

IEEE

NEWSLETTER



SONICS & ULTRASONICS GROUP

Dr. E. P. Papadakis
Ford Motor Company
Manufacturing Development Center
24500 Glendale Avenue
Detroit, Michigan 48008

NUMBER 41 SEPTEMBER 1975

MESSAGE FROM THE PRESIDENT

by Alfred J. Bahr

This newsletter represents my first opportunity to communicate to all Group members from the perspective of Group President. One doesn't have to serve in this office very long before he gains an appreciation for how the efforts of the past Presidents and their fellow officers have all contributed to the strength of the Group. In this regard, I would like to express my personal thanks and the gratitude of the entire Group to Norm Foster, our outgoing President, for his many contributions during the past year. Fortunately, Norm is still keeping a hand in AdCom business by undertaking the rewriting of our Group constitution, a very necessary administrative requirement that is long overdue.

This past spring, three new members were elected to AdCom. They are Paul Carr, Fred Hickernell, and Fritz Thurstone. Fred has already agreed to serve as an associate editor of this newsletter, and Fritz will be our liaison representative to the Group on Engineering in Medicine and Biology.

The official scope of the Group has been rewritten and was approved at the TAB meeting on January 31, 1975. The AdCom feels that the new scope is a more accurate description of the traditional interests of the Group. The new scope reads as follows:

Theory, design, and applications relating to the generation, transmission, and detection of bulk and surface mechanical waves.

Areas of interest range from fundamental studies in physical acoustics to the design of sonic and ultrasonic devices and their applications in industry, biomedicine, and signal processing.

For some time, the editorial policy of our Transactions has been to publish papers that are in keeping with this description of our scope, and this has been exemplified by the recent series of comprehensive review papers. In addition, plans are now being

Continued on page 2

1975 ULTRASONICS SYMPOSIUM

The 1975 Ultrasonics Symposium will be held at the Los Angeles Hilton, Los Angeles, California on September 22-24, 1975. A call has gone out requesting contributed papers on new discoveries, recent advances, new devices and techniques, and applications in all areas of sonics and ultrasonics. Tutorial papers will be presented as plenary lectures and will be offered prior to all regular morning sessions. Invited papers will be presented during the regular sessions but will be scattered throughout the day permitting participants to have the opportunity to hear as many invited papers as possible. A new innovation, the poster session, will be tried at the Los Angeles meeting. For those unfamiliar with the concept of the poster session, reference is made to Science, 28 June 1974. "One large meeting room (or more) is filled with bulletin boards on which the participants place graphs, diagrams, data, pictures and a small amount of text to illustrate the main points of their presentation. The participants then remain with the display for a set period—generally 1 to 1-1/2 hours—to expand on the material and answer questions. Visitors to the sessions can either wander through as in a museum or go directly to the papers that interest them." The Program Committee members feel that poster sessions may give much more flexibility to the Symposium and further, may allow for more papers to be presented without going into extra sessions or additional days.

Because the Symposium will occur in mid-September the deadline for submission of abstracts of contributed papers has been set at the latest possible date, Tuesday, 1 July 1975 which will insure that the Symposium will serve as a forum for the most current work. The Chairman of the Technical Program Committee is Dr. George A. Alers, Science Center, Rockwell International, P.O. Box 1805, Thousand Oaks, CA 91360.

For further information, please contact Dr. Alers or the General Chairman of the Symposium, Professor Richard Stern, UCLA School of Engineering and Applied Science, 5731 Boelter Hall, Los Angeles, CA 90024.

formulated to publish a special issue next year on ultrasonic nondestructive testing, with special emphasis on recent research in this area.

Another area that deserves more attention from this Group is that of Underwater Sound. A review paper on this subject will be published in the Transactions shortly, and, in addition, we will be joining the newly formed IEEE Council on Ocean Engineering. This will entitle our members to special consideration with regard to receiving the quarterly journal that is to be published by this Council.

In closing, I would like to remark that, as a Group, we are relatively well off. Over the last two years we have grown slightly both in membership and in financial reserves. Because of this, we have been able to increase the frequency of publication of our Transactions from quarterly to bimonthly. Maintenance and improvement of this and other member services will depend, of course, on your continued support. If you have comments on any of the actions taken by the AdCom please feel free to contact me or any other AdCom member directly.

REPORT OF THE NOMINATIONS COMMITTEE AND REQUEST FOR NOMINATIONS

This year six men were nominated for election to the Administrative Committee of the Group. These were:

T.W. Bristol
K.H. Breck
P.H. Carr
F.S. Hickernell
M. Levy
F.L. Thurstone

All of these could have made meaningful contributions to the operation of the AdCom, but only three can be elected. Elected this year were Carr, Hickernell, and Thurstone. These men replace Bob Adler, John Shaw and Don Thompson.

