboratory to the cold and austere environment of the theoretician’s classroom.

Why did this happen? Mainly, academia discovered the *Transactions*. Academics tend to be theoretical (in the same sense that birds tend to fly and fish tend to swim). Academics are taught to publish, expected to publish (and perish if they don’t!) and, more importantly, taught how to publish: they are taught what is publishable and how to get a paper past a reviewer. People in industry usually escape that education and concentrate on practical matters. Although much of the design and development work performed in industry is highly innovative and certainly publishable in scientific journals, corporations are often reluctant to allow publication. Thus it should be no surprise that the trend in microwave journals such as the *MTT Transactions* has been to publish more and more abstruse, academic, theoretical papers, and fewer practical, applications-oriented ones. A recent survey showed that 85% of the papers submitted to the *MTT Transactions* came from universities, and over 70% dealt with some type of guided-wave structure. As members of the MTT Society know, we rarely publish more than two or three applications papers per month.

An unfortunate consequence is that the majority of microwave engineers often find very little of value in our journals, especially in the *MTT Transactions*. Worse, in spite of the fact that virtually all of the MTT editors have been practical people, and our “best paper” award, the Microwave Prize, has been awarded almost exclusively for practical papers, there is a feeling among many MTT members that the *Transactions’* editorial board is prejudiced against papers that are not

heavily theoretical. This perception is completely wrong; in fact, 45% of our editorial board members work in industry and value practical papers as much as anyone. Applications papers are reviewed by these reviewers. The problem is that very few such papers are submitted. So we’re trying to turn things around. To this end, we plan to do the following:

- Write an article (this one) for the *Newsletter*, encouraging MTT members to submit applications papers to both the *MTT Transactions* and *Microwave and Guided-Wave Letters*;
- Invite more papers on practical subjects;
- Appoint associate editors who will have, as one of their duties, the task of encouraging people active in interesting technical areas to write applications papers;
- Informally encourage people who present interesting papers at the MTT and other symposia to submit related papers to the *Transactions* and *Microwave and Guided-Wave Letters*.

It is inevitable that applications papers come almost exclusively from industry; after all, academics rightly view their role as basic research, not applications. Unfortunately, engineers in industry face two difficult impediments in publishing their work: first, many managers believe, incorrectly, that publication of an idea makes it unpatentable; second, many companies, in fear of “giving away” their hard-earned technology to their competition, have a formal policy of discouraging publication. We believe that this is a short-sighted view; to see this, one need only compare the technical reputations of the companies that publish regularly to those that don’t. The former have profited greatly and lost very little from their enlightened attitude.

Another problem in publishing applications papers is that many engineers in industry have never been trained in the arcane art of getting things by a reviewer. They often do not know what to say and what not to say, what to include in a paper and what to leave out, and how to avoid “kiss of death” flaws (e.g., unsupported claims and conclusions) that almost automatically doom a submitted paper. The best way to avoid these pitfalls is to enlist the aid of a colleague who has published several papers; however, in their haste to “get the paper out,” and to get back to that problem in the lab, authors in industry often avoid this essential step. In our experience, problems in the presentation of such papers—not in the quality of the work itself—are the main causes of rejection.

Unfortunately, the largest impediment to the publication of practical papers is the impression, held by engineers in industry, that they have little to contribute, especially in comparison to lofty theoreticians in universities. More than anything we need to dispel the notion that practical work is inherently inferior to theoretical, and therefore not worthy of publication in our major journals. Practical work inherently has no less substance than the work of theorists; theorists have no monopoly on intellect or ability. Engineers should never have to apologize for their pragmatism. Basic research is not a higher calling; it is simply one of many important functions. My favorite quotation on this matter comes from an essay by Stephen Jay Gould¹:

Academic science, in particular, has been constrained by an ideal of “pure” research which in former days barred a scientist from extensive experimentation and empirical testing. Ancient Greek science labored under the restriction that patrician thinkers could not perform the manual work of plebeian artisans. Medieval barber-surgeons who had to deal with battlefield casualties did more to advance the practice of medicine than

(Continued on page 5)

AdCom Highlights



by Peter Staecher
Vice President

In the convivial atmosphere of Albuquerque, NM, the June AdCom meeting was convened to begin the Microwave Week activities of the 1992 IEEE MTT-S International Microwave Symposium. In the spirit of streamlining and revitalizing the activities of the Administrative Committee, a new reporting structure was adopted—the consent/resolution agenda format, used specifically in TAB meetings was tried—and for the first try was not too bad. Some refinements are needed and will be put in place for the next meeting.

Budget

The 1993 operating budget was approved after some discussion. Publications will continue to require support for *Microwave and Guided Wave Letters*, which is gaining in page count more quickly than subscription revenues. Membership dues will therefore rise to \$20 in order to support the new journal, with the intention to “unbundle” the two journals in the future. IMS fees will be increased gradually according to a plan to move fees to mid-range of similar meetings, and Jim Crescenzi will update our list of approximately 20 conferences to insure the appropriate fee structure, while offering nothing less than excellence in product. As per TAB guidelines, non-member publications fees will be increased, but will be offset by a change in algorithm (also set by TAB) for the All Transactions Package, which adversely affects MTT. The largest single item in our budget, of course, is IMS, which can make the difference between a negative and positive annual surplus. AdCom will be supporting increased transnational activity by budgeting \$10K for administrative and travel activities in Regions 8, 9, and 10, coordinated by Transnational Committee Co-Chairs Jansen and Yamashita. In total, we look for a balanced 1993 budget, implemented many of the suggestions of the Ad Hoc committee on budget process, and continue to have sufficient Society reserves to weather adverse economic trends.

Meetings and Symposia

MTT has moved to co-sponsor the GaAs IC Symposium, to sponsor the Topical Meeting on Electronic Performance of Electronic Packaging, and tentatively approved sponsorship of the 1994 International Conference on Millimeter and Submillimeter Waves and Applications. This brings to over 20 the number of conferences or meetings in which MTT-S actively participates.

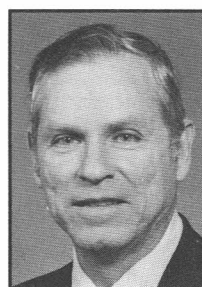
Long Range Planning

The Long Term Technological Directions Subcommittee reported 4 areas of strategic importance to MTT:

1. Microwave communications
2. Lightwave high-speed electronics
3. Microwave manufacturing technology
4. InP-based microwave devices and ICs

To further actively address these areas, topical meetings and related publications will be addressed. These and other areas will be reviewed annually to assess additional key technologies of interest to MTT membership.

Phased Arrays: A Technology Assessment



by Richard A. Sparks
ANRO Engineering, Inc.
Lexington, MA

At the end of Microwave Week, on Friday, June 5, when most of the delegates had gone home or continued on to a long weekend of relaxation, nearly 80 registrants and speakers spent an additional 8 hours discussing the latest topics of interest on phased arrays. This particular workshop was the first of its kind in that representatives from six MTT-S Technical Committees participated in the presentations to focus on a single area of interest, i.e., phased arrays, and described the latest relevant ideas on:

- Computer Aided Design (MTT-1)
- Lightwave Technology (MTT-3)
- Microwave and Millimeter Wave Integrated Circuits (MTT-6)
- Microwave and Millimeter Wave Solid State Devices (MTT-7)
- Microwave Measurements (MTT-11)
- Microwave Systems (MTT-16)

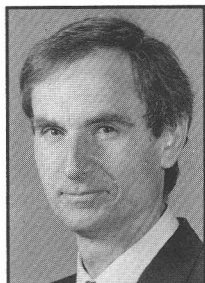
The workshop had its origin in January 1991 following the second Emerging Technologies Workshop (ETW) that was held just before the Technical Program Committee meeting in Boston. It was proposed that an advanced technology topic be selected that would enable participation by several Technical Committees and have current widespread interest. Originally the plan was to hold this workshop in January 1992 as part of the ETW in Albuquerque. When the subject was discussed at the MTT-S Administrative Committee meeting held at that time, it was decided a broader audience participation would be realized if it were coordinated with the 1992 International Microwave Symposium.

Responsibility for planning the overall activity was assigned to Eliot Cohen, Co-chairman of the Technical Committees. Subsequently, the details of the workshop organization were arranged by Dick Sparks, Chairman of the Microwave Systems Subcommittee on Phased and Active Arrays, and Barry Perlman, recently retired Chairman of the CAD Technical Committee. In preparing the agenda, each Technical Committee Chairman of the six participating, was invited to have up to three presenters discuss the latest state-of-the-art results in their specialty. The topics and speakers were:

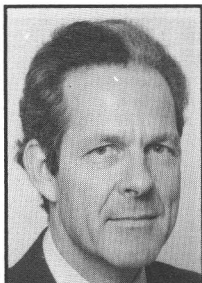
- New and Emerging Applications of Phased and Active Array Systems—Dr. Eli Brookner, Raytheon Co., and Richard A. Sparks, ANRO Engineering, Inc.
- New Applications in Phased Array Systems—Toshikazu Tsukii, Raytheon Co.
- T/R Module Technology: Challenges and Tradeoffs—Frank Sullivan, Raytheon Co.
- Directions in T/R Module Technology—Dr. Gailon Brehm, Texas Instruments, Inc.
- Batch Fabrication of MMIC Based Modules—Dr. Doug Maki, M/A COM, Inc.

(Continued on page 5)

Technical Committee on Microwave Systems (MTT-16)



Klaus Breuer



George Heiter

Military applications of microwave techniques are dead, long live commercial application! Well, not exactly. However, there is a lot of talk (and the desire) to focus more on non-military applications. This seemed to be the case during this year's International Microwave Symposium and certainly during the meeting of the Technical Committee for Microwave Systems of the MTT at the Symposium.

For the 1992 Symposium, John Horton and Terry Oxley, members of the Microwave Systems Committee, organized focused sessions and panel session on systems for vehicular communication and control as well as collision avoidance. To emphasize activities in this area, a subcommittee has been created which will organize and stimulate technical activities. For anyone interested, please contact the Subcommittee Chairman:

Richard A. Sparks
8 Richard Road
Bedford, MA 01730
(617) 862-3000 • Fax (617) 863-0586

Think MTT and Communication! Over the coming years we are planning a number of communication related activities. As described elsewhere in this *Newsletter*, there will be a workshop on the impact of WARC-92 on microwave and millimeter wave developments. For the International Microwave Symposium 1993 in Atlanta, several workshops on mobile communication systems are in the planning:

- Satellite-Based Mobile Communication Systems and Land-Based Cellular Telephony, Bernard Geller, COMSAT. (301) 428-4147
- Microwave Local Area Networks, Terry H. Oxley, Newark, England, Tel. (44) 636 815510, Fax (44) 636 815865
- Global Positioning Systems for Civil Applications, Holger Meinel, Deutsche Aerospace AG, Germany, Tel. (89) 3 81 99-2 18, Fax (89) 3 81 99-2 13

To emphasize the communication aspect, the Microwave Systems Committee has established a Communication Subcommittee. The role of this Subcommittee of MTT-16 is to "provide leadership and motivation in organizing technical activities" relating to microwave communication systems "such as: Sponsoring and participating in technical meetings, conference sessions, and workshops; organizing specialized sessions at meetings which meet on an international, national, or regional basis; securing competent papers for presentation and publication; sponsoring of special issues of publications; and cooperating in the development and establishment of IEEE standards." For anyone interested, please contact the Subcommittee Chairman:

Bernard Geller
COMSAT
22300 Comsat Drive
Clarksburg, MD 20871
(301) 428-4147 • Fax (301) 540-8512

In addition to the above subcommittees, MTT-16 has a subcommittee on phased arrays with David Rudledge as chairman. Dave can be reached at:

Department of Electrical Engineering
CalTech
Pasadena, CA 91125
(818) 356-4806 • Fax (818) 356-2137

Applications Papers for the MTT Transactions

(continued from page 3)

academic physicians who rarely examined patients and who based their treatment on a knowledge of Galen and other learned texts. Even today, "pure" researchers tend to disparage the practical ... If we ... recognized our belief in the inherent superiority of pure research for what it is—namely social prejudice—then we might forge among scientists the union between theory and practice that a world teetering dangerously near the brink so desperately needs.

In the final analysis, to make our journals more useful to practical microwave engineers, we need to publish more practical applications papers. To publish those papers, engineers in industry must submit them, and managers in industry must support the practice of publishing innovative work. If this doesn't happen, we all lose: individual engineers and their companies lose an opportunity to be recognized for their innovation, those same companies lose what is potentially their best access to advanced technology, and, saddest of all, our journals lose their chance to reflect what is happening in the greatest—and most exciting—part of the microwave industry.

¹Stephen Jay Gould, *Ever Since Darwin*, W.W. Norton & Co., New York, 1977

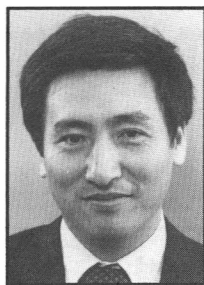
Phased Arrays: A Technology Assessment

(continued from page 4)

- Phased Arrays: A Measurement Technology Assessment—John T. Barr IV, Hewlett-Packard
- T/R Module Measurements—David Conway, ITT
- Measurement of Complete Phased Arrays—Gary E. Evans, Westinghouse Electric Corp.
- The Application of Lightwaves to Microwave Phased Array Antennas—Dr. Peter R. Herczfeld, Drexel University
- Simulation and CAD of Microstrip Patch Arrays—Dr. K. C. Gupta, University of Colorado
- Advances in Microwave Semiconductor Devices for Phased Array Applications—Dr. Madhu S. Gupta, Hughes Aircraft Co.

Following the presentations, which ran to nearly 4 p.m., a discussion period was held that raised a number of interesting questions from the audience. A small informal gathering of presenters and attendees lingered to continue discussing specific areas of interest to almost 5 o'clock when the hotel staff came to clean up. Bound copies of the viewgraphs documenting the workshop were distributed. A partial set was handed out before the presentations and the remainder were mailed to all registrants following the meeting.

Report of Long Range Planning Committee



by Tatsuo Itoh

At the first AdCom meeting of this year in January, incoming President Dr. R. Kagiwada charged the Long Range Planning Committee (LRPC) to identify new technological directions for the MTT-S in the years to come. This concern was caused by the recent reduction of DoD funds on which much of the MTT-S activities are based. The tasks for the LRPC are: (1) to identify roughly three areas of strategic importance to the Society that should be targeted for expansion and to develop a plan for implementation of that expansion, and (2) to establish a procedure whereby the Society can, on a yearly basis, identify and plan for expansion into new business areas.

In response, the LRPC acted swiftly. First the composition of the LRPC was streamlined. It now consists of three immediate Past Presidents (Drs. V.G. Gelnovatch, T. Itoh and F. Ivanek) of the AdCom, the Vice President (Dr. Peter Staecker) and one member-at-large. The second year Past President chairs the LRPC. This change of membership is for continuity and corporate memory for the committee activities. As the member-at-large, the Chairman of the Technical Coordinating Committee (Dr. Jorg Raue) was chosen to address the problem posed by the President.

The LRPC then created a subcommittee to carry out a detailed study and to come up with specific recommendations to be reported to AdCom through the LRPC. The chairman for this MTT Long-Term Technological Directions Subcommittee is Dr. Derry Hornbuckle of HP Santa Rosa. Other subcommittee members selected were Dr. Eliot Cohen (Meetings and Symposia Committee Representative), Dr. Jorg Raue (Technical Coordinating Committee), Prof. Eikichi Yamashita (Transnational), Dr. John Magarshack and Dr. Roger Sudbury. Dr. Hornbuckle also represents the Publications Committee.

The tasks charged to this Subcommittee are not just to identify any emerging technologies but to identify the technology areas which may provide new business opportunities for the Society. Within a very limited time the Subcommittee has done an excellent job. They have come up with four technological areas:

- a) Microwave Communications
- b) Lightwave/Microwave Electronics
- c) Microwave Manufacturing Technology
- d) Indium Phosphide Based Microwave Devices and ICs

The first two items are to capture emerging business opportunities, the third is important in MTT activities across the board, and the fourth is a more specific emerging technology. For implementation of the first three a topical meeting was recommended, possibly in conjunction with other IEEE meetings with substantial MTT-S members attending, but not in the MTT Symposium week. A possible workshop at the MTT Symposium or a topical meeting was recommended for

(Continued on page 7)

MTT-S Meetings & Symposia Committee Report



by Elliot Cohen

At the last MTT-S AdCom meeting, a motion was approved for the Microwave Theory and Techniques Society to co-sponsor the GaAs IC Symposium. (A similar motion was previously approved by the Electron Devices Society. The first GaAs IC Symposium was held in 1979. It has been cooperatively sponsored for many years by MTT-S and has grown into an important fall meeting for both the microwave and digital GaAs integrated circuit communities. This year, the symposium will be held on October 4-7 at the Fontainebleau Hilton Hotel in Miami Beach, FL. Also approved was a motion to allow the Electron Devices Society to co-sponsor the Microwave and Millimeter-Wave Monolithic Circuits (MMWMC) Symposium beginning in 1993. The MMWMC Symposium was first held in 1982 and has been cooperatively sponsored for many years by the ED-S. It is always held on Monday and Tuesday of Microwave Week in conjunction with the International Microwave Symposium and is an important spring/early summer forum for the presentation of the latest information on monolithic format microwave and millimeter-wave circuits and their applications. Co-sponsorship of these meetings by both the MTT and ED Societies will result in a better information exchange between members of these societies and increase awareness of these meetings and the topics that they cover.

