

EDITOR: Alvin Clavin,
ASSISTANT EDITOR: R. D. Randall
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EDITORS NOTES



THE ROLE OF THE IEEE IN TODAY'S SOCIETY

In the last issue of the newsletter I discussed "Professionalism and MTT." I was pleased to find that the editorial did provoke some response; a few of these letters can be read under - Letters to the Editor - on page 13.

While my soapbox is still warm, I feel the urge to discuss the role of the IEEE in today's society. As most of us realize, the IEEE has done and is doing a fine job of disseminating technical information. Many articles appear in group Transactions, Spectrum, and Proceedings as well as in oral presentations at numerous symposia. However, is that all that the IEEE means? Is that all the IEEE should do? I recently asked a number of new graduates working in our company why they did not belong to IEEE. The response was ... "all they do is publish...we have a good librarian who can get any article we want, Xerox it, and have it on my desk with little or no effort or expense on my part." It is true...I feel that if all the IEEE can do and will do is publish, then the future of this organization does not look bright. Some of this future can be seen by recent statistics concerning IEEE membership. The following table shows the total membership of the IEEE in recent years;

<u>Year</u>	<u>Membership</u>
1963	154,509
1964	153,978
1965	154,198
1966	160,070
1967	158,217
1968	162,368

roughly a growth of 1% a year. This rather flat growth, I believe, points out the problems facing the IEEE.

I believe that this organization should do more than just publish; I believe it should take an active part in some of the social, political, and economic aspects of our society. I believe they should take stands on the principal issues of our time that involve engineers and the engineers' role in society. I believe by doing this that we can renew the surge of activity and growth within the IEEE as well as accomplishing meaningful results of benefit to engineers.

I talked to Dr. Emberson at IEEE Headquarters about this problem recently. He informed me that this type of activity would change the internal revenue tax status of IEEE. For example, the dues we presently spend on IEEE activities are tax deductible. If the IEEE began political lobbying, it would fall under IRS Standards similar to the American Medical Association; these dues would then no longer be deductible. I personally feel that this is a small price to pay for the broader scope of activity we could then undertake. I believe the IEEE would be of great benefit not only to the engineer but also to society by taking on such a responsible activist role. I would encourage all members of IEEE that are interested in participating in this type of activity to contact me regarding what role you can play in helping to organize a program.



CHAIRMAN'S VIEWPOINT

Change is in the air. The IEEE is changing and adapting itself to new developments. G-MTT must also evolve in such a way as to serve its members and to make innovations which will improve service to members in times still to come. Below I shall comment on three fronts of G-MTT: Our Transactions, our Technical Committees, and our Symposium.

The Transactions

We have much to be proud of. Dr. Emberson in a memo dated 23 January 1969 reported on a recent survey of 33 Group publications. The transactions on MTT scored very high on most of the questionnaires, and scored top marks on two key questions, "What is its value to you in giving you up-to-date information in your professional work?" and "How effective are the editorial and review procedures to ensure papers of high technical quality?". We scored second place in answer to the question "To what degree does this publication cover the full field of interest of this Group?".

The Technical Committees

It would be easy to become complacent. I have often been struck by the thought that G-MTT's problems are very similar to my own laboratory's problems, and resemble in many ways the problems of many microwave companies. We may be doing well enough now, but technology is changing. The Choice is whether to continue developing only well tried and familiar techniques, or whether to do so and in addition utilize new and unfamiliar techniques that are beginning to impinge on the microwave area. No company can afford to overlook new technologies in its field, or it risks going out of business. G-MTT can't afford to be complacent any more than can a company. We count on the nine new Technical Committees to show us the way.

The Symposium

Our Symposiums have enjoyed an excellent reputation for many years. There have been changes and experiments, but none as extensive as for this year's Symposium. The number of papers submitted were about 50 percent higher than our previous record. This forced us to go to parallel sessions, which I believe is a healthy development. It is at the Symposium that the latest research results and developments are most rapidly disseminated. The papers are published in the Symposium Digest, which this year will run to some 500 pages, a real bargain at \$4.00 to IEEE members, \$8.00 to nonmembers. (Most of these papers will probably not be published anywhere else.) If you weren't fortunate enough to have been with us at this year's Symposium, order your copy from IEEE Headquarters (Business Office), quoting Catalog No. 69 C6-MTT.



**ADCOM REPORT
(ADMINISTRATIVE
COMMITTEE)**

By JOHN H. BRYANT



The first meeting of the 1969 AdCom was held in New York on Thursday, March 27, 1969, during the IEEE International Convention. Leo Young, Chairman, opened the meeting at 9:30 a.m. The Chairman distributed AdCom membership and committee rosters.

Quantum Electronics Council

A report sent in by Kiyo Tomiyasu was read by Leo Young. The council has not met since May 15, 1968.

The 1970 conference will be held September 7-10, 1970 in Japan. The 1972 conference will be held in Canada, probably in Montreal.

The Journal on Quantum Electronics has three new associate editors: J. J. Pankove, C. Tang and A. J. DeMaria.

Solid State Circuits Council

Warren Cooper distributed minutes of the February 18, 1969 Solid State Circuits Council meeting.

The relationship and division of interest between Solid State Circuits Journal and G-MTT Transactions were discussed.

John B. Horton is now joint representative to Solid State Circuits Council with Warren Cooper.

Resolution: to commend Bob Garver for work he has done in representing G-MTT in the past.

CADAR

Leo Young read a report from W. J. Getsinger, our representative to CADAR.

Bob Garver reported on Washington area lecture series during January, February and March on the subject of Microwave CADAR.

Meetings and Symposium Committee Report

Don Temme reported on 1969 microwave presentations held during the convention in the Coliseum. Attendance at the four sessions varied between 100 and 300. The attendance and interest shown indicates need for such tutorial type of presentations and demonstrations. Facilities and possible arrangements for next year were discussed. The possibility of video taping portions of the presentations for later use by chapters was discussed.

Don Temme was appointed Chairman of an AdHoc Committee on MTT-related audio visual materials.

Don King suggested that MTT cooperate with Polytechnic Institute of Brooklyn for the Millimeter Wave Symposium to be held in 1970. This will be discussed at the May AdCom meeting.

John Horton reported on 1969 G-MTT International Symposium to be held May 5 - 7, 1969, in Dallas. Plans and arrangements are well in hand.

Sam Sensiper, Chairman of 1970 Conference, to be held in Long Beach, May 11-12-13, 1970, reported. The symposium site has been changed from the Queen Mary to the Newporter Inn because of a slip in the renovation schedule for the former ocean liner.

Planning Committee

Don King presented results and recommendations of his AdHoc Committee. After extensive investigation of possible change of name for G-MTT it was recommended that no change be made at this time.

A further report was made on study of scope of MTT as reported in May, 1968. Resolution was passed to adopt this with minor modifications. Revisions of By-laws will be prepared.

Professor Joseph Rowe, Chairman of G-ED AdCom, presented summary of similar discussion in their administrative committee. They appear to be in agreement with our newly defined scope of MTT. It will be incumbent on Transactions editors and others to cooperate.

Standards Coordinating Committee

Bob Beatty submitted and discussed a written report. The following have been prepared by the Waveguide Standards Committee and have been submitted to the IEEE Standards Committee:

1. Proposal for Revision of Standard on Definitions of Waveguide Components.
2. Proposal for Revision of Standard on Definitions of Waveguide Terms.
3. Statement on Coordination with International Standardizing Activities.

Finance Committee

John Bryant reported 1968 results: G-MTT had a deficit of \$109.00, compared to deficit of \$2,750.00 estimated in 1968 budget.

Solid State Circuits budget for 1969 was also presented; G-MTT and QEC budgets having been previously presented.

Call was made for 1970 budget requirements, to be submitted by May 4, 1969 AdCom meeting.

Hal Altschuler discussed the work of his AdHoc Committee on Long Range Financial Planning.

Administrative Committee

Gene Torgow noted and discussed several items being studied which might possibly require By-laws revisions. The effect of G-MTT organization on By-laws will also be a major program this year.

