IEEE

# NEWSLETTER

## SONICS & ULTRASONICS GROUP

NUMBER 39 ... AUGUST 1974

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

CALL FOR PAPERS

# 1974 Ultrasonics Symposium

## NOVEMBER 11-13, 1974

## PFISTER HOTEL MILWAUKEE, WISCONSIN

The 1974 Ultrasonic Symposium will be held on Monday, Tuesday, and Wednesday, November 11-13, 1974 at the Pfister Hotel in Milwaukee, Wisconsin. Professor Moises Levy of the University of Wisconsin is General Chairman.

PAPERS SOUGHT on new discoveries, recent advances, new devices, new techniques, and applications in all areas of sonics and ultrasonics. A partial list of topics includes: acousto-electric and acousto-optic interactions; acoustic imaging and holography; diagnostic and theraputic medical ultrasonics; industrial applications of ultrasound including nondestructive testing and acoustic emissions; materials; physical acoustics, including studies of phonon echoes, phase transitions and superconductors; macrosonics, ultrasonic transducers; frequency control devices including filters and resonators; bulk wave oscillators and delay lines; surface wave applications and devices such as filters, oscillators, delay lines, convolvers; surface wave device fabrication and reliability.

Invited review and tutorial papers covering different aspects of ultrasonics will be presented.

DEADLINE - AUGUST 1, 1974 To insure the Symposium will serve as a forum for the most current work, the deadline for submission of contributed papers has been set at the latest possible date, August 1.

ABSTRACTS should be submitted to the Chairman of the Technical Program Committee, Dr. L. W. Kessler, at the address given below. Abstract format will be given in the final call for papers.

L. W. Kessler, Program Chairman
Sonoscope, Inc.
752 Foster Avenue
Bensenville, Illinois 60106

A PROCEEDINGS OF THE SYMPOSIUM will be published very shortly after the Conference. For further information contact the proceedings editor:

J. deKlerk, Conference Proceedings Editor
Westinghouse Research and Development Center
Beulah Road
Pittsburgh, Pennsylvania 15235

Additional information will be supplied at the time of the Final Call for Papers.

# President's Report

## by Norman F. Foster

The State of the Group

The combination of a number of factors has resulted in our group going into 1974 in a very sound state of health.

Our MEMBERSHIP has been essentially constant over the last few years at nearly 1,500, while many groups or societies (G/S's) have experienced significant decreases. Thanks largely to the efforts of Al Bahr and Larry Kessler, our special membership brochure is now being distributed to about 15,000 people working in sonics and related fields. Our group is playing a leading role among the G/S's in this specially funded experimental project, indicating our determination to maintain a strong, effective group actively serving those working in our field of interest.

Our FIELD OF INTEREST as contained in our constitution and described in the official IEEE Membership Information Brochure is recognized as being woefully inadequate. Al Bahr is presently working on a completely new statement which describes our sphere of interest in a much more accurate and meaningful way.

The FINANCIAL status of the group has improved dramatically over the last few years. Thanks to the combined action of many members of our group and to the effect these actions have had on modifying some IEEE policies and procedures, the gloomy picture of three or four years ago has completely changed. We are taking advantage of this situation to go to a bimonthly schedule for our TRANSACTIONS next year. This is a bold step, expressing confidence that the decreased publication time which should result, and the efforts being expended by Steve Wanuga and his editorial staff in soliciting review papers, will yield enough quality papers to fill our target of 420 pages per year. This is an experiment, and you, the contributors, will determine its outcome. Another publication which has achieved an outstanding record is our SYMPOSIUM PROCEEDINGS. John de Klerk has succeeded in providing an excellent and timely record of our recent symposia. Each Proceedings has been a near sellout, running well over the financial break-even point. The annual SYMPOSIA have also been highly successful. Despite the general tightening of government and industrial

Continued...

President's Report Continued...

travel and research budgets, both the attendance and the quality of papers presented have remained high. The Monterey symposium was no exception, and our thanks go to John Neighbours, John deKlerk, and all who worked with them in planning and implementing the meeting.

In view of the above it should come as no surprise to learn that the most recent evaluation of our group by IEEE Technical Activities Board (TAB) in December, 1973, concludes by stating that "All the evidence that this committee has seen indicates that G-SU is a viable organization and is providing an important service to its members and to IEEE."

This indeed is our aim, and we will continue to work towards achieving it as well as we know how.

# 1974 G-SU AdCom

Dr. Robert Adler, Fellow
Research Department
Zenith Radio Corporation
6001 W. Dickens Avenue
Chicago, Illinois 60639
312/745-4854

Dr. A. J. Bahr, Vice President
Stanford Research Institute
333 Ravenswood Avenue
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415/326-6200, Ext. 4631

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G213 H.S.B., RE-20
University of Washington
Seattle, Washington 98195

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AFCRL, L. G. Hanscom Field
Bedford, Massachusetts 01730
617/861-2527

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Dallas, Texas 75222
214/238-2426

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Westinghouse Research Lab
Beulah Road
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412/256-3595

Dr. N. F. Foster, President
Bell Laboratories
Holmdel, New Jersey 07733
201/949-6209

Professor F. J. Fry
Indianapolis Center for Advanced Research
410 Beauty Avenue
Indianapolis, Indiana 46202
317/264-4386

Dr. M. G. Holland, Nominations
Raytheon Research Division
28 Seyon Street
Waltham, Massachusetts 02154
617/899-8400

Dr. Hans Jaffe
Gould Inc.
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216/851-5500

Dr. C. K. Jones, Meetings
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215/439-6838

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Dearborn, Michigan 48123
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Past President
Sandia Laboratory
Albuquerque, New Mexico 87115
505/264-7221

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University Relations & Chapters
Department of Engineering
University of California at Los Angeles
Los Angeles, California 90025
213/825-5217

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1049 Camino Dos Rios
North American Rockwell
Thousand Oaks, California 91360
805/498-4545, Exts. 118, 119

Dr. R. N. Thurston
Bell Telephone Laboratories
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Professor C. S. Tsai,
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Dept. of Electrical Engineering
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Pittsburgh, Pennsylvania 15213
412/621-2600

Dr. H. van de Vaart, Awards
Sperry Research Center
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Sudbury, Massachusetts 01776
617/369-4000

Dr. S. Wanuga, Transaction's Editor
Electronics Lab
Room 135
Electronics Park
Syracuse, New York 13201
315/456-2027

*Dr. R. M. Emberson, IEEE Director of Technical Services
IEEE Headquarters
345 E. 47th Street
New York, New York 10017
212/752-6800

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

*Professor I. Kaufmann, Co-chairman 1977 Ultrasonics Symposium
Arizona State University
Electrical Engineering Department
Tempe, Arizona 85281
602/965-3424

*Professor Moises Levy, Chairman 1974 Ultrasonics Symposium
University of Wisconsin at Milwaukee
Department of Physics
Milwaukee, Wisconsin 53201
414/963-4168

*Professor John Neighbours, Chairman 1973 Ultrasonics Symposium
U. S. Naval Postgraduate School
Monterey, California 93940
408/646-2902

*Mr. L. Whicker, Chairman 1976 Ultrasonics Symposium
Naval Research Laboratory
Code 5250
Washington, D. C. 20375
202/767-3312

*Dr. Leo Young, Director Div. 4
Naval Research Laboratory
Electronics Division
Washington, D. C. 20375
202/767-2807

*Not a Member of G-SU Ad Com.