A new slate of six members will be put forth by the Nominations Committee before November 1975. The committee would welcome suggestions for appropriate nominees. Our by-laws also allow for a nominating petition, carving a minimum of twenty-five names of Group members, to place a nominee on the slate.

M.G. Holland
Chairman
Nominations Committee
(Raytheon Research Division
28 Seyon Street
Waltham, MA 02154)

CHAPTERS

The Group on Sonics and Ultrasonics is again attempting to establish local chapters of the Group throughout the country, and in addition, is hoping to encourage student chapters at many of the Universities where acoustics has become an established field of study. For further information on how to start a chapter and what to expect in the way of help and support, please contact Professor Richard Stern, UCLA School of Engineering and Applied Science, 5731 Boelter Hall, Los Angeles, CA 90024.

MEMBERSHIP REPORT

by Robert E. Lee

The current total G-SU membership stands at 1,540. This number reflects the yearly slump experienced by most IEEE groups after the first part of the year due to nonrenewal by current members. However, the total membership has grown since last year at this time and a net membership growth of 3 to 5 percent can be anticipated by the end of 1975.

I urge all of those that have let their memberships lapse to reconsider the cost-to-benefits ratio of belonging to the G-SU (especially in light of the expanded six issues per year transactions). The upcoming Ultrasonics Symposium, to be held September 22 - 24, in Los Angeles, affords an excellent opportunity to rejoin the group.

I want to report some effort by the membership committee in cooperation with Dr. R. Stern to stimulate growth in the number of student members of G-SU. Initial work has concentrated on contacting both IEEE faculty advisors and professors teaching sonics and ultrasonics related courses. G-SU student membership benefits were explained and various ideas on student participation in G-SU advanced. We hope to continue this recruiting effort in the future and we solicit any ideas from the membership that would make G-SU more attractive to current University or College students.

1975 G-SU ADCOM

1975 G-SU AdCom MEMBERS

Dr. R.C. Addison
American Optical Corp.
Research Labs
P.O. Box 2267
Framington, MA 01701
(617) 879-1880

Dr. Robert Adler
Research Department
Zenith Radio Corporation
6001 W. Dickens Avenue
Chicago, IL 60639
(312) 745-4854

Dr. A.J. Bahr
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, CA 94025
(415) 326-6200 Ext. 4631

Mr. D.W. Baker
Center for Bioengineering
BB 1025 HSB RK-15
University of Washington
Seattle, WA 98195
(206) 543-0960

Dr. P.H. Carr
Technical Program Chairman of
1976 Ultrasonics Symposium
AFCRL, L.C. Hanscom Field
Bedford, MA 01730
(617) 861-2527

Dr. L.T. Claiborne
Texas Instruments, Inc.
Dallas, TX 75222
(214) 238-2426

Dr. J. de Klerk
Westinghouse Research Lab
Beulah Road
Pittsburgh, PA 15235
(412) 256-3595

Dr. N.F. Foster
Bell Laboratories
Holmdel, NJ 07733
(201) 949-6209

Prof. F.J. Fry
Indianapolis Center for Advanced
Research
410 Beauty Avenue
Indianapolis, IN 46202
(317) 264-4386

Dr. F.S. Hickernell
Co-chairman 1977
Ultrasonics Symposium
Motorola Government Electronics Division
8201 E. McDowell Road
Scottsdale, AZ 85252
(602) 949-2923

Dr. M.G. Holland
Raytheon Research Division
28 Seyon Street
Waltham, MA 02154
(617) 899-8400 Ext. 2466

Dr. Hans Jaffe
Gould, Inc.
540 E. 105th Street
Cleveland, OH 44108
(216) 851-5500

Dr. C.K. Jones
Westinghouse Research Labs
Beulah Road
Pittsburgh, PA 15235
(412) 256-3286

Dr. L.W. Kessler
Sonoscope, Inc.
752 Foster Avenue
Bensenville, IL 60106
(312) 766-8795

Dr. G.S. Kino
Microwave Laboratory
Stanford University
Stanford, CA 94305

Dr. R.E. Lee
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, CA 94025
(415) 326-6200

Dr. E.G.H. Lean
IBM Watson Research Center
P.O. Box 218
Yorktown Heights, NY 10598
(914) 945-2311

Dr. J.E. May
Bell Labs
1600 Osgood Street
North Andover, MA 01854
(617) 685-9121 Ext. 4171