A lengthy discussion ensued concerning group organization within IEEE.

Technical Committees

Leo Young reported as Technical Committee coordinator.

Publications Committee

Sy Okwit reported in detail. The cost and justification for including index of G-ED Transactions, Journal on Solid State Circuits and Journal on Quantum Electronics was discussed. Because of the cost and fact that Spectrum publishes the material, it was decided to continue the policy of not publishing the indexes of other publications.

Special issues of G-MTT Transactions will include Computer Aided Design, and Microwave Acoustics (with cooperation of Sonics and Ultrasonics Group).

It is planned to include a section in our Transactions on computer programs, with W. J. Getsinger as editor. Each item would include a short article describing the problem, the computer language used, and indication where available.

G-MTT Grants-in-Aid (formerly G-MTT Scholarships)

Saul Rosenthal presented a fact sheet describing results of his committee's study. Further study is being made.

Membership Services

Al Clavin discussed committee organization.

There will be a Chapter Chairman's meeting May 4, 1969 at the Symposium site prior to the AdCom meeting. This is the first of such meetings.

Bob Rivers gave a preliminary report on membership and plans for stepping up membership drive.

Dates of Future 1969 AdCom Meetings

Sunday, May 4 (prior to G-MTT Symposium) at 2:00 p.m. in Dallas; Friday and Saturday, September 26 and 28, at IEEE Headquarters in New York (previously scheduled for September 5th); and Friday, December 5 (previously scheduled for December 9th) in the San Francisco area.



IEEE MEDAL OF HONOR TO EDWARD LEONARD GINZTON OF VARIAN

Edward Leonard Ginzton, Chairman of the Board of Varian Associates, Palo Alto, California, has been awarded the Medal of Honor of the Institute of Electrical and Electronics Engineers. The award consists of a Bronze Medal and Certificate and carries this citation to Mr. Ginzton:

"For his outstanding contributions in advancing the technology of high-power klystrons and their application, especially to linear particle accelerators."

The Medal of Honor is awarded for particular contribution which forms a clearly exceptional addition to the science and technology of concern to the Institute. With the focus on a particular contribution, the Medal of Honor may be described as the IEEE equivalent of a Nobel Prize. Presentation to Mr. Ginzton was made at the Annual Banquet of the Institute on March 26, 1969 at the New York Hilton.

Dr. Ginzton has written many papers in the field of electronics and microwaves, and has published a text "Microwave Measurements." He is the sole or joint holder of approximately 50 patents in the field of electronics and microwave devices.

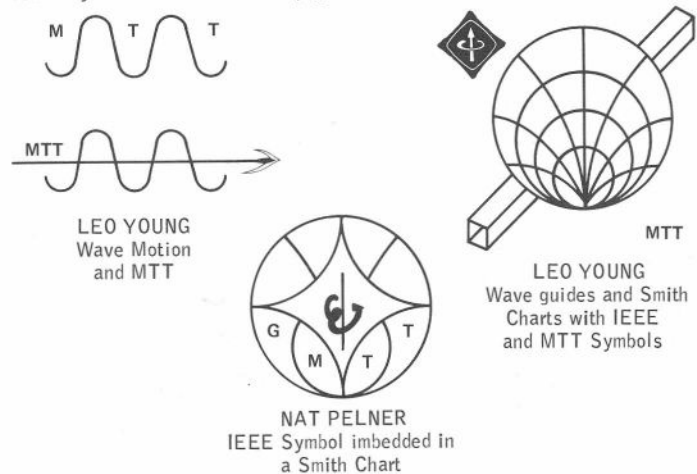
He is a member of the National Academy of Sciences, National Academy of Engineering, Sigma Xi, Tau Beta Pi, Eta Kappa Nu, and a Fellow of the IEEE. In 1958 he was the recipient of the Morris Liebman Memorial Award presented by the IEEE (formerly the IRE) for his contribution to the development of high-power pulse klystrons.

G-MTT SYMBOL CONTEST

Is it possible that our Group is the only national organization without a unique identifying symbol? How can we hold our collective heads up high when competing for meeting space with the Rotarians, Kiwanis, and Boy Scouts - - - when there is no space-age symbol to glorify our podium, stationery, and publicity releases?

The obvious answer is for your NEWSLETTER to conduct a contest, open to all G-MTT members. We invite you to contribute a bit of your latent artistic talent to this worthwhile cause. Although monetary prizes are not suitable for such a dignified effort, we know that publishing the winning submittals will be suitable compensation for the intense thought expended.

To stimulate your ingenuity, some suggestions are shown below; thanks to Leo Young and Nathan Pelner! Once stimulated, sketch your ideas and send to your Editor as listed on page 1.



IEEE ELECTS BOARD OF DIRECTORS FOR 1969

Dr. F. Karl Willenbrock, Provost of the Faculty of Engineering and Applied Sciences at the State University of New York at Buffalo, newly elected President of the Institute of Electrical and Electronics Engineers (IEEE) announced that on January 7, 1969 the Institute's Annual Assembly elected the following to the IEEE Board of Directors:

Directors-at-Large

Mr. G. J. Andrews, ITT Latin America, Buenos Aires, Argentina.
 Dr. Werner Buchholz, IBM Development Laboratory, Poughkeepsie, New York.
 Dr. George Sinclair, Department of Electrical Engineering, University of Toronto, Toronto, Canada. Dr. J. G. Truxal, Polytechnic Institute of Brooklyn, Brooklyn, New York.

Director, IEEE Region 10

Dr. D. G. Lampard, Electrical Engineering Department, Monash University, Clayton, Victoria, Australia.

Also elected by the Annual Assembly to serve in 1969 were the following:

Vice President Publication Activities - Dr. M. E. Van Valkenburg, Department of Electrical Engineering, Princeton University, Princeton, New Jersey.

Vice President Technical Activities - Dr. J. H. Mulligan, National Academy of Engineering, Washington, D. C.

Secretary - Mr. R. W. Sears, Bell Telephone Laboratories, Inc., Murray Hill, New Jersey.

Treasurer - Dr. Harold Chestnut, General Electric Research and Development Center, Schenectady, New York.

Dr. Seymour W. Herwald, IEEE President in 1968 becomes Junior Past President for a term ending in 1970. Dr. Herwald is Vice President of Engineering, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania.

Dr. Willenbrock and Dr. J. V. N. Granger were elected President and Vice President, respectively, for 1969 in the Fall of 1968 and took office as of January 1, 1969. Dr. Granger is President of Granger Associates in Palo Alto, California.



During a short break in the March ADCOM meeting, your Editor took some candid shots of a portion of this august group.

Starting at the extreme left and moving clockwise, we can recognize W. Ross, D. King, J. Bryant, A. Oliver, E. Torgow, L. Young, R. Anderson, P. Rizzi, S. Rosenthal, S. Okwit, R. Garver, W. Cooper, R. Rivers, M. Horton, H. Altschuler. (A "clipped" Ted Saad can be seen far right)

REPORT ON CHAPTER ACTIVITIES

By Peter A. Rizzi

It is a pleasure to announce that Dr. Richard W. Damon of the Sperry Rand Research Center has been selected as the 1969 G-MTT National Lecturer. Dr. Damon is well known for his work in the field of ferrite devices and microwave acoustics. His talk is entitled "Pretersonics - Springs, Magnets and Microwaves."

A portion of his schedule for the coming year has been finalized. The dates are:

New Hampshire	January 15, 1969
Denver/Boulder	February 4, 1969
Foothills (California)	February 5, 1969
Columbus	March 31, 1969
St. Louis	April 1, 1969
Chicago	April 3, 1969

The October - November portion of Dr. Damon's schedule will be formulated within the next two months. Chapters interested in having the 1970 National Lecturer speak in their region should contact Mr. John Horton of Texas Instruments in Dallas, Texas. Mr. Horton will be in charge of Chapter Activities for the coming year.