# Chapters are Vital

by Leo Young, Director, Division IV Naval Research Laboratory, Washington, D.C. 20375

The importance of Chapters to the operation of the Groups and Societies and indeed the Institute is recognized by everyone. Only through Chapter meetings can we conveniently meet our peers in our own specialty on our own home ground, at interesting technical-cum-social occasions. Our Chapter officers are nearly always a dedicated and conscientious group of people who work for all of us and deserve our full support.

A year ago (September 1972) IEEE increased the support of Chapters through Sections by increasing the Chapter member allowance from 25 cents to 70 cents, and the Chapter meeting allowance from $15 to $20 per meeting.

Now (September 1973) TAB OpCom has taken a small but significant step in the same direction, with the intent of strengthening Chapters by means of financial support through the Groups and Societies (i.e., in addition to support via the Sections). At the end of 1973 each Group and Society will also receive an allocation in proportion to its number of Chapter members.

It is hoped that this step will have at least three tangible results: (1) It will strengthen the ties between the Groups and Societies and their Chapters, (2) It will encourage the Groups and Societies to increase their Chapter membership by fostering the formation of new Chapters, and (3) It should encourage (especially smaller) Groups to form joint Chapters where a single-Group Chapter is not viable.

(But don't wait to hear from your Section or Group. They may not know of your interest. Our scarcest commodity in IEEE is volunteer workers! Contact your Section and G/S chairman if you wish to form a new Chapter in your Section.)

I recently received a letter from Roger Zaklukiewicz, Vice Chairman of the Connecticut Section, telling me of a problem with the Connecticut Chapter of S-3(AP) and S-17(MTT), which hasn't met regularly for two years and is presently considered inactive.

I looked up the "Report of the Secretary" for 1972: S-AP had 55 members and S-MTT had 74 members in the Connecticut Section at the end of 1972. Assuming a roughly 50-percent overlap, there should be about 100 individuals in the Connecticut Section who belong to S-AP or S-MTT or both. That should make a viable joint Chapter.

If 100 members are not enough, how about an extended joint Chapter with one or more of G-ED (109 members), G-SU (43 members), G-PHP (30 members) or S-MAG (29 members)? Such a joint Chapter could have one vice-chairman for each constituent Group, and each vice chairman's responsibilities might include arranging at least one Chapter meeting per year.

Mr. Zaklukiewicz would like to get the new Chapter off to a good start with a talk on a popular topic. He writes:

"A survey of the group members in Connecticut has suggested a meeting which would cover one or more of the following topics:

A. New developments
B. Electronic analysis (Tymeshare)
C. Communication applications
D. Submillimeter wave technology
E. Surface wave - microwave acoustics
F. Microwave systems, subsystems, components
G. Antennas and transmission line measurement

Would you please help us in obtaining a speaker or furnish us with a list of knowledgeable speakers in our region who would volunteer to speak on one or more of the above topics. A dinner meeting during the week (Monday through Thursday) could be planned upon the speaker's confirmation."

If you are interested in helping get the Connecticut S-AP/S-MTT joint Chapter started again (perhaps with other G/S) please contact Mr. Roger Zaklukiewicz, Tel. 203-666-6911, Ext. 5394, or write or call your G/S President or Membership Committee chairman, or call or write Dr. R.M. Emberson or Dr. P. Edmonds at IEEE offices in New York.

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# Meetings

## OF THE BOSTON CHAPTER ON SONICS AND ULTRASONICS 1973–1974

| | |
|---|---|
| 11 September | "Magnetic Surface Waves in Saturated Ferrimagnets," J. Sethares, AFCRL; Joint Meeting with MTT, Magnetics Group, and Aerospace and Electronics Group |
| 19 December | "SAW Convolvers:Real-Time Adaptive Signal Processors." J. Smith, MIT Lincoln Laboratory |
| 8 January | "DONAR - An Instrument for Digitizing Ultrashort Sonic Wave Trains," S. Lees, Forsyth Dental Center |
| 5 February | "Fabrication of Sub-Micrometer SAW and Microelectronic Devices," P.R. Malmberg, Westinghouse Res. Laboratory and H.I.Smith, MIT Lincoln Laboratory; Joint Meeting with MTT and Parts, Hybrids, and Packaging |
| 13 March | "Safe Exposure Levels for Biological Applications of Ultrasound," P.P. Lele, MIT; joint meeting with Group on Engineering in Biology and Medicine. |
| 9 April | "Overlay Films for Surface Acoustic Wave Devices," C.B. Willingham, Raytheon Research Laboratory |
| 7 May | "Theoretical and Experimental Work with Surface Wave Transducers," H. Engan, Raytheon Research Division |

Interest in the meetings of the Boston Section remained high as indicated by the good attendance.

PAUL H. CARR
Chairman

# Transactions on Sonics and Ultrasonics

by Stephen Wanuga Transactions Editor

VOLUME 20, 1973

The Volume 20, 1973 Transactions on Sonics and Ultrasonics contained four issues for a total of 418 pages. This Volume was well received and favorable comments on all the issues were acknowledged by IEEE Headquarters. A high return of 70 percent voluntary page charges were received for this Volume. I would like to express my sincere appreciation to all authors who have honored the voluntary page charges. These efforts have enabled our Transactions to grow in both content and size. In addition, a well-deserved vote of thanks to all of our Associate Editors and Reviewers of manuscripts for a job well done throughout the year and to Tom Reeder for coordinating and editing the Special April 1973 issue on "Microwave Acoustic Signal Processing." Another outstanding job on editing our Ultrasonic Symposium Proceedings was again carried out by John de Klerk.

VOLUME 21, 1974 TRANSACTIONS

Two issues have been published so far this year. The January issue contained 11 papers plus the 1973 Ultrasonic Symposium abstracts. The April issue contained 8 papers, the first authored by Dr. Diana H. McSherry, one of our female members of the Sonics and Ultrasonics Group. There will be two issues, July and October for the remainder of this year. Four books are presently undergoing review for "Book Review" publication in our Transactions.

SONICS AND ULTRASONICS REVIEW PAPERS

At the beginning of 1973, I announced plans for publishing review papers in our Transactions covering all of our areas of responsibilities. The papers were scheduled in a manner to give emphasis and coverage on those areas that should be receiving more attention and exposure.

The Vol. SU-21 July 1974 issue marks the introduction of our first scheduled review paper. The topic will fall under the heading of "Biological and Medical Applications." This paper is being co-authored and will be approximately 18 pages in length. Frank Fry is the Associate Editor.

The second review paper is scheduled for Vol. SU-21 October 1974 issue and falls in the area of "Filters and Resonators - A Review" under Art Braun. The paper has international author coverage; U.S. Army Elec. Comd, Seimens, Collins Radio, BTL and Telefunken. This paper will again be about 18 pages in length. All review papers will have extensive bibliographies.

Each following issue will have a review paper, until all our areas of responsibilities are covered. We are very enthusiastic about the inception of having the review papers. They should certainly stimulate readers, encourage additional new membership, and be an incentive for other workers in these same areas to publish technical papers in our Transactions.

FUTURE PUBLICATIONS

A major change in the Transactions on Sonics and Ultrasonics will take place beginning in January 1975. At that time, the Transactions will begin publishing 6 issues a year instead of the present 4 issues. Each issue will average approximately 70 pages for an annual total of 420 pages. This is another step taken for improving and continuing the growth of our field of Sonics and Ultrasonics.

In addition to the previously-mentioned review papers on Biological and Medical Ultrasonics (July 1974) and Filters and Resonators (October 1974), the future scheduling of Review Papers is as follows:

| | |
|---|---|
| Industrial Applications | January 1975 |
| Underwater Sound | March 1975 |
| Acoustic Holography and Imaging | May 1975 |
| Physical Acoustics | July 1975 |
| Acoustooptic Interactions | September 1975 |
| Piezoelectric and Magnetostrictive Materials | November 1975 |
| Surface Waves | January 1976 |

We hope the Review Papers and bimonthly publications will provide incentive to workers in all of our fields to publish in our Transactions. In this manner, we can achieve an overall and well-balanced coverage of our technical and professional responsibilities in Sonics and Ultrasonics.

