

IEEE

NEWSLETTER



SONICS & ULTRASONICS GROUP

No. 31

Dr. John E. May, Editor
Bell Telephone Laboratories
Allentown, Pa.

September 1969

In the mailed ballot held early this spring the new members of the AdCom elected to serve for three-year terms ending in 1971 were Dr. Norman F. Foster, Mr. Stanley E. Jacke and Mr. Ernest Stern. Pictures and biographical sketches follow.

The new members replace the following members whose terms of office expired December 31, 1968:

Dr. W. L. Nyborg
Dr. P. L. Smith
Dr. D. L. White

The remaining members of the AdCom and terms of office are:

Dr. D. I. Bolef	1966-69
Dr. R. W. Damon	1966-69
Dr. E. P. Papadakis	1966-69
Dr. B. A. Auld	1967-70
Dr. R. W. Moss	1967-70
Dr. E. K. Sittig	1967-70

Dr. Norman F. Foster

Dr. Foster is presently a supervisor in the Sonic Device Department of Bell Telephone Laboratories, Allentown, Pa.

A native of Bristol, England, Dr. Foster received the B.S. degree in chemistry (1954) and the Ph.D. in physical chemistry (1957) from the University of Bristol.

After two years with the National Research Council in Canada, he joined Bell Laboratories in January 1960. His first work at Bell Laboratories was on electrodiffusion of alkali ions in crystalline quartz at elevated temperatures. Early in 1962 he turned to piezoelectric semiconductor ultrasonic transducer work and studied cadmium sulphide diffusion layer transducers. Since the spring of 1963 he has specialized in exploratory development of evaporated and sputtered thin film ultrasonic transducers and is the author of several technical articles in this field.

Dr. Foster is a member of the Institute of Electrical and Electronics Engineers and of the American Physical Society.

NEW
MEMBERS
ELECTED
TO
ADCOM

(CONTINUED)

Stanley E. Jacke



Mr. Jacke is President of Branson Sonic Power Co., Danbury, Connecticut, and Branson Instruments, S.A., Geneva, Switzerland. He was graduated with a BSEE from Purdue University in Lafayette, Indiana, and presently lives in Ridgefield, Connecticut.

After serving in various positions with the Deleco-Remy Division of General Motors, Detrex Chemical Industries, and Acoustica Associates Inc., Mr. Jacke formed the Sonic Energy Corporation which was purchased in 1961 by Branson Instruments Inc. Mr. Jacke was made President of the resultant Branson Sonic Power Company in 1966, one year after it had become a subsidiary of Smith Kline and French Laboratories.

Under Mr. Jacke's direction, Branson Sonic Power Company has pioneered in developing a new method of using ultrasonic vibrations for assembly operations such as welding plastic parts, plastics staking and metal insertion. Ultrasonic equipment is also manufactured for biomedical research and drilling ceramic materials.

Ernest Stern

Mr. Stern is currently leading a research effort at Lincoln Laboratory for the realization of microsound components and circuits. He joined Lincoln Laboratory in May, 1964 to work on remanent ferrite devices for phased arrays. From 1962 to 1964 was Director of Research at Microwave Chemicals Laboratory. Prior to that he worked at Sperry Gyroscope Company (1955-1958) and General Electric Company (1958-1962) on non-linear ferrite phenomena and on ferrite devices. He received his BS degree from Columbia University in 1953, and attended the Cornell graduate school from 1953-1955.

He is the author of many published papers dealing with various aspects of ferrite device design, and has several patents in his name. Currently he is a member of the Program Committees for the 1968 NEREM Conference, the 1969 IEEE Convention, and the 1969 Microwave Theory and Techniques Conference.

Mr. Stern is a Senior Member of the IEEE, and a member of Sigma Pi Sigma, RESA, and AAAS.



Sittig Elected Chairman

of AdCom

The Chairman of the G-SU AdCom for the 1969 year is Dr. Erhard Sittig, Bell Telephone Laboratories, Murray Hill, N.J. Vice-Chairman for the year is Dr. E. P. Papadakis, Parametrics, Waltham, Mass. These elections were held at the AdCom meeting on September 4, 1968.