In reviewing the Chapter Meeting reports for 1968, it appears that many Chapters enjoyed a successful year. For example, Chapters in Baltimore, Boston, Columbus, Dallas, Florida, California, Michigan and Washington, D.C. held from five to seven meetings with good attendance during the past year. On the other hand a few Chapters had little or no activity. It is our hope to work closer with these Chapters in order to develop a useful program for its members.

Finally, a reminder that selection of the site for the 1971 G-MTT Symposium will be made at the September Administrative Committee Meeting. Chapter chairmen are encouraged to submit proposals for holding the Symposium at their location. Copies should be sent to Adcom Chairman, Dr. Leo Young at Standard Research Institute.

**MEMBERS,
MEMBERSHIP
AND MEMBERSHIP
DRIVE**

by Robert Rivers



Recently I have been asked to take on the responsibility of increasing MTT Group membership. There is evidence that our membership can be increased. One of the free publications in our field has a circulation of 44,000. The G-MTT has a membership of 6,500.

A study of the membership problem has lead me to several conclusions. The principal thing that we have to offer members at the present time is technical information. This is made available through our Transactions, our Symposium, Chapter meetings, and through our participation in other technical

meetings and conventions.

Our technical society is not very exclusive. Practically anyone expressing an interest can join the IEEE. Any IEEE member can elect to join a group by merely paying the group fee. Since the MTT group fee is only \$5.00 and the IEEE membership fee is \$25.00, it must be that the IEEE fee is the major barrier to membership growth.

WHY JOIN THE IEEE AND THE G-MTT?

What will the IEEE do for me? This is a question that is asked. The answer of course is that it will provide a vast amount of technical information having value well in excess of the cost of membership. But, an answer to that is: I can get all the publications from our library. When asked about Symposiums and Chapter meetings, the answer is that at the Symposium the registration fee for non-members is only a few dollars more than for members and it is reimbursed anyway. Chapter meetings don't even have a membership requirement. These are replies that may be expected from someone in our field that does not want to carry his Fair Share of the cost of services provided by the IEEE. Ask yourself; Why should these non-members be given a free ride?

My recommendation is that there be no more free rides. How do we accomplish this? You as a dues paying member can help. When one of your associates wants to borrow a copy of your transactions, ask him where his copy is. If he says that he is not a member, then just say "Sorry, you can borrow after you start paying your fair share."

My next recommendation is that our publications be removed from library circulation. If an individual wants the information, let him contribute his support to the publications. This is a rather rabid solution to our problem. As an alternative I recommend that we require any library subscriber to the publications to show that at least 90% of eligible employees are members of the IEEE and the G-MTT. It is not irrational to ask that those using the publications support the society. A further step along the same lines would be to enforce the IEEE Copyrights on its publications. Although illegal, it is frequently quicker and easier to get copies of an article than to get the publication from the library. A general copyright release might be made available in organizations where more than 90% of eligible employees are members.

Further, another means that can be used to get the non-members to pay their fair share is to increase non-member registrations fees at the Symposium and at conventions. Our Symposium might have a \$10.00 member fee and a \$40.00 non-member registration fee.

Simple justice requires that users of IEEE and G-MTT services pay their fair share to support the society. Let's call this OPERATION GROTF, or Get Rid Of The Free Loaders.

WHAT AM I GOING TO DO FOR OPERATION GROTF

I am going to set up the committee organization to make it easy for a non-member to join. This means that I will make membership information and applications available wherever there is a significant number of non-members. This will be done through Chapter membership chairmen and through their committeemen inside companies in the area. In the meantime, a telephone call to your Section office will get you information and applications. You can expect that I will be promoting my recommendations on getting rid of the free loaders at both the G-MTT ADCOM level and at the IEEE level.

A high level of response to this article from members would be very helpful. Let me have your comments to the Newsletter Editor for publication or otherwise.



CHAPTER NEWS

BOSTON CHAPTER

Past Meetings

Date: November 12, 1968
 Attendance: Seven
 Speaker: George G. Haroules
 Affiliation: NASA Electronics Research Center
 Abstract: Absorption and Emission Measurements of Earth's Atmosphere at MM Wavelengths

Date: December 5, 1968
 Attendance: Forty-six
 Speaker: R. J. Wenzel
 Affiliation: Bendix Corporation
 Abstract: New Techniques for the Design of Microwave Network

CHICAGO CHAPTER

Past Meetings

Date: November 6, 1968
 Attendance: Forty
 Speaker: George Graven
 Affiliation: Standard Telecommunications Laboratory
 Abstract: "Recent Research in Evanescent-Mode Structures for Transfer of Signals"

CONNECTICUT CHAPTER

Past Meetings

Date: December 10, 1968
 Attendance: Nineteen
 Speaker: Eduard Cabrera
 Affiliation: Microphase, Inc.
 Abstract: Microwave Integrated Circuits Technology

DENVER-BOULDER CHAPTER G-MTT

Past Meetings

Date: February 4, 1969
 Attendance: Twenty-eight
 Speaker: Dr. R. W. Damon
 Affiliation: Sperry Rand Research Center
 Abstract: Preterersonics

Microwave sound waves in solids provide novel and useful properties which can be used to perform many functions of conventional circuits. In addition, some new devices can be constructed for which alternatives are limited or nonexistent. The technology is based on the propagation of elastic waves and their interaction with spin waves and with light. The outstanding characteristic of elastic waves is their low propagation velocity, which is four to five orders of magnitude less than the velocity of electromagnetic waves. Using elastic waves, compact delay lines can be constructed which provide several microseconds of nondispersive delay. Appropriate configurations can also provide dispersive characteristics for signal processing.

Personals

The following new officers have been elected by the Denver-Boulder Chapter G-MTT for 1969:

Chairman - A. J. Spano
 Hewlett-Packard
 Vice Chairman - Dr. D. F. Wait
 National Bureau of Standards



FOOTHILL CHAPTER

Past Meetings

Date: September 10, 1968
 Attendance: Twenty-two
 Speaker: R. C. Van Wagoner
 Affiliation: Radiation Systems, Inc.
 Abstract: A Broadband Radant for Missile Applications

Date: October 8, 1968
 Attendance: Sixteen
 Speaker: Dr. John E. Pippin
 Affiliation: Scientific-Atlanta
 Abstract: Latching Ferrite Switches in Waveguide and Stripline

HUNTSVILLE CHAPTER

Past Meetings

Date: December 11, 1968
 Attendance: Thirteen
 Speaker: Robert T. Coffin
 Affiliation: IBM Space Systems Center
 Abstract: Determining the Performance of Large Space-Feed Phased Arrays

Date: January 29, 1969
 Attendance: Twenty
 Speaker: Frank Rouffy
 Affiliation: NIKE-X Development Office
 Abstract: Dual-Reflector Antenna Design Techniques for Low Noise Applications

LONG ISLAND CHAPTER

Past Meetings

Date: February 25, 1969
 Attendance: Forty
 Speaker: Ernest Stern
 Affiliation: Lincoln Labs
 Abstract: Microsound-A Progress Report

LOS ANGELES CHAPTER

Past Meetings

Date: December 19, 1968
 Attendance: Nineteen
 Speaker: Richard FitzGerrell
 Affiliation: Institute for Telecommunication Science

Abstract: "Transmission Media for the High Speed Ground Transportation System"

Mr. FitzGerrell described studies being made to provide reliable communication links to high speed trains. The problem to be solved is how to couple a signal with a bandwidth of approximately 100 MHz to a fast moving train without radiation. The 100 MHz bandwidth is required to provide six television channels, video phone, stock market quotations and other necessary communications.

Date: February 20, 1969
 Attendance: Thirty-three
 Speaker: Dr. W. A. Geoffrey Voss
 Affiliation: University of Alberta
 Abstract: "Microwave Power: A Solution Looking for a Problem"

Dr. Voss related that most of the market for microwave power equipment for industrial heating and drying is still for R&D equipment. There are, however, growing commercial applications. Most notable is the total of one megawatt (20 units of 50 KW) in operation for producing potato chips.