Continuous sponsorship of the Topical Meeting on Electrical Performance of Electronic Packaging was also approved. This meeting was held for the first time on April 22-24, 1992, at the Holiday Inn Palo Verde in Tucson, Arizona. It was very successful, attracting 95 attendees. Fifty-two contributed papers and four invited papers were presented. (POC for next year's conference is Paul Baltes of the Engineering Professional Development Office of the University of Arizona.)

In addition, cooperative sponsorship was approved for the following meetings:

- TRANSCOM '92 which was held in Moscow between May 12th and 16th, 1992;
- The 1992 International Conference on Ultra-Wideband Short Pulse Electromagnetics to be held in New York on October 8-10, 1992 (POC: Henry L. Bertoni, (718) 260-3478; Lawrence Carin, (516) 755-4305; or Leopold B. Felson, (516) 755-4203); and
- The 1993 SBMO International Microwave Conference to be held in Sao Paulo, Brazil, on July 26-29, 1993 (POC: Dr. Flavio Pilon Richards, Telephone: (55 11) 7438988, Fax: (55 11) 2114308).

POC = Person to Contact.

MTT-S Membership Services Committee Report



by Mario A. Maury, Jr.
Chairman

Chapter Officers Meeting at IMS

The Annual Chapter Officers Meeting was held during the IEEE/MTT-S International Microwave Symposium in Albuquerque, New Mexico. It was held in the evening of Tuesday, June 2, and was preceded by a reception and dinner.

The meeting was extremely well attended (over 65 MTT-S attendees) with a broad representation of all IEEE regions. Mike Golio, who is responsible for MTT-S Chapter Activities, did an outstanding job of organizing and conducting the meeting.

Many items were discussed and various suggestions were made that will lead to Chapters' conducting more effective activities. Also, the Membership Services Committee developed an action list to address issues brought by the attendees which should help improve services to the Chapters.

It was also very encouraging that many MTT-S AdCom members attended including Rey Kagiwada, President, and Peter Staecker, Vice President. This demonstrated to the Chapter Officers the importance and interest that AdCom has in supporting its Chapters.

There will also be MTT-S Chapter Officers Meetings held in Regions 9 and 10 at the following Conferences; please contact the gentlemen shown for further information:

- Region 10—Asian Pacific Microwave Conference in Adelaide, Australia; contact E. Yamashita, tel. 81-424-83-2161, fax 81-424-80-3801
- Region 9—European Microwave Conference in Helsinki, Finland; contact R. Jansen, tel. 49-2102-83095, fax 49-2102-842391

Chapter Officers from these regions should make every effort to attend these meetings since they are very beneficial. They provide information to help you in conducting better activities and an open forum to exchange information and ideas with other MTT-S members with similar interests.

We are already starting to work on the 1994 IMS Chapter Officers Meeting and we hope to see more of you in Atlanta.

MTT-S Membership Recruitment

At the International Microwave Symposium, a Membership Booth was organized and staffed by John Barr who is responsible for Membership Development. The results were outstanding: 119 new MTT-S members were signed up of which 72 were also new IEEE members.

John is also planning Membership Booths at other conferences such as the European Microwave Conference in Helsinki, Finland, and MM '92 in Brighton England, to mention a few. Any MTT-S members that would like to help in these activities contact John directly.

New MTT-S Chapters

We would like to welcome two new Chapters:

- **Singapore** (Joint with AP)—Prof. Mook-Sang Leong, National University of Singapore, Department of Electrical Engineering, Kent Ridge Campus, Singapore 0511, Singapore
- **Turkey** (Joint with AP)—Dr. Alinur Buyukaksoy, Istanbul Technical University, Electrical and Electronics Engineering, Maslak 80626, Istanbul, Turkey

Any MTT-S members who are interested in joining either of these Chapters, please contact the organizers named above.

Membership Services Committee

The following are the members of the Membership Services Committee:

- Chairman: Mario A. Maury, Jr., tel. (714) 987-4715, fax (714) 987-1112
- Vice Chairman: Kris K. Agarwal, tel. (214) 205-8563, fax (214) 272-8144
- Chapter Activities: Mike Golio, tel. (602) 897-5947
- Chapter Records: Joe Staudinger, tel. (602) 732-2803, fax (602) 732-2148
- Microwave Lecturer Program: Louis Medgyesi-Mitschang, tel. (314) 233-2504, fax (314) 777-1328
- Membership Development: John T. Barr, tel. (707) 577-2350, fax (707) 577-4090
- Student Member Development: Roger D. Pollard, tel. (44) 532-332080, fax (44) 532-332032
- Newsletter Editor: John W. Wassel, tel. (214) 995-3216, fax (214) 995-3347
- Special Technical Articles: John A. Eisenberg, tel. (415) 941-7426

It is the objective of this committee to review and improve the services that we provide MTT-S members and chapters. I have listed above all committee members' phone and fax numbers so that you can communicate with any of us if you need any information, assistance or have any comments relative to MTT-S activities or benefits.

Report of Long Range Planning Committee

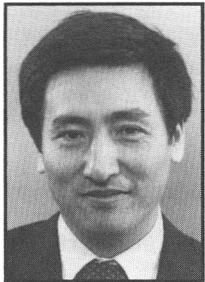
(continued from page 6)

the fourth item. Archival but swift publication of the proceedings of these meetings was strongly emphasized for the benefit of the members not attending the meetings, particularly the transnational members.

These recommendations were adopted by the LRPC after fine tuning. For the item regarding emerging technology/business opportunities, the LRPC has come up with recommendations to (1) form a Technical Committee on Microwave Communication and a Technical Committee on Vehicular Microwave Electronics and (2) create an Advisory Committee to the TCC to help identify the technological and business opportunities associated with emerging microwave technologies.

The function of the LRPC is planning, not implementation. Therefore, the LRPC recommendations above should be addressed by the appropriate standing committee of the AdCom, in this case the Technical Coordinating Committee. As of this writing, it is known that the TCC has already been actively involved in the spirit of these recommendations. In fact, many elements in the recommendations have already been addressed. In the near future, very strong MTT activity is expected.

IEEE TAB Periodicals Council and PUB (Publications Board)



by Tatsuo Itoh
Division IV Representative

The second meeting of TAB (Technical Activities Board) Periodicals Council in 1992 was held at Newark Airport Marriott Hotel on June 6. I attended this meeting as Division IV Representative. On the following day Publications Board (PUB) also met at the same site. As Division IV Representative of TAB Periodicals Council, I am also a voting member of PUB. Below are some of the highlighted items during these two meetings.

A number of action items were executed during the TAB Periodicals Council meeting. Title changes of two *Transactions* were endorsed. One is *IEEE Transactions on Electrical Insulation* to *IEEE Transactions on Dielectrics* and another is *IEEE Transactions on Microelectronic Systems* to *IEEE Transactions on VLSI Systems*. Several new *Transactions* were proposed. One of them from CHMT Society to split its existing *IEEE Transactions on Components, Hybrids, and Manufacturing Technology* failed to obtain endorsement so that this proposal was withdrawn from consideration by PUB on the following day. The actions that received approvals from the TAB Periodicals Council are as follows:

- 1) Endorsement of a new *IEEE Transactions on Rehabilitation Engineering* from Engineering in Medicine and Biology Society
- 2) Endorsement of a new *IEEE Parallel and Distributed Computing & Applications Magazine*
- 3) Approval of amended proposal for a new *IEEE Transactions on Control Systems Technology* (after considerable discussion on implementation issues)

More efficient collection of page charges has continued to be an important subject. The IEEE Publishing Department is working on this project with a more flexible approach including an option that authors can pay with credit cards if they so desire. A considerable discussion followed. A more concrete proposal is forthcoming.

An endorsement for addition to IEEE Policy and Procedure on Guidelines for Magazine Editors was approved. This addition is mainly concerned with the quality of the physical configuration of the magazine. Guidelines for *IEEE Newsletter Editor* were approved.

A number of Discussion Items were transacted. Some of the noteworthy are as follows:

Transactions need to be reviewed by TAB Periodicals Council from time to time. During this meeting, self evaluation by the society for its *Transactions* was encouraged. Along this line, a very positive development was reported on the outcome of the review of *IEEE Transactions on Consumer Electronics*. At the last TAB Periodicals Council, a task force had found that this *Transactions* substantially deviated from the

standard *IEEE Transaction* in a number of respects. After the findings by the task force were subsequently transmitted to the Consumer Electronics Society, the society (one of Division IV) took a very positive action to improve the quality of its *Transactions*.

The following day was spent for IEEE Publications Board meeting at the same location. All of the approved action items by the TAB Periodicals Council were introduced as action items and were approved. In addition, action items on other periodicals (subscription rates for *Spectrum* and *Proceedings*) were introduced and voted.

A proposal to initiate a new *IEEE Power Quality Magazine* was introduced from the Standards Coordinating Committee. This proposal was unique in that it has no sponsoring society/council. Electric Power Research Institute (EPRI) would underwrite a portion of initial setup cost. The potential readership as evidenced by the competing non-IEEE publication is quite large and hence is financially promising. However, the proposal lacked more detailed plans, particularly in the financial responsibility in the steady state phase of operation. The proposal was subsequently withdrawn for further improvement.

A very significant action item was the restructuring of the Publications Board. The most important part is to eliminate from its membership ten (10) Division Representatives who are and continued to be TAB Periodicals Council members. These ten seats will be replaced by six members-at-large who will be selected on the basis of their publication oriented backgrounds. This proposal is along the line of decentralizing IEEE activities. After a considerable amount of discussion, an amendment was introduced which preserves TAB Periodicals Council Chair as Vice Chair of the Publication Board. The amended motion passed. Of course, along with other approved items, this resolution will not be finalized until the IEEE Board approves.

The next TAB Periodicals Council meeting is scheduled toward the end of October.

— Viewpoints —

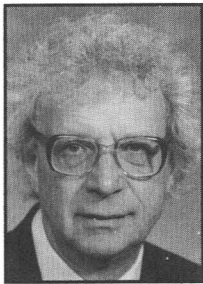
Dear Editor:

Reading Mr. Durrani's letter regarding USAB, what immediately came to my mind was how effective would other professions be in their lobbying efforts, such as the American Medical Association or the American Bar Association, if their stand on issues would only represent the views of part of their total membership? What would happen when the Professional Activities Board proposed by Dr. Durrani lobbies before a congressional committee and its members find out that our views presented at the hearings only represent the views of say 50 percent of our US membership? Would USAB be equally effective as it is now representing all our US members? Certainly not.

Dr. Durrani believes that USAB has "a minor role in the broad schemes of things." I believe that this is an unusually pessimistic view, particularly in these difficult economic times when many citizens of this country realize more and more how important the role of the engineer is in maintaining our technological competitiveness in the global economy. Indeed at this time USAB has a unique opportunity to participate in the political process of our country to ensure the productivity and the well-being of our members and thus contribute significantly to the vibrancy of our nation.

Gideon Kantor
Past Chairman, MTT-S Chapter
Washington, D.C.

Report of the Division IV Director



by Martin Schneider

Highlights of the May 1992 IEEE Board Meeting

The IEEE Board of Directors met in Boston, Massachusetts, May 13-14, 1992. The meeting was held in conjunction with the ELECTRO International Symposium to enhance interactions between IEEE members and officers. The highlights of the Board Meeting were as follows:

- The 1991 IEEE General Fund spending was on target.
- A 1992 General Fund surplus of 850K was anticipated.
- The Board encourages the introduction of group e-mail addresses for IEEE entities.
- Quality training of the IEEE staff is in progress.
- Special efforts are needed to offer 100,000 IEEE members incentives to join Societies.

A number of other topics which were addressed (building expansion of IEEE Service Center in Piscataway, New Jersey, constitutional amendment process, and formation of an Electronics Communications Steering Committee) are reported in the June 1992 Institute which has been mailed to all IEEE members.

Support for Sections, Chapters and Members in the Former Soviet Union

At the last meeting of the Technical Activities Board on April 4, 1992, in Atlanta, the following motion was formulated by Stanley Charap, President of the Magnetics Society, and adopted: "That an adhoc committee under the TAB Liaison Council explore mechanisms for assisting engineers and scientists in needy countries in Regions 8, 9 and 10. Because of the urgency of the current situation, the initial emphasis shall be on Region 8."

Several of the attending Society Presidents pointed out that there is a crying need for special support programs on a worldwide basis, but the consensus of the body was that we have to start somewhere. One society has scheduled a major workshop in Crakow for June 1993, and approved scholarship funds which will enable a number of Soviet engineers to attend. The formation of a chapter will result from this activity. Another proposal which can be readily implemented with limited resources in all Regions is to hold technical meetings around video presentations. Since the Microwave Theory and Techniques Society has already created several first rate video tapes, this solution offers us an opportunity to make a useful contribution. Finally, a number of periodicals and books are languishing in our IEEE warehouse and will never reach a customer. An excess stock of Conference Proceedings has already been identified and will be shipped to IEEE groups in the emerging countries.

New Opportunities in Standards

The development of new standards is important because their acceptance by industry creates new jobs. This is so because manufacturers are able to enter the business without fear of making incompatible products. The problem in persuading engineers to spend more effort on writing new standards is that there is a widespread feeling that standards are boring. This misconception can be easily discredited by pointing out that the great culinary works by French chefs are based on recipes which I consider highly interesting. The following comments may whet your appetite to pitch in and help our MTT-S standard bearers, Jerry Fiedziusko and John Osepchuk, to identify opportunities in developing new standards.

The creation of standards starts from the documentation of technical practices and procedures which are needed to perform tests or fabricate a product. The breeding ground of the standard is an engineering report which contains a description of a recipe or procedure which can be successfully followed by your colleagues. If you can describe this process clearly and succinctly, you are the potential godfather or godmother of a new standard which, in the long run, will open up new job opportunities.

If you are interested in getting your knowledge accepted and your skills followed on a transnational scale, contact our MTT-S standards guru Jerry Fiedziusko on (415) 582-6868, or give a call to our staff people Andy Salem and Judy Gorman at the IEEE Service Center in Piscataway on (908) 562-3820.

The Seven Grand Challenges in Electrotechnology

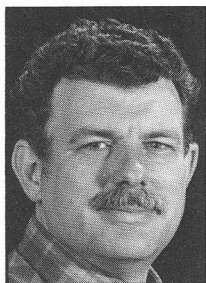
As reported earlier, I have continued serving on the TAB New Technology Directions Committee whose mission is to stimulate technical activities in the field of new and emerging technologies. Our team, strengthened by the appointment of Derry Hornbuckle as a corresponding member, was approached by the prestigious IEEE Strategic Planning Committee to come up with a list of grand challenges in electrotechnology. The seven great ventures and concepts which we proposed were:

1. To be or not to be reachable anytime, anywhere (wirefree and fiberless communications)
2. To have instant access to all information (databases, high-speed links, flat panel displays and interfaces)
3. To be present or absent anytime, anywhere (virtual presence and reality)
4. Abundant, clean, safe and affordable energy
5. Intelligent highways and transportation systems (personal global navigation)
6. The paperless office (flat panel/pen and tablet)
7. The cashfree society (smart debit card, electronic purse & wallet)

It should be noted that several of these challenges will demand the skills of experienced microwave engineers. They will also require the development of advanced software and stimulate engineers to develop national and transnational high data rate networks. Finally, we leave it up to the reader to let us know whether the introduction of electronic money will eliminate the underground economy and reduce the number of crimes related to cash transactions.

ARFTG Highlights

Fall 1992



by John T. Barr, IV

The Automatic RF Techniques Group (ARFTG) is an independent professional society that is affiliated with MTT-S as a conference committee. ARFTG's primary interests are in computer-aided microwave analysis, measurement and design. ARFTG holds two conferences each year, one in conjunction with the MTT-S International Microwave Symposium and a second later in the fall.

40th ARFTG Conference

Measurement and Design of Packages and Interconnects

The 40th ARFTG Conference will be held in Orlando, Florida, December 3 and 4, 1992. The theme of this two day technical conference with concurrent manufacturer exhibits will be *Measurement and Design of Packages and Interconnects*. As microwave and digital designs increase in complexity and speed while they decrease in size, the difficulty of realizing packages and interconnects is becoming a choke-point in design and measurements. The increased difficulty leads to lack of accurate data, which, in turn, can lead to catastrophic design costs and lead-time. Papers are invited which identify problems and/or solutions in this area. Potential topics include (and are not limited to) measurements of large, high speed, high frequency systems; analysis of such systems; troubleshooting or validating fabricated systems (both during manufacturing and during design); and application of microwave techniques to high speed digital systems. In addition, papers concerning all other areas of microwave measurements and design are welcome.

Those interested in participating should contact Conference Chair: James C. Rautio, Sonnet Software, Inc., 135 Old Cove Road, Suite 203, Liverpool, NY 13090-3746 phone (315) 453-3096, or Conference TPC: Bert Berson, Berson and Associates, 655 Castro Street, Suite 3, Mountain View, CA 94041 phone (415) 968-2101. Deadline for paper submissions is October 5, 1992.

