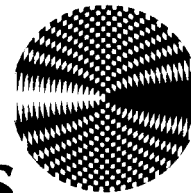




IEEE



SONICS AND ULTRASONICS GROUP NEWSLETTER

NUMBER 59 SEPTEMBER 1985

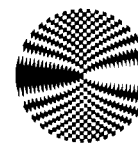
EDITOR: FRED S. HICKERNELL

SONICS AND ULTRASONICS
GROUP

ULTRASONICS, FERROELECTRICS
AND
FREQUENCY CONTROL SOCIETY



IEEE 1985
ULTRASONICS SYMPOSIUM



1985 Ultrasonics Symposium Technical Program

The IEEE Group on Sonics and Ultrasonics proudly presents the 1985 Ultrasonics Symposium as the premier acoustics forum for original contributions in the medical ultrasound, NDE, physical acoustics, and surface acoustic wave (SAW) areas.

Over 310 abstracts were submitted, including 20 invited papers. With this record number received and the meeting constrained to three days with four parallel sessions, a large number of papers had to be rejected in order to fit the conference together. Quality and relevance of abstract was the main criterion for acceptance. A total of 254 papers will be presented.

The symposium will have one plenary session featuring Dr. Jeffrey Borish from Lucas films speaking on concert hall acoustics, forty oral sessions, and four poster sessions.

The poster sessions will be presented on Wednesday, October 16th, at 1:30 PM. Because of the limited number of spaces available for the poster session, the papers accepted were subjected to a special scrutiny. The poster session is being highlighted this year by scheduling it on the first day in a "prime time" spot at 1:30 PM. Further, the poster papers will be left up for most of the conference to give even more exposure.

The conference has been broken into four main topic areas. Invited speakers have been chosen to highlight twenty subjects of current research interest.

In Group One covering the imaging and medical applications of ultrasound, hypothermia for cancer treatment is receiving much attention, including an invited talk on new applications. Doppler measurement of flow is a second major session, with an invited talk on flow mapping highlighting the topic. New composite and ferroelectric materials are covered by a number of invited and contributed papers. An invited paper will be presented on using modified ferroelectrics to suppress planar mode coupling in imaging transducers.

Group Two covers acoustic microscopy, NDE, and industrial ultrasonics. Sensors are a major new area receiving attention, and will be showcased by two invited talks - one on robotic sensor, the second on SAW devices which are adapted to sense acceleration, pressure, gas type, or humidity. Acoustic microscopy application to material characterization will be discussed. The use of sound to monitor industrial processes is receiving attention, for example in monitoring epoxy curing for ultralight composite materials.

Group Three is more diverse covering acousto-optics, physical acoustics, and magnetostatic waves. An invited paper discusses SAW on metallic super lattices. Bulk wave devices, such as resonators, have been pushed up to the GHz frequency range in a fundamental mode. A review paper covers SAW and magnetostatic wave devices for use as phase shifters in array radars. The acousto-optic work has wide interest. The present sessions deal mainly with signal processors based on A-O. Magnetostatic waves offer low loss, GHz frequency range of operation, and easy fabrication.

Papers in these sessions will show how MSW can be used to do convolution, filtering, and delay.

Physical Acoustics deal with waveguides and with porous media. Several sessions have been organized to present this work.

Group Four deals with SAW devices, effects, and subsystems. The theme this year is a steady improvement in device performance, modeling, and fabrication. Signal processing remains very useful as do high volume filter applications. Two invited papers highlight these areas.

Signal processing can be done acoustically or optically at present. An invited talk compares these two techniques.

L/C filters were once thought to be replaceable by SAW devices. An invited talk will discuss the resurgence of L/C filters and compare them to SAW realized filters.

The 1985 Ultrasonics Symposium offers a number of topic areas of current technical interest. For those who work in acoustics, those who may have applications for acoustic devices or phenomena in their work, and those who wish to view the leading edge of acoustics technology, attendance at the symposium will be a profitable and rewarding experience.

William Shreve, general chairman, and I both extend an invitation to you to attend the meeting in San Francisco, 16-18 October 1985, at the Cathedral Hill Hotel.