ORANGE COUNTY CHAPTER

Past Meetings

Date: October 1, 1968
 Attendance: Forty
 Speaker: Walter A. Crofut
 Affiliation: Andersen Laboratories, Inc.
 Abstract: "Recent Advances in Microwave Acoustic Delay Devices"

Date: November 7, 1968
 Attendance: Forty-five
 Speaker: Dr. Ralph Levy
 Affiliation: Microwave Development Labs
 Abstract: "Measurement of Phase, Frequency, and Direction of Radar Signals"

Date: December 3, 1968
 Attendance: Forty-six
 Speaker: Ray Tang
 Affiliation: Hughes Aircraft Company
 Abstract: "A Diode Array Analysis and Experiment"

ORLANDO CHAPTER

Past Meetings

Date: December 10, 1968
 Attendance: Nineteen
 Speaker: Dr. L. O. Hocker
 Affiliation: MIT, Department of Physics
 Abstract: Application of Microwave Techniques to Submillimeter and Far I-R Regions

SEATTLE CHAPTER

Past Meetings

Date: November 19, 1968
 Attendance: Nineteen
 Speaker: Walter L. Curtis
 Affiliation: The Boeing Company
 Abstract: Average Radar Cross Section of Arbitrarily-Shaped Wires of Finite Conductivity

SYRACUSE CHAPTER

Past Meetings

Date: January 23, 1969
 Attendance: Forty-three
 Speaker: Ernest Stern
 Affiliation: MIT - Lincoln Laboratory
 Abstract: "Microsound"

Mr. Stern described how acoustic analogs of conventional microwave transmission line (microsound) components on the surface of crystalline substrates should find application in wideband, high-capacity signal and data processors.

He showed how these microsound transmission lines, hybrids, and couplers interconnect microsound transducers, amplifiers, isolators, and phase shifters to form microsound circuits capable of autocorrelation, Fourier transformation, and matrix permutation functions.



ANNOUNCEMENTS

HIGH FREQUENCY CALIBRATION WORKSHOP

This workshop will cover the quantities measured in the NBS high-frequency calibration services. These include:

- Power - CW and pulse
- Impedance - distributed, fixed and swept frequency
- Impedance - lumped
- Phase shift
- Attenuation, fixed and swept frequency
- Voltage - CW and pulse
- Field Strength
- Noise

Oral presentations will include a discussion of the techniques used at NBS and the error analysis upon which the calibrations are based. Extensive measurement theory will not be treated except as a necessary conceptual aid.

ANNOUNCEMENTS (CONTINUED ON PAGE 11)

NEW HAMPSHIRE CHAPTER

Past Meetings

Date: September 25, 1968
 Attendance: Twenty-six
 Speaker: Dr. Peter E. Greene
 Affiliation: Sanders Associates
 Abstract: "Computer Aided Microwave Engineering"

Date: October 30, 1968
 Attendance: Sixteen
 Speaker: Dr. Albert D. Frost
 Affiliation: University of New Hampshire
 Abstract: "Scintillation Observations in Satellite Beacon Signals"

Speaker: Dr. Filson H. Glanz
 Affiliation: University of New Hampshire
 Abstract: "Upper Atmosphere Wind Measurements by Meteor Trail Radar"

1969 G-MTT INTERNATIONAL MICROWAVE SYMPOSIUM MAY 5, 6, 7 DALLAS, TEXAS

INVITATION FROM THE CO-CHAIRMEN

We encourage you to join us in Dallas this year for one of the most encompassing G-MTT Symposium Programs ever presented.

The number of technical papers to be presented will be a record high. We have expanded our program to twelve sessions to include full coverage of the most recent advances in microwave technology. We have included new sessions on microwave acoustics, millimeter wave systems, and computer-aided design techniques.

The Symposium location is spacious enough to comfortably include all meeting, lodging and eating facilities. You will enjoy the leisurely surroundings and the association with leading authorities in the microwave field.

We have a very exciting ladies' program and your wife should not miss this opportunity to see Dallas. The people of Dallas are warm and friendly and enjoy sharing this city of the Great Southwest. We extend a cordial invitation from the Dallas G-MTT Chapter, the Dallas IEEE Section and the City of Dallas to attend this year's International Microwave Symposium.

JIM SADLER

BEN HALLFORD

CONFERENCE FEES

Fees for the Symposium are shown below. A substantial saving may be realized by advance registration. Make check payable to: 1969 G-MTT International Symposium. Mail to S. R. Sandefer, Box 1270, Richardson, Texas 75080.

	Postmarked By April 18	Postmarked After April 18
Registration, IEEE Member	\$12.00	\$14.00
Registration, Non-Member	16.00	18.00
Registration, Student	3.00	4.00
Cocktail party	3.00	3.25
Banquet	9.00	10.00
Ladies Program	15.00	18.00

CONDENSED PROGRAM

1969 IEEE G-MTT INTERNATIONAL MICROWAVE SYMPOSIUM

Sunday, May 4	1400-2200	Registration	
	1900-2200	Dutch Treat Get-together	
Monday, May 5	0730-1600	Registration	
	0830-0900	Welcoming Remarks and Keynote Address	
	0910-1200	Microwave Integrated Circuits I	Precision Measurements and Components
	1330-1700	Ferrite Components	Solid-State Circuits and Devices
Tuesday, May 6	1930-2200	Panel Discussions I and II	Panel Discussion III
	0730-1600	Registration	
	0830-1200	Gunn Effect Devices	Millimeter Wave Components
	1330-1700	Avalanche Diodes	Passive Components
	1800-1900	Cocktail Hour	
	1900-2200	Banquet	
Wednesday, May 7	0730-1200	Registration	
	0830-1200	Microwave Acoustics	Computer-Oriented Microwave Techniques
	1330-1600	Microwave Integrated Circuits II	Millimeter Wave Systems



SYMPOSIUM STEERING COMMITTEE

From left, Bruce O'Neal, finance chairman; Julius Lange, publicity chairman; Roger Webster, technical program vice chairman; Jim Sadler, steering committee co-chairman; Ben Hallford, steering committee co-chairman; Harry Cooke, secretary; Bob Sandefer, local arrangements co-chairman; Frank Emergy, digest chairman; Ron Greenwood, local arrangements co-chairman; and John Horton, technical program chairman.



SYMPOSIUM TECHNICAL PROGRAM COMMITTEE

First Row, L to R: W. J. Getsinger, E. Stern, B. Hershenov, B. T. Vincent, J. E. Pippin, J. B. Horton, Chairman.
 Second Row, L to R: R. H. DuHamel, R. W. Beatty, A. Clavin, D. D. King, G. R. Harrison, R. D. Hall. Third Row,
 L to R: G. P. Rodrigue, B. C. DeLoach, G. I. Haddad, M. Gildden, H. Sobol, L. Young, S. B. Cohn, M. C. Horton.
 Not shown: R. R. Webster, F. R. Arams, T. M. Hyltin, W. W. Mumford, S. Okwit, F. Clark.

HIGHLIGHTS OF THE TECHNICAL PROGRAM

Eighty-four papers will be presented at the 1969 G-MTT Symposium. Of these papers, four were accepted from Japan, two from England, one from Australia, and one from Russia. The papers are organized into twelve sessions, two sessions running concurrently morning and afternoon for three days. Late news items will be included with the regular papers in scheduled sessions of the appropriate topic. Three informal panel discussions are scheduled for Monday evening, May 5.

Topics included in the program cover microwave theory, components and systems for UHF through millimeter wave frequencies. Session titles are:

Formal Sessions:

- Microwave Integrated Circuits (2)
- Precision Measurements and Components
- Ferrite Components
- Solid State Circuits and Components
- Gunn Effect Devices
- Millimeter Wave Components
- Avalanche Diodes
- Passive Components (Filters, etc.)
- Microwave Acoustics
- Computer-Oriented Microwave Techniques
- Millimeter Wave Systems

Panel Discussions:

- Microwave Energy Applications, Non-Communication
- Techniques for Fabrication and Production of Microwave Integrated Circuits
- Noise in Solid State Devices and Systems

Of special interest is the panel discussion on Microwave Energy Applications. The application of microwave power for industrial and biological uses

will be discussed along with techniques for generation and transmission of microwave power pertaining to high energy physics (ING proton accelerators, plasma generators, etc.) and microwave energy motors, etc. The panel includes representatives from Varian, Raytheon, RPI, University of Alberta (Canada) and University of Pennsylvania. W.A.G. Voss, Executive President of the International Microwave Power Institute, is Chairman of the panel.