# Old Faces, New Fellows

The IEEE has announced the election of the following G-20 members to the grade of Fellow in the Institute. Congratulations to these friends in Sonics and Ultrasonics:

| MEMBER | CITATION |
|---|---|
| Friedrich W. Gundlach<br>Klopstockstr 6<br>1 Berlin 37, FR, Germany | For contributions to the development of microwave tubes. |
| Bernard Hershenov<br>RCA Laboratories, Inc.<br>Post Office Box 5151<br>Tokyo International<br>Tokyo, Japan | For contributions to microwave devices. |
| Cecil E. Land<br>2118 Gretta Street, N.E.<br>Albuquerque, New Mexico 87112 | For contributions in ferroelectric materials and devices. |

# AWARDS COMMITTEE: Scope and Action

IEEE AWARDS

One important activity of a professional society is the recognition of distinguished achievement and services. Most members of the IEEE Group on Sonics and Ultrasonics are aware of the Best Paper Award, given each year at the Ultrasonics Symposium for the best paper which is published in the Transactions on Sonics and Ultrasonics during the previous year. However, the IEEE has many other awards, recognizing outstanding contributions to the art and science of electrical and electronics engineering. It is the purpose of this report to familiarize the members of G.S-U with these awards and to encourage each member to bring forward outstanding candidates. It cannot be assumed that either the IEEE Awards Boards or the Awards Committees of the Groups and Societies have personal and intimate knowledge about possible candidates. Nominations must be initiated by the members of the IEEE.

The IEEE awards fall into five categories:

- Medal of Honor
- Major Annual Awards
- Field Awards
- Prize Papers
- Scholarships

A brief description of these awards is given below. The Medal of Honor and the Major Annual Medals aim at the recognition of achievements having general significance for the profession, the Field Awards recognize unusual accomplishment in a particular field of interest to the Society, and the Prize Papers recognize publications significant for their excellence.

All individual members, Groups/Societies and Sections of IEEE are eligible to nominate candidates of Awards, Medals, Scholarships and Prizes. Nominations can be supported by submitting forms and relevant communications to the Secretary of the Awards Board at IEEE Headquarters, where also the forms can be obtained.

The procedure in proposing candidates for the various awards and prizes varies somewhat. It is beyond the scope of this brief report to list the details. Most of the information can be found in an IEEE publication titled IEEE Awards Guide, An Invitation to Nominate, from which also all the information listed here is taken. Copies can also be obtained from the Chairman of the Awards Committee of the G.S-U AdCom.

The following is a list of the various IEEE Awards, together with their distinctive features:

MEDAL OF HONOR

| | |
|---|---|
| IEEE Medal of Honor | The Medal of Honor shall be awarded for a particular contribution which forms a clearly exceptional addition to the science and technology of concern to the Institute. The award shall normally be given within a few years after the recognition of the exceptional nature of such contribution. |

MAJOR ANNUAL MEDALS

| | |
|---|---|
| Edison Medal | A career of meritorious achievement in electrical science or electrical engineering or the electrical arts. |
| Founders Medal | For major contributions in the leadership, planning and administration of affairs of great value to the electrical and electronics engineering profession. |
| Lamme Medal | Meritorious achievement in the development of electrical or electronic apparatus or systems. |
| IEEE Education Medal | Excellence in teaching and ability to inspire students; leadership in electrical engineering education through publication of textbooks and writings on engineering education; innovations in curricula and teaching methodology; contributions to the teaching and engineering profession through research, engineering achievements, technical papers, and participation in the education activities of professional societies. |

IEEE FIELD AWARDS

| | |
|---|---|
| Harry Diamond Memorial Award | Outstanding technical contributions in the field of government service in any country, as evidenced by publication in professional society journals. |
| William M. Habirshaw Award | Outstanding contribution in the field of transmission and distribution of electric power, to an individual or group. |
| IEEE Award in International Communication in honor of Hernand and Sosthènes Behn | Outstanding contribution in the field of international communication, to an individual or group. |
| Mervin J. Kelly Award | Outstanding contribution in the field of telecommunication, to an individual or group. |
| Morris E. Leeds Award | Outstanding contribution in the field of electrical measurement, to an individual or group. Special consideration given to value of contribution made before candidate reached 36th birthday. |
| Morris N. Liebmann Memorial Award | Important contribution to emerging technologies recognized during preceding three calendar years. |
| Frederik Philips Award | Outstanding accomplishments in the management of research and development resulting in effective innovation in the electrical and electronics industry, to an individual or group. |
| David Sarnoff Award | Outstanding contribution in the field of electronics, to an individual or group. |
| Vladimir K. Zworykin Prize Award | Outstanding technical contribution in the field of electronic television. |

IEEE PRIZE PAPER AWARDS

| | |
|---|---|
| W.R.G. Baker Prize Award | Outstanding paper in any of the IEEE TRANSACTIONS, JOURNALS or PROCEEDINGS issued between July 1 and June 30. |
| Browder J. Thompson Memorial Prize Award | Best paper by author(s) under 30 years of age in any IEEE publication issued between July 1 and June 30. |

IEEE SCHOLARSHIP AWARDS

| | |
|---|---|
| Charles LeGeyt Fortescue Fellowship | to a student of electrical engineering who has received a degree from a recognized college or university. |
| Volta Scholarship | to an Italian citizen with degree in electrical engineering, not over 30 years of age. |

The Awards Committee of the S-U AdCom welcomes your suggestions.

H. van de Vaart, Chairman
W. P. Mason
T. R. Meeker
T. M. Reeder
R. Adler

# TAB INTERDISCIPLINARY AND SPECIAL COMMITTEES

The 31 technical groups and societies in IEEE do not and cannot completely cover all the many aspects of technology in today's society. In an attempt to fill some of the voids, TAB has brought a number of committees into being. The result of a recent meeting of chairmen and representatives of these committees was an urgent call for more support for these committee activities from members of the various groups and societies. The names and chairmen of these committees are listed below. If you have an interest in any of these areas, please contact the appropriate chairmen to volunteer your services.

CABLE COMMUNICATION SYSTEMS COORDINATING COMMITTEE

Archer S. Taylor
Malrky, Taylor & Associates
1225 Connecticut Avenue, N. W.
Washington, D. C. 20036
202/223-2345

COMMITTEE ON MAN & RADIATION

H. Mark Grove
Chief - Department of Microwave Research
Department of the Army
Walter Reed Army Institute of Research
Walter Reed Army Medical Center
Washington, D. C. 20012

COMMITTEE ON SOCIAL IMPLICATONS OF TECHNOLOGY

H. S. Goldberg - ex-officio
President - Data Precision Corp.
Audubon Road
Wakefield, MA 01880
617/246-1600

ELECTRONIC MATERIALS COMMITTEE (DIVISION IV)

Harold Jacobs
Department of the Army
U. S. Army Electronics Command
Ft. Monmouth, NJ 07703
201/535-1016

ENERGY COMMITTEE

Vacant

ENVIRONMENTAL QUALITY COMMITTEE

Bernard H. Manheimer
Department of Housing & Urban Development
7th & D Streets, S. W.
Room 8230
Washington, D. C. 20410
202/755-8238