John D. Larson
Technical Program Chairman

Ultrasonics Symposium Invited Speakers

Jeffrey Borish
The Droidworks

"The Ultimate Concert Hall and Other Ultimate Truths"

P. H. Carr
RADC
"Microwave Acoustic and Magnetic Technology for
Phased Array Beam Steering"

B. G. Malcolm
Wavetek Inc.
"The Current State of the Art of Miniature L/C
Filters"

F. Cohen Tenoudji
Rockwell International
"Ultrasonic Monitoring of Thermally Curing Resins
with the Use of Shear Wave Reflectivity"

L. Pearson
Hercules Inc.
"Ultrasonic Detection of In-Plane Properties of
Composite Laminates"

Dr. T. H. Stephano
IBM Watson Research Center
"Measurement Science in the Electronics Industry"

R. C. Rosenfeld
SAWTEK Co.
"Applications of Custom SAW Devices"

L. A. Frizzell
University of Illinois
"Ultrasound Phased Arrays for Hyperthermic Treatment"

J. S. Schoenwald
Rockwell International
"Strategies for Robotic Sensing Using Acoustics"

J. J. Gagnepain
C.N.R.S.
"Recent Advances in Subminiature Membrane Resonators"

I. K. Schuller
Argonne National Laboratories
"Surface Waves in Metallic Superlattices"

M. E. Haran
DHR, Inc.
"Ultrasonic Instrumentation of Fossil Energy Research"

B. K. Sinha
Schlumberger-Doll Research
"Propagation Characteristics of Surface Waves in
Quartz and their Influence on Device Performance"

C. S. Hartmann
Richardson, TX
"Future High Volume Applications of SAW Devices"

H. Takeuchi
Hitachi Ltd.
"Highly Anisotropic Piezoelectric Ceramics and
Their Application in Ultrasonic Probes"

D. L. Hecht
Xerox
"Characteristics of Acousto-Optic Devices for Signal
Processing"

R. C. Waag
University of Rochester
"Tissue Characterization from the Angular and
Frequency Dependence of Ultrasonic Scattering"

C. Kasai
Aloka Ltd.
"Real-Time Two-Dimensional Blood Flow Imaging Using
an Autocorrelation Technique"

R. M. White
University of California, Berkeley
"Surface Acoustic Wave Sensors"

M. F. Lewis
Royal Signals and Radar Establishments
"A Comparison of Optical and Acoustical Signal
Processing Techniques"

J. N. Wright
Acuson, Inc.
"Resolution Issues in Medical Ultrasound"

Meet Your Symposium Committee

GENERAL CHAIRMAN



BILL SHREVE

Dr. Shreve received his B.S. degree with distinction in Engineering Physics from Cornell University (1969). He earned his M.S. (1971) and Ph.D. (1974) degrees in Applied Physics at Stanford University for work on nonlinear interactions of Rayleigh waves. From 1974 to 1978, he worked in the Surface Wave Technology Branch of the Central Research Laboratories at Texas Instruments on surface wave resonator and RAC devices and on the application of SAW devices to signal processing. In 1978, he joined the Physical Acoustics Laboratory of Hewlett-Packard Laboratories to work on surface wave resonators. Dr. Shreve has been an active contributor to the SAW device field through publication, patents and teaching. Bill was a co-founder of the Santa Clara Valley Chapter of GSU and has served on various committees of the Sonics and Ultrasonics Group. He is presently manager of the Wave Technology Department at Hewlett-Packard which includes the areas of acoustic surface waves, magnetostatic waves and photonics.

Bill, his wife and two daughters live in Sunnyvale, California. He enjoys jogging, backpacking, skiing, woodworking and gardening.

TECHNICAL CHAIRMAN



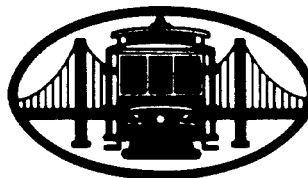
JOHN LARSON

John Larson is a native of Oregon, educated in Boston at the Massachusetts Institute of Technology, and transplanted to California where he studied at Stanford University to receive a PhDEE degree in 1971. After a year of postdoctoral work at the Technical University of Denmark, he joined HP Laboratories in 1972. A Project Manager for diagnostic imaging, his contributions in microwaves, acoustics, and process development have resulted in three patents and over 20 publications. John is a member of Sigma Xi and a senior member of the IEEE.

Service to IEEE and the GSU have included a term on the Ad Comm as an elected member, currently Chairman of the Nominations Committee, and Technical Program Chairman for 1985 Ultrasonics Symposium. John was co-founder of the Santa Clara Valley Chapter of GSU where he successively held the positions of Secretary-Treasurer, Program Committee Chairman, and Chairman.

In his spare time he has been involved with several civic activities such as school playground construction, boy scouting, and church leadership. He is married and the father of two children. His favorite pastimes include jogging, hiking, and outdoor sports.