1968 IEEE Ultrasonics

Symposium

Attendance at the 1968 Symposium held at the Statler Hilton Hotel, New York City, reached an all time high of 424 persons. This Symposium arranged by a committee under the chairmanship of Dr. F. M. Smits, Bell Telephone Laboratories, Murray Hill, New Jersey, earned a profit about \$800 and therefore was both a technical and a financial success.

Plans Well Advanced

for 1969 IEEE

Ultrasonics Symposium



General Chairman Dr. Dan Bolef announces that arrangements are nearly completed for the 1969 Symposium to be held on September 24-26 at the Chase Park Plaza Hotel, St. Louis, Missouri. The Symposium Committee includes:

General Chairman, Publicity, and Treasurer	Prof. D. I. Bolef Dept. of Physics Washington University St. Louis, Missouri 63130
Program Committee	Dr. C. K. Jones Westinghouse Electric Corp. Research & Development Center Churchill Borough Pittsburgh, Pa. 15235
Local Arrangements	Prof. F. J. Rosenbaum Dept. of Elec. Engrg. Washington University St. Louis, Missouri 63130 Prof. R. K. Sundfors Dept. of Physics Washington University St. Louis, Missouri 63130

In addition to the Technical Program a Social Hour is planned for Wednesday evening, September 24th at 6:00 p.m.

Program Chairman Dr. C. K. Jones has announced the completion of the Program consisting of 16 invited and approximately 90 contributed papers arranged into 12 sessions.

A partial listing of invited speakers for 1969 IEEE Ultrasonics Symposium includes:

H. S. Bennett National Bureau of Standards	"Ultrasonic Studies in Heisenberg Paramagnets"
E. G. Lean & C. C. Tseng I.B.M. Watson Research Center	"Nonlinear Effects in Surface Acoustic Waves"
H. Matthews Sperry Rand	"Surface Magnetoelastic Waves"
D. S. Cannell and G. B. Benedek M.I.T.	"Brillouin Scattering in Xenon Near the Critical Point"
D. Maydan and D. A. Sealer Bell Telephone Laboratories	"Acousto-optic Modulators with Nanosecond Risetime Capability"
J. Eveleth	"The State of the Art in Ultrasonic Delay Lines"
B. H. Schofield Teledyne Materials Research	"Acoustic Emission Development and Current State-of-the Art"
J. Collins and T. M. Reeder Autonetics Division of North American Aviation	"Active Surface Acoustic Wave Delay Lines"
D. A. Pinnow Bell Telephone Laboratories	"Acousto-optic Materials and Light Deflection Devices"
G. Atkinson University of Maryland	"Low Frequency Absorption in Water"
F. L. Thurstone Duke University	"Acoustical Imaging of Biological Specimens"
P. Pohlmann Laboratorium fur Ultraschall	"Producing of Fine Particles by Various Ultrasonic Means"
R. W. Moss Boeing Scientific Research Laboratories	"Ultrasonic Propagation Near Critical Point Transformations"
M. Levy University of California Los Angeles	"Ultrasonic Relaxation Processes in the Spin Spiral Phase of the Magnetic Rare Earths"
B. Langenecker Naval Weapons Center China Lake	"Metal Deformation in Macrosonic Fields"
B. T. Cross Automation Ind.	"Schlieren Techniques for Nondestructive Testing"
	"Monolithic Crystal Filters"



November 4-7, 1969

Acoustical Society of America, El Cortez Hotel, San Diego, Calif. Meeting Chairman, Dr. R. W. Young, Nav Undersea Research and Development Center, San Diego, Calif. 92132.

November 4-5, 1969

Conference on Interaction of Light with Sound. (Part of above meeting.)

November 17-18, 1969

Developments in Laser Technology, cosponsored by the Institute of Optics, University of Rochester and the Society for Photo-Optical Instrumentation Engineers, Flagship Hotel, Rochester, N.Y.