OCEANOGRAPHIC COORDINATING COMMITTEE

Arthur S. Westneat
Raytheon Company
Submarine Signal Division
1847 W. Main Road
P. O. Box 360
Portsmouth, RI 02781
401/847-8000

TECHNOLOGY FORECASTING & ASSESSMENT COMMITTEE

Leon K. Kirchmayer
Electric Utilities Engineering Dept.
General Electric Company
1 River Road
Schenectady, NY 12305
518/378-2211 x54388

TRANSPORTATION COMMITTEE

Julien Reitman
Norden Division
United Aircraft Corp.
Norwalk, Conn. 06856
203/838-4471

URBAN TECHNOLOGY COMMITTEE

John Gibson
EE Department
University of Virginia
Charlottesville, Va. 22901

# Courses of Interest

SIX SEMINARS ON SOUND AND VIBRATION

Continuing education services of the Pennsylvania State University Applied Research Laboratory, College of Education, College of Engineering, University Park, Pa. 16802

Industrial Noise and Engineering Control
June 3-7, 1974

Signal Processing
September 9-13, 1974

Mechanical and Electrical Equipment Noise Control
July 29-31, 1974

Methods of Machine Noise Measurement
September 9-13, 1974

Hearing Testing in Industry
October 9-11, 1974

Contact: Mr. James H. Stevens
Pennsylvania State University
410 J. Orvis Keller Conference Center
University Park, California 16802

SHOCK AND VIBRATION: CONTROL & DESIGN

July 15-19, 1974
Dept. of Engineering
University of Wisconsin - Extension

Contact: Donald E. Baxa, Program Director
Department of Engineering
University of Wisconsin - Extension
432 North Lake Street
Madison, Wisconsin 53706

For program information: Call (608) 262-2061

For enrollment: Call (608) 262-1299

FUNDAMENTALS OF NONDESTRUCTIVE TESTING

August 12-16, 1974
8:15 a.m. - 5 p.m.
Monday through Friday

Boelter Hall, Room 4442
UCLA, Los Angeles, California

Contact: P. O. Box 24902
Continuing Education in Engineering and Mathematics
University Extension, UCLA
Los Angeles, California 90024
Telephone: (213) 825-1295
or 825-3344
Western Union: KDU

# Meetings of Interest

1974 ACOUSTIC EMISSION SYMPOSIUM

Sponsor: High Pressure Institute of Japan in cooperation with The Japanese Society for Nondestructive Inspection

Place: Tokyo, Japan

Date: September 2 to 4, 1974

Papers on all subjects pertaining to acoustic emission are invited.

Original contributions are wanted, but review and tutorial papers will be considered.

All papers will be presented in English.

To receive a final copy of the program, contact the Chairman at the address below.

Morio Onoe
Institute of Industrial Science
University of Tokyo
7-22-1 Roppongi, Minato-ku
Tokyo 106 Japan

"Topics in Modern Acoustics", a symposium for a general physics or engineering audience. October 11-12, 1974 Buffalo New York. Sponsored by New York State Section, American Physical Society.

Contact: Monti L. Rustgi, Dept. of Physics and Astronomy, State University of New York at Buffalo, Buffalo, New York 14214

# Minutes of Meeting AdCom November 4, 1973

Administrative Committee of the IEEE Group on Sonics and Ultrasonics -- Held at the DelMonte Hyatt House, Monterey, California, November 4, 1973, during the 1973 Ultrasonics Symposium.

Present

L. W. Kessler, President
N. F. Foster, Vice President
W. D. O'Brien, Jr., Secretary-Treasurer
A. J. Bahr
J. de Klerk
F. J. Fry
M. G. Holland
H. J. Shaw
D. O. Thompson
R. N. Thurston
P. Carr (ex officio)
W. J. Spencer (ex officio)
R. Stern (ex officio)
S. Wanuga (ex officio)
D. I. Bolef (guest)
J. D. Larson (guest)
M. Levy (guest)
J. Neighbors (guest)
T. M. Reeder (guest)

Absent

R. Adler
H. Jaffee
C. K. Jones
W. P. Mason
T. R. Meeker
J. E. May
A. H. Meitzler
E. P. Papadakis

1.0 Call to Order

1.1 The Administrative Committee (Ad Com) of the IEEE Group on Sonics and Ultrasonics (G-SU) was called to order at 7:30 p.m., November 4, 1973, by L. W. Kessler, President.

1.2 The following corrections to the G-SU Ad Com minutes of April 6, 1973 were received:

Item 5.7 (line 2), change "increase" to "decrease."

Item 6.1 (line 8), change "particularly" to "partially."

The minutes were unanimously approved as corrected.

2.0 Report of the G-SU President (L. W. Kessler)

2.1 M. G. Holland has been appointed chairman of the Nominations Committee for 1974.

2.2 H. J. Shaw has been appointed chairman of the Fellows Committee for 1974.

2.3 On Wednesday, 11/7/74, William Morsch, Chairman of IEEE's Technological Forecasting and Assessment Committee, will chair a Workshop on this subject. He has been invited to the Monday evening Cocktail Hour to briefly explain this Workshop. Briefly, TF&A is asking each group and society to assess where it is currently and where it is going, technologically.

2.4 There are pressures within IEEE for all groups and societies to merge into four and five super groups.

2.5 There is a paper shortage which will probably affect the Transactions in some way.

2.6 G-SU is going to be reviewed by IEEE.

2.7 NEREM which conflicts with 1973 Ultrasonics Symposium was sent a letter regarding their emphasis on Surface Waves. There was no acknowledgment of the letter by NEREM.

3.0 Awards Committee

3.1 L. W. Kessler, in the absence of the Awards Committee Chairman, T. R. Meeker, announced that the 1972 Best Paper of the Year award will be presented to Alan D. Wilson, Byron D. Martin and Douglas H. Strope at the Cocktail Hour Monday evening. The award consists of a plaque to each and a $100.00 cash prize.

Continued...

3.2 T. R. Meeker, Chairman of the Awards Committee, reported by letter that the Transaction associate editors were asked to submit proposals (with justification) for the Best Paper of 1972. It is felt that this procedure would reduce the problem that the Award Committee had in properly assessing all of the papers. It is recommended that the associate editors become involved in the selection of future best papers.

3.3 IEEE Awards Committee, through Robert Adler, solicited G-SU and other groups for their recommendations for nominations. At the 1973 Symposia Program Committee Meeting in Pittsburgh, L. W. Kessler solicited the members for recommendations. He also did same during Ad Com meeting.

## 4.0 Fellows Committee

4.1 L. W. Kessler appointed H. J. Shaw Chairman of the Fellows Committee. Because the committee will function to review fellow applications in the technical area of G-SU rather than generate applications, the Ad Com discussed vesting the chairman with the authority to act on behalf of them. (See item 2.5 G-SU Ad Com minutes, 4/6/73).

4.2 N. F. Foster moved that H. J. Shaw, as Chairman of the Fellows Committee, have authority to act on behalf of the Ad Com with respect to Fellow applications. S. Wanuga seconded. The motion passed unanimously.

## 5.0 Publications Committee

5.1 N. F. Foster, Chairman of the Publications Committee, reported that the original 1973 budgeted 250 pages were increased to 400 pages for the purpose of reducing the backlog. This required an additional $7.5K which came from the 1972 Ultrasonics Symposium (see item 5.6, G-SU Ad Com minutes, 4/6/73) and the 1973 budgeted surplus.

5.2 Due to increased paper costs and service costs within the publication industry, G-SU should plan on a 1974 per page cost of $1.00.

5.3 W. J. Spencer, Chairman of TAB Publications Committee, commented that the costs recently submitted by Woody Gannett are up by 20% over last year.