* * * * *



Symposium Committee

FINANCE

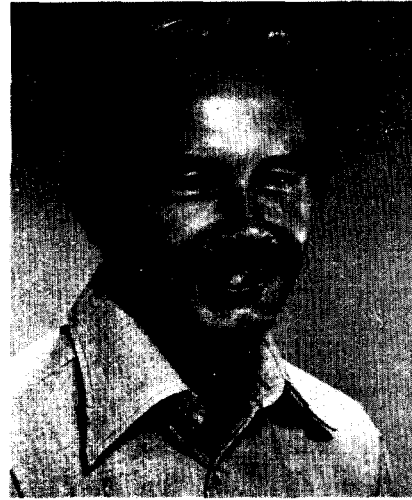


SCOTT ELLIOTT

Scott S. Elliott received the BSEE and MSEE degrees from the University of California at Berkeley in 1969 and 1971. After several years of directing R&D work on microwave ferrite filters and oscillators at Physical Electronics Labs and Addington Labs, he resumed his education at the University of California at Santa Barbara, earning the PhDEE degree in 1979. Dr. Elliott joined Hewlett-Packard in 1978 as an MTS for SAW and Gallium Arsenide devices. He is now an Engineering Section Manager with responsibilities for R&D on SAW devices, millimeter wave integrated circuits and microwave optical technologies. He has authored or co-authored over 25 publications concerned with SAWs, ferrites, quantum electronics and millimeter wave devices.

Dr. Elliott lives in Sebastopol, CA with his wife and two children. He enjoys jogging, tennis, wood-working, camping, jazz and wine tasting at the nearby Sonoma County wineries. He is a Senior Member of the IEEE.

LOCAL ARRANGEMENTS

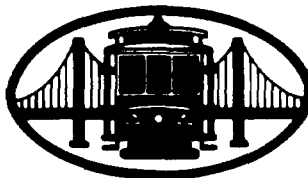


DICK WHITE

Dick White majored in Engineering Sciences and Applied Physics at Harvard University, receiving the A.B., A.M., and Ph.D. degrees in 1951, 1952, and 1956, respectively. His professional experience includes research and development on microwave tubes at Raytheon, Bell Telephone Laboratories and the General Electric Microwave Laboratory in Palo Alto, where he was employed from 1956 through 1963. He joined the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley, in 1962 where he teaches and conducts research. He has studied thermoelastic wave generation in solids, surface acoustic wave (SAW) phenomena and devices, non-destructive materials evaluation, stroboscopic scanning-electron microscopy, microwave solid-state devices, concentrator solar cells and, currently, integrated sensors. He is author or co-author of more than seventy publications including a recent book on solar cells, and is inventor or co-inventor on ten patents.

Dick enjoys running, particularly competing in the medium distance (10K) races. He enjoys outdoor activities such as backpacking and skiing (downhill and cross-country).

* * * * *



Symposium Committee



BRUCE McAVOY

Bruce McAvoy has been the Editor and formerly the Co-editor with John de Klerk of the Ultrasonics Symposium Proceedings since 1976. He is currently an Advisory Scientist in Microwave Acoustics at the Westinghouse R&D Center in Pittsburgh, PA, having been active in the area of SAW and bulk mode devices since 1972. He has published over 40 papers in the microwave field concerning effects in bulk and junction semiconductors in addition to microwave acoustics. Currently his work includes new designs and processing techniques for microwave bulk mode delay lines, high overtone bulk mode resonators and a study of the effects of magnetostrictive films on SAW propagation for device applications. He holds 7 patents in these areas with several pending.

Bruce has served as the Meetings Chairman of the Group from 1975 to 1981 and was General Chairman of the 1982 Ultrasonics Symposium in San Diego. In 1981 he joined the Meetings Committee of the Technical Activities Board of the IEEE as Division IV representative. He is currently on the TAB Finance Committee and has served two terms as Vice President of the Group on Sonics and Ultrasonics.

* * * * *

Editor

The editor wishes to thank Sue Tallerino and Liz Ewing for typing the Newsletter manuscript. The editor welcomes articles of interest to our Society for inclusion in the next issue. Send to Fred Hickernell, Motorola Inc., Government Electronics Group, 8201 E. McDowell, Scottsdale, Arizona 85252.

AdCom Briefs

The Spring G-SU AdCom meeting held on 26 March 1985 at Holiday Inn O'Hare/Kennedy Chicago was truly a historical event. This meeting will perhaps go down in history as the last G-SU AdCom meeting. During this meeting it was unanimously passed that "The Group on Sonics and Ultrasonics changes its name to Society on Ultrasonics, Ferroelectrics, and Frequency Control." In accordance with the name change our Transactions will have a greater emphasis on Frequency Control and Ferroelectrics. After the name change G-SU AdCom will probably become SUFF AdCom?