The panel discussion on Microwave Integrated Circuits will include the most recent technology concerning fabrication and production of microwave components and subsystems using integrated circuits. Each panel member will make a brief formal presentation including (1) a description of the technique(s) used by his company, (2) advantages of the technique(s), i.e. why the company prefers this particular method of fabrication, etc., and (3) report the success achieved to date using examples, stating quantity of circuits in production, etc.

Representatives from MA, Motorola, RCA, TI, Bell Laboratories, and HP are included on the panel. J. B. LaGrange (Air Force Avionics Laboratory, Wright-Patterson AFB), is chairman.

The principal objective of the panel on "noise" is to present some of the major problems encountered in dealing with noise in devices and how the device noise affects system performance. Noise in Gunn diode oscillators, avalanche diode oscillators, and multiplier chain sources will be discussed from the component aspect, followed by a discussion of the effects of these noise sources in radar and communication systems.

Representatives from Bell Laboratories, California Microwave, Sperry, MA, Collins, Westinghouse, and Raytheon are included on the panel. J. R. Ashley (University of Colorado, Colorado Springs) is chairman.

In all panel discussions each panel member will give a brief formal presentation covering his own specialty or area of interest, after which the session will be open for general discussion with audience participation.



The Dallas Marriott Motor Hotel - Poolside Area.

HOTEL ARRANGEMENTS

It is important that reservations be made as early as possible. However, it is emphasized that no shortage of rooms exists, as there are over 4000 rooms in hotels within ten minutes driving time of the Symposium site.

The Dallas Marriott Motor Hotel, site of the Symposium, will reserve a block of 300 rooms. Three motels are within walking distance of the Marriott. Reservations can be made on an individual basis directly to Holiday Inn, Laquinta Motor Inn, or Rodeway Inn.

- Holiday Inn 1955 N. Industrial Blvd.
Dallas, Texas 75207
(214) 747-9551
- Laquinta Motor Inn 2023 N. Industrial Blvd.
Dallas, Texas 75207
(214) 741-5041
- Rodeway Inn 2026 N. Industrial Blvd.
Dallas, Texas 75207
(214) 748-2243

LADIES PROGRAM

We heartily recommend that Symposium attendees bring their wives to see "Big D." An exciting and varied program has been planned to entertain the ladies while the technical sessions are in progress. A chartered bus will provide convenient transportation for the tours which will leave daily from the Marriott lobby.

KEYNOTE ADDRESS

Dr. Leo Young, Stanford Research Institute, will deliver the keynote address following the welcoming remarks from Jim Sadler, co-chairman of the Steering Committee, at the opening session on Monday, May 5 at 8:30 a.m.



MR. B. F. COGGAN



DR. W. F. GABRIEL

BANQUET

The evening of Tuesday, May 6, has been set aside for relaxation and fellowship. From 6 to 7 p.m. cocktails will be available in Sundown I which overlooks the pool area.

At 7 p.m. the annual banquet and awards presentation will be held in the spacious Sundown Room II and III. A lively pace will be set by the Master of Ceremonies, Dr. Irwin Solt, Jr. of Fairchild Microwave Products. The banquet speaker will be Mr. B. F. "Sandy" Coggan of North American Rockwell Corp. In his speech, titled "Apollo and Beyond," he will discuss the exciting features of man's conquest of the moon, a subject very close to us here in Texas. He will also show the newly released Apollo 8 films and other unpublicized pictures.

The 1968 Microwave Prize will be presented to Dr. William F. Gabriel of Delex System Incorporated, for his paper "Tunnel Diode Low-Level Detection," published in the October 1967 issue of the IEEE Transactions on MTT.

Tickets for the cocktail hour and the banquet will be sold on a first-come basis, so please register early.

ANNOUNCEMENTS (CONTINUED FROM PAGE 7)

Aimed at the "practicing metrologist", demonstrations will constitute at least one half of the program. Various coaxial systems will be used to demonstrate different techniques and their associated problems. Practical hints for solving some of the common high-frequency measurement problems will be given. Questions from the class will be welcome.

WHEN: April 21 - 25, 1969

WHERE: National Bureau of Standards
Boulder, Colorado

FEE: \$300.00

LASER APPLICATIONS

A FIVE-DAY SHORT COURSE

Presented by: Washington University, in association with the McDonnell-Douglas Corporation

Dates: April 28 to May 2, 1969

Place: Washington University, St. Louis, Missouri

Subject Areas Covered: Principles of gas, liquid, and solid state lasers, parameter measurements, and beam control; applications in guidance, computers, communications and tracking, meteorology, diagnostics, medical, holography, and welding and machining. Lectures will be presented by nationally prominent experts from various universities, institutes, government laboratories, and companies.

Fee: \$275, including instructional materials

Contact for Further Information:

Dr. G. L. Esterson
Box 1048
Washington University
St. Louis, Missouri
63130

IEEE INTERNATIONAL CONFERENCE
ON COMMUNICATIONS

University of Colorado, Boulder, Colorado;

June 9-11 1969

The ICC 69 technical consists of about 260 papers, including nearly 40 contributions from authors outside of the United States. These papers will be presented in 49 technical sessions. Two categories of papers will be given oral presentation. The first, full formal papers which have been specifically invited or selected after

a review of complete drafts, are allocated 20 to 30 minutes for presentation and discussion and will be printed in the Conference Record. The second, short informal papers, are brief and timely and were selected on the basis of a short abstract. They are allocated 8 to 10 minutes for oral presentation and discussion and will not appear in the Conference Record, but a printed collection of revised abstracts will be provided at the time of registration.

The technical spectrum of the program is broad due to participation by the following IEEE Groups in addition to Communication Technology: Antennas and Propagation, Audio and Electroacoustics, Circuit Theory, Computer, Electromagnetic Compatibility, Information Theory, Microwave Theory and Techniques, and Vehicular. There will also be sessions on Oceanography, Spectrum Utilization, and Apollo Communications. In a keynote session, well-known and respected individuals representing different aspects of Communications will provide a perspective on the conference theme, "Communications Needs for the Next Decade."

Technical Sessions

WIRE COMMUNICATION

Wideband Communication
Transmission Systems Analysis
Digital Transmission Systems
Wire Transmission Systems

COMMUNICATION SWITCHING

No. 2 ESS
New Switching Systems
Economic Balance between Transmission and Switching
Switching System Control
Switching System Peripheral Control

RADIO COMMUNICATIONS

Microwave Communications (2)
Radio Relay System Measurements
Antennas and Coupling Devices

COMMUNICATIONS SYSTEMS DISCIPLINES

Data System Techniques
FM Threshold Extension Techniques
Communication Systems
Digital Transmission Detection Systems

COMMUNICATION THEORY

Current Status and Direction of Error Control Coding
PCM Communications
Quantization Effects in Communications

Channel Simulation

Fading Channel Simulation

SPACE COMMUNICATIONS

Satellite Communication Systems (2)
Multiple Access Communication Satellite Systems

DATA COMMUNICATIONS

Facsimile
Data Networks
Modulation and Filters for Data Transmission
Data Transmission

AUDIO AND ELECTROACOUSTICS

Digital Processing of Acoustic Signals
Communication Aids for the Handicapped

INFORMATION THEORY

Topics in Coding and Information Theory
Statistical Communication Theory (2)
Experimental Results on Error Control

VEHICULAR TECHNOLOGY

Vehicular Communications
Advanced Highway Communication for Service, Safety and Control

ELECTROMAGNETIC COMPATIBILITY

Analytical Methods and Procedures
Special Topics

OTHER

Spectrum Sharing Techniques
Spectrum Sharing--Economics, Regulations and Legal Aspects
Oceanographic Communications
Microwave Solid State Device Applications
Circuit Theory
Electromagnetic Waves
Telemetry
Computer/Communication Networks

CONFERENCE FEES

The fee for IEEE members is \$18 and for non-members, \$23, for registrations postmarked on or before May 30, 1969. The fee after May 30 will be \$20 and \$25, respectively. This fee includes registration, conference materials, and a copy of the Conference Record.