In addition to the technical presentations, the attendees will have ample time for informal discussion among themselves during the breaks and during the provided lunch and dinner (your spouse is invited to the Awards Banquet at no extra cost). There will be time for discussion with vendors and viewing of exhibits to see the latest in automation and measurement products. The registration fee includes technical sessions, exhibits, and all meals and break refreshments, one year membership in ARFTG and a post-conference digest of the presented papers.

Measurement Accuracy Issues

39th ARFTG Conference Wrap Up

The 39th ARFTG Conference was held in conjunction with the 1992 IEEE MTT-S Symposium in Albuquerque, NM, on June 5, 1992, and the theme was *Measurement Accuracy Issues*. There were approximately 100 attendees plus 10 tables that were in the concurrent exhibitors' room. The conference Chair was Michael Little, TPC was John Rooks and Exhibits Coordinator was Jim Rautio. The conference focused on determining the true level of performance of microwave measurement systems. Topics included measurement of S-parameters, noise and power on-wafer, the determination of physical characteristics of standards, and the comparison of various measurement techniques for noise and verifying the calibration of network analyzers.

The presented papers included:

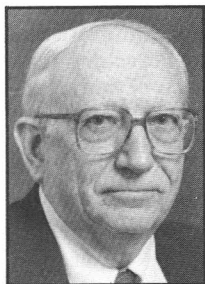
- *Product Worthiness of a GaAs Wafer Fab as Demonstrated Through Automated RF Probe Measurements*, Anthony Lum
- *Measurement Set-Up for High-Frequency Characterization of Planar Contact Devices*, Peter Degraeuwe
- *MMIC Reflection Coefficient Synthesizer for On-Wafer Noise Parameter Extraction*, Michael Dydik
- *Measurement Accuracies for Various Techniques for Measuring Amplifier Noise*, David Wait
- *Characterization of Calibration Standards by Physical Measurements*, Kenneth Wong
- *A Simple Calibrator for Noise Figure/Gain Meters*, Richard Lane
- *S-Parameter, I-V Curve and Noise Figure Measurements of III-V Devices at Cryogenic Temperature*, Charles Wilker
- *Local Oscillator Noise Affects Noise Figure Measurement Accuracy*, Steve Yates
- *VNA S11 Accuracy Measurements: A Comparison of Three Techniques*, Bill Oldfield
- *MMIC Testing with the HP8510 and Cascade Probe Station*, Craig Moore

A conference digest is available; contact: Henry Burger, ARFTG, 1008 East Baseline Road, No. 955, Tempe, AZ 85283-1314. Cost is \$20.00 for an ARFTG member and \$35.00 for a non-member. An additional \$9.00 is requested for airmail outside the USA.

Join ARFTG

We will be looking forward to discussing the latest in measurement automation and accuracy with you in Orlando. ARFTG brings you the latest in RF, Microwave and Millimeter Wave analysis, design and measurement. State-of-the-art papers are presented twice a year. If you are involved in automated techniques, come and join your peers and keep current with our ever-evolving technology. For more information on ARFTG or future conferences, write: John Barr, Santa Rosa System Division, Hewlett-Packard, 1400 Fountaingrove Parkway, Santa Rosa, CA 95403.

IEEE Publications Products



*Chester Smith
Division IV Representative*

The IEEE Publications Products Council Meeting was held on Thursday, 16 July 1992, at Piscataway, New Jersey.

Attendance: While there were more than a dozen people in and out during the day there were only four with vote. Besides the Chairman, Dr. Smits, Computing (Div. V) and Electromagnetics and Radiation (Div. IV) were represented. Vehicular Technology (Div. IX) was represented by Dr. Jan Brown. She was wearing two hats: Div. IX which has a vote, and also Chair of the Book Broker Committee which does not. All in all it was a good meeting and we were a very approving group.

Non-Member Pricing: Most of the day was taken up with the issue of how the IEEE should price its publications to non-members of the Institute. A study has been completed that demonstrated that the IEEE Technical Publications are priced not only well below similar commercial publications, but also below those of other professional or technical organizations. The pricing strategy can be summed up by this: "Prices should maximize income for the IEEE, but still remain below the 'market.'" The IEEE Charter describes the Institute, among other things, as "not for profit," however, it is "not for loss" either. A staff member reported that libraries, our principal non-member customers, do not subscribe on the basis of price, but rather on the basis of their internal staff requirements.

The All Publications Package (APP) price was raised by some 18% for 1992. This was driven by some substantial increases in published material by several Societies. 1993 price changes will be closer to 12 or 13%. Some information on the anticipated price increases of the "competition" indicate that theirs will be 20 to 30% shading to the high side. As usual IEEE's APP will remain a "bargain" for libraries and other non-member users.

Member prices for IEEE publications are set by the sponsoring Societies within guidelines set by the Technical Activities Board (TAB). Exceptions are reviewed by this Council with a recommendation furnished to TAB.

The Applications Book Series (New Venture): The plan is for the Councils to invite the appropriate Societies to sponsor a series of "Workshops" on applications of electro-technology. Applications papers would be solicited from qualified authors. The proceedings would then be edited and issued in book form. The authors and editors are to receive a royalty for this work. An initial set of five books has been suggested. The topics have not been selected nor has the royalty formula been settled.

Motivation for this venture arises in response to the somewhat piratical, but perhaps legal, practice of some commercial publishers. These organizations have been known to send representatives to IEEE Symposia and other meetings to sign

up presenters as authors if their material appears to be marketable. Perhaps there is nothing overtly illegal in this so long as they do not directly use the IEEE material; it is certainly annoying and may, indeed, be impacting IEEE revenues. If it can be proven that IEEE is being financially damaged then the lawyers might see it differently.

OOP/POP Pricing: The Open Order Plan (OOP) and the Publications Order Plan (POP) pricing structure will be somewhat different next year. Two major changes in the pipeline are (1) the old formula based on the square root of the number of pages used to reimburse the Societies will be scrapped in favor of one that uses the least squares linear regression formula and (2) the publishing of extra large issues of the *Transactions* will be discouraged. If a publication is deemed excessive in terms of page count by the Periodicals Council (TAB PC) that issue will be assigned a lower page count for purposes of Society reimbursement.

CD ROMs: The University Microfilms, Inc. (UMI) CD ROM is "out." This product is said to contain all *Journals*, *Transactions*, *Technical Letters* and *Magazines* of both the IEEE and IEE as well as a number of Conference Records of "major" (?) conferences from 1988 on. The price set by UMI is totally out of sight for the individual and many of the non-member libraries as well. The technical material on the CD ROM is copyrighted by the Institutes (IEEE & IEE), but the licenses to use UMI's software with it costs \$28,000 per CD ROM. APP subscribers get a "break," they can get the license for "only" \$21,000! The comment was made that "we need Public Domain Software to get around these 'obscene' licensing fees." UMI has an extensive marketing agreement with IEEE and IEE good for worldwide sales of the CD ROMs until at least the end of 1995. It will be interesting to see how this problem will be resolved sometime during the next millennium.

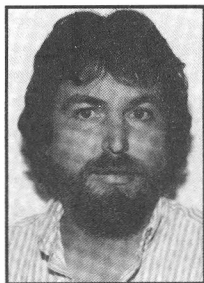
TAB Reorganization: The Council system has been in effect for about three years now, so it is time to reorganize. The TAB Councils will be retained with some cosmetic changes in their titles. The Divisional Representatives will be scrapped and a system of *ad hoc* Committee Chairs replacing them. These Committees can be created and dismissed as varying projects or needs come and go. The Chairs would report to the Council Chair and thence to TAB. Council Chairs are *ex officio* voting members of TAB.

Next Meeting: The exact date of the next TAB Products Council is still open, but the leading contenders are Thursday or Friday, 5th or 6th November. The time would be the usual 10 a.m. to 4 p.m., and the place—the IEEE Service Center in Piscataway.

Mr. Smith commented in his covering letter: "One of the problems with the IEEE is that there is not enough feedback from Headquarters to the dues paying members."

They are not being secretive, only do-less. If anyone wants all of the details they are welcome to copies of the official minutes. All they have to do is call Cindy Jablonowski (908-981-0600) or write to IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08855-1331 and ask."

Did the Salado Have Free Pizza Prior to 1300 AD?



by Mike Golio
IEEE MTT-Society Chapter
Activities Coordinator

It's been some time since I've provided a column for our MTT-Society Newsletter, and I feel I should apologize. The reason for this absence is my own, brief, dead-end career move into the ranks of management. Of course this move was associated with the familiar symptoms—a loss of the ability to read and write (vu foils excepted). The unhappy situation was finally ended by mutual agreement and I am now on the road to rehabilitation. As you can see, I have nearly regained my writing skills and hope soon to be able to perform simple mathematical calculations again.

Unfortunately my sense of direction is still a little shaken and I am having some difficulty deciding what important IEEE MTT-Society topic to address. Since my previous columns have covered such serious issues as beer, ties, headbanger rock-and-roll and pizza parties, it's hard to find important new ground to cover. As I have often done in the past, I decided to consult with friends on this issue. I spoke with several engineers and received the following list of questions they felt important:

- 1) What can I gain by attending local chapter meetings?
- 2) How can our local organization get more of a voice in MTT-Society business decisions?
- 3) Will the Atlanta Braves win the pennant this year?
- 4) What subsistence strategies did the prehistoric Salado culture use prior to 1300 AD?

With my decision-making capability still shaken by the recent brush with managerial experience, I feel that choosing among the questions is not advisable at this time. Instead, I will simply address all four questions.

The first question is difficult to answer because there are so many things which can be gained at your local chapter meetings. You get a chance to see colleagues from across town or across the building and catch-up on recent events. Often there is the chance to meet interesting engineers you haven't met before. If your chapter officers have read my previous columns, the local meeting might even include free pizza. You might be lucky enough to get a review of one of the latest heavy metal CDs you haven't listened to yet. The list goes on and on, but I fear the topic is much too large to deal with completely in this column. Oh, by the way, these meetings usually include an excellent technical presentation which is given by a well-known expert.

The second question is fairly straightforward to answer. The most direct way to influence the decisions of the MTT-Society Administrative Committee (AdCom) is to send a representative to their meetings. The Chapter Chairperson for each Chapter is a non-voting member of the AdCom and

may attend any or all of their three annual meetings. If this is not possible, you can also contact your Chapter Activities Coordinator (that's me) and relay to him any concerns you would like to see addressed by your Society. If his concentration holds, he may even be able to express your ideas to the AdCom in a rational, effective manner. Another alternative is to contact your chapter's Liaison. His name and address are published in your MTT-Society Committee Directory (the green booklet) which was recently sent to each of our members. The Liaisons are all past or present members of AdCom and will be delighted to hear from you and to represent you at their meetings.

Although I know the answer to the third question, I am afraid that my publishing it in this column might encourage gambling among our membership. You'll just have to wait and see.

Finally, I cheated and made up the fourth question myself. Although I would love to discuss the Salado issue, I am afraid space will not permit it. Call me if you want to talk about subsistence strategies—or any of the other questions. I'm listed in your green booklet.

MTT Society Ombudsman



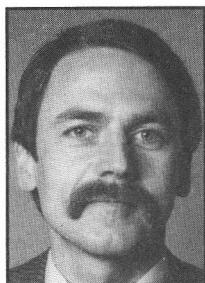
by Ed Niehenke
Westinghouse Electric Corporation
P.O. Box 746, MS-75
Baltimore, MD 21203
(301) 765-4573
(301) 993-7432 FAX

As your Ombudsman, I have received three inquiries from MTT-S members since the last reporting in the Spring 1992 MTT-S Newsletter. Two of the inquiries involved members who had not received MTT-S Transactions. I contacted IEEE, and the missing publications will be sent. The last inquiry involved a member whose IEEE term life insurance lapsed; he requested reinstatement without reapplying. I contacted the Office of the Administrator requesting the reinstatement and was also denied due to the established policy. I informed the member of the details of the policy concerning payments, grace period, and policy lapse for future reference, and encouraged him to reapply if he so desired.

Please feel free to contact me by letter or telephone concerning any complaint you may have or any assistance you may need in obtaining membership services from IEEE and MTT-S.

GaAs '92

European Gallium Arsenide and Related III-V Compounds Applications Symposium



by Rolf H. Jansen
MTT-S AdCom
Transnational Committee

The first European Gallium Arsenide Applications Symposium, GaAs '92, was held on the conference site of ESTEC (European Space Research and Technology Center) at Noordwijk, The Netherlands, on April 27-29, 1992. After the GaAs '90 was held successfully at Rome in April 1990, it was decided to make this Symposium a regular biannual European event. The GaAs '92 local organization was provided by ESTEC/ESA and continuous cooperative sponsorship had been approved in the preparation phase by the IEEE MTT Society.

With more than 220 conference participants, the majority coming from the European industry, and with a total of about 70 paper contributions, the GaAs '92 was well accepted by the European MMIC Community and had a high technical standard. There were two parallel sessions over 2 1/2 days as well as an additional poster session and a small MMIC exhibition by the major European companies. In parallel to the conference, there was also a cocktail party at the ESTEC Space Museum and a social dinner evening in the very nice historical surrounding of a castle restaurant. Ten Invited Speakers, including two from the USA and one from Japan, gave a broad overview on the state-of-the-art in III-V semiconductor circuits with stress mainly on commercial applications. The Symposium was well supported by a wide range of European companies and institutions as can be seen from the composition of the Steering Committee:

Chairman

R.H. Jansen, Jansen Microwave, Germany

Vice-Chairman

G. Gatti, ESA/ESTEC, The Netherlands

Members

A. Christou, FORTH, Greece

P. Gamand, Philips Microwave Limeil, France

J.L. Garcia, University of Cantabria, Spain

F. Giannini, II University of Roma, Italy

H.L. Hartnagel, University of Darmstadt, Germany

V.A. Monaco, University of Bologna, Italy

F. Myers, GEC-MMT, United Kingdom
C. Naldi, Politecnico di Torino, Italy
S. Nightingale, Thorn-EMI, United Kingdom
P.L. Ouvrard, Dassault Electronique, France
E. Pettenpaul, Siemens AG, Germany
C. Rumelhard, Thomson-CSF, France
H.S. Rupprecht, Fraunhofer Institute, Germany

The background and scope of the 1992 European Gallium Arsenide Application Symposium was formulated as follows:

After two decades of basic research, process development and the stabilization of manufacturing processes, microwave/mm-wave analog ICs (MMICs) and related high speed digital circuits and multifunction optoelectronic circuits (OEICs) on Gallium Arsenide and other III-V compounds are now entering a broad range of applications. Stable MESFET and HEMT technologies are available for applications ranging from high density, high speed digital circuits to very high performance circuits and very low noise ICs at high mm-wave frequencies, broadband amplification to mm-waves, as well as discrete devices with several tens of Watts of CW power at a few GHz. In addition, the maturing of HBT technology is showing great promise for power MMICs and OEICs. Monolithic integrated circuits extending up to 300 GHz or integrating numerous functions (digital/analog or electrical/optical) appear feasible today.

In parallel to mature technologies, high volume markets are visibly increasing. Particularly in Europe, there are now exciting opportunities for applications in areas such as mobile telephone, communication networks, direct broadcasting satellite receivers, and in the extremely important market of automobiles and transport systems. A number of well-established GaAs foundries are giving circuit designers all over Europe the access to stable and statistically verified manufacturing processes. In view of this situation, the European Gallium Arsenide Applications Symposium is intended to provide a European forum for the exchange of information in the rapidly growing field of applications of GaAs and other III-V compound semiconductors.

The next of this series of Symposia, the GaAs '94, has been announced already and will be held at Torino, Italy, end of April 1994. The GaAs '94 will be chaired by Professor C. Naldi of the Politecnico di Torino, who was already instrumental in setting up the GaAs '90 together with other Italian colleagues and with support by the Italian industry. Those who would like to be put on the mailing list to receive the first announcement for the GaAs '94, please write to:

Professor Dr. C. Naldi
Politecnico di Torino
Corso Duca degli Abruzzi 24
I-10129 Torino
Italy
FAX: +39-11-5644015

Two different European groups of organizers are already aspirants for setting up the GaAs '96. German or English responsibility for organizing the GaAs '98 is presently being discussed in the Steering Committee of the European Gallium Arsenide Application Symposium in order to provide continuity for this Symposium on a long term basis.

The 3rd International Workshop on Millimeter Waves: A Joint Effort of European Chapters

by R. Sorrentino
University of Perugia
and P. Lampariello
"La Sapienza" University of Rome
Workshop Co-Chairmen

Orvieto, a charming medieval town located 100 km north of Rome, was the venue for the 1992 International Workshop on Millimeter Waves. Built on a tufaceous rock standing in the valley of the Paglia river, Orvieto is an extremely interesting town for its testimonies from the Etruscan period, its well-preserved medieval appearance, and the rich artistic patrimony of which the famous Cathedral is the highest expression. The site of the meeting was a wonderful medieval palace of the XII Century, recently transformed into a modern Congress Center.

Like the two previous editions held in Rome (April 1986) and Perugia (April 1989), the workshop was a three-day event held from April 22 to 24. Unlike the previous editions, which were organized by the Central and South Italy Chapter alone, Orvieto's workshop was the result of a joint effort of the French, German and Italian MTT Chapters. This is the first time European Chapters worked together for organizing an international event and it is the beginning of a new era of cooperation among them under the auspices of the Committee on Transnational Activities of MTT AdCom.