Dr. T.R. Meeker
Bell Laboratories
555 Union Boulevard
Allentown, PA 18103
(215) 439-6838

Dr. A.H. Meitzler
Ford Motor Company
Scientific Research Staff
P.O. Box 2053
Dearborn, MI 48123
(313) 323-1259

Dr. W.D. O'Brien, Jr.
Bioacoustics Research Lab.
University of Illinois
Urbana, IL 61801

Dr. E.P. Papadakis
Ford Motor Company
Manufacturing Development Center
24500 Glendale Avenue
Detroit, MI 48239
(313) 533-1035

Dr. W.J. Spencer
Sandia Laboratory
Albuquerque, NM 87115
(505) 264-7221
(Past President)

Prof. R. Stern
Department of Engineering
University of California at
Los Angeles
Los Angeles, CA 90025
(213) 825-5217

Dr. F.L. Thurstone
Duke University
Biomedical Engineering Division
Durham, NC 27706
(919) 684-6185

Dr. R.N. Thurston
Bell Telephone Laboratories
Holmdel, NJ 07733
(201) 949-5314

Prof. C.S. Tsai
Carnegie-Mellon University
Dept. of Electrical Engineering
Schenley Park
Pittsburgh, PA 15213
(412) 621-2600

Dr. H. van de Vaart
Sperry Research Center
100 North Road
Sudbury, MA 01776
(617) 369-4000

Dr. S. Wanuga
Electronics Lab
Room 135
Electronics Park
Syracuse, NY 13201
(315) 456-2027

OTHERS

Dr. G. Alers
Technical Program Chairman of
1975 Ultrasonics Symposium
P.O. Box 1085
1049 Camino Dos Rios
Rockwell International
Thousand Oaks, CA 91360
(805) 498-4545 Ext. 380

Dr. R.M. Emberson
IEEE Director of Technical Services
IEEE Headquarters
345 East 47th Street
New York, NY 10017
(212) 644-7889

Prof. I. Kaufmann
Co-chairman 1977 Ultrasonics
Symposium
Arizona State University
Electrical Engineering Department
Tempe, AZ 85281
(602) 965-3424

Mr. R. Rivers
Director Division 4
AIRCUM, Inc.
Mail Street
Union, New Hampshire 03887

Dr. L.R. Whicker
Chairman 1976 Ultrasonics Symposium
Naval Research Laboratory
Code 5250
Washington, D.C. 20375

EDITOR'S REPORT ON THE TRANSACTIONS ON SONICS AND ULTRASONICS

by Stephen Wanuga, Editor

I. 1974 TRANSACTIONS

The volume SU-21, 1974 Transactions were a great success. The total pages for the 4 issues including covers was 342, just 8 pages off our projected 350 total. Two issues in this Volume contained "Review Articles" covering areas of our responsibility. The page charge returns were excellent; totaling an overall 64% for the year. Based on a voluntary page charge return of \$60/page, the return income to our Group should be approximately \$9200. This marks the second year in succession that our Transactions have had 65% voluntary page charge returns. The 1973 manuscript pages totaled 354.

II. 1975 TRANSACTIONS

The projected pages total for the Volume SU-22, 1975 Transactions is 432. Our first issue, No. 1, Jan. 1975 had a total of 54 manuscript pages. Included in this issue was a book review on "Piezoelectric Ceramics" by Jaffe, et.al..

The volume SU-22, No. 2, March 1975 issue contains 2 parts of a Review Paper "Review of Industrial Application of Ultrasound" plus 8 other regular manuscripts. In addition, I have published a tabulation of "Coming Technical and Scientific Meetings" of interest to the Sonic and Ultrasonic media. The issue is projected as having an estimated 100 pages of manuscripts. The estimated balance of remaining printing and costs are 4 issues, 252 pages, and \$15,400.

The volume SU-22 No. 3 May issue is complete and contains 7 regular manuscripts; the 1974 Ultrasonic Symposium Abstracts, an Editorial, and an announcement of the forthcoming IEEE Proceedings Special Issue on Surface Acoustic Waves. The Editorial was written for purposes of emphasizing our transaction publication procedures, appeal for more care in manuscript preparation, and encouragement to publish in all our responsible areas of sonics and ultrasonics. The issue has an estimate of 64 pages.

The volume SU-22, No. 4 July 1975 issue is about 70% complete. At present, there are 6 manuscripts at IEEE.

Two additional Review Articles "Acoustic Holography and Imaging" and "Acousto-optic Interactions" are presently in preparation.