The student fee is \$2.

Checks should be made payable to the University of Colorado and sent to University of Colorado, to the Bureau of Continuation Education, 328 University Memorial Center, University of Colorado, Boulder, Colorado 80302.



CALL FOR PAPERS
1969 MICROELECTRONICS SYMPOSIUM

The 1969 Microelectronics Symposium, cosponsored by the IEEE Microwave Theory and Techniques Group and the St. Louis Section of the IEEE, in cooperation with the IEEE Groups on Electron Devices, Circuit Theory, and Parts, Materials and Packaging, will be held at the Colony Motor Hotel, Clayton (St. Louis County), Missouri on 10, 11 and 12 September 1969.

The 1969 Edition of the Microelectronics Symposium will be devoted entirely to the field of "Microwave Microelectronics." Original papers are solicited which are appropriate to those topics listed below:

- Hybrid microwave microstrip design, theory, packaging and application.
- Monolithic microwave integrated circuit design, theory, process implementation, and application.
- Ferrite reciprocal and non-reciprocal device design, theory and application.
- Microwave microelectronic components
- Integration of semiconductor bulk and junction power generation sources within microelectronic microwave systems.
- Microwave microelectronic systems concepts.
- Materials development for microwave microelectronics.

Submission of Abstracts

1. No later than 1 June 1969, submit three (3) copies of a 500 word abstract together with the author's name, address, title, and company affiliation.
2. Author's are reminded that it is their responsibility to acquire the appropriate clearance for presentations relating to government sponsored programs.
3. All abstracts must be submitted in English.
4. Only unclassified presentations are solicited.
5. The presentation must be original, timely, and appropriate to the specified program topics.
6. Participation is not restricted to IEEE members.

7. Submit the required documents to:

H. Buckel
Washington University
Box 1115
St. Louis, Missouri 63130

Acceptance

Authors will be advised of acceptance by 1 July 1969.

CALL FOR PAPERS
1969 (3rd ANNUAL) SOLID STATE
DEVICES CONFERENCE

The Third Annual Solid State Devices Conference will be held from 16th to 19th September 1969 at the University of Exeter, Exeter, Devon, England.

The Conference aims to provide a forum for the presentation of applied research in the physics and characterization of solid state devices, together with associated technologies. Papers are being invited on the following topics:

- New devices that are needed.
- Large Scale Integration - two approaches.
- Semiconducting ferromagnetics.
- Semiconducting ferroelectrics.
- Physics of Schottky barriers.
- The physics of silicon - silicon dioxide interface.
- Novel circuit elements used in S.I.C. design.
- Semiconductor detectors of visible and I.R. radiation and modern microwave techniques.

Contributions on these topics and on New device concepts, Device physics, Device modeling, Device characterization, Reliability physics and Silicon technology, of about 15 minutes' presentation time will be welcome. Synopses in duplicate of approximately 350/400 words, typed on one side of one sheet quarto or A.4. paper, double line spacing, not including figures and capable of being photocopied, should be sent by 27th June 1969 to:

Dr. P. C. Newman, Conference
Programme Secretary
Allen Clark Research Center
Caswell, Towcester, Northamptonshire
England

Late papers may be considered up to 29th August 1969.

COMPUTERS AND COMMUNICATIONS
CONFERENCE

The IEEE Mohawk Valley Section and the Communications Technology and Computer Group Chapters will sponsor a conference, entitled "Computers and Communications", at the Beeches in Rome, New York. The dates for this program are September 30 - October 2, 1969.

It is the objective of this conference to review the latest developments in the communications/computer processing areas in an effort to take advantage of existing computer techniques which may be applicable to problems confronting researchers and operational personnel in the communications area. In addition, the conference will consider the role of communications techniques in the development of computer systems. In each area the conference will emphasize application and implementation rather than just theoretical aspects. The wide range of potential applications includes seismic signal processing, radar processing, biomedical processing, pattern recognition, optical signal analysis, voice communications, speaker recognition, space telemetry, underwater communications, global and satellite communications and time sharing computer systems.

The conference will feature panel discussions focusing on the role that computers are expected to play in signal processing systems of the future. The following suggests several of the more prominent features to be explored in a series of sessions:

Signal Processing: modulation/demodulation, sampled-data and digital filtering, data compression, Z-transform techniques (FFT), sampling, coding/de-coding, organization, message and circuit switching, multiplexing and queuing.

Computer-Aided Design for Communications
Equipment and Systems

Decision and Control: pattern recognition, optimization and search, adaptive equalization and transmission techniques, measurement and recognition of channel quality (technical control or input evaluation and selection).

Simulation: communications systems, coding/modulation schemes and transmission channels.

On-line Communications: man-machine communications, displays (CRT's and plotters), vocal communications devices and computer-aided instruction.

Interactive Graphics: pattern analysis, pattern recognition and visual communications.

All manuscripts should be submitted in duplicate and all abstracts in five (5) copies no later than 1 June 1969. Any reasonable manuscript format is permissible, but authors of accepted papers will be required to prepare a final manuscript in accordance with the IEEE Kit which they will receive.

Please address all correspondence to: Computers and Communications Conference, 304 E. Chestnut Street, Rome, N.Y. 13440, ATTN: Technical Papers Committee. Telephone inquiries can be made to either Mr. John Entzminger, (315) 330-2003 or Mr. Charles Constantino, (315) 336-8400.

CALL FOR PAPERS

1969 IEEE INTERNATIONAL SYMPOSIUM
ON CIRCUIT THEORY
DECEMBER 8-10, 1969

The 1969 IEEE International Symposium on Circuit Theory will be held at Mark Hopkins Hotel, San Francisco, Calif. on December 8-10, 1969. This annual symposium features the presentation of original research papers and invited papers by distinguished researchers from universities and industry, and provides a forum for discussion of topics in circuit and system theory. The theme which is to be continued to the second symposium is that of the work at the interface between theory and practice. Of course high quality papers from throughout the broad spectrum of the field are to be welcome as always.

INSTRUCTIONS FOR AUTHORS: Regular and short papers must be submitted before July 1, 1969. All manuscripts are to be in the standard format of contributions to the IEEE Transactions on Circuit Theory, with short papers prepared as letters-to-the-editor. Consult the back cover of the Circuit Theory Transactions for manuscript preparation instructions. Each paper is to be accompanied by a one-page summary headed by a title and author names and affiliations, suitable for photo-reproduction,

typed double-spaced on white-bond paper with 1 1/2" margins. Manuscripts will be simultaneously considered either for oral presentation at the Symposium or inclusion in the IEEE Transactions on Circuit Theory or both. Summaries of symposium papers will be published in a digest available at the Symposium.

Deadline for submission of papers is July 1, 1969. The Technical Program Chairman will notify authors of accepted symposium papers by October 1, 1969. All manuscripts are to be submitted directly to the editor, IEEE Transactions on Circuit Theory:

Professor B. J. Leon
School of Electrical Engineering
Cornell University
Ithaca, New York 14850

SYMPOSIUM COMMITTEE: B. K. Kinariwala, University of Hawaii (Chairman), F. T. Boesch, Bell Telephone Labs (Publicity), B. Liu, Princeton University (Digest), H. E. Meadows, Columbia University (Finance), S. K. Mitra, University of California (Local Arrangements), R. A. Rohrer, Fairchild Semiconductors (Technical Program).