Further information: H. F. Sander, Exec. Secretary, SPIE, 216 Avenida del Norte, Redondo Beach, California 90277.

December 8-10, 1969

International Symposium on Circuit Theory, sponsored by the IEEE (G-CT), Mark Hopkins Hotel, San Francisco, California.

February 18-20, 1970

International Solid State Circuits Conference, Sheraton Hotel and Univ. of Pennsylvania, Philadelphia, Pa. Program Chairman, Mr. L. D. Wechsler, General Electric Co., Electronics Park, Building #3, Syracuse, N.Y. 13201. Deadline for abstracts, Oct. 17, 1969.

March 23-26, 1970

IEEE International Convention and Exhibition, Coliseum and New York Hilton, New York, N.Y. For Program Information, IEEE Headquarters, 345 E. 47th St., New York, N.Y. 10017.

April 21-24, 1970

Intermag Conference, Statler Hilton Hotel, Washington, D.C. Program Chairman, Dr. Daniel S. Shull, Jr., Bell Telephone Laboratories, Inc., 3300 Lexington Road, S.E., Winston Salem, N.C. 27102. Deadline for abstracts, March 7, 1970.

May 4-5, 1970

IECI-IEEE Transducer Conference, National Bureau of Standards, Gaithersburg, Maryland. Program Chairman, Dr. Robert B. Spooner, IMPAC Instrument Service, 201 East Carson Street, Pittsburgh, Penna. 15219. Deadline for abstracts, November 1, 1969.

May 11-14, 1970

IEEE International Microwave Symposium, Newport Inn, Newport Beach, Calif. Program Chairman, Dr. Ray Duhamel, Granger Associates.

May 19-21, 1970

1969 Conference on Signal Processing Methods for Radio Telephony, London, England.

Information: IEE Conference Department, The Institution of Electrical Engineers, Savoy Place, London WC2, England.

September 21-24, 1970

International Conference on Engineering in the Ocean, Panama City, Florida. Program Chairman, C. B. Koesy, Code P750, Naval Ship Research and Development Laboratory, Panama City, Florida 32401. Deadline for abstracts, March 3, 1970.

September 4-9, 1969

Ferroelectricity Symposium, Kyoto, Japan

September 8-12, 1969

European Microwave Conference, cosponsored by IEEE, IEE and IRE, London, England.

Information: Conference Dept. IEE, Savoy Place, London WC2, England.

September 10-12, 1969

1969 Microelectronics Symposium, cosponsored by the IEEE G-MTT and the St. Louis Section in cooperation with G-ED, G-CT and G-FMP, Colony Motor Hotel, Clayton (St. Louis County), Mo.

September 16-19, 1969

3rd Annual Conference on Solid State Devices, Univ. of Exeter, Devon., England.

September 23-25, 1969

Industrial Ultrasonics Conference, cosponsored by the IERE, IEE, Inst. of Phys. & Phys. Soc. and the IEEE United Kingdom & Republic of Ireland Section, Loughborough, Leicestershire, England.

Further details: IERE, 8/9 Bedford Square, London WC1, England.

September 25-27, 1969

Lasers and Opto-electronics IERE, Southampton.

Details: IERE, 8 Bedford Square

October 1-4, 1969

Acoustoelectric Phenomena in Semiconductors, Aviemore, Scotland. Information about the conference is available from Prof. N. I. Meyer, Physics Dept., the Technical University of Denmark, Lundtofte, Lyngby, Denmark, and Dr. E.G.S. Paige, Royal Radar Establishment, St. Andrews Road, Great Malvern, Worcs.