The aim of this workshop series is to assess the state-of-the-art of millimeter-wave technology and applications. A welcome address was given by one of the "fathers" of Italian microwave engineers, Professor Nello Carrara, who is credited to be the inventor of the term "Microwaves" used for the first time in 1932 in the Proceedings of the IRE. Afterwards, with a format successfully experimented in all editions, internationally recognized experts have been invited to give survey lectures followed by discussions with the audience

- H. Meinel, Deutsche Aerospace, Germany: *Millimeter-Wave Applications and Technology Trends*
- M. Aikawa, NTT, Japan: *MMIC Technology for Communication Systems*
- R. Funck, Dassault Electronique, France: *New Integrated Subsystems for Millimeter-Wave Applications*
- D. Pons, Thomson-CSF LCR, France: *New Millimeter-Wave Devices: Realization and Performance*
- G. Salmer, Universite de Lille, France: *Field-Effect Transistors for the Millimeter-Wave Range: Physical Analysis, Modelling and Expected Performance*
- J. Freyer, University of Muenchen, Germany: *Two-Terminal Millimeter-Wave Devices*
- H.L. Hartnagel, University of Darmstadt, Germany: *Technology Developments Towards Nanometric Structures*
- T. Itoh, UCLA, USA: *Optical Control of Millimeter-Wave Circuits*
- T. Yoneyama, Tohoku University, Japan: *Recent Developments of NRD-Guide Technology*

R.H. Jansen, Jansen Microwave, Germany: *Advanced Design Techniques for Linear and Nonlinear MMICs into the Millimeter-Wave Region*

V. Fouad Hanna, CNET, France: *CAD of Millimeter-Wave Passive Components in Suspended Microstrip Technology*

N. Alexopoulos, UCLA, USA: *3D Modeling of Millimeter-Wave Circuits and Antennas*

This part of the workshop took the first two days. The last day was devoted to contributions from the participants. This is a list of the 11 papers presented:

H. Baudrand, Pr. ENSEEIHT, Toulouse: *Losses in Coplanar Waveguides*

R. Orta, Politecnico di Torino: *FSS Diplexer*

W. Gulloch, Telettra Research: *Millimetric Filters*

M. Liber, Alcatel Telspace: *60 GHz Technologies*

A. Galli, "La Sapienza" University of Rome: *NRD-Guide Structures*

G. Baumann, SEL Alcatel: *FET-Modeling / Oscillator*

S. Abou Chahine, TELECOM Paris: *W-band Six-Port Reflectorimeter*

M. Drissi, INSA, Rennes: *Analysis of Packaging Problems*

P. Arcioni, University of Pavia: *Modeling of Quasi-Planar Waveguides*

M. Mongiardo, University of Perugia: *3D Mode-Matching of Via-Holes*

G. Salmer, University of Lille: *Microwave Performance of MODFETs under Low Temperature Conditions*

A panel discussion with T. Itoh, H.L. Hartnagel, H. Meinel, R. Funck, V. Dainelli on the future of millimeter waves concluded the workshop.

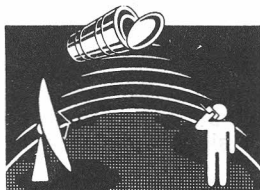
Parallel to the workshop, a small exhibition on microwave and millimeter-wave products from HP, Wiltron, EEsof, Varian, was organized in the same Congress Center.

The social program was no less exciting than the technical program. It included a recital by baritone T. Goudie and pianist D. Lawton from Canada, who played Italian, French, German and Spanish arias, as well as an original concert of two flutes (E. Casularo and G. Trovalusci) accompanied by electronically synthesized music performed in the 12th Century Church of S. Giovenale. The fine taste of the local food was offered to the participants in two well organized banquets. Mrs. Rosanna Giorgini of Itelco, Orvieto, was the perfect organizer of all this.

The workshop was greatly successful, with participation of one hundred people from the various European countries, and significant participation of students. Compared to the regular conferences, such small and less formal meetings respond to the need for more open, lively and interacting participation.

In addition to the efforts made by the Chapter chairmen, Dr. Victor Fouad Hanna, Prof. Hans L. Hartnagel and Prof. Paolo Lampariello, the workshop was made possible thanks to the generous contributions of the European Research Office of USARDSG-UK, the CNET (France), Contraves Italiana S.p.a., The University of Perugia, MTT-Society, Elettronica S.p.a.

A special issue of the French Journal Annales des Télécommunications devoted to the 1992 International Workshop on Millimeter Waves will be published in December 1992.



"MICROWAVES: GLOBAL AND PERSONAL"

1993 SBMO INTERNATIONAL MICROWAVE CONFERENCE/BRAZIL

CENTRO EMPRESARIAL - SÃO PAULO, 26/29 JULY

CALL FOR PAPERS

The 1993 SBMO International Microwave Conference/Brazil, organized by the Brazilian Microwave Society (SBMO) and EPUSP, in cooperation with the IEEE MTT-S, URSI, IEE, IEEE Seção Sul-Brasil, IMT and the support of FAPESP, CNPq, FINEP, CAPES, TELEBRAS and The British Council, will be held in July, 26-29, 1993 at the Centro Empresarial, São Paulo, Brazil.

This Conference will provide a major international forum for the exchange of information on research and development in the fields of RF, Microwaves, Millimeter Waves, Antennas, Propagation and Optics.

A technical industrial exhibition, entitled "RF, MICROWAVES AND OPTICS EXHIBITION", will take place in conjunction with the Conference.

Limited URSI funds are available for travel expenses of young scientists wishing to attend the Conference. For information, please contact the Secretary.

TOPICS COVERED

Papers are solicited describing original work on the following suggested topics:

- .Medical and Industrial Applications
- .Microwave and Millimeter Wave Integrated Circuits
- .Optical and SAW Devices & Techniques
- .Microwave Measurements
- .Computer Aided Design
- .Microwave Techniques in Radar and ECM
- .Remote Sensing and Radio Astronomy
- .Wireless Communications
- .Active and Passive Devices and Components
- .Microwave Radio Propagation
- .Antennas and Arrays
- .Microwave Superconductivity
- .GaAs Monolithic Circuits
- .Packaging Techniques
- .Field Theory and Guided Waves
- .Microwaves & Optics Education
- .Satellite Communications
- .Optical Communications

A selection of invited speakers will highlight important and developing areas.

MAILING ADDRESS

All mail including the papers must be sent to the Steering Committee Secretary :

Paulina Cardoso
IMT - Escola de Engenharia Mauá
Estrada das Lágrimas, 2035
09580 - S. Caetano do Sul - SP - Brazil
Tel./Fax No. (5511) 442.6944 or 743.8988

PREPARATION OF PAPERS

The papers must be in English and should not exceed **6 (SIX) PAGES** including text, figures, photographs, tables and references. The text should be typed single space on A4 white bond paper on one side only. The text dimensions in all pages are: one inch from the top, bottom, right and left margins. Footnotes should not be used. Pages have to be numbered in pencil. Figures should be in black ink, clearly legible and photos must be glossy, black and white prints. The digest will be produced directly from the originals of the accepted papers.

SUBMISSION OF PAPERS

A prospective author is required to submit **ONE ORIGINAL + THREE COPIES** of the paper together with the full address of the author(s), telephone/Fax number and a statement specifying the topic area which seems most appropriate to the work. The papers will be assessed by an international review board.

DEADLINE

**THE DEADLINE FOR THE RECEIPT OF PAPERS
IS DECEMBER 31, 1992.**

Advanced submission is encouraged. Authors will be notified of acceptance of their papers by the end of February 1993.

STEERING COMMITTEE

.Chairman	Edmar Camargo (LME-EPUSP)
.Vice-Chairman	Ricardo E. Schaal (INPE)
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.Exhibition	Marcos A. Luqueze (LME-EPUSP)
	Antonio Carlos Trevizan (Vermont)

GENERAL INFORMATION

. CONFERENCE LANGUAGE

The Conference language will be English.

. CONFERENCE PROGRAM

The Conference Program will be available by April 1993. If you wish to receive the Conference Program, please indicate in the Registration Form.

. TOURS, SOCIAL AND COMPANIONS' PROGRAM

Information on social and companions' program as well as on special tours in Brazil will be available at the Conference site.

. COCKTAIL PARTY

Exhibitors will offer a cocktail party to all participants, on the first evening of the Conference.

CONFERENCE DINNER

The Conference dinner for the participants and accompanying persons will be held on Wednesday evening, July 28, 1993.

. CONFERENCE KIT

Badges, cocktail tickets and Conference Proceedings, as well as further information must be picked up at the Registration Desk, when you arrive at the Conference.

. PAYMENT

Traveler checks or nominal checks in US dollars (payable to SBMO - Sociedade Brasileira de Microondas) can be mailed for payment of Registration and Hotel Reservation fees, till May, 1st, 1993. After this date, only cash or traveler checks (no nominal checks) will be accepted, at the Registration Desk. No credit cards will be accepted.

. VARIG Brazilian Airlines is the Official air carrier of the Conference.

1993 SBMO INTERNATIONAL MICROWAVE CONFERENCE/BRAZIL

CENTRO EMPRESARIAL - SÃO PAULO, 26/29 JULY

HOTEL RESERVATION

COMMITTEE USE

Early reservation is encouraged, since rooms are reserved at special rates for the Conference participants. Rates include breakfast and taxes. Minimum one night deposit is required.

Name: _____
Last First
Company: _____
Address: _____
City/State: _____ Zip Code: _____
Country: _____ Fax/Tel: _____
Arr. Date: _____ Dep. Date: _____

HOTEL	SINGLE	DOUBLE	GRADE	Your Choice
Maksoud Plaza	US\$ 160,00	US\$ 160,00	*****	_____
Transamérica	US\$ 130,00	US\$ 145,00	*****	_____
Free Hotel	US\$ 88,00	US\$ 100,00	****	_____
Novotel	US\$ 88,00	US\$ 100,00	****	_____
Lorena Flat	US\$ 42,00	US\$ 53,00	***	_____
The Hill	US\$ 50,00	US\$ 60,00	***	_____

DEADLINE FOR HOTEL RESERVATION: MAY 1ST 1993

All room reservations must be made by mail. All reservations will be processed in a first come, first served basis. The Committee will try to provide equivalent accommodations in case the above choices are not available by the time reservation is received.

I enclose a check in the amount of US\$ _____

This form should be returned to the Mailing Address

(Retain one copy for your control)

1993 SBMO INTERNATIONAL MICROWAVE CONFERENCE/BRAZIL

CENTRO EMPRESARIAL - SÃO PAULO, 26/29 JULY

REGISTRATION FORM

COMMITTEE USE

Title: Prof. Dr. Mr. Mrs.
Name: _____
Last First
Company: _____
Address: _____
City/State: _____ Zip Code: _____
Country: _____ Fax/Tel: _____

I require.....Conference Programs

Qty	Registration Fees	Amount
_____	IEEE MTT-S, AP-S member @US\$ 120,00(to May 1st)	_____
_____	IEEE, URSI member @US\$ 120,00(to May 1st)	_____
_____	IEEE MTT-S, AP-S member @US\$ 170,00(after May 1st)	_____
_____	IEEE, URSI member @US\$ 170,00(after May 1st)	_____
_____	Non-member @US\$ 170,00(to May 1st)	_____
_____	Non-member @US\$ 220,00(after May 1st)	_____
_____	Participant without Proceedings @US\$150,00 (to May 1st)	_____
_____	Participant without Proceedings @US\$190,00 (After May 1st)	_____
_____	Student @US\$ 25,00 (Without Proceedings)	_____
_____	Additional Proceedings @US\$ 40,00	_____

Total Amount Enclosed US\$ _____

Registration fee includes one copy of the Proceedings, one ticket to the Monday evening cocktail, entrance to all technical sessions and the technical exhibition.

Send completed form along with your check to the Mailing Address.

(Retain one copy for your control)



EPUS

Call for Papers

Abstract Deadline October 28, 1992

Topical Symposium on Combined Optical-Microwave Earth and Atmosphere Sensing March 22-25, 1993

Hyatt Regency Albuquerque, Albuquerque, NM

Introduction

The topical symposium on Combined Optical-Microwave Earth and Atmosphere Sensing, CO-MEAS'93 will be held in Albuquerque, New Mexico, on March 22-25, 1993. It will be co-sponsored by the IEEE Lasers & Electro-Optics Society (LEOS), the IEEE Geoscience and Remote Sensing Society (GRSS), and the IEEE Microwave Theory and Techniques Society (MTTS). The symposium will focus on synergism between optical (infrared, visible and ultraviolet) and microwave (including millimeter and submillimeter waves) sensing techniques in providing information which would otherwise be difficult or impossible to obtain. Measurements for which microwave and optical sensing approaches are individually unique will also be included. The symposium will address challenges in technology, technique and retrieval methodology in implementing combined optical and microwave remote sensing experiments/programs.

Scope and Format

The symposium will be international in scope, both in terms of meeting organization and the technical papers. Combined optical and microwave monitoring strategies are an integral part of most proposed national/international programs concerned with global change, earth system science and world climate. Emphasis will be placed on featuring a representative cross section of these monitoring initiatives in the symposium program.

The symposium will commence with a Plenary Session, featuring eminent speakers who will present overviews of the synergism and unique characteristics of optical and microwave remote sensing. Subsequent technical sessions will have lead-off invited speakers who will introduce the main topic of a given session.

Abstract and Paper Preparation and Submission

Text of CO-MEAS'93 abstracts should be in English, typed single-spaced on 8 1/2 x 11 inch white paper with one inch margins utilized on all sides. **Abstracts should be limited to one page only** (approximately 500-600 words). All abstracts must include: (1) a title typed in capitals and centered at the top of the page and (2) the name of the author(s) with affiliation, address, telephone and fax numbers centered below the title. The abstracts will be used by the Technical Program committee for selection of accepted papers for oral and poster presentation and composition of the technical program; hence, each abstract should clearly and concisely state the problem addressed, the methodology used and the central conclusions. Two (2) copies of the abstract must be received by the IEEE/LEOS Executive Office by **October 28, 1992**.

Submit both copies of your abstract to:

IEEE/LEOS
445 Hoes Lane
P.O. Box 1331

Piscataway, NJ 08855-1331

P: 908-562-3894 F: 908-562-1571

Notice of acceptance will be mailed to the corresponding author by mid-December. The authors of accepted papers will be asked to provide a camera-ready extended abstract by January 22, 1993, for publication in the symposium proceedings. Information on preregistration and hotel reservations will be mailed with the author kits and advance program in mid-January. For further information, please contact the IEEE/LEOS Executive Office, listed above.

Topics to be considered

Topics to be considered at this symposium will include (but will not be limited to) the following:

- Advances in Optical/Microwave Components and System Technology
- Inversion and Signal Processing of Multi-Sensor Data
- Wind Field and Turbulence Sensing
- Cloud, Water Vapor, and Temperature Sensing
- Atmospheric Trace Species Sensing
- Earth-Atmosphere Interaction Studies
- Multiwavelength Imaging Techniques

Committee

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Local Arrangements

William P. Latham, Kirtland AFB, Albuquerque, NM

Revisions to 1992 Committee Directory IEEE MTT-S IX. Committee Members' Addresses

Bert Berson

Berson & Associates
495 Castro Street, Suite 200
Mountain View, CA 94041
(415) 968-2101
Fax: (415) 968-2182

R. E. (Skip) Bryan

Hughes Aircraft Company
8433 Fallbrook Ave.
Bldg. 268, M/S A54
P.O. Box 7928
Canoga Park, CA 91309-7928
(818) 702-3555 (w); (818) 702-8085 (h)
Fax: (818) 702-4064

Eliot D. Cohen

DARPA
3701 North Fairfax Drive
Arlington, VA 22203-1714
(703) 696-2214
Fax: (703) 696-2203

E. James Crescenzi, Jr.

Watkins-Johnson Co.
3333 Hillview Ave.
Palo Alto, CA 94304-1204
(415) 813-2506 (w); (408) 255-1894 (h)
Fax: (415) 813-2402

Mike Gollo

Motorola SSDT
M/S EL510
2100 E. Elliot Rd.
Tempe, AZ 85284
(602) 897-5947 (w); (602) 899-5941 (h)
Fax: (602) 897-4477

Rudolf E. Henning

Dept. of Electrical Engineering
Univ. of South Florida, ENG 118
Tampa, FL 33620
(813) 974-4782
Fax: (813) 974-5250

Ferdo Ivanek

Communications Research
1646 Madrono Avenue
P.O. Box 60862
Palo Alto, CA 94306
(415) 329-8716
Fax: (415) 328-8751

Rolf H. Jansen

Jansen Microwave
Ingenieur Büro
Bürohaus am See
Am Brüll 17, W-4030 Ratingen 1
Germany
011-49-2102-83095 or 011-49-203-3793195
Fax: 011-38-11-138928

Reynold S. Kagiwada

TRW Electronic Systems Group
3117 Malcolm Ave.
Los Angeles, CA 90034
(310) 814-1970 (w); (213) 475-5255 (h)
Fax: (310) 814-2301

Stephen A. Maas

UCLA
Dept. of Electrical Engineering
56-147A Engineering IV
Los Angeles, CA 90024-1594
(310) 825-8628 or (310) 426-1639
Fax: (310) 206-8495

Robert A. Moore

Westinghouse Electric Corp.
P.O. Box 746 - M/S 1107
Baltimore, MD 21203
(410) 765-4027 (w); (410) 647-0968 (h)
Fax: (410) 765-1609

Don Parker

Hughes Aircraft Co.
Bldg. R2, M/S A509
P.O. Box 92426
Los Angeles, CA 90009
(310) 334-8534
Fax: (310) 334-8545

Barry S. Perlman

Army Research Laboratory
Electronics and Power Sources Directorate
SLCET-MP
Ft. Monmouth, NJ 07703-5000
(908) 544-4024 or (908) 544-4883
Fax: (908) 544-4323
E-Mail: bsp@monmouth-etd1.army.mil

Ed A. Rezek

TRW
M/S R6/1563
Redondo Beach, CA 90278
(310) 814-1860 (w); (310) 373-3221 (h)
Fax: (310) 814-4448

Peter Russer

Lehrstuhl für Hochfrequenz-Technik
Technische Universität München
Arcisstrasse 21
8000 München 2, Germany

Richard A. Sparks

8 Richard Road
Bedford, MA 01730
(617) 862-3000 (w); (617) 275-8179 (h)
Fax: (617) 863-0586

Peter W. Staecker

MA-COM, Inc.
52 South Avenue
Burlington, MA 01803
(617) 272-3000 x1195 (w); (617) 861-7643 (h)
Fax: (617) 221-3115 or (617) 863-5751
E-Mail: pws@technet.macom.com

Steven N. Stitzer

Westinghouse Electric Corp.
M/S 3T15
P.O. Box 1521
Baltimore, MD 21203
(410) 765-7348
Fax: (410) 993-7747

Daniel G. Swanson

Watkins-Johnson Co.
3333 Hillview Ave.
Palo Alto, CA 94304-1204
(415) 813-2036 (w); (415) 966-8094 (h)
Fax: (415) 813-2402

Elkichi Yamashita

Dept. Elec. Eng.-Univ. of Elec. Comm.
1-5-1 Chofugaoka, Chofu
Tokyo 182, Japan
Fax: 81-424-80-3801

MTT-Transactions Survey

Please take a few minutes of your time to answer the following questionnaire and send it before January 1, 1993, to the *Transactions* Editor:

Dr. D. Masse
Raytheon Company
Research Division
131 Spring Street
Lexington, MA 02173

Any additional comments are welcomed! When the results are in, I will compile them and publish a resume in this *Newsletter*. With your help, I hope to be able to put together a *Transaction* which will serve the MTT membership while maintaining the high quality which is a mark of the *Transactions*.