## 6.0 Transactions Report

6.1 S. Wanuga, Transactions Editor, reported that volume SU-20 (1973) had a total of 418 pages (budgeted 400) which is less than the allowable 5% overrun by IEEE before penalities are assessed.

6.2a Due to a technicality at IEEE HQ, it was not possible to go through with plans, if approved, for publishing bi-monthly beginning in 1974. However, it would be possible to proceed with 6 issues per year beginning in January 1975 (see item 5.8, G-SU Ad Com minutes, 4/6/73).

6.2b This was discussed and R. N. Thurston moved that the authority be given to the Publications Committee to decide whether or not to bimonthly for 1975. A. J. Bahr seconded. The motion passed unanimously.

6.3 Four hundred and fifty pages are projected for the four issues in 1974.

6.4 Plans have been formulated and associate editors have been notified of the following scheduling of Review Papers:

| | |
|---|---|
| Biological and Medical Applications | July, 1974 |
| Filters and Resonators | Oct., 1974 |
| Industrial Applications | Jan., 1975 |
| Underwater Sound | March, 1975 |
| Acoustic Holography | May, 1975 |
| Physical Acoustics | July, 1975 |
| Acoustooptic Interaction | Sept., 1975 |
| Piezoelectric and Magnetostructive Materials | Nov., 1975 |
| Surface Waves | Jan., 1976 |

6.5 Considerable improvement has been made in recent turn-around time (see item 5.7, G-SU Ad Com minutes, 4/6/73). Rules which are presently being directed to associate editors and reviewers are: (a) Two weeks review time for short correspondence papers up to 10 pages, three weeks for papers up to 20 pages and four weeks for papers over 20 pages, (b) Authors will be given two weeks for revision of short manuscripts and three weeks for larger manuscripts. If they fail to comply, their paper will be treated as a new submission, (c) Reviewers will be given one week for short revised papers and two weeks for larger revised manuscripts.

## 7.0 1972 Conference Proceedings

7.1 J. de Klerk, editor of the 1972 Conference Proceedings, reported that approximately 800 copies have been sold out of the 1000 printed.

## 8.0 Newsletter

8.1 W. D. O'Brien, Jr., in the absence of Newsletter Editor E. P. Papadakis, reported the next issue will be published around February or March, 1974.

8.2 L. W. Kessler asked the Ad Com whether they had comments on the publishing of noise information in the newsletter. There was no discussion.

## 9.0 Membership Committee

9.1 A. J. Bahr, Chairman of Membership Committee, reported the G-SU membership, as of October 1973, at 1284 which is about the same as a year ago.

9.2 J. D. Larson, Vice Chairman of the Membership Committee, reported that the G-SU supplementary mailing list is now computerized.

9.3 A. J. Bahr showed the Subscription Brochure which had been developed through the Stanford Research Institute Art Department. IEEE will be requested to print 15,000 copies of the brochure and they will be distributed as follows:

American Society of Testing Materials -- 200
Ultrasonics Journal -- 2000
American Institute of Ultrasound in Medicine -- 1000
American Society for Non-Destructive Testing -- 8000
IEEE & G-SU lists -- 1000

The source of funds for this experimental project was a TAB Special Allocation of $2000.

## 10.0 Meetings Committee

10.1 L. W. Kessler, in the absence of Meetings Committee Chairman C. K. Jones, reported that the committee, following the concern expressed for the New York site (see item 9.0, G-SU Ad Com minutes, 4/6/73), recommended changing the 1976 site from New York to Washington, D. C.

10.2 N. F. Foster moved that the 1976 Ultrasonics Symposium be held in Washington, D. C., as recommended by the Meetings Committee. J. de Klerk seconded. The motion passed unanimously.

## 11.0 1973 Ultrasonics Symposium

11.1 J. Neighbors, General Chairman of the 1973 Ultrasonics Symposium, reported on time changes, eating arrangements and local activities.

11.2 L. W. Kessler announced that he was contacted by the Medical Tribune for information about the symposium based upon the preliminary program.

11.3a The concept of the preliminary program was discussed. It was cheaper to print than the full program, but more expensive to mail (first class). However, the complete program must also be printed for those attending the Symposium. It came out earlier than has the full program in the past.

Continued...

11.3b The program committee was requested to examine the cost factor involving the preliminary program as compared with the previous method and report to the Ad Com at its Spring meeting.

11.3c It was suggested that, in the future, an application for the Conference Proceedings should be included in the program.

12.0 1974 Ultrasonics Symposium

12.1 M. Levy, General chairman of the 1974 Ultrasonics Symposium, requested that the Symposium be held at the Hotel Pfister, November 10 to 14, 1974 (see item 12.0, G-SU Ad Com minutes, 4/6/73).

12.2 M. G. Holland moved that the 1974 Ultrasonics Symposium be held at the Hotel Pfister on November 10 to 14, 1974, as requested by the General Chairman. N. F. Foster seconded. The motion passed unanimously.

13.0 1975 Ultrasonics Symposium

13.1 R. Stern, General Chairman of the 1975 Ultrasonics Symposium, requested that the Symposium be held at the L. A. Hilton, Los Angeles, because of his most recent experience with the hotel (as General Chairman of the Fall 1973 Acoustical Society of America meeting).

13.2 S. Wanuga moved that the 1975 Ultrasonics Symposium be held at the L. A. Hilton, Los Angeles, as requested by the General Chairman. N. F. Foster seconded. The motion passed unanimously.

14.0 Other Symposia

14.1a T. M. Reeder reported that the "International Specialist Seminar on Component Performance and Systems Applications of Surface Acoustic Wave Devices" was held September 25-28, 1973 at Aviemore, Scotland. The Seminar was organized by the British IEE with cooperating sponsorship by G-SU and G-MTT. The Proceedings of the Seminar are being made available through G-SU at $17.80.

14.1b There was considerable discussion whether G-SU should be involved in selling these proceedings. Since a handout already was being distributed at the Registration desk, it was felt that this should be honored during the Symposium with future involvement limited to advertising.

14.1c N. F. Foster moved the G-SU limit its direct involvement in purchasing the proceedings from the Aviemore Seminar to honoring the handout presently in circulation and limit further activity to advertising. M. G. Holland seconded. The motion passed unanimously.

14.2a L. W. Kessler reported that the 5th Symposium on Acoustical Holography and Imaging, which was co-sponsored by G-SU, has asked for no funds.

14.2b All of these symposia have been organized on an ad hoc basis, and they may be in a position to entertain a proposal to merge with a group. L. W. Kessler will inquire.

14.3 L. W. Kessler reported that the Microwave Research Institute (MRI) International Symposium on Optical and Acoustical Micro-Electronics will be held April 16-18, 1974 at Polytechnic Institute of Brooklyn. G-SU and G-MTT are co-sponsors.

14.4 W. D. O'Brien, Jr indicated that the International Congress on Acoustics, held every other year, might be a likely meeting to either co-operate or co-sponsor. He will inquire.

15.0 Solid State Circuit Council

15.1 W. J. Spencer, G-SU representative to the Solid State Circuit Council (SSCC), reported that the two current projects are (1) a poll of member groups and individual members on needs and wishes for SSC and (2) a concerted effort to move into the materials area of solid state circuits with a special journal issue scheduled for Spring 1974.

15.2 SSCC is examining its role in IEEE and Solid State Circuit area. The annual conference in Philadelphia is run by the Conference Executive Committee which appoints the General Chairman nd Program chairman. Thus, SSCC is relatively impotent in the running of the International Conference.