The present status of papers show 9 manuscripts in various forms of review. These include 4 surface wave, 2 medical ultrasonics, 2 filters and resonators, and 1 piezoelectric and magnetostrictive materials. There has been a low to moderate drop off in the number of manuscripts submitted since our Symposium meeting. Just how much is due to the large number of papers in the Symposium Proceedings and how much is due to the general economic state, I am not sure. Hopefully, my editorial in the May issue will spark some encouragement for more manuscripts. In addition, I have alerted all the associate editors to try and encourage previous authors and other workers to write and submit papers. The status is not alarming at this time. However, as the review articles become fulfilled, our needs for additional manuscript pages will increase. It is for this reason I am trying to make preparations for near and future commitments.

III. PANEL OF EDITORS MEETING, APRIL 8, 1975, NEW YORK, NEW YORK

The annual Panel of Editors meeting was attended on Tuesday, April 8, 1975. The meeting was very interesting and I considered it worthwhile and a success. The meeting started our with: a) welcome address by Bob Lucky, Chairman, Panel of Editors. Jim Carter (Manager of Editorial Services followed with (b) general discussion of the following topics:

- a) Use of Metric System in papers. Hopes everyone is converting.
- b) Invited papers should appear first and get in first.
- c) Guest Editors notify IEEE.
- d) Would like table of contents as early as possible.
- e) Try to take a look at each page, especially math. Late pieces require 4 mailings.
- f) If late, notify Senior Editor.

A discussion centered on foreign authors and the excessive time required to straighten our proper English, etc. Jim Carter will look into Japan for a commercial translator to be recommended for Japanese manuscript submittals.

Larry Liebman followed with discussion (c) on Production Methods and Costs. He defined 3 major areas of costs: (1) composition, (2) printing, and (3) distribution. IEEE is trying for cost reduction trying to keep composition costs down. At present 50% is in Hot Metal Monotype and 50% in cold type. IEEE is experimenting with Computer Type setting composition, price is right, but scheduling is giving problems.

Suggest all editors look at math - high costs and author modification. Manuscript must be clear.

Other aspects that IEEE are pursuing may help in getting lower printing costs.

1974 paper costs went up: October 1973 - October 1974 up 81%, January 1974 - December 1974 up 50%, 1975 looks better, may be a 15% decrease in paper costs for first half.

Voluntary page charges beginning in 1975 will be \$70 per page.

Recent publication developments were discussed.

1. TAB and Publication will merge.
2. Annals - Reprint Distribution Service.
3. New Journal - (a) Software by Computer Society, (b) Ocean Engineering - requires new approval; will be run by a council rather than a group.

4. Under discussion - Pubs - are we covering all areas of activities in new journals, etc.? New areas under consideration: Optics, Power Electronics, Application Papers.

Next year - Bicentennial - 2 recognition issues possible (a) special IEEE press, and (b) Special IEEE proceedings.

IV. SUMMARY

1973 and 1974 were very good all around years for our Transactions, technical areas covered, manuscripts, page published, and voluntary page charge returns were all noteworthy.

Bi-monthly publication of our 1975 Transactions has begun with good prospects. Steps have been taken to improve cost consciousness throughout the entire publication community from the author down to the printer. These have been initiated through communications with the associate editors, the senior editor at IEEE, and my editorial letter regarding our Transaction publications. Many favorable comments have been received in much of my correspondence with authors regarding our "Review Papers".

I would like to ask that all of us involved both within and outside of the AdCom to recommend and encourage any associates and prospective authors to write and submit papers for publication in our Transactions. This is especially recommended for papers involving those areas presently being emphasized by our "Review Papers". In this manner we can help fulfill our commitment towards full coverage of our responsible areas and publication of bi-monthly issues.

1975 ULTRASONICS SYMPOSIUM PROCEEDINGS

The publication of the annual symposium proceedings has proved to be extremely valuable to everyone working in the field. Workers outside the U.S.A. have expressed their appreciation as so many of them are unable to attend the Symposium. Participation in the publication by speakers at the Symposium has increased from 75% in 1972 to over 90% in 1974. A few of the authors submitted their manuscripts after the Proceedings went to press and consequently could not be included. This year, as the Symposium will be held in September, the usual year-end printers' holidays will not intervene. This will result in the 1975 Ultrasonics Symposium Proceedings becoming available by the first week of November. Authors are urged to submit their manuscripts at the Symposium to ensure their inclusion. The printer will receive the manuscripts no later than October 1, 1975.

The format of the manuscripts will be the same as in the past three issues. A complete set of typing instructions will be sent to the author of each paper accepted for presentation.