MTT-Transactions Questionnaire

1. What do you think of the present *MTT-Transactions*?

2. What do you like best in the present *Transactions*?

3. What do you like least in the present *Transactions*?

4. How often do you use or refer to the *Transactions* in your work?

5. What changes would you like to see implemented?

6. If you would like to see more "practical" papers, would you:

- a. be willing to submit such a paper? _____
b. why didn't you do it yet? _____

7. The review process now takes an average of three months. Do you think it is:

- a. Too long? _____
b. Just right? _____
c. Too short? _____

8. If you think it is too long, how would you propose to reduce it?

9. The review cycle is determined by the time the reviewers can devote to it. Would you be willing to become a reviewer and help reduce it?

10. If you are willing to help as a reviewer, please send your name, address, telephone and fax numbers with a list of a few specialties in which you would like to review papers.

11. Your name is not necessary (unless you volunteer as a reviewer), but I would appreciate knowing your position and affiliation.

12. Additional comments and suggestions:

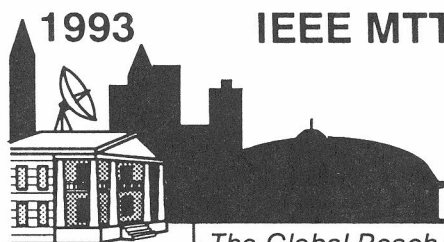
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Thank you for your help.

Fold so that panel below is exposed for mailing.

**Place
Stamp
Here**

Dr. D. Masse
Raytheon Company
Research Division
131 Spring Street
Lexington, MA 02173

**1993****IEEE MTT-S International Microwave Symposium****June 14-18, 1993****ATLANTA***The Global Reach of Microwaves***Chairman**

G.P. Rodrigue
Georgia Inst. of Tech.
TEL: (404) 894-2944
FAX: (404) 853-9171

Co-Chairman

Charles T. Rucker
Georgia Inst. of Tech.
TEL: (404) 894-4010
FAX: (404) 853-9410

Technical Program

Gordon R. Harrison
Electromagnetic
Sciences, Inc.
TEL: (404) 263-9200
X-4339
FAX: (404) 263-9207

Local Arrangements

E. Jerry Archbold
Spartech Assoc., Inc.
TEL: (404) 446-7300
FAX: (404) 446-0108

Finance

Russell L. Roberts
Georgia Inst. of Tech.
TEL: (404) 528-7081
FAX: (404) 528-7019

Publicity

Paul G. Steffes
Georgia Inst. of Tech.
TEL: (404) 894-3128
FAX: (404) 853-9171

ARFTG Liaison

Tim Semones
Measurement Systems,
Inc.
TEL: (404) 951-0878
FAX: (404) 951-8920

MMWMC Liaison

Herbert M. Harris
Georgia Inst. of Tech.
TEL: (404) 894-3420
FAX: (404) 894-5073

Exhibition

Howard L. Ellowitz
Horizon House
TEL: (617) 769-9750
FAX: (617) 762-9230

Registration

John C. Hoover
Electromagnetic
Sciences, Inc.
TEL: (404) 263-9200
X-4245
FAX: (404) 263-9207

Special Sessions

James C. Wiltse
Georgia Inst. of Tech.
TEL: (404) 894-3494
FAX: (404) 853-0061

**IEEE****CALL FOR PAPERS**

The 1993 IEEE-MTT-S International Microwave Symposium will be held in Atlanta, Georgia, on June 15, 16 and 17, 1993. Contributed papers are solicited describing original work in the microwave field. Typical topics and technical areas of interest appropriate for the Symposium are listed below, but any paper concerned with the utilization and application of microwave theory and techniques is appropriate and will be considered.

- Transmission Lines, Discontinuities, and Transitions
- Passive Signal Processing and Control Components
- Ferrite Components
- Acoustic and Surface Wave Components
- Active Signal Processing and Control Components
- Non-Linear Modeling and Analysis
- Direct Microwave Signal Generators, Synthesizers, VCOs and DROs
- Transistor Power Amplification
- High Power Sources, Control Components, and Systems
- Low Noise Technology, LNAs, and Receiver Technology
- Microwave Integrated Circuits
- Monolithic Multifunction Modules
- Millimeter Wave Technology
- Field Theory
- EM Analytical and Numerical Techniques
- CAD Procedures, Techniques, and Modeling
- Guided Waves and Propagation Characteristics
- Measurement Theory and Techniques
- Mobile and Satellite Communications Systems
- Microwave Systems
- Phased and Active Arrays
- Lightwave Technology, Techniques, and Electronics
- Biological and Medical Applications
- Superconductivity Investigations and Applications
- Submillimeter Wave Techniques and Devices
- Manufacturing Methods, Production Techniques, and Packaging
- New Materials and Advancements in Microwave Techniques

Authors may indicate a preference for full length (20 minutes), short (10 minutes) or the interactive forum presentation of their paper. Full length papers should report significant contributions, advancements or applications of microwave technology. Short papers typically report specific refinement in the state of the art. The interactive forum papers provide an opportunity for authors to present theoretical or experimental material in poster format, display hardware, perform demonstrations, and conduct discussions in an informal manner with interested colleagues.

The program committee will honor the author's preference where possible, but reserves the right to place the paper in the category it considers most appropriate consistent with the constraints of the technical program.

Paper submission requirements are as follows:

1. Ten (10) copies of a 30-50 word abstract on a single separate sheet. This sheet should include the title and authors of the paper.
2. Fifteen (15) copies of a 500-1000 word summary with supporting illustrations. The title of the paper and author's name should be on the front page of each copy.
3. A separate sheet with the complete mailing address (and FAX number, as appropriate) of the author and a statement indicating the author's preference of full length, short or interactive forum presentation and specifying the topic from the preceding list most appropriate to the technical content of the paper. ALL INFORMATION MUST BE TYPED OR PRINTED IN ENGLISH.

PAPER SUBMISSIONS MUST BE RECEIVED BY DECEMBER 1, 1992

Mail submissions to:

MTT-SYMPOSIUM 1993
c/o LRW Associates
1218 Balfour Drive
Arnold, Maryland 21012
USA

Authors will be notified of the status of their submissions by February 1, 1993. Authors of accepted papers will receive copyright release forms and instructions for publication and presentation.

**Final manuscripts for publication in the Symposium Digest will
be required in early March, 1993.**

NOTE: Authors are cautioned to obtain all required company and government clearances prior to submittal. A statement signed by authors stating that such clearances have been obtained must accompany the final manuscript of accepted papers to be published in the Symposium Digest.

In addition, papers are solicited for the following conferences; please submit material separately to these conferences.

- 1993 IEEE Microwave and Millimeter Wave Monolithic Circuits Symposium. This symposium will be held in Atlanta, Georgia on June 14 and 15, 1993 in conjunction with the 1993 MTT-S International Microwave Symposium. Paper submissions should be sent to Richard B. Gold, c/o LRW Associates, 1218 Balfour Drive, Arnold, MD 21012 by December 1, 1992.
- Automatic RF Techniques Group (ARFTG) Conference. This conference will be held in Atlanta, Georgia on June 18, 1993 in conjunction with the 1993 MTT-S International Microwave Symposium. Contact the Conference Chairman, Jonathan Schepps, David Sarnoff Research Center, MS 3-074, 201 Washington Road, Princeton, NJ 08540. Phone: (609) 734-2185, Fax: (609) 734-2043.

ANNOUNCEMENT OF STUDENT PAPER CONTEST

A student paper contest for full-time students (9 hours/semester graduate, 12 hours/semester undergraduate) will be held as part of the 1993 Symposium. To be considered, a student must be the lead author of the paper, and the second author should attach a statement that his/her contribution is primarily advisory. There should be no more than two authors. In addition, papers should follow the submission requirements delineated above. Papers to be considered for the student competition should be sent directly to:

Andrew F. Peterson
School of Electrical Engineering
Georgia Institute of Technology
Atlanta, Georgia 30332-0250
USA

Papers must be received by December 1, 1992. Authors of student papers will be notified as to the disposition of their submissions by January 8, 1993. Any paper not accepted for the competition will be provided to the Technical Program Committee for review as a regular contribution to the Symposium. Papers accepted for the competition and presented by the student author at the Symposium will be judged for content, presentation, and visual materials. First, Second and Third prizes will be awarded.

1218 Balfour Drive
Arnold, MD 21012
USA

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1993 IEEE-MTT-S
International Microwave Symposium
June 15-17, 1993
Atlanta, Georgia



First Call For Papers



Co-organized: National Chiao Tung University and IEEE MTT-S Taipei Chapter

Asia-Pacific Microwave Conference '93

Hsinchu, Taiwan, China
18 - 21 October, 1993

Authors are invited to submit papers on topics of interests to microwave and communication engineers. Some topics are suggested, not limited, as listed below.

- (1) Microwave/Millimeter-wave/Submillimeter-wave/Lightwave
 - * Antenna and Propagation
 - * Biological Effects and Medical Applications
 - * CAD of Microwave/Millimeter-wave/
 - * Submillimeter-wave Circuits
 - * Computational Electromagnetics
 - * Consumer Applications
 - * Ferrite Devices
 - * Field Theory
 - * Guided Waves
 - * High Power Devices and Systems
 - * High Temperature Superconductors
 - * Industrial Applications
 - * Integrated Optics, Fiber Optics and Optical Techniques
 - * Manufacturing Methods
 - * Microwave-Optical Interactions
 - * Microwave/Millimeter-wave Radiometers
 - * Measurement and Instrumentations
 - * Microwave Acoustic
 - * MMIC and GaAs Technology
 - * Optical Techniques for MMW
 - * Passive Components and Circuits
 - * Packaging Techniques
 - * Phased and Active Array Techniques
 - * Radio Astronomy
 - * Remote Sensing
 - * Solid State Devices and Circuits
- (2) Communication Systems
 - * Antenna Arrays and Systems
 - * Lightwave communications
 - * LSI for Communications
 - * Optical Interconnect
 - * Radar Simulations
 - * Satellite and Mobile Communications
 - * Spread Spectrum Technology

TEAR OFF AND RETURN

NATIONAL CHIAO TUNG UNIVERSITY
1001 Ta Hsueh Road,
Hsinchu, Taiwan, 30050, China

FIRST CALL FOR PAPERS

. The 1993 ASIA-PACIFIC MICROWAVE CONFERENCE

18-21 OCTOBER 1993, HSINCHU, TAIWAN

INSTRUCTIONS FOR AUTHORS

Selection of papers for presentation and inclusion in the digest will be made on the basis of abstracts submitted by intending authors. Abstracts and any supporting figures must be confined to a single A4 or 210 x 297mm page.

The letter accompanying the abstract must include the principal author's complete mailing address and a fax number. All abstracts must be received by **6 DECEMBER 1992**.

Forward abstracts to the Technical Program Chairman:

Prof. Song-Tsuen Peng
National Chiao Tung University
Center for Telecommunications Research
Engineering Building 4, 1001 Ta Hsueh Road
Hsinchu, Taiwan, 30050 ROC

Tel: +886-35-720637
Fax: +886-35-723283

Following review of abstracts by the Technical Program Committee authors will be advised by 6 March 1993 whether or not their papers have been accepted. All papers must be in English.

Completed papers, of length up to 4 pages, will be sought at that stage and must be received by 8 May 1993. The digest will be prepared directly from photo-ready material submitted by authors and be provided to Conference attendees.

GENERAL ENQUIRIES

For general enquiries concerning the 1993 ASIA-PACIFIC MICROWAVE CONFERENCE direct enquiries to:

Prof. Ching-Kuang Tzuang
National Chiao Tung University
Center for Telecommunications Research
Engineering Building 4, 1001 Ta Hsueh Road
Hsinchu, Taiwan, 30050 ROC
Tel: +886-35-712121 Ext. 3465
Fax: +886-35-723283

Ms. Frances Su
National Chiao Tung University
Center for Telecommunications Research
Engineering Building 4, 1001 Ta Hsueh Road
Hsinchu, Taiwan, 30050 ROC
Tel: +886-35-724045
Fax: +886-35-723283

HSINCHU-HOST CITY

Hsinchu, a major city of Taiwan, is located 40 kilometers southwest of Taipei, and is south of the Chiang Kai-Shek International Airport. Hsinchu is being developed as the cultural, scientific, and technological center of Taiwan. Presently, it is the home of the Industrial Technology Research Institute and a science-based industrial park where leading high-tech companies are located. Technical activities are supported by two important universities of science and technology: National Chiao Tung University and National Tsing Hua University. They supply facilities for research and development, as well as human resources. The growth of high-tech industries has been phenomenal during the past decade, and Hsinchu is set to develop into Taiwan's Silicon Valley in the 1990s.

• 1993 ASIA-PACIFIC MICROWAVE CONFERENCE

☐ Exhibitor ☐ Attend ☐ Present Paper

Please send information on : ☐ Advance program ☐ Others

Name Company

Address

Phone# Fax#

Title of Paper (s) (1)

(2)

On Completion Please post to the address listed above

ANNOUNCEMENT of a WORKSHOP
on
WARC-92: Impact on Microwave and Millimeter Wave Developments
to be held
30 October 1992 in Denver, Colorado.

The 1992 World Administrative Radio Conference (WARC-92) held 3 February to 3 March in Torremolinos, Spain, has extensively revised the international framework of frequency allocations, technical provisions and coordination procedures, affecting spectrum usage and radiocommunication developments well into the next century. One immediate consequence is the unprecedented number and variety of FCC applications filed for experimental licenses and Pioneer's Preferences. Intended to focus on the effect of this regulatory framework on directions in technology developments and applications, this specialized workshop will provide a forum for discussion both with a panel of invited speakers and of submitted contributions.

Delegates to WARC-92 who represent both governmental and industrial points of view will present a series of introductory talks covering specific topics, such as: overview of the U.S. positions, space communications, terrestrial communications (including PCS or FPLMTS), low earth orbit (LEO) satellites, broadcasting and HDTV, domestic rulemaking (FCC), government usage (NTIA) and others. These presentations will focus on the impact of WARC-92 decisions on the development of various technologies for consumer, commercial and government applications. A discussion period will follow each of the presentations. Short (5/10 minute) contributions concerning technology, application or other relevant aspects are invited: 4 copies of 1500 word (max.) summaries should be submitted to either of the co-chairmen before 11 September 1992. Notifications will be mailed by 2 October, with accepted summaries included in the notes as submitted. Notes of all presentations will be distributed.

The workshop is jointly sponsored by the IEEE Microwave Theory and Techniques Society through its Technical Committee on Microwave Systems and its Denver/Boulder Chapter and the IEEE Communications Society through its Committees on Satellite and Space Communications and on Radio Communications. The workshop is chaired jointly by:

George L. Heiter (MTT-S)

AT&T-Bell Laboratories

Room 2A-30

1600 Osgood Street

North Andover, MA, 01845;

Tel: (508) 960-6031; FAX: (508) 960-4543.