15.3 The Journal has always been run by competent editors who are relatively free to steer the publication in the direction of their choice. The Journal has excess money and, until recently, a scarcity of papers. David Hodges has turned this around by soliciting special invited issues. He will turn over the editorialship in 1974.

15.4 W. J. Spencer indicated that the SSCC needs desperately to carve out a piece of the action for itself in running the annual ISSCC or disband!

16.0 Treasurer's Report

16.1 W. D. O'Brien, Jr., Secretary-Treasurer, reported that the year end 1973 estimate indicated an $8K surplus.

16.2 (Sec. update): A re-evaluation of the year estimate has indicated that the reported $8K surplus is incorrect. This is based upon three factors: (1) conservative estimate of expenses, (2) omission of index charge, and (3) $2K addition error on income side. The re-evaluated year end estimate yields income at $51.9K and expense at $50.3K with a surplus of $1.6K. This is precisely in line with the decision to publish 400 pages in 1973 by extracting $3K from the budgeted $4K surplus to account, in part, for the additional 150 pages. (See Appendix I)

16.3 The financial situation for 1974 for all groups and societies look pessimistic. According to Dr. Emberson, all costs have increased at a greater rate than expected. Two areas of belt tightening are suggested: (1) reduce pages published and (2) go into reserves.

17.0 Technological Forecasting

17.1 L. W. Kessler indicated that G-SU's technological forecasting representative will be part of the University Relations Committee for the meantime. This is due, in part, because it is presently not clear what technological forecasting is. Presently, J. de Klerk is G-SU's representative.

18.0 Audio and Electroacoustics Group Name Change

18.1 L. W. Kessler reported that the IEEE Group on Audio and Electroacoustics (G-1) has proposed a name change to Acoustics, Speech, and Signal Processing. TAB has issued a ballot, due November 15, 1973, in which each TAB member must vote.

18.2 W. D. O'Brien, Jr. introduced a letter (Appendix II) to the Ad Com which was sent to Dr. Bouyoucos, G-AE President, in which he stated his own objections to the name change.

18.3 Following further discussion of the issue, M. G. Holland moved that the G-SU Ad Com disapprove the name change. H. J. Shaw seconded. The motion passed with one dissenting vote.

18.4 Sec. update: The TAB Ballot from G-SU President is included in Appendix III.

19.0 Technical Committee on Transducers and Resonators (TC-TR)

19.1 W. D. O'Brien, Jr., in the absence of TC-TR Chairman J. E. May, reported that the Piezoelectric Crystal standard is ready for final review and is expected to pass.

19.2 L. W. Kessler reported that the IEEE Spectrum requested an article on the technological status of the Group. J. E. May's subcommittee chairman was assigned the task and efficiently responded. (Sec. update: The fruits of this labor can be seen in the Jan. 1974 Spectrum.)

**Continued...**

# EPA RELEASES DOCUMENT ON PUBLIC HEALTH AND WELFARE CRITERIA FOR NOISE

A noise criteria document released by the Environmental Protection Agency today affirms that exposure to high levels of noise is potentially detrimental, not only to human health, but also to work performance and efficiency.

Entitled "Public Health and Welfare Criteria for Noise," the publication of the noise criteria was authorized by the Noise Control Act of 1972. The document, which was prepared by EPA's Office of Noise Abatement and Control, will be used in combination with an Environmental Noise Report which EPA is required to complete by October 27, 1973. Together the two documents will provide the basis for noise standards and regulations called for by the Noise Control Act.

The noise criteria publication describes the method for characterizing the impact of environmental noise, community response to environmental noise, the auditory effects of noise, the other physical and psychological effects of noise, the effect of noise on performance of tasks, and concludes with an analysis of the effects of noise on the environment.

Some of the major findings on the effects of noise which the document identifies are:

---Until recently, what constitutes significant noise-induced hearing loss has been considered a problem only for workers in a noisy environment on the job. Now it is necessary to consider the broader problem of possible hearing damage from environmental noise to which the general population may be exposed, whether voluntarily or involuntarily, in the course of day-to-day living.

---From early teenage onwards, and particularly in the age range 25 through 65 years, women in industrial countries, including the U.S., generally have better hearing than men. Female employes have been found to have better hearing than male employes, even when they work side by side in noisy industries.

---Certain primitive people, living in remote areas of the world where they are not exposed to the constant din of mechanized civilization, have been found to have unusually sharp hearing in comparison with urban populations of corresponding ages.

---Noise can cause many physiological reactions. However, no clear evidence exists to show that these responses lead to irreversible changes and permanent health effects.

---The most observable effects of noise on farm and wild animals seem to be behavioral. Clearly, noise of sufficient intensity can disturb or disrupt normal behavioral patterns.

Purpose: This document describes the scientific knowledge most useful in determining the effects of noise on people's health and welfare. The publication will be used in combination with an Environmental Noise Report, completed by the Environmental Protection Agency on October 27, 1973. Together, the two documents will provide the basis for noise standards and regulations called for by the Noise Control Act of 1972.

The Problem: In scientific terms, noise is discordant sound caused by nonperiodic vibrations in the air. In common usage, noise is unwanted sound, sound without value, or noise pollution. The use of mechanical systems--most notably transportation engines, construction machinery, industrial plant machines, and equipment used in and around the home--has made noise a significant factor in the degradation of the environment.

The Effects of Noise:

Besides the effects noted above, we should mention the following:

---One study has found that the sound of rock and roll bands is exceeded in degree of hearing hazard only by motorcycle and drag racing and by intensive sport shooting with inadequate ear protection.

---Noise can cause many physiological responses. However, no clear evidence exists to show that these responses lead to irreversible changes and permanent health effects. Noise can interfere with sleep, but relating noise exposure level to quality of sleep is a difficult if not intractable problem. Noise exposure can be presumed to cause general stress. Unresolved is either the relationship between noise exposure and stress or even the threshold noise levels or duration at which stress may appear. Noise exposure can bring about various manifestations in the cardiovascular system. However, no clear permanent effects on the circulatory system have been demonstrated.

---The relationship between moderate noise levels and performance (or work efficiency) is not clearly defined. High noise levels do appear to have potentially detrimental effects on performance, on accident rate and absenteeism in industry, especially when such noise is intermittent, unexpected, or uncontrollable.

---The most observable effects of noise on farm and wild animals are that exploratory behavior can be curtailed, avoidance behavior can limit access to food and shelter, and breeding habits can be disrupted. Hearing loss or masking of audiotory signals can further inhibit an animal's ability to survive.

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AdCom Minutes Continued...

20.0 Chapters

20.1 P. Carr, Chairman of the G-SU Boston Chapter, reported on the activities of his Chapter. Generally, there is a good attendance at the meetings.

20.2a W. D. O'Brien, Jr. reported that he received a letter from C. T. Tsai requesting $100.00 to organize a G-SU Pittsburgh Chapter (see item 18.0, G-SU Ad Com minutes, 4/6/73).

20.2b R. Stern moved to designate authority within the finance committee to decide upon the request for money, up to $100 for C. T. Tsai. R. N. Thurston seconded. The motion passed unanimously.

21.0 Election of 1974 G-SU Officers

21.1 The G-SU Ad Com unanimously elected N. F. Foster President, and A. J. Bahr Vice President, of the G-SU Ad Com for 1974.

22.0 Adjournment

22.1 L. W. Kessler reported that the next Ad Com meeting will be held during the 1974 INTERCON in New York.

22.2 The G-SU Ad Com meeting was adjourned at 11:05 p.m.

William D. O'Brien, Jr.
Secretary-Treasurer
G-SU Ad Com

# HIGHLIGHTS OF THE NOISE CONTROL ACT OF 1972

Background of Legislation

Recognition of the fact that noise is an environmental problem that affects people other than workers has been late in coming.