PROCEEDINGS OF STRESA SYMPOSIUM AVAILABLE

The Symposium on Electromagnetic Waves, sponsored by Commission VI of URSI, was held in Stresa, Italy in June 1968. This Symposium was another in a series of illustrious meetings starting with the McGill Symposium in 1953, the University of Michigan Symposium in 1955, the Toronto Symposium in 1959, the Copenhagen Symposium in 1962, the Delft Symposium in 1965, and finally the Stresa Symposium in 1968. The Proceedings of the Symposium containing the invited and key papers have been printed in a special issue of *Alta Frequenza*. Most of the papers are in English with the remainder in French. More than 75 papers covering almost 400 pages are included. This special issue may be ordered before May 15, 1969 at a special price of \$8.00 and after that for \$10.00. This includes surface mail; air mail orders should include \$3.00 additional. Payments should be made to A.E.I.-10, Via San Paolo, 20121 Milano, Italy. Session headings are: Wave Propagation in Inhomogeneous and Anisotropic Media; Propagation in Random Media; VLF Propagation; Non-Linear Phenomena in Wave Propagation; Antennas; Application of Computers and Numerical Methods; Diffraction; and Miscellaneous.

MICROWAVE THESES

Your NEWSLETTER has contacted many of the major U.S. universities with a request for a list of their Masters and PhD theses in the fields of electromagnetic theory and microwave techniques. We believe that this will be of direct interest to many G-MTT members. Although the information is published in Dissertation Abstracts, it is not generally circulated among the potential users.

The first replies were from Washington University and Brooklyn Polytechnic Institute; their lists are reproduced below. Please contact their library directly for specific requests.

WASHINGTON UNIVERSITY
St. Louis, Missouri 63130

RICHARD MOORES ARNOLD

"Microwave Demodulation of Optical Signals Using a Photoconductor in a Resonant Microwave Cavity", M.S., January 1968.

PONG FUI CHANG

"Loss-Induced Slow Mode Behavior in a Coaxial Structure", D.S., January 1968.

MICHEL DUTOIT

"Ultrasonic Interactions in Semiconductors", M.S., January 1968.

MARVIN LEE HAWK

"H-Guide Hybrid Mode Propagation", M.S., June 1967.

ROGER M. HIBBITS

"A Digital Airborne Moving Target Indicator", M.S., January 1966.

HONGJIN KIM

"Analysis of Generalized Rectangular Transmission Lines by Variational Techniques", January 1969.

DAVID LEE LACOMBE

"Analytical Investigation of the Dispersive Nature of the Corrugated Strip Transmission Line", M.S., June 1967.

RALPH S. MUELLER

"Theory and Applications of Coaxial Ferrite Devices", D.S., June 1967.

JOHN H. MULLEN

"Measurement of Plasma Parameters Using a Radial Waveguide", D.S., January 1967.

RICHARD FRANCIS PEER

"An Application of the Lorentz Transformation to Cylindrical Waveguides", M.S., June 1965.

POLYTECHNIC INSTITUTE OF BROOKLYN
333 Jay St., Brooklyn, N.Y. 11201
Department of Physics

TAT SHONG TAN

"Electromagnetic Wave Propagation in Two Relatively Moving Media", M.S., June 1968.

HAROLD L. GRUBIN

"The Analysis of Translationally Invariant Wavefunctions in a Magnetic Field With Application to Frequency and Wavelength Dependent Transport Phenomena", Ph.D., June 1967.

VICTOR HOFFSTEIN

"Transmission Properties of Three-Layer Systems", M.S., June 1967.

BOOK REVIEWS

Nathan Pelner has been appointed Book Review Editor. All communications concerning Book Reviews and New Books should be sent directly to him at the following address:

NATHAN PELNER
Hughes Aircraft Co.
Missile Systems Division
Bldg 268/A-53
8433 Fallbrook Ave.
Canoga Park, Calif. 91304

Field Computation by Moment Methods, by Roger F. Marrington - The Macmillan Company, New York, 1968; 229 pages, illus., \$11.95.

This book reiterates the thesis that the era of the "cut and try" microwave engineer is dead -- long live the computer oriented microwaver. The "Raison de etre" for the monograph is to present a unified approach to the solution of field problems by means of computers. The

author does not delve into computer programming techniques, but presents final solutions to problems in a form which are easily computerized. The first chapter presents the method of moments, and the chapters following are devoted to applications of practical interest, primarily electromagnetic theory. Although the examples are from E-M, the Method of Moments is general. The basic idea is to reduce a function equation to a matrix equation, and then solve the matrix equation by known methods.

The material is introduced primarily by applications of the theory, and no rigorous proofs and theorems are presented.

The author makes use of the language of linear spaces and functional analysis. The concepts that are needed are defined and illustrated when they are introduced. There is a good summary of the structure of linear spaces in the appendix; however, a thorough understanding of the subject, primarily inner product spaces is invaluable.

The book is divided into two main parts: Deterministic problems and Eigenvalue problems. Chapter 1 introduces and discusses the Method of Moments. Chapter 2 applies these methods to electrostatic problems. Chapter 3 deals with two dimensional electromagnetic field problems including scattering from conducting elliptic and from circular dielectric cylinders. Chapter 4 deals with three dimensional problems of the wire antenna and wire scatterers. Chapter 5 presents solutions to electromagnetic problems in terms of Generalized Network Parameters covering conducting bodies, point fed antennas, conducting scatterers, aperture antennas, dielectric bodies, magnetic bodies, and bodies with both dielectric and magnetic properties. Chapter 4, is in effect, a special case of this chapter. Chapter 6 covers multipoint systems.

Chapter 7, titled Eigenvalue Problems, is the first chapter dealing with bounded geometries and illustrates the technique by applying the method of moments to non-uniform transmission lines. Chapter 8 addresses itself to the problems of cylindrical waveguides of arbitrary cross section. Chapter 9 deals with cavity resonators of arbitrary shape with an application to the specialized case of a rectangular cavity uniformly filled with gyroscopic plasma. Chapter 10 deals with optimization procedures.

In many cases, the author compares the moment method solutions with exact solutions, where solvable, and with other numerical solutions, to show the validity of his approach.

Many of these problems have been solved using numerical analysis by other authors in as many different ways. Here, for the first time, is presented a method which is almost all encompassing and is applicable to other disciplines in addition to electromagnetics theory.

The ease and elegance with which the moment method handles the problem of the wire antenna of arbitrary shape and the scattering problem would be considered enough reason to have this book in one's library. But the wealth of practical problems which are handled make this book invaluable to every microwave engineer, because this new era is here to stay.

Nathan Pelner
Hughes Aircraft Company
Canoga Park, California 91304

LETTERS TO THE EDITOR

Editor - MTT Newsletter

--- Relative to your editorial concerning professionalism, I offer some comments which may be helpful, for your consideration, because your suggestions simply are not going to help to the extent that you can even imagine, if at all:

1. The public's image of engineering is correct, provided you refer to physicians et al. in contrast. The latter deal directly with the public and have satisfied minimum proofs of academic, (state and material) registration, practical competence and trust. Only a minor portion of engineering has accomplished a like image with respect to the public - in fact a minute portion of them.

2. Medical professionals are generally not "employed"; nor are they treated as "labor"; nor are they "job seekers" in "labor pools" in competition for "jobs and wages", in common with ordinary labor; nor are they subject to layoffs or firings; nor are they subject to arbitrary forced retirements on account of age, with creative and contributory talents submerged; nor are they subject to unemployment lines and compensations in common with ordinary labor; etc.

3. So long as electricians, plumbers, vehicle operators, TV and radio station operators or technicians, etc. are referred to as engineers, the graduate engineer has not a ghost of a chance of being referred to as a professional, in contrast to a physician.

4. So long as IEEE elects to be as unlike as AMA, that long will engineers remain as they are, with respect to the public image and all its consequences. To overcome this situation means very strong public relations; very strong voice and action in regulation bodies that issue licenses; very strong control of graduate engineer members and their supply from schools, etc; very strong image creating powers, etc. In my opinion the graduate engineering "profession" has its head in the sand relative to fostering their public image and the gains such status would yield. It's a facsimile to the LIRR rider, who complains about the dirt in the trains, for example, but throws his coffee cups and tobacco butts on the floor just the same. They deserve what they have. They made it what it is - i.e., you can't bitch and simultaneously put your head in the sand to avoid responsibility and effort to correct the situation which you obviously don't like.