John T. Gilsenan (ComSoc)

Bureau of Comm. and Information Policy

U.S. Department of State

2201 C Street

Washington, DC, 20520;

Tel: (202) 647-2592; FAX: (202) 647-7407.

The workshop will be held at the *Sheraton Denver Tech Center, 4900 DTC Parkway, Denver, CO, 80237*; Tel. and FAX : (303) 779-1100, or (outside Colorado): 1-(800) 552-7030.

A block of rooms has been reserved at reduced rates for WARC-92 workshop participants.

The registration fee of \$175.- (\$200.- on site) includes the workshop notes as well as breakfast, lunch and the reception on 30 October. Registration is scheduled for 6:00 p.m. to 9:30 p.m. on 29 October at the hotel to allow for informal discussions and will continue at 7:00 a.m. on 30 October.

For a detailed program and registration/housing information, please contact:

Zoya B. Popovic

Dept. of Electrical and Computer Eng.

Office Tower, OT 4-9

University of Colorado at Boulder,

Boulder, CO, 80309-0425;

Tel: (303) 492-0374; FAX: (303) 492-5323.

Christoph E. Mahle

Comsat Laboratories

22300 Comsat Dr.

Clarksburg, MD, 20871-9475;

Tel: (301) 428-4234; FAX: (301) 428-3686.



AUTOMATIC RF TECHNIQUES GROUP

Call For Papers

The Automatic RF Techniques Group will hold their 40th Conference in Orlando, Florida, December 3 and 4, 1992. The Conference theme is:

Measurement and Design of Packages and Interconnects

As microwave and digital designs increase in complexity and speed, while they decrease in size, the difficulty of realizing packages and interconnects is becoming a choke-point in design and measurement. The increased difficulty leads to lack of accurate data, which, in turn, can lead to catastrophic design costs and lead-time. Papers are invited which identify problems and/or solutions in this area. Potential topics include (and are not limited to) measurement of large, high speed, high frequency systems; analysis of such systems; trouble-shooting or validating fabricated systems (both during manufacture and during design); and application of microwave techniques to high speed digital systems. In addition, papers concerning all other areas of microwave measurement and design are welcome.

Technical presentations shall be informal twenty-five minute talks using viewgraphs or 35-mm slide illustrations. Authors are requested to submit a one-page abstract and a 500 to 1000 word summary with attachments containing illustrations, etc., providing sufficient technical content to enable proper evaluation and explaining the contributions's usefulness to the conference attendees. Please refer to "ARFTG Instructions to Authors" for further information. All accepted papers will be published in the post-conference digest. Two copies of the abstract and summary should be sent to Bert Berson, Technical Program Chairman, and should be received no later than October 5, 1992. Papers received on or before September 7, 1992, will be considered for early acceptance and pre-conference publicity. Manufacturers interested in exhibiting at the conference should contact the Exhibit Chairman for information and an application and agreement form.

Submit papers to:

Mr. Bert Berson
Berson and Associates
655 Castro Street, Suite 3
Mountain View, CA 94041
(415)968-2101

For Exhibit Applications or further information contact the conference chairman:

Mr. James C. Rautio
Sonnet Software, Inc.
135 Old Cove Road, Suite 203
Liverpool, NY 13090-3746
(315)453-3096

Recognizing IEEE-USA— What It Is and Why It Is

by William Middleton, Chair
Opinion Survey Committee

Every organization, good or bad, has its detractors, and IEEE United States Activities (IEEE-USA) is no exception. Some of IEEE'S US members seem bent on derailing IEEE-USA one way or another.

Some die-hard members have never recognized IEEE's evolution beyond The American Institute of Electrical Engineers (AIEE). Some volunteers cannot stomach embracing anything beyond the technical dimensions of engineering. Some members have even failed to grasp the basic concepts of the organizational structure for professional activities and refuse to recognize that IEEE-USA has matured substantially, since its founding in the 1970s, to become a significant force on the national scene.

No one doubts the rights of members to express their opinions. What is disturbing is that in the effort to make their points, they omit numerous facts about how IEEE's professional movement evolved and how support for IEEE-USA's structure of today developed. Arguing a point of view but failing to recognize facts borders on being intentionally deceptive. We must revisit some of IEEE-USA's history to set the record straight.

How It All Began

Members' freedom of choice to add a professional objective to IEEE's purposes led to changes in IEEE's Constitution in 1972. In fact, the changes passed by a substantial margin. The Constitution now permits activities directed to the interests and needs of members residing in a particular country or area of the world.

The earliest implementation of IEEE's professional activities was executed by the United States Activities Committee, which operated under IEEE's Regional Activities Board (RAB). Members found this structural arrangement undesirable, due to RAB's transnational character, and formed the United States Activities Board (USAB) in 1974.

As with all new ventures, USAB needed funding to support its activities. In 1972, IEEE's Board of Directors agreed to use a bylaw provision permitting IEEE Regions to assess their own members a fee to meet special country, regional, or area needs beyond those suitable for funding through the general dues applicable to all members. The fee was designated to fund the professional and technical activities in IEEE's Regions. Later the provision was modified to fund professional activities exclusively.

How Are the Funds Directed?

IEEE's first regional assessment was \$5 for US members in Regions 1-6. The Regions agreed to make the money available to support professional activities in the United States. This assessment was later increased to \$10, and the proceeds were aggregated to form a single fund.

While the current US regional assessment now stands at a uniform \$22, the prerogative of the US Regions to petition for a particular level to satisfy their own special needs has not been negated. All other IEEE Regions now have an assessment in varying amounts for their own special needs.

A Voluntary Dues Plan Just Won't Work

Detractors of the assessment means of support for professional activities suggest that IEEE-USA be organized as a voluntary organization similar to IEEE's technical societies—only participating members would pay dues. One could draw some similarities between the objectives of the Power Engineering Society and IEEE-USA; both deal in education, conference, and publications, and both have operating committees. However, beyond that simple fact, very little commonality exists as a basis for a voluntary dues plan to finance IEEE-USA, its objectives, organization and operation.

How naive it would be even to try to support lobbying activities in the US Congress, if IEEE-USA's efforts were based on how many members were interested in the "XYZ" issue; or that only 10 percent of its members were interested in supporting efforts to secure funding for cutting-edge research in Government laboratories!

No organization worth its salt goes to Capitol Hill without the full support of its members. IEEE-USA lobbies with the support of its more than 250,000 US members. USAB positions are derived from surveys, papers originated by knowledgeable volunteer committees, investigations, evaluations, and extensive deliberations on the realistic and practical issues and concerns of US members.

Potshots Are Easy to Take

Potshots at how IEEE-USA's \$3.5 million budget supports the pet projects of a few central planners can only come from members unaware of the process or intentionally unwilling to recognize how the budgeting process is actually done.

The task of making every buck stretch far enough to support all of the goals members would like to be accomplished is impossible. Over the years, a very carefully developed budget process has been put in place to prioritize projects based on members' expectations and careful analysis of the support required.

Each year, IEEE-USA publishes a report on the status of its projects. IEEE's Opinion Survey results repeatedly indicate an acceptable level of member satisfaction with the professional activities programs throughout the United States. Thoughtful members do not expect miracles, just continuing progress, and IEEE-USA has made much progress since 1972.

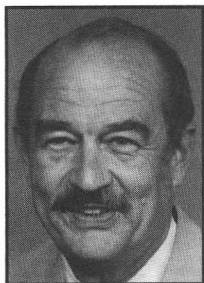
We Need the Support of All Our Members

The last thing IEEE-USA needs is further debate on how to do its job. What we do need is more attentiveness and understanding on the part of our members. Members need to become more involved in supporting the issues that are important to them by writing, calling, and visiting Members of Congress.

IEEE's US members represent a very powerful force. IEEE-USA has become a leading, influential body in technology and public policy. The wisdom of our earlier IEEE leaders in setting forth the concept of IEEE-USA through extensive debate, compromise, and foresight should not be reviled through shallow and careless posturing. Not only our image, but also our influence as a respected organization is at stake. Reprinted from *IEEE Impact*, Vol. 16, No. 4, June 1992, with permission from United States Activities. Copyright © 1992 by The Institute of Electrical and Electronics Engineers, Inc.

The viewpoints of Dr. S. H. Durrani were published in the last issue of the MTT-S Newsletter, Issue No. 131, Spring 1992, pp 23-4. Also, see page 8 of this issue for an additional viewpoint.

MTT Bylaws



by Robert McMillan

Several new amendments to the MTT-S Bylaws have been approved by the Administrative Committee during recent meetings. In accordance with Article IX of the Constitution and Section VII of the Bylaws, these amendments will take effect 30 days after they have been publicized to all members unless objections are received from a minimum of 10 percent of the members. The Constitution and Bylaws were last published in the Fall 1986 Newsletter. The proposed changes are shown below:

SECTION I—NOMINATIONS, ELECTIONS AND APPOINTMENTS

B. Elections

1. Membership

Delete last sentence: "The Presiding Officer shall not vote except to break a tie."

2. President and Vice-President

Delete last sentence: "The Presiding Officer shall not vote except to break a tie."

The above sentences have the effect of disenfranchising the AdCom President who is a voting member of AdCom. Ruled not in agreement with Robert's Rules of Order.

The following section is proposed to replace the existing bylaw.

4. Honorary Life Members

Nomination for Honorary Life Member of the Society may be made by any member of the Administrative Committee, or by a petition signed by at least 50 members of the Society. A two-thirds secret vote by all of the Elected Members of the Administrative Committee will be required to elect an Honorary Life Member. In the absence of a sufficient number of Elected Members of the Administrative Committee at a regular meeting, election of Honorary Life Member may be conducted by mail ballot.

(a) Eligibility

The position of Honorary Life Member may be bestowed upon an outstanding member of the profession who fulfills the following requirements:

(1) The candidate's contributions, technical or otherwise, shall have made an important impact in the field of interest of the Society.

(2) The candidate shall have performed outstanding service to the profession and to the MTT-S.

(3) The candidate shall have shown national and international prominence.

(4) The candidate shall have been an Elected Member of the Administrative Committee, a member of the Society for at least 10 years and shall be a Fellow of the IEEE.

(5) The candidate is expected to continue to contribute to the MTT-S and participate in its activities as an individual contributor, an advisor, and/or by serving on MTT-S Ad Hoc and Standing Committees.

(b) Award

Society fees for Honorary Life Members shall be paid from the Society Treasury. The Secretary shall arrange for this with IEEE Headquarters. The Award shall consist of a suitable plaque and a feature publication in the *IEEE Transactions on Microwave Theory and Techniques*.

SECTION III—COMMITTEES

A. Standing Committees

The following section is proposed to replace the existing bylaw.

8. Technical Coordinating Committee

The Technical Coordinating Committee (TCC) shall investigate, evaluate, and in some instances, promulgate new or peripheral technologies of interest to the Society. The TCC shall consist of a Chairman and Vice-Chairman appointed by the President, and an Emerging Technologies Workshop Coordinator appointed by the TCC Chairman.

The Chairman of the TCC:

(1) shall coordinate with the Meetings and Symposium Committee to afford the latest technical coverage in all meetings of interest to the Society.

(2) shall appoint annually Technical Committees (TC) on an Ad Hoc basis to address specific areas requiring technology emphasis. TC members are appointed annually, based on requirement, initiative, leadership and activity. The Chairman of each TC may serve up to 3 years.

(3) help organize an Emerging Technologies Workshop annually.

(4) interact with the Long Range Planning Committee.

(5) will be an advisory member of all TC.

(6) will prepare periodically reports from the TC for submission to the *MTT Newsletter* and/or *Transactions* as appropriate.

The Chairman of each TC:

(1) shall report to the Chairman of the TCC any significant developments (such as special sessions that the TC is helping to arrange and organize at the MTT-S Symposium, special issues of the *Transactions* that are being planned, etc.), for possible inclusion in the minutes of the Administrative Committee.

(2) should report and recommend to the Chairman of the TCC each year, prior to December, as to the continuation of that TC during the next year.

(3) as required, develop and establish IEEE Standards within the scope of the Society.

CONSTITUTION

IEEE Microwave Theory and Techniques Society

ARTICLE I: NAME AND OBJECT

Section 1. This organization shall be known as the Microwave Theory and Techniques Society of the Institute of Electrical and Electronics Engineers, Incorporated, hereafter referred to as the Society.

Section 2. Its object shall be scientific, literary, and educational in character. The Society shall strive for the advancement of the theory and practice of electronics, allied branches of engineering, and of the allied arts and sciences, and the maintenance of high professional standards among its members, all in consonance with the Constitution and Bylaws of the IEEE and with special attention to such aims within the field of interest of the Society as are hereinafter defined.

Section 3. The Society shall aid in promoting close cooperation and exchange of technical information among its members, the members of the IEEE, and of the profession, and to this end shall hold meetings for the presentation of papers and their discussion, and through its committees shall study and provide for the needs of its members.

ARTICLE II: MEMBERSHIP

Section 1. The members of the Society shall consist only of members of the IEEE in any grade, including students, having an interest in any phase of the field of interest of the Society who apply for membership in accordance with IEEE practice and comply with the Constitution and Bylaws of the Society.

Section 2. Affiliates may participate in Society activities as provided by the IEEE Bylaws and subject to the applicable IEEE rules and regulations and any additional limitations imposed by the Society Bylaws.

Section 3. A Society Affiliate cannot serve in an elective office in the Society or in a Chapter of the Society nor vote for candidates for these offices. An affiliate can serve in any appointive office in the Society or a Chapter of the Society, except the office of Secretary.

Section 4. A Society Affiliate is entitled to receive notices of all meetings sent to Society members, to receive copies of publications of the Society, to attend and participate in any function of the Society by payment of IEEE member charges, and to receive any award bestowed upon him or her by the Society.

Section 5. A Society Affiliate may not receive any IEEE benefits that are derived through IEEE membership except as approved by the Executive Committee of the IEEE.

ARTICLE III: FIELD OF INTEREST

Section 1a. The Field of Interest of the Society shall be Microwave Theory, Techniques, and Applications, as they relate to components, devices, circuits, and systems involving the generation, transmission, and detection of microwaves. It shall include scientific, technical, and industrial activities, subject to timely modifications approved by the IEEE TAB.

Section 1b. Microwave Theory and Techniques relates to electromagnetic waves usually in the frequency region between 1-100 GHz; other spectral regions and wave types are included within the scope of the Society whenever basic microwave theory and techniques can yield useful results. Generally, this occurs in the theory of wave propagation in structures with dimensions comparable to a wavelength, and in the related techniques for analysis and design. Examples are optical waves in suitably scaled structures, as well as the applications of acoustic and magnetic domain waves to microwave systems.

Section 1c. Considerable overlap exists with several other Societies. Specific areas are electron tubes and semiconductor de-

vices for the Society on Electron Devices; radiating elements and propagation for the Society on Antennas and Propagation; and acoustical waves for the Society on Ultrasonics, Ferroelectrics and Frequency Control. In each case, activities in areas of common interest shall be coordinated to assure a constructive and mutually satisfactory result.

Section 2. The Field of Interest of the Society may be enlarged, reduced, or shifted moderately as the needs of the occasion indicate with the provision that, if it overlaps the field of interest of another Society to the extent that interference occurs, the IEEE TAB may draw up more exact lines of demarcation, and that, if some other Society wishes to enlarge its field to the disadvantage of the Society, that this Society will reasonably and in good faith consider the proposals and abide by any decision of the IEEE TAB.

ARTICLE IV: CHAPTERS

Section 1. A sub-society may be formed and operated on any plan not inconsistent with the powers of the Administrative Committee of this Society. A sub-society formed in a Section shall be known as a Chapter. A Chapter may assist the Administrative Committee of this Society in the management of the Society's Annual Meeting or Symposium held in the Section in which the Chapter is located. The Chapter shall be responsible for coordinating with the Section on such major meetings or symposia. A Chapter may promote meetings of the Section in the field of interest of this Society under the control and supervision of the officers of the Section in which the Chapter is located.

ARTICLE V: FINANCIAL SUPPORT

Section 1. The Society may levy fees on its members and Affiliates for publication and other purposes. Society membership and Society affiliation may be maintained only by regular payment of the Society fee. Any Society member or Affiliate who is delinquent in paying the Society fee for three (3) months shall be dropped from Society membership or affiliation. (The fee for certain categories of special members as established in the Bylaws shall be paid by the Society).

Section 2. The Society may make registration charges at its Society meetings, symposia, conferences, conventions, etc. The registration fee for the non-IEEE members shall be higher than for IEEE members and Society Affiliates.

Section 3. The Society shall not make registration charges at a meeting, conference, or convention which it operates as part of a Sectional, Regional, or Institute meeting, conference, or convention.

Section 4. The Society may raise revenues by other means, such as advertising, shows, requests for contributions, etc., provided such means do not conflict with policies established by the IEEE or do not encroach on prior established revenue fields of other IEEE organizations. The Society must receive from the IEEE General Manager an opinion that a proposed method of raising revenue is non-conflicting and not against IEEE policy before embarking on the proposed plans.

ARTICLE VI: OFFICERS AND MANAGEMENT

Section 1. The Society shall be managed by an Administrative Committee consisting of 18 elected members of the Society plus additional ex-officio members as provided in the Bylaws. Elected members shall be of at least Member grade.