Federal noise legislation first appeared in 1968 when Congress directed the Federal Aviation Administration (FAA) to establish rules and regulations to control aircraft noise.

At the State and local level, laws tended to treat noise as a public nuisance, and enforcement was both difficult and spotty. More recently some jurisdictions, notably California and Chicago and New York City, have established new laws and ordinances that are based on noise-generating characteristics of specific equipment and, hence, are easier to enforce.

The Clean Air Amendments of 1970 called for the establishment of an Office of Noise Abatement and Control in the U. S. Environmental Protection Agency (EPA). The legislation also called for public hearings of environmental noise and a special report to the Congress on the problem, incorporating the results of the public hearings and other special studies. Information from this EPA report as well as extensive Congressional hearings formed the basis of the Noise Control Act of 1972.

The Effects of Noise

Of the some 80 million people significantly affected by noise (from transportation, construction activities and other engine-powered equipment and devices), half are exposed to levels that can damage their hearing or otherwise affect their health. Noise also interferes with communication, and interrupts sleep, generally adding to the stress of modern life, with some of the resulting physiological responses apparently chronic. For the average urban dweller, the fact that noise impinges upon the quality of the environment is probably the most impelling reason for quieting things down.

The Noise Control Act of 1972

The Noise Control Act of 1972 represents the first major Federal attempt to eliminate excess noise at the design stage of a wide variety of new consumer products.

The Administrator of EPA is required to develop and publish information about permissible levels of noise, and then to set noise standards for products that have been identified as major sources of noise.

While aircraft noise control remains under the administration of the FAA, the law gives EPA an advisory role in formulating criteria and standards for controlling this source of noise.

Major Provisions

---EPA is directed to develop and publish information on the limits of noise required for protecting public health and welfare as well as a series of reports to identify products that are major sources of noise and to give information on the techniques for controlling noise from such products.

---Using the criteria thus developed, the EPA Administrator is required to set noise-emission standards for products that have been identified as major sources of noise and for which standards are deemed feasible. The law requires such standards to be set for products in the categories of construction equipment, transportation equipment (except aircraft), all motors and engines, and electrical and electronic equipment. It also grants authority to set for other products, standards deemed feasible and necessary to protect public health and safety.

EPA has authority to require the labeling of domestic or imported consumer products as to their noise-generating characteristics or their effectiveness in reducing noise. Manufacturers or importers of nonconforming or mislabeled products are subject to fines of up to $25,000 per day for each violation and to imprisonment for up to one year. Manufacturers must issue warrants that their regulated products comply with Federal standards at the time of sale. They are also required to maintain records and provide information, including production samples, if requested by EPA.

---The EPA Administrator also is to prescribe noise-emission standards for the operation of equipment and facilities of interstate railroads, trucks, and buses.

---All Federal agencies are directed to use the full extent of their authority to insure that purchasing and operating procedures conform to the intent of the law. EPA may certify low-noise emission products for purchase by the Federal Government.

Some of the Common Noisemakers

Aircraft, transportation equipment--most notably trucks--and construction equipment are major sources of environmental noise. Recently the booming recreation industry has added a new dimension to the problem as snowmobiles, trailbikes and other engine-powered devices have become more and more popular. By the end of 1970, there were approximately two and a half million motorcycles in the United States, five times the number in use in 1960. Around the home, the growing number of power tools and devices--manufacturers of power lawn mowing equipment have shipped nearly 89 million units since 1946--are also adding to the din. It is not surprising, then, that from 22 to 44 million people have lost part of the use of their homes because of aircraft and transportation noise.

Aircraft Noise

Under the Noise Control Act of 1972, the EPA Administrator is required by mid-1973 to make a comprehensive study of aircraft noise and cumulative noise exposure around airports. Using this information, EPA is to submit to the FAA proposed regulations to control aircraft noise and sonic booms. After a hearing and further consultation with EPA, the FAA may adopt or modify the proposals if it believes they are unsafe, technologically or economically infeasible, or not applicable to certain aircraft. However, it must publicly explain its specific reasons for rejection. A continuing review and consultation role is provided for EPA.

Citizen Suits

Any person may start a civil action on his own behalf against any person or the U.S. or any other governmental agency for violation of this act. Simiarly, civil action may be brought against the Administrator of EPA or FAA for failure to perform any nondiscretionary duty under this law. No rights which a person may have under different statutes or the common law to enforce a noise control requirement are restricted by this law.

An End to Noise Pollution

The comprehensive nature of the Noise Control Act of 1972 brings under Federal regulation for the first time, nearly all of the major new sources of noise. An incentive now exists for the full employment of noise-control technology that is already available, and the day when quiet is restored appears closer. We know how to build quieter. Now the law is to give the Nation the stimulation to do it.

---

# Documents on Noise

The following "Noise" technical documents are for sale by the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22151 (Phone: Area Code 703/321-8543):

| EPA DOCUMENT NO. | TITLE |
|---|---|
| NCR500.1 | Report to the President and Congress on Noise. NTIS Doc. #PB-206716. $6.00 |
| NTID300.1 | Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. NTIS Doc. #PB-206717. $6.00 |
| NTID300.2 | Noise from Industrial Plants. NTIS Doc. #PB-206718. $6.00 |
| NTID300.3 | Community Noise. NTIS Doc. #PB-207124. $3.00 |
| NTID300.4 | Laws and Regulatory Schemes for Noise Abatement. NTIS Doc. #PB-206719. $9.00 |
| NTID300.5 | Effects of Noise on Wildlife and Other Animals. NTIS Doc. #PB-206720. $3.00 |
| NTID300.6 | An Assessment of Noise Concern in Other Nations. NTIS Doc. #PB-206721 (Vol I) $6.00; #PB-206722 (Vol II) $3.00. |
| NTID300.7 | Effects of Noise on People. NTIS Doc. #PB-206723. $3.00 |
| NTID300.8 | State and Municipal Nonoccupational Noise Programs. NTIS Doc. #PB-208659. $3.00 |
| NTID300.9 | Noise Programs of Professional/Industrial Organizational, Universities and Colleges. PB-207125. $3.00 |
| NTID300.10 | Summary of Noise Programs in the Federal Government. Available at GPO only. |
| NTID300.11 | Social Impact of Noise. NTIS Doc. #PB-206724. $3.00 |
| NTID300.12 | The Effects of Sonic Boom and Similar Impulsive. NTIS Doc. #PB-206725. $3.00 |
| NTID300.13 | Transportation Noise and Noise from Equipment Powered by Internal Combustion Engines. NTIS Doc. #PB-208660. $6.00 |
| NTID300.14 | Economic Impact of Noise. NTIS PB-206726. $3.00 |
| NTID300.15 | Fundamental of Noise: Measurement, Rating Schemes, and Standards. NTIS Doc. #PB-206727. $3.00 |
| AMRL-TR-73-73 | Relation Between Daily Noise Exposure and Hearing Loss Based on the Evaluation of 6,835 Industrial Noise Exposure Cases. |
| EPA/550/9-73-001-A | A Basis for Limiting Noise Exposure for Hearing Conservation. NTIS Doc. #AD-767274. $4.75 |
| EPA/550/9-73-001-B | Predition of NIPTS Due to Continuous Noise Exposure. NTIS Doc. #AD-767205. $3.00 |
| NTID 73.7 | Military Aircraft and Airport Noise and Opportunities for Reduction Without Inhibition of Military Missions. NTIS Doc. #PB-223637/AS. $5.25 |
| NTID 73.6 | Review and Analysis of Present and Planned FAA Noise Regulatory Actions and Their Consequences Regarding Aircraft and Airport Operations. NTIS Doc. #PB-224405/AS $5.25 |
| NTID 73.5 | Noise Source Abatement Technology and Cost Analysis Including Retrofitting. NTIS Doc. #PB-224422/AS. $7.00 |
| NTID 73.4 | Impact Characterization of Noise Including Implications of Identifying and Achieving Levels of Cumulative Noise Exposure. NTIS Doc. #PB-224408/AS. $6.50 |
| NTID 73.3 | Operations Analysis Including Monitoring, Enforcement, Safety, and Cost. NTIS Doc. #PB-225150/2AS. $7.25 |
| NTID 73.2 | Legal and Institutional Analysis of Aircraft and Airport Noise and Apportionment of Authority Between Federal, State, and Local Governments. NTIS Doc. #PB-225149/4AS. $8.25 |