To obtain professional status of say the true professional, - the physician -, in the public image, ask yourself how are you going to:

1. Remove the engineer from the "labor stigma" and the associated "labor market" and "labor pool" as employees?

2. Prevent tradesmen such as contractors of technicians, electricians, plumbers, vehicle operators, radio and TV transmitter and disk jockeys from being referred to as engineers? The public does not discriminate.

3. Create an engineering society like the AMA, which is vitaly concerned with the public image of its members and controls them and their numbers from the schools, etc. so as to prevent or at least drastically mitigate the "labor pools of unemployment", which has become a trademark of the engineering "profession", in common with ordinary labor? Such pools, fed nationally and internationally without restraint, let alone control, by the "professional" society serves as the life blood of government and industry exploitation, the sustenance of which they lap up like honey, obliv-

ious to the cost and degradation of the participants of the pools and hence the "profession" in the public image, for the sake of profits, in common with ordinary labor?

4. Institute compulsory national registration of engineers, which industry will respect exclusive of all others, in common with physicians?

5. Eliminate extended unemployment among capable engineers so that they don't have to resort to degrading unemployment line compensations, in common with ordinary labor?

6. Create a central employment headquarters for engineers, who are bound and in industry. This must be the headquarters and the best in the Nation if not the only one, with branches?

7. Establish a national basic pension and medical system for engineers, regardless of the organization with whom engineers are employed (or even self employed) so that if they have to change organizations, their pension and medical benefits are not affected?

8. Exert positive control of the number of graduates from schools and engineers from other sources no matter where, in relation to all available engineers so as to prevent the formation of "labor pools", which is the cardinal degradation of the engineering "profession"?

A typical distorted picture for the public image of all engineering employment is that illustrated by the article on p. 20 and 23 of IEEE Spectrum of January 1969, which avoids emphasis on other than "fresh" graduates. Yet it refers to "technical manpower" at the opening paragraph, implying all engineering, while experienced engineers, by the score, of good caliber cannot find employment. So long as such situations exist professionalism is a mockery! Labor pools must be eliminated or drastically mitigated and controlled, whether the establishments like it or not, if you seek professionalism.

In the light of the foregoing casual remarks, I don't think increased membership and activity on technical levels is going to change the public image or the welfare of the engineer in general, except to make IEEE even more technical! Since the non-technical aspects of the engineering "profession" have been neglected for so long, it seems to me you need a "manhattan project" to rectify the situ-

ation as soon as possible in the context of this letter or facsimile thereof. I believe you are suggesting a dead-end street as far as building professionalism is concerned in the public image. You simply can't ignore, and the "professional" society can't ignore the public, social and economic considerations of the engineer and gain your objectives. No one else has ever been able to do so. Even the teachers who have recently "been recalled to life" to the importance of "organization" to satisfy their basic needs and with respect to the public image (which is vital) and in their ability to deal effectively with their organized employers, who are well aware of the power of organization since they have organized early in the game themselves and discourage it for their charges.

I think IEEE has done a top-notch job technically. But, where has the economic, social and public image gone for the engineer? The IEEE has to be a parent of its children, as the AMA is, whether they like it or not, otherwise the engineer, in contrast to the physician, simply will never make it with respect to the public image and more importantly their own basic needs.

Engineers (as well as physicists for that matter) should not be permitted to act on their own with respect to the public, without the approval and supervision of the IEEE (or APS), such as in the case of the recent ABM Government hearings, since their individual actions reflect on the whole engineering (or physicists) "profession", since the public does not discriminate in this respect.

Sincerely,

E. Okress

P.S. It is vitally important that the IEEE (and APS) bring to the attention of the public the fact, if it is a fact, that the engineers or potential engineers in colleges and universities in the country are not participating in any of the maverick upheavals at our colleges and universities nor are they far out in dress and appearance, like the slovenly, maverick clans. In fact, the IEEE must control such deviations. It can't afford to stand by and view the scene.

(We appreciate Mr. Okress' concern and personal interest in this subject. We hope to summarize these and other comments in the July issue)

- - - - Editor



THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC
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 LOS ANGELES, CALIFORNIA 90005

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Third Class

--- Would you please continue to send me the "Newsletter"?

As a new member of the MTT Group I am interested in becoming acquainted more fully with the Groups activities and your publication appears to be an excellent way to do it.

I thank you.

R. G. Amero
 Halifax, N.S., Canada

T S SAAD
 3 HURON DR
 NATICK

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MA 01760

--- It is very delightful for me to write a letter concerning about the Newsletter and microwave engineering to our editor.

I am working in the field of MTT for about 10 years in succession but I just joined the IEEE and G-MTT at the beginning of December, last year.

Though I have sometimes read the Newsletter borrowing from my colleagues, the Newsletter No. 53, Jan. 1969 is the first one I received as mine and I have looked through it and found it very interesting and valuable for my business again.

I would like to continue receiving the Newsletter via 1st class mail.

I am especially interested in the Editor's call on the 1st page and quite agree to the opinion. As one of the G-MTT members I believe that we have to make microwave engineering more advanced and also continue communicating within MTT in order that we may have much stronger professional society.

Recently I fortunately informed that our paper had been accepted for presentation at the 1969 G-MTT International Symposium and I am going to make a visit to the States for the purpose of attending the Symposium. At this opportunity I would like to call on people of several microwave-oriented laboratories and discuss ferrite devices and microwave integrated circuits.

I should be very happy and pleased to have a chance to talk with you about the G-MTT including the breadth and scope of MTT during this trip.

Very truly yours,
 Sohji Okamura

--- I have recently heard from Dr. Leo Young of the Electromagnetic Techniques Laboratory of Stanford Research Institute, to the effect that he will be pleased to contribute to the European Microwave Conference that is to be held in London during the period 8th-12th September, 1969. I enclose for your information a second Call for Papers, now available, and which particularly requests the submission of work dealing with novel developments in microwave technology.

The first call for papers that was issued during 1968 has resulted in the offer of some 140 papers, and the Organizing Committee are much encouraged by the interest that has been shown in the scope of this Conference. It is their hope that the second call for papers will result in a very substantial number of offers outlining new and novel work, which will provide useful information to the delegates at the Conference and subsequently other researchers who obtain the post Conference volume.

Dr. Young mentions that you may be able to give some publicity to this Conference in the G.M.T.T. Newsletter to be issued during March and May, 1969, and I know the Organizing Committee would be very grateful if you would agree to make mention of the objectives of this Conference. I shall be pleased, after the next meeting of the Committee, to send you some general details of the types of papers that have been offered for presentation, together with details concerning the procedure that will be adopted for the presentation of the technical programme.

R. G. Cox
 Conference Manager

(Please refer to page 11 of January 1969 Newsletter) --- Editor

--- The International Measurement Confederation, as you probably know, organizes regularly every third year an international congress in the field of measurement and instrumentation. Between two congresses various symposia are organized by our member organizations, on specialized topics. Microwave-measurement was one of the topics chosen for an international symposium held 1966 in Budapest with the participation of more than 40 experts from abroad.

The next gathering of experts in this field will be held during the fifth IMEKO Congress, Versailles, May 1970, where from among the eight round table discussions to be organized one will deal with "The industrial application of microwave measurement".

In our regularly appearing conference calendar we included the symposium which you organize on Microwave Theory and Techniques in May 1969. We are convinced that participants of your arrangement will be interested to learn that the fifth IMEKO Congress offers a possibility to meet experts in the field concerned from every part of the world where they may further develop discussions and exchange experiences with their colleagues.

We therefore would highly appreciate the help you could render us in informing attendees of your symposium about our forthcoming event on similar topic, and we would welcome any other way of a cooperation you may propose.

Assoc. Prof. Dr. Gy. Striker
 Secretary General
 International Measurement Confederation

Note: Deadline for news for the next issue is 1 June.