Section 2. The terms of office of the elected members of the Administrative Committee shall be three years, one-third of the members being elected each year.

Section 3. The current Administrative Committee shall annually elect one of the members of the following year's Administrative Committee as President, and another as Vice-President, whose terms shall be for one year. These officers shall be of at least IEEE Senior Member rank.

Section 4. The Incoming President shall appoint a Secretary for a one-year term, whose selection is subject to approval by the Administrative Committee as specified in the Bylaws. This officer need not be an elected member of the Administrative Committee.

Section 5. The President, under direction of the Administrative Committee, shall have general supervision of the Society. The President shall preside at meetings of the Administrative Committee, at any general meeting of the Society, and have such other powers, and perform such other duties as may be provided in the Bylaws, or as may be delegated to him/her by vote of the Administrative Committee. In his/her absence or incapacity, his/her duties shall be performed by the Vice-President.

Section 6. The Administrative Committee may utilize the services of IEEE Headquarters as bursar, in which case funds will be handled under rules established by the IEEE General Manager. If not, the Treasurer shall receive and deposit all monies in his/her name as such officer of the Society in such depository as shall be named by the Administrative Committee, withdrawable on his/her or the President's sole signature. The Treasurer shall make only such disbursements as shall be ordered by the Administrative Committee. He/She also shall be responsible for bringing to the attention of the Administrative Committee all relevant facts bearing on the Society finances and for aiding the President in preparation of the annual estimated budget.

Section 7. The Secretary shall be responsible for recording the minutes of all meetings of the Administrative Committee and general meetings of the Society, for maintaining Society files and records, for assisting the President in the preparation of Administrative Committee meeting agendas, for submitting copies of agendas and minutes to IEEE Headquarters, and for performing other duties as may be required by the President, the Administrative Committee or the Society Bylaws.

Section 8. The President, as soon as expedient after election, shall appoint the standing committees provided by the Bylaws. Other Committees may be authorized by vote of the Administrative Committee and shall be appointed by the President. Members appointed shall serve until their successors are appointed or the committee dissolved.

Section 9. The President, as a member of the IEEE TAB, when notified of a meeting of said committee, is entitled to representation of the Society at such meeting by himself/herself, by a delegate, or by letter.

Section 10. The newly elected President, Vice-President, and members of the Administrative committee shall assume office on the first day of January following the election, unless a different time is provided in the Bylaws.

Section 11. Neither the Microwave Theory and Techniques Society nor any officer or representative thereof, shall have any authority to contract debts for, pledge the credit of, or in any way bind the IEEE except within prior approved budgets.

Section 12. Monies held by or for the Society legally belong to the IEEE, and such monies shall not be expended for purposes known to be inimical to the interests of the IEEE.

ARTICLE VII: NOMINATION & ELECTION OF ADMINISTRATIVE COMMITTEE

Section 1. Nominating procedures as prescribed in the Bylaws shall include provision for nomination by petition.

Section 2. At the annual meeting of the Administrative Committee, a Committee consisting of elected members of the Administrative Committee, excluding those members who are candidates for re-election, and the three (3) Past Presidents of the Administrative Committee, shall elect the members to fill the vacancies on the Administrative Committee about to occur with the coming year and shall transmit the names of such elected members to the Secretary of the IEEE Technical Activities Board. Unless disapproval of such elected members is received within 60 days of such transmittal, the elections shall become final.

Section 3. Within-term vacancies of the Administrative Committee shall be filled by elections for the unexpired terms by the remainder of the elected members of the Committee and the three (3) Past Presidents of the Administrative Committee.

ARTICLE VIII: MEETINGS

Section 1. The Society may hold technical meetings, such as conferences, symposia, or conventions either alone or in cooperation

with Sections, Regions, Convention Committees of the IEEE, or other technical organizations subject to IEEE rules and regulations. The Society shall sponsor at least one technical meeting of major scope each year, which may be held during the International Convention, during some other IEEE meeting, or as a separate conference.

Section 2. Technical meetings of the Society shall be open on an equal basis to all members of the IEEE and to Society Affiliates. Special provisions may be made for IEEE student members.

The Society shall not sponsor classified meetings. However, a classified meeting, sponsored by another organization, may be held in conjunction with a Society technical meeting, and publicity on such a meeting may be included in Society mailings provided it is made perfectly clear that the classified meeting is not sponsored by the IEEE or the Society.

Section 3. Meetings of the Administrative Committee shall be held at such times as are found necessary. Meetings of the Administrative Committee may be called by the President at his/her own discretion, or upon request by two other members of the Committee.

Section 4. Six elected members of the Administrative Committee shall constitute a quorum. No meeting of the Administrative Committee may be held unless a quorum is present.

Section 5. A majority vote of those elected and ex-officio members of the Administrative Committee attending a meeting shall be necessary in the conduct of its business except as otherwise provided in this Constitution or the Bylaws.

Section 6. Business of the Administrative Committee may be handled by informal meetings, correspondence, telephone, or telegraph where, in the opinion of the President, matters requiring action can be adequately handled in that manner. A majority vote of the members of the Committee is necessary for approval of actions handled in that manner. The Secretary shall prepare minutes of the action including a record of the individual votes.

ARTICLE IX: AMENDMENTS

Section 1. Amendments to this Constitution may be initiated by petition submitted by 25 members of the Society, or by action of the Administrative Committee, such petition being submitted to the IEEE TAB and to the Executive Committee of the IEEE for approval. After such approval, the proposed amendment shall be publicized in a Society publication, or by letter to all members, with notice that it goes into effect unless 10 percent of the Society members object within 30 days. If such objections are received, a copy of the proposed amendment shall be mailed with a ballot to all members of the Society at least 30 days before the date appointed for return of the ballots, and the ballots shall carry a statement of the time limit for their return to IEEE Headquarters. Approval of the amendment by at least two-thirds of those voting shall be necessary for its enactment.

Section 2. Suitable Bylaws or changes in the Bylaws to this Constitution may be adopted by a two-thirds vote of the Administrative Committee present in meeting assembled provided that notice of the proposed Bylaw or change in the Bylaw has been sent to each member of the Administrative Committee at least three weeks prior to such meeting by first class mail. No Bylaw shall take effect until 30 days after it has been publicized to all members of the Society and a copy has been mailed to the IEEE TAB office.

ARTICLE X: PUBLICATIONS

Section 1. Publications of any material may be entirely or partly by means of the Proceedings of the IEEE by meeting the standards, and to the extent that it is equitable to other fields of interest.

Section 2. The Society shall publish an IEEE Transactions on Microwave Theory and Technique at least four times a year and a Newsletter at convenient intervals. The Society may also join with other Societies to publish such Journals as may be approved by the Administrative Committee.

BYLAWS

SECTION I—NOMINATIONS, ELECTIONS AND APPOINTMENTS

A. Nominations

1. Nominations Subcommittee

On or before February 1 of each year, the President of the Administrative Committee shall ascertain that the Nominations Subcommittee has been appointed in accordance with Section III.A of these Bylaws, which shall consist of a Chairman and four or more members of the Society not more than half of whom may be members of the Administrative Committee. The Chair shall be a Past President of the Administrative Committee or an Honorary Life Member of the Society not currently serving as an Elected Member of the Administrative Committee. Preference shall be given to an individual who will not be eligible to vote in the election.

2. Membership Nominations

(a) Procedure

Each year, before the annual meeting of the Administrative Committee, the Nominations Subcommittee shall select a slate of at least two members of the Society for each vacancy in the elected membership which will occur on the Administrative Committee on the following January 1. Additional nominations may be made by members of the Administrative Committee or by petitions signed by 25 members of the Society. Informal Chapter recommendations are also in order. Such recommendations must be relayed to the Administrative Committee for discussion and possible nomination. In each case, the nominees or potential nominees must be contacted prior to the annual meeting to ascertain that they will accept the nomination.

The Nominations Subcommittee, in its nominations, and the Administrative Committee, in its elections, shall be guided in their selections by principles of efficiency, geographical, and organizational distribution. Administrative Committee members who will have served three consecutive terms by the following January 1 shall not be considered eligible for renomination by the Nominations Subcommittee.

(b) Call for Nominations

The Chairman of the Nominations Subcommittee shall cause to be published and distributed to the entire Society membership a call for nominations. This call for nominations shall include publication in the Winter Newsletter. In addition, the Membership Services Committee shall inform all Chapters, in writing, of upcoming elections and nominations due date.

3. Vice-President Nomination

Each year, before the annual meeting of the Administrative Committee, the Chairman of the Nominations Sub-Committee shall solicit nominees for the office of Vice President from each voting member of the Administrative Committee. Each nominee shall be contacted by the Nominations Chairman prior to the annual meeting to ascertain his/her acceptance of the nomination.

4. Divisional Director

Every two years, for purposes of election to office commencing on odd years, the President shall determine a consensus of the Administrative Committee to select a slate of at least two Senior Members or Fellows from the Society as candidates for Divisional Director and shall ascertain their desire to serve. Candidate's names will be forwarded by February 1 to the Divisional Director or the Division Nominations Committee.

5. Other IEEE Nominations

The Nominations Subcommittee shall recommend to the President of the Administrative Committee candidates for certain Institute or TAB positions.

B. Elections

1. Membership

The Administrative Committee shall hold an annual meeting each year during the Fall. At the annual meeting, the Administrative Committee shall hold elections to fill vacancies in the Administrative Committee to occur on the succeeding January 1. All Elected Members and the three (3) immediate past Presidents of the Administrative Committee not presently eligible for re-election shall elect, provided that these elected members present constitute a quorum. The Administrative Committee may make contingent elections to be effective in case an Elected Member fails to accept the office, or a disapproval is received from Headquarters. The names of the Elected Members shall be transmitted to the chairman of the Technical Activities Board. Unless disapproval of such Elected Members is received within 60 days of each transmittal, the elections shall become final.

Each eligible voter shall submit a ballot listing their choice of filling the six elective positions. The votes shall be counted by a teller's committee appointed by the President of the Administrative Committee, no member of which is either eligible to vote or a candidate for election. All votes shall carry equal weight. The six candidates with the largest number of votes on the first ballot are elected provided each has a majority of the possible votes. Additional ballots shall be held listing as candidates the remaining nominees. In the event that the first ballot does not fill all six (6) vacancies, the eligible voters may choose to remove from the next ballot the candidate(s) having the fewest number of votes on the previous ballot. On additional ballots, the candidate(s) with the largest number of votes is (are) elected provided each has a majority of the votes. The presiding officer shall not vote except to break a tie.

2. President and Vice-President

At its annual meeting, the Administrative committee shall elect as its President one of the Elected Members of the following year's Administrative Committee for the year beginning on the succeeding January 1; and shall elect as its Vice-President one of the Elected Members of the following year's Administrative Committee for the year beginning on the succeeding January 1.

The President and Vice-President shall each be elected by a majority vote of members eligible to vote as prescribed in Section II. The Presiding Officer shall not vote except in the event of a tie.

3. Within-Term Vacancies

Within-term vacancies on the Administrative Committee shall be filled by elections for the unexpired terms by the remainder of the Elected Members of the Committee and the three (3) immediate Past Presidents of the Administrative Committee (MTT-S Constitution, Article VII, Section 3) using the election procedure defined in Bylaw I.B.1.

4. Honorary Life Members

Nomination for Honorary Life Member of the Society may be made by any member of the Administrative Committee, or by a petition signed by at least 50 members of the Society. A two-thirds affirmative vote by all of the Elected Members of the Administrative committee will be required to elect an Honorary Life Member. In the absence of a sufficient number of Elected Members of the Administrative Committee at a regular meeting, election of Honorary Life Member may be conducted by mail ballot.

(a) Eligibility

The position of Honorary Life Member may be bestowed upon an outstanding member of the profession who fulfills the following minimum requirements:

(1) The candidate shall have made significant technical contributions in the field of interest of the Society.

(2) The candidate shall have performed outstanding service to the profession and to the IEEE.

(3) The candidate shall have been a member of the Society for at least five years.

(4) The candidate shall have been an Elected Member of the Administrative Committee.

(b) *Award*

Society fees for Honorary Life Members shall be paid from the Society Treasury. The Secretary shall arrange for this with IEEE Headquarters. The award shall consist of a suitable certificate and a feature publication in the IEEE Transactions on Microwave Theory and Techniques.

C. Appointments

1. Secretary

The President Elect, upon receiving notice of election as President, shall submit to the Administrative Committee the name of a proposed Secretary for appointment, who shall be a member of the Society, but need not be a member of the Administrative Committee.

If a majority of the members of said Administrative Committee do not object within 30 days of oral or written announcement to the Administrative Committee, the appointment shall become final. If a majority of the members of said Administrative Committee object, a new name(s) must be submitted. The incumbent Secretary shall remain in office until a successor is appointed and arranges to take over the office.

SECTION II—ADMINISTRATIVE COMMITTEE MEMBERSHIP

A. Elected Member

An Elected Member of the Administrative Committee is a member of the Society elected in accordance with Article VI, Sections 1 and 2, and Article VII, Sections 1 and 2, of the Constitution. An Elected Member has full rights and voting privileges on all matters before the Administrative Committee as defined in the Constitution and these Bylaws.

B. Ex-Officio Member

An Ex-Officio Member shall serve on the Administrative Committee as provided for by these Bylaws. An Ex-Officio Member of the Administrative Committee has all discussion and voting privileges in all matters before the Administrative Committee, except that no vote may be cast to elect members to the Administrative Committee nor to elect the President nor Vice-President of the Administrative Committee. An Ex-officio Member is not included in a quorum count. An Ex-Officio Member may serve on standing and ad hoc committees.

C. Honorary Life Member

An Honorary Life Member of the Society has all of the rights of an Ex-Officio Member of the Administrative Committee.

D. Past President

Past Presidents shall be Ex-Officio Holdover Members and have the full rights and voting privileges of Elected Members of the Administrative Committee for three years following their term of office as President of the Administrative Committee, provided that membership in good standing is maintained with the Society. Any remaining years of a Past President's elective term on the Administrative Committee will be vacated, and a Past President will be ineligible for re-election to the Administrative Committee for this three year period. The Past President's vacated elected Member seat will be filled in accordance with Article VII, Section 3, of the Constitution. Election of a member to fill this forthcoming vacancy shall take place during that meeting of the Administrative Committee at which the annual election of members for the coming year is held.

E. Transactions Editor

The Transactions Editor, if not an Elected Member of the Administrative Committee, shall be an Ex-Officio Member of the Administrative Committee during the tenure of that office and for a period to terminate on a December 31st ranging from at least one to less than two years thereafter. The Transactions Editor shall be a member of the Society.

F. Non-Voting Member

Non-Voting Member of the Administrative Committee may participate in discussions of all matters before the Administrative Com-

mittee but does not have a vote on any Administrative Committee business. Non-Voting Members shall receive notification of meetings and copies of the minutes of meetings. Non-Voting Members may serve on standing or ad hoc committees.

If not an elected member or ex-officio member of the Administrative Committee, the following shall be non-voting members of the Administrative Committee during the tenure of their offices.

Secretary of the Administrative Committee
Chairmen of Standing Committees
MTT-S Chapter Chairmen
Chairmen of Ad Hoc Committees
President of the Solid State Circuits Council
Members of the Advisory Committee

SECTION III—COMMITTEES

A. Standing Committees

The following Standing Committees shall be appointed by the President as soon as possible after election as President and such committees shall hold office for one year co-extensive with the term of office of the President except as otherwise noted in these Bylaws. It will be discretionary with the Administrative Committee President to appoint any part or all of any Standing Committee, or to appoint the Chairman only of each committee and request the latter to appoint additional committee members.

1. Meetings and Symposium Committee

The Meetings and Symposium Committee shall, as required, assist the conference committees in planning and implementing technical conferences of the Institute and the Society. Upon instruction of the Administrative Committee, the Meetings and Symposium Committee also cooperates with the committees responsible for other meetings, conventions, and symposia.

The Meetings and Symposium Committee Chairman shall take office immediately upon appointment and shall continue for one year, plus such time as is necessary to bring to a termination all activities in connection with any meetings managed by said committees. Such an extension of the term of a Meetings and Symposium Committee for the completion of a given task shall not preclude the appointment of a new committee at the designated time for the succeeding year.

2. Publications Committee

The Publications Committee shall be responsible for publications and dissemination of technical information of interest to the Society. The Committee shall be responsible for publishing the Transactions and for notifying the technical community of meetings, special publications, and other information of interest to the Society.

(a) Transactions Editor

The Transactions Editor is responsible for the technical editorial content of the IEEE Transactions on Microwave Theory and Techniques. The Editor is also responsible for coordination with the IEEE facilities for publication. The Transactions Editor shall appoint and be Chairman of the Transactions Editorial Board. The Transactions Editor will continue to serve until such time as a successor is named by the President of the Administrative Committee, and for such time thereafter as may be necessary for a successor to assume the duties of Editor.

(b) Associate Editor(s) of the Transactions

An Associate Editor of the Transactions shall carry out the duties assigned by the Transactions Editor.

3. Education Committee

The Education Committee shall be responsible for the promotion and coordination of activities furthering the cause of education as it relates to the Society and the field of microwaves. The committee shall institute and administer educational-aid programs to be wholly or partially sponsored by the Society. These activities shall encompass both support of educational activities at the undergraduate/graduate level and continuing education for the Society membership. The committee shall obtain all necessary IEEE approval to implement each activity.