J. de Klerk
Editor
Ultrasonics Symposium Proceedings

1976 IEEE INTERNATIONAL CONFERENCE ON ACOUSTICS, SPEECH, AND SIGNAL PROCESSING

Marriott Hotel, Philadelphia, PA.
April 12-14, 1976

Call for Papers

The 1976 IEEE International Conference on Acoustics, Speech and Signal Processing will be held at the Philadelphia Marriott Hotel on April 12-14, 1976. The conference is sponsored by the IEEE Group on Acoustics, Speech and Signal Processing and by the Philadelphia Section of the IEEE, and is the first in a series of annual conferences.

Prospective authors are invited to submit titles and abstracts for consideration in the areas of Signal Processing, Speech Processing, Underwater Acoustics, Electroacoustics and Noise Measurement. The Technical Program Committee will then select a balanced program to fit the available time for presentation. Final acceptance will be determined after the submission of a 4 page Photo Ready Paper. Authors will be invited to prepare an expanded paper for inclusion in a special issue of the IEEE Transactions on Acoustics, Speech and Signal Processing.

Schedule for Authors

Submission of Title and 100-Word Abstract	October 1, 1975
Submission of 4 Page Photo-Ready Paper in Prescribed Format	December 1, 1975
Notification of Acceptance	February 1, 1976
Oral Paper Delivery	April 12-14, 1976

Instructions for Authors

Title and Abstract should be typed on one plain 8 1/2 x 11 sheet of paper and submitted in triplicate - one copy of which must be an original. Responses should contain title of paper, name(s) of author(s), and 100-word abstract. Author kits will be sent before November 1, 1975, to all those who submit acceptable abstracts before the October 1st deadline.

Submit Abstracts and Papers to:

Technical Program Chairman
Dr. Thomas B. Martin
Threshold Technology Inc.
Route 130 & Union Landing Road
Cinnaminson, NJ 08077

For General Information:

Conference Chairman
Mr. Charles F. Teacher
Aeronutronic-Ford Corporation
3900 Welsh Road
Willow Grove, PA 19090

SHORT COURSE

SHORT COURSE NO. 349 ON SONAR

Title: Principles of Sonar
Date: October 20 - 24, 1975
Location: George Washington University, Washington, D.C.
Description: This course is designed for engineers, physicists, and mathematicians who need a better working knowledge of sonar, including underwater sound, the undersea acoustic environment, and the basic principles that govern sonar systems for target detection, localization and tracking. Sonar equations will be introduced early in the course for use in a practical problem solving session. The new revised second edition of "principles of Underwater Sound for Engineers", authored by the instructor, will be used as the text for the course. There are no prerequisites for the course; however, some familiarity with electronics, physics or mathematics would be helpful.

Fee: \$395

For further information, please write to:

Director
Continuing Engineering Education
George Washington University
Washington, DC 20052
(202) 676-6106.

Exhibitions

Two types of exhibitions will be available at the conference. Educational exhibits from non-profit institutions will be accepted at no charge on a space-available basis. Commercial exhibit space will also be available for any organization wishing to exhibit products of capabilities related to the theme of the conference. Information concerning available space and rates, for commercial exhibits, can be obtained from:

Educational Exhibits

Mr. John Preusse
USAECOM
Fort Monmouth, NJ 07703

Commercial Exhibits

Mr. Burton L. Price
Aeronutronic-Ford Corporation
3900 Welsh Road
Willow Grove, PA 19090

SPECIAL PROCEEDINGS WILL COVER SURFACE ACOUSTIC WAVES

Surface acoustic wave devices and applications will be the subject of a special issue of the PROCEEDINGS of the IEEE which is being organized for publication in March 1976. The performance and limitation of passive and active surface wave devices will be treated in invited and contributed papers. The major categories to be covered include properties of materials, surface wave filters, adaptive surface wave devices for signal processing, surface wave optical and acoustic scanning devices. In addition, contributions are solicited which describe applications of surface waves to communication systems, oscillators, radars and television.

Contributed papers in any of these categories are welcome. Prospective authors should submit 500 word summaries before May 15, 1975, to guest editors Ernest Stern, M.I.T., Lincoln Laboratory, Lexington, Massachusetts 02173; Lou Claiborne, Texas Instruments, Dallas, Texas 75222 or Gordon Kino, Stanford University, W.W. Hanson Laboratory of Physics, Stanford, California 94305. Three copies of full-length manuscripts will be due by September 1, 1975.



IEEE

SONICS & ULTRASONICS GROUP

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.
345 EAST 47TH STREET, NEW YORK, NEW YORK 10017

"POSTMASTER: IF UNDELIVERABLE, DO NOT RETURN."

Non Profit Org.
U.S. Postage
PAID
IEEE