October 29-31, 1969

1969 International Electron Devices Meeting sponsored by IEEE G-ED Sheraton Park Hotel, Washington, D.C.

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S OLVING
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GUNNAR WIDEROTH

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W V RICHINGS
PETER N ROBSON
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J B CLARICI
E A EFIMOV
F W GUNDLACH
BORIS A KOSTANJANZ
TAISTO E J LEINONEN
L SZANTO
J D VOCOLIDES

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HORACIO R TOSCANI
CESAR A VASQUEZ

CHILE

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PERU

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ABRAHAM M GONZALEZ

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VENEZUELAN

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TAKEO SÉKI
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GEORGE SHIMAKAWA
I SOMEYA
CHOSUKE SUGI
MICHITA SUZUKI
TATSUO SUZUKI
MIKIO TAKAGI

IWAQ TAKAO

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Y TAREDA

OKADA TAKEO

IKUO TANAKA

YONEJI TANAKA

FUSAO TANIGUCHI

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ISAQ TORIYAMA

TOSHIO WAKO

HAJIME YAMAGUCHI

MASARU YAMANO

TAKASHI YAMAZAKI

TSUTOMU YASUDA

TSUGUO YOSHIDA

TAKEO YOSHINO

OVERSEAS MILITARY

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WILLIAM M TUCKER

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DAITARO OKUYAMA

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TSAWAMURA

N SAWAZAKI

Program for "Ultrasonics for Industry"

Conference in London Announced



The annual exhibition and conference "Ultrasonics for Industry" sponsored by Iliffe, Exhibitions Ltd. will be held October 7-8 at St. Ermin's Hotel, London, England. Additional information may be obtained from the sponsor at Dorset House, Stamford Street, London SE1. The program is as follows:

Session 1: Materials Evaluation

- M. F. Markham
National Physical Laboratory
Teddington, Middlesex
"The NPL Ultrasonic Tank:
Its Uses in Polymer and
Fibre Composite Testing"
- G. Curtis
Nondestructive Testing Centre
UKAEA Harwell
Didcot, Berkshire
"Harwell Equipment for
Materials Evaluation by
Ultrasonics"
- B. S. Hockenhull and
R. G. Hacking
The College of Aeronautics
Cranfield, Bedfordshire
"Fatigue Testing of Engi-
neering Materials at
Ultrasonic Frequencies"
- W. R. Davis
The British Ceramic Research
Association
Penkhull, Stoke-on-Trent
"Determination of Elastic
Constants of Ceramics by
Ultrasonic Resonant Fre-
quency Methods"
- R. Lewis
Stewart & Lloyds Ltd.
Corby, Northamptonshire.
"Automatic Ultrasonic
Inspection of Steel
Tubes"

Session 2: Medical and Biophysical

- C. N. Smyth
"Recent Progress in
Medical Ultrasonics"
- R. C. Gosling
Guy's Hospital Medical School
London, S.E.1.
"Transcutaneous Measure-
ment of Flow Velocities
in Blood by Ultrasonics"
- A. D. Christie
Department of Medical Physics
University of Aberdeen
"Sensitivity and Resolu-
tion in Ultrasonic Scan-
ning Apparatus"
- C. R. Hill
Institute of Cancer Research
Sutton, Surrey.
"Biophysical Effects of
Cavitation in an Ultra-
sonic Beam at 1 MHz"
- M. Ayad
Physics Department
Imperial College
London, S.W.7.
"The Haemolysis of Blood
by Ultrasound"

Session 3: Electronics Applications

- W. Willis
Mullard Research Laboratories
Redhill, Surrey.
"Acoustic Surface Waves"
- J. J. Clementson
I.C.I. Mond Division
Runcorn, Cheshire.
"Ultrasonic Cleaning with
Fluorocarbon Solvents/
Water Systems"
- J. Perkins
Kerry Ultrasonics Ltd.
Hitchin, Hertfordshire.
"Ultrasonic Microbonding
Equipment"
- I. Flinn
Mullard Research Laboratories
Redhill, Surrey.
"Testing Piezoelectric
Ceramics for Power Trans-
ducer Applications"