# S.A.W.D. Proceedings

The Proceedings of the:

"International Specialist Seminar on Component Performance and Systems Applications of Surface Acoustic Wave Devices,"

which was held on 25-28 September at Aviemore, Scotland is now in press and will be available shortly. The "Aviemore Seminar", which was organized by the British IEE with cooperating sponsorship of G-MTT and G-SU, was unique in its goal to establish a dialogue at international level between engineers engaged in R&D on SAW devices and systems engineers involved with retrofits and future systems planning. Approximately 40 papers were given on state-of-the-art SAW devices and on their present and potential implementation in military and consumer electronic systems. The Proceedings presents these papers in their entirety together with summaries of the detailed discussions that unfolded after the formal papers. The Table of Contents for this nearly 500 page Proceedings includes:

I. Materials and Fabrication
II. Acoustic Subsystem
III. Programmable Devices
IV. Filters
V. Radar Applications of SAW
VI. Digital Signal Processing
VII. Communications Systems
VIII. ATC Applications

Copies of this Proceedings are being made available to IEEE members at the special low price of £7.20. Order your copy from Mr. R. C. Sutton, Marketing Manager, The Institution of Electrical Engineers, P. O. Box 8, Southgate House, Stevenage, Hertz, SG1 1HQ, England.

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CONTACT TO ARRANGE TOURS: _____

TELEPHONE: ( ) _____

TYPES OF TOURS:

1. _____

2. _____

3. _____

QUALIFICATIONS:

ADVANCE NOTICE REQUIRED _____ GROUP SIZE: MAXIMUM _____ MIN. _____

OTHER COMMENTS: _____

_____

FILMS AVAILABLE FOR LOAN: (SUPPLY CATALOG IF MORE THAN TWO)

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# Results of the AdCom Election Ballot

As you know, a ballot for the election of three Sonics and Ultrasonics Group AdCom members was issued on February 18, 1974. The ballots returned have been counted, and I am pleased to announce that the following three members have been elected for a three year term ending December 31, 1976: Donald W. Baker, Lewis T. Claiborne, Eric G.H. Lean. We wish to thank all nominees for their willingness to serve and for permitting their names to be included on this ballot.

DONALD W. BAKER ( S' 58 - M' 61)

Mr. Baker is Acting Assistant Director of Bioengineering at the University of Washington, Seattle. He has held that position since January 1, 1974. Previously he was Technical Director from 1965 until December 1973.

He is responsible for a large cardiovascular ultrasonic instrument research and development program in the Center for Bioengineering. The emphasis is on both Doppler and Echo type devices for assessing cardiac and peripheral vascular function.

His early training was in airborne radar fire control systems followed by a degree in electrical engineering at the University of Washington in 1960. His work experience has been exclusively at the University of Washington where he has been instrumental in helping to build up the present bioengineering program.

Among his publications are numerous book chapters and some 65 other papers authored or co-authored.

He has been a consultant to NIH on grant and contract reviews and is currently on a select committee to organize ultraconic training programs for the Veterans Administration Hospitals.

Mr. Baker is a member of IEEE and ISA.

He was born in Skagway, Alaska on April 12, 1932 and is married to Joan P. Baker who was the founder of the American Society of Ultrasonic Technical Specialists. They have one child and live in Kirkland, Washington which is near Seattle.

LEWIS T. CLAIBORNE, JR. (M'72)

B.S. in Physics and Mathematics, Baylor University, 1957
Ph.D. in Physics, Brown University, 1961

Dr. Claiborne is currently the manager of the Surface Wave Device Technology branch of the Advanced Technology Laboratory of Texas Instruments Incorporated. Earlier work in the Electron Transport Physics branch of the Physics Research Laboratory dealt with studies in superconductivity, specifically ultrasonic attenuation in superconductors. More recently his work has been in the area of phonon-phonon and electron-phonon interactions in semiconductors.

Dr. Claiborne's thesis was "A Study of the Attenuation of Ultrasonic Shear Waves in Superconducting Aluminum." For the last five years he has been active in the development of surface wave devices. Dr. Claiborne was a co-author of the paper which received an award for best paper in sonics and ultrasonics for 1971 entitled "Evaluation of Digitally Coded Acoustic Surface Wave Matched Filters," and he served as Technical Program Chairman for the 1972 Ultrasonics Symposium.

E.G.H. LEAN ( S'63 - M'69 )

EDUCATION: Ph.D., Stanford University, Stanford, California 1967
MS, University of Washington, Seattle, Wash., 1963
BSC, Cheng-Kung University, Taiwan, China, 1959

EXPERIENCE: Dr. Lean is currently engaged in the investigation of microwave surface acoustic waves in solids, integrated optics, fiber optics and laser applications.

In September, 1967, he joined the IBM T.J. Watson Research Center, Yorktown Heights, N. Y. and has been conducting experiments involving microwave acoustic devices and lasers. He has been the manager of Optical & Acoustical Technologies since 1969.

He was a research assistant during his period of graduate study. After graduation, he continued to do post-doctoral work on optical pulse compression and optical signal processing techniques at Stanford University.

In his doctoral research at the Hansen Laboratories of Physics, Stanford University, he studied the efficient generation of microwave shear waves in solids and the interaction of lasers with coherent acoustic waves in solids. He has published more than twenty technical papers and two book chapters in the field of acoustic surface waves and acousto-optic interaction. He has ten U.S. patents.

Dr. Lean is a member of Sigma Xi, Optical Society of America and IEEE. He is an associate editor in IEEE Transactions on Sonics and Ultrasonics.

# Koepfinger to Chair IEEE Standards Board in '74

New York, N. Y.....Joseph L. Koepfinger has been appointed Chairman of the IEEE Standards Board to succeed Robert D. Briskman. Established in 1898, the IEEE Standards Board is responsible for coordination and approval of IEEE Standards and for representing the IEEE in matters relating to units and standards with other standardizing bodies.

A member of the Standars Board since 1972, Mr. Koepfinger has been active in various committees of the Power Engineering Society of IEEE. He has served as Chairman of the Surge Protective Devices Committee and of the Power Engineering Society Standards Coordinating Committee. He holds membership on the Power System Relay Committee and is liaison representative from the PES Standards Coordinating Committee to the Nuclear Power Engineering Committee. He is Chairman of the East Central Area Reliability Protection Panel.

Mr. Koepfinger received the Bachelor of Science degree in electrical engineering in 1949 and the Master of Science degree in 1953 from the University of Pittsburgh. Since 1949 he has been employed in various engineering positions by the Duquesne Light Company where he now holds the position of Protection and Communications Engineer. He is a Registered Professional Engineer in the State of Pennsylvania.

Married, and the father of six children, Mr. Koepfinger was recently elected school director of the Moon Area School District in Allegheny County, Pennsylvania.