(a) Scholarship Subcommittee

The Scholarship Subcommittee shall be responsible for instituting and administering the scholarship programs which are wholly or partially sponsored by the Society. The subcommittee shall be responsible for the necessary review and screening of scholarship applications and shall submit the subcommittee recommendations to the Administrative Committee for approval.

(b) Grants-In-Aid Subcommittee

The Grants-In-Aid Subcommittee shall be responsible for instituting, evaluating and administering the grants-in-aid programs which are wholly or partially sponsored by the Society. The subcommittee shall be responsible for the necessary review and screening of grant-in-aid applications and shall submit the subcommittee recommendations to the Administrative Committee for approval.

4. Operations Committee

The Operations Committee shall be responsible for the operational conduct and advisory administration of the Society and the Administrative Committee. It shall be responsible for maintaining the Constitution, the Bylaws, and the Procedures Handbook; for ensuring the proper conduct of business meetings; for providing nominations for offices; and for maintaining historical records.

(a) Bylaws and Procedures Subcommittee

The Bylaws and Procedures Subcommittee is responsible for the preparation of constitutional amendments and changes to the Bylaws for Administrative Committee action, when such amendments or changes either appear necessary or are so directed by the Administrative Committee. The subcommittee is also responsible for examining Society actions to determine whether these are in accordance with the Constitution and Bylaws of the IEEE.

The subcommittee shall also maintain a Handbook of Procedures for the Administrative Committee as a guide for officers and committee members of the Administrative Committee. This Handbook shall be in accordance with these Bylaws, the Society Constitution and the Constitution and Bylaws of the IEEE. Within this framework, the Handbook shall define the specific duties, actions, and responsibilities of the officers and committee chairmen.

(b) Nominations Subcommittee

The Nominations Subcommittee shall nominate candidates for Elected Members of the Administrative Committee in accordance with Section I of these Bylaws; and shall be responsible for recommending to the Administrative Committee nominees for all IEEE positions for which the Society can nominate, in accordance with Section I of these Bylaws.

5. Finance Committee

The Finance Committee shall be responsible for planning, establishing, and administering budgetary control and disbursing of finances for the Society in accordance with the Constitution and the rules of the IEEE. The committee shall also be responsible for planning and soliciting Society incomes such as from institutional listings in the IEEE Transactions on Microwave Theory and Techniques. The MTT-S Treasurer shall be Chairman of the Finance Committee and shall be an elected member of the Administrative Committee.

6. Standards Coordinating Committee

The Standards Coordinating Committee shall be responsible for establishing and/or reviewing IEEE Standards within the scope of interest of the Society. The committee shall periodically upgrade existing standards and shall initiate standards in new areas when they have become sufficiently established. The Chairman of the Standards Coordinating Committee shall appoint Ad Hoc Standards Committees to deal with specific areas requiring standardization.

7. Long-Range Planning Committee

The Long-Range Planning Committee shall be responsible for review of advanced goals and policies of the Society and shall submit recommendations to the Administrative Committee President and to the Operations Committee Chairman for inclusion in the Constitution, the Bylaws, or the Procedures Handbook.

8. Technical Coordinating Committee

The Technical Coordinating Committee shall investigate, evaluate, and in some instances, promulgate new or peripheral technologies of interest to the Society. The Technical Coordinating Committee shall coordinate with the Meetings and Symposium Committee to afford the latest technical coverage in all meetings of interest to the Society. The Chairman of the Technical Coordinating Committee shall appoint Ad Hoc Technical Committees to deal with specific areas requiring technology emphasis. The Chairman of the Technical Coordinating Committee will be an advisory member of all Technical committees. The Chairman of each Technical Committee shall report to the Chairman of the Technical Coordinating Committee any significant developments (such as special sessions that the Technical Committee is helping to arrange and organize at the MTT-S Symposium, special issues of the Transactions that are being planned, etc.), for possible inclusion in the minutes of the Administrative Committee. The Chairman of each Technical Committee should report to and advise the Chairman of the Technical Coordinating Committee each year, prior to December, as to the continuation of that Technical Committee during the next year.

9. Membership Services Committee

The Membership Services Committee shall encourage membership in the Society and shall maintain records of Society membership. The Committee is responsible for the promotion of the Society's area of interest with the formation of new Society Chapters, shall maintain liaison among the IEEE, Society Chapters, and the Administrative Committee, and shall disseminate publicity and information of interest to the IEEE, to the Chapters, and to the Society membership.

(a) Newsletter Editor

The Newsletter Editor is responsible for the publication of an information bulletin called IEEE Society on Microwave Theory and Techniques Newsletter.

(b) Chapter Activities Subcommittee

The Chapter Activities Subcommittee shall be responsible for promoting and maintaining close liaison between the Chapters and the Administrative Committee.

(1) Distinguished Microwave Lecturer(s)

The Distinguished Microwave Lecturer(s) shall be nominated by the Membership Services Committee and shall be approved by the Administrative Committee during their annual meeting. Each Distinguished Microwave Lecturer shall receive a feature publication in the IEEE Transactions on Microwave Theory and Techniques and a plaque to be presented at the Awards Banquet or another appropriate function as determined by the Society President following completion of the term.

(2) Membership Drive Subcommittee

The Membership Drive Subcommittee shall be responsible for promoting increased membership for the purpose of improved well-being of the Society and IEEE.

10. Awards Committee

The term of office of the Awards Committee Chairman shall normally begin on October 1 of the year in which that Chairman is appointed. The term of office shall normally be more than 1 year. The Chairman of the Awards Committee shall hold the grade of Fellow of the IEEE. This committee shall cooperate with the IEEE in recommending members of the Society for IEEE awards and shall nominate to the Administrative Committee candidates for the Microwave Career Award, Microwave Application Award, Microwave Prize and Distinguished Service Award.

The Chairman of the Awards Committee is empowered to submit to IEEE Headquarters the names of the candidates for IEEE Awards with approval of the President of the Administrative Committee.

11. Budget Committee

The Budget Committee shall be responsible for creating the budget for the Society for the following year, reporting the budget to and seeking approval of the Administrative Committee, monitoring the financial operations of the Society in the current year, and

recommending priorities and guidelines on income and expenditures. The committee shall receive all requests for discretionary expenditures and recommend approval or disapproval to the Administrative Committee, based on analysis of the impact on the budget.

The Budget Committee shall include the following Administrative Committee members: the Vice President, who shall chair the Budget Committee, the most recent past President, the Finance Committee Chairman, and two other Administrative Committee members appointed by the President. The President may also appoint members of the Society who are not on the Administrative Committee to serve on the Budget Committee.

12. Transnational Committee

(No description of the committee provided with the motion—passed at the September 1989 meeting)

B. Ad Hoc Committees

The President of the Administrative Committee shall create Ad Hoc Committees when, in the President's judgement, such committees are required. The President may appoint a Chairman of an Ad Hoc Committee, who shall be a member of the Society and request the Chairman to appoint additional members, or the President may name any part or all members of an Ad Hoc Committee. Ad Hoc Committees shall serve until they are disbanded by the President of the Administrative Committee.

SECTION IV—MEETINGS AND SYMPOSIA

A. Meeting Notices

No meeting of the Administrative Committee shall be held for purpose of transacting business unless each Administrative Committee member shall have been sent notice of the time and place of such meeting at least 20 days prior to the scheduled date of the meeting.

B. Meeting in Absence of Quorum

If less than a quorum attend a duly called meeting, tentative actions may be taken which will become effective upon subsequent ratification, either at a meeting or by mail, by a sufficient number of members as to constitute a majority of the voting members of the Administrative Committee. Minutes of such meetings shall be mailed by the Secretary to each committee member who shall register his/her approval or disapproval of any actions taken at such meetings within 30 days after the mailing of said minutes.

C. Symposium

1. Letter Proposal Submission

Letter proposals by Chapters to sponsor Symposium for a given year should be submitted to members of the Administrative Committee at least five years prior to the date of the proposed meeting and no later than May 1. These proposals should be brief and must contain at a minimum:

- (a) a statement signifying the willingness of a Chapter to host the Symposium,
- (b) a proposed technical and administrative organization showing adequate local interest and participation and,
- (c) a proposed facility available and adequate to house both technical sessions and exhibits.

2. Consideration of Letter Proposals

The Administrative Committee will consider letter proposals received by May 1 at the Symposium meeting. Proposals received after May 1 will be considered if agreed by a majority of the Administrative Committee members present.

3. Selection of Site

The Administrative Committee will utilize adequate letter proposals for long range planning purposes. When appropriate, one or more proposing Chapters will be informed of the committee's acceptance of their proposal, thus allowing necessary long term site selection and facilities commitments to be made.

4. Final Proposal Submission

At an appropriate time, no later than 28 months prior to the proposed meeting, a thorough proposal will be requested from the host Chapter for consideration by the Administrative Committee at their Symposium meeting. The purpose of this proposal is to ensure adequate planning and attention to detail found necessary for previous symposia. Upon request, the Chairman for the Committee on Meetings and Symposia will provide samples of reports or proposals generated for previous meetings.

5. Chapter Notification

Society Chapters are to be informed of these provisions via the Newsletter and by individual letter by the Chairman of the Membership Services Committee in January of each year.

D. Other Technical Meetings

Society participation in technical conferences will be in accordance with IEEE policies and practice. Participation of the Society as a co-sponsor or participation or cooperation in meetings of another IEEE Society or Council, IEEE Section or a non-IEEE not for profit organization requires a vote of approval by the Administrative Committee. The policy governing the extent of participation in such meetings by the Society shall be in accordance with the policy of the Society and the IEEE.

SECTION V—FINANCES

A. Bursar

The Society shall use the service of the IEEE as Bursar in accordance with the Constitution and the rules of the IEEE.

B. Fees

Each member of the Society shall be assessed a yearly fee, established by the Administrative Committee, which money will be used for the publications and activities of the Society and/or the IEEE.

C. Authorization For Payment of Bills

The approval of one Administrative Committee Officer is needed in the case of bills presented to IEEE Headquarters for payment, and the approval of two Administrative Committee Officers is required for payments to any member of the Society or of the Administrative Committee. The Treasurer will be responsible for requesting all disbursements from IEEE Headquarters.

D. Authorized Budgets

The Administrative Committee may establish an annual operating budget for the operation of any committee and/or activity by a majority vote. Requests for advances, reimbursements, or the payment of bills submitted within the limits of the established budget for any committee, shall be sent by the committee Chairman to the Treasurer in accordance with Paragraph C above.

E. Symposium Advances

The Administrative Committee may make an advance to the Steering Committee of an annual Symposium of the Society.

F. Symposium Finances

All financial arrangements for a Symposium or other special activity shall be in accordance with prudent management procedures, applicable IEEE policies, and any special conditions imposed by the Society. Money deposited in a Symposium or similar account shall be identified with the Society and IEEE. In the event of activities co-sponsored with others, a clear and explicit statement of the financial arrangements shall be reduced to writing at the outset.

SECTION VI—MISCELLANEOUS COMMITTEE BUSINESS

A. Administrative Year

The Administrative Year of the Society shall be January 1st through December 31st of the same year.

B. The Microwave Prize

The Society shall present an award known as The Microwave Prize annually. The prize shall be awarded to the author of that paper, published in the IEEE Transactions on Microwave Theory and Techniques, Proceedings of the IEEE, or other official IEEE publication, which is judged to be the most significant contribution in the field of interest of the Society. The paper must have been published during the period January 1 to December 31 of the year preceding the annual meeting of the Administrative Committee at which the award is considered. The nomination of the recipient of The Microwave Prize will be the responsibility of the Awards Committee, who will make their recommendation to the Administrative Committee at the annual meeting of the Administrative Committee. The President of the Administrative Committee shall inform the recipient of The Microwave Prize as soon as possible after the Administrative Committee has approved the award. The award shall consist of a suitable certificate, a cash sum of one thousand dollars, and a feature publication in the IEEE Transactions on Microwave Theory and Techniques. If the paper as published has more than one author, a certificate will be presented to each author and the cash sum of \$500 will be provided to each up to a total of \$3,000. If more than six authors are involved, the \$3,000 will be split equally among the authors.

C. Microwave Career Award

The Society shall present an award known as The Microwave Career Award. This award shall be considered annually but not necessarily presented annually. The award shall be made to an individual for a career of meritorious achievement and outstanding technical contribution in the field of microwave theory and techniques. The individual must be a member of the IEEE.

Nomination of the recipient of the award will be the responsibility of the MTT-S Awards Committee which will make its recommendation to the MTT-S Administrative Committee at its annual meeting. Nominations for the award can be submitted by any member of the Society. The award shall consist of a suitable certificate, a plaque, a cash sum of two thousand dollars, and a feature publication in the IEEE Transactions on Microwave Theory and Techniques. The President of the Administrative Committee shall inform the recipient of The Microwave Career Award as soon as possible after the Administrative Committee has approved the award.

A travel allowance may be authorized by the MTT-S Administrative Committee. The travel allowance is for those individuals with insufficient organizational funding for travel to receive the award.

1. Guideline for Microwave Career Award

The award shall be made to an individual for a career of meritorious achievement and outstanding technical contribution in the field of microwave theory and techniques. The eligibility requirements are publication in technical journals and presentation of lectures, said contributions to be considered in conjunction with the contributions mentioned above.

D. Microwave Application Award

The Society shall present an award known as The Microwave Application Award. This award shall be considered annually but not necessarily presented annually. The award shall be made to an individual for an outstanding application of microwave theory and techniques.

Nomination of the recipient of the award will be the responsibility of the MTT-S Awards Committee which will make its recommendation to the MTT-S Administrative Committee at its annual meeting. Nominations for the award can be submitted by any member of the Society. The award shall consist of a suitable certificate, a cash sum of one thousand dollars, and a feature publication in the IEEE Transactions on Microwave Theory and Techniques. The President of the Administrative Committee shall inform the recipient of The Microwave Application Award as soon as possible after the Administrative Committee has approved the award.

1. Guideline for Microwave Application Award

The award shall be made to an individual for an outstanding application of microwave theory and techniques. The eligibility

requirements are creation of a new device, component, or technique; novel use of a device or component; or a combination of any or all of the above. Publication of a paper is not required.

The award is aimed primarily toward young or emerging workers.

E. Distinguished Service Award

The Society shall present an award known as The Distinguished Service Award. The award shall be considered annually but not necessarily presented annually. The award shall be made to an individual who has given outstanding service for the benefit and advancement of the Microwave Theory and Techniques Society. The individual must be a member of the IEEE and a member of MTT Society.

Nomination of the recipient of the award will be the responsibility of the MTT-S Awards Committee which will make its recommendations to the MTT-S Administrative Committee at the Annual meeting. Nominations may be made by any member of the MTT-S Administrative Committee or by a petition signed by at least 25 members of the Society. The award shall consist of a suitable certificate, a plaque and a feature publication in the IEEE Transactions on Microwave Theory and Techniques.

1. Guideline for Distinguished Service Award

The award shall be made to an individual who has given outstanding service for the benefit and advancement of the Microwave Theory and Techniques Society. The eligibility requirements are service in one or more of the following areas: the Administrative Committee, publications, meetings and symposia, Chapter leadership, committee chairman, committee member, Editor, lecturer or other distinguished service. Factors which will be considered are: leadership, innovation, activity, service, duration, breadth of participation and cooperation.

F. Pioneer Award

The Society shall present an award known as the Pioneer Award. The award shall be considered annually but not necessarily presented annually. The award shall be made to an individual or a team not exceeding three persons having made outstanding pioneering technical contributions that advance microwave theory and techniques.

Recommendation of the recipient of the award will be the responsibility of the MTT-S Administrative Committee at its annual meeting. Nominations may be made by any member of the Society. The award shall consist of an engraved plaque, an honorarium of \$1000, and a feature publication in the "IEEE Transactions on Microwave Theory and Techniques". The President of the Administrative Committee shall inform the recipients of the Pioneer Award as soon as possible after the Administrative Committee has approved the award. Upon request, travel and living expenses for the recipients to attend the award ceremony may be reimbursed.

1. Guidelines for the Pioneer Award

The award shall be made to an individual or a team having made outstanding pioneering technical contributions that advance microwave theory and techniques, including novelty, timeliness, impact, significance, duration, and extent of usage. Eligibility requirements include development or creation of a new theory, device, component, and/or technique.

SECTION VII—CHANGES TO THE BYLAWS

Suitable Bylaws or changes in the Bylaws may be adopted by a two-thirds vote of the Administrative Committee present in meeting assembled provided that notice of the proposed Bylaw or change in the Bylaw has been sent to each member of the Administrative Committee at least three weeks prior to such meeting, by first class mail. No Bylaw shall take effect until 30 days after it has been publicized to all members of the Society and a copy has been mailed to the IEEE TAB office. (MTT Constitution, Article IX, Section 2).

1993 IEEE Microwave Theory and Techniques Society Graduate Fellowships

- Several \$5,000 fellowship awards each year
- For graduate research studies in microwave engineering on a full-time basis
- Applicants must have attained high academic achievement in engineering or physics
- Award can be granted *in addition* to any other support received by student
- Award cannot be used for equipment purchase, travel, supplies, etc.
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Application Deadline: 23 October 1992

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