Session 4: Non-Destructive Testing

- D. H. Turner
Central Electricity Generating
Board
London, E.C.1.
"An Ultrasonic Bracelet
Probe Device for Inspec-
tion of Tube Butt Welds"
- D. Sproule
Videoson
Elgin Crescent
London, W.11.
"An Ultrasonic Imaging
System for Flaw-Detection"
- E. E. Aldridge
Electronics & Applied Physics
Division
AERE
Harwell, Didcot, Berkshire.
"Ultrasonic Holography as
a Possible NDT Tool"

Plans Formulated for 1970 Symposium

The 1970 IEEE Ultrasonics Symposium will be held at the Jack Tar Hotel, San Francisco, California, Oct. 21-23. General Chairman will be Dr. A. J. Bahr, Stanford Research Institute, Palo Alto, California. Program Chairman will be Dr. W. J. Spencer, Bell Telephone Labs., Allentown, Pa.

Transactions on Microwave Theory and Techniques Plans Issue on Microwave Acoustics

A special issue of the IEEE Transactions on Microwave Theory and Techniques is planned for publication in late 1969. Papers were requested from G-SU members at an earlier date. The G-SU AdCom has completed special arrangements to have copies of this issue sent to all G-SU members.

TC-TR Chairman's Report

Dr. W. J. Spencer, TC-TR Chairman, has reported that the full TC-TR Committee has approved a draft version of the Piezomagnetism Standard which has been prepared by the Subcommittee on Piezomagnetism. The TC-TR cosponsored a "Symposium on Applications of Ferroelectrics" held at Catholic University, October 10-11, 1968, and a session on the definition of piezoelectric coupling factors at the 1968 Ultrasonics Symposium. The Committee is currently preparing material for presentation at the June 1970 meeting of the International Electrotechnical Committee to be held in Washington, D.C. Dr. Spencer has announced the formation of a new Subcommittee on Delay Lines. This Committee has met and is presently formulating a list of definitions appropriate to the delay line field. Members of this Committee are:

Dr. J. E. May, Chairman
Bell Telephone Laboratories, Inc.
555 Union Boulevard
Allentown, Pennsylvania 18103

Dr. A. J. Bahr
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

Dr. J. H. Collins
Autonetics Division
Rockwell Corporation
P. O. Box 4173
3370 E. Miraloma Ave.
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Mr. J. H. Eveleth

Dr. N. F. Foster
Bell Telephone Laboratories, Inc.
555 Union Boulevard
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Mr. T. J. Geoghegan
Microsonics
60 Winter Street
Weymouth, Mass.

Mr. I. Miller
Corning Glass Works
Bradford, Pa.

Dr. F. A. Olson
Teledyne, Inc.
Microwave Electronics Dept.
3165 Porter Drive
Palo Alto, California 94306

Dr. Ernest Stern
M.I.T.
Lincoln Laboratory
Lexington, Massachusetts 02173

Dr. S. W. Tehon
General Electric Co.
Electronics Park
Syracuse, N. Y.

Mr. Frank Yoerg
Digital Devices
Syosset, L.I., New York

IEEE Reorganizes Technical Activities

D. L. White, TAB Representative

The structure of the IEEE is being reorganized in an effort to give greater emphasis to technical activities. It is hoped that Technical Groups (such as the G-SU) will have a larger voice in IEEE affairs. In a reorganization plan currently under consideration, the 31 Technical Groups would be divided into 7 divisions. Each division will elect a director who will sit on the IEEE board of directors. The G-SU would be in the Electroscience division, along with Antennas & Propagation, Circuit Theory, Electron Devices, Microwave Theory and Techniques and Magnetics.

The new structure should offer further advantages to the individual Groups. Cooperation between Groups and with outside societies will be more flexible.

Since these changes emphasize the technical aspects of IEEE, the G-SU is expected to benefit.

Obituary Notice

Professor Egon A. Hiedemann

Members of the G-SU were saddened by the death early this year of Professor E. A. Hiedemann, professor of physics at the Michigan State University, East Lansing, Michigan. Professor Hiedemann's contributions to the teaching of physics and to the field of elasto-optic interactions are legend. He had served for many years on the G-SU Editorial Board as Associate Editor for Measuring Techniques.

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