H. van de Vaart presented the By-Laws. These changes were mainly undertaken to have the By-Laws match the G-SU Constitution.

Highlights of By-Laws Changes

- The Meeting Committee Chairman will take the responsibility of reviewing Conference Budget before submission to AdCom for approval. He will be responsible to have Financial Reports submitted to IEEE.
- The AdCom makeup was changed to allow greater participation from Regions 8 through 10. The AdCom shall consist of a President, a Vice-President, 12 elected members, of which at least 3 must be from Regions 8 through 10, plus not more than 15 ex-officio members.
- The Finance Committee is a committee of AdCom and shall consist of the Vice-President (acting as chairman), the Secretary-Treasurer, the Transactions Editor, and the Proceedings Editors.
- "Meeting Standing Committee" be changed to "Ultrasonics Standing Committee" and a "Standing Committee on Frequency Control" also be added.

W. D. O'Brien, Jr. discussed his thoughts on "Financial Oversight" the Ultrasonics Symposium, the Frequency Control Symposium and the Ferroelectrics Symposium all have a budget in excess of \$50,000 and each of which is about half the G-SU reserve. G-SU is financially responsible for these symposia but G-SU has little control in formulating a budget. Yet G-SU is called upon to approve them.

Other motions of interest include the creation of the "Standing Committee for Frequency Control" and the appointment of Tom Parker as the Chairman of the Frequency Control Standing Committee. The combining of the Chapters Standing Committee with the Membership Standing Committee formed a Chapters/Membership Standing Committee.

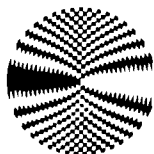
Other topics reported on: Treasurer's Report (R. S. Kagiwada), Transactions on Sonics and Ultrasonics (S. Wanuga), Transactions on Medical Imaging (D. Yugas), Journal of Lightwave Technology (D. Hecht), 1984 Ultrasonics Symposium (L. T. Claiborne), 1985 Ultrasonics Symposium (W. Shreve), 1986 Ultrasonics Symposium (R. Moore), 1988 Ultrasonics Symposium (W. O'Brien), Ultrasonics Symposia Proceedings (B. McAvoy), Frequency Control Symposia (T. Parker), Ferroelectrics (C. Land), Awards (R. Adler), Chapters (R. Moore), Nominations/Elections (J. Larson), Technical Activities Committee (A. Ballato) and National Lecture (R. Moore) and New Business (H. van de Vaart).

Reynold S. Kagiwada, Secretary-Treasurer



ISAF 86

PRELIMINARY ANNOUNCEMENT



1986 IEEE INTERNATIONAL SYMPOSIUM ON THE APPLICATIONS OF FERROELECTRICS

Sponsored by the IEEE Sonics and Ultrasonics Group
with the cooperation of the Electronics Division of the American Ceramic Society

June 8-11, 1986, Lehigh University, Bethlehem, Pennsylvania, USA

DISCUSSION TOPICS

Original papers describing applications and applications-oriented materials studies of ferroelectric ceramics, crystals, polymers and related materials are invited. Areas of interest include, but are not limited to:

- Piezoelectrics: transducers, adaptive optics, PVDF and other polymers, composites, filters.
- Electro-optics: IR E/O materials, modulators, composite devices and systems, ceramics.
- Photo-effects: optical storage, display, photorefractive devices, photo electrolysis.
- Dielectrics: microwaves, high voltage, barrier layers, multiple layers, phase compensation.
- Thin Films: transducers, integrated optics, electro-optics, field effect, conducting, insulating, index matching, wave-guide optics.
- Memory/Display: PLZT, switching, novel effects, liquid crystals, related technology.
- Materials: processing, stoichiometry, crystal growth, structure and properties.
- Pyroelectrics: detectors, arrays, vidicons.

for further information contact:

Betty Zdinak, Conference Coordinator
Department of Metallurgy & Materials Engineering
Lehigh University, Whitaker Lab #5
Bethlehem, PA 18015 USA

President's Message

In my previous message to the membership in May 1985 issue of this Newsletter, I discussed the changes that are taking place in our Group, especially the change in name and field of interest and the increase in the number of elected members on our Administrative Committee. I am pleased to report to you that these changes were endorsed by the Technical Activities Board (TAB) of the IEEE at its 31 May 1985 meeting and subsequently approved by the Executive Committee of the IEEE Board of Directors at its 1 June 1985 meeting. The final approval of our new Constitution is now up to you, the members of G-SU. Elsewhere in this issue you will find both the old (1964) and the revised Constitution printed side by side. Many of you probably have never seen the Constitution, so I urge you to read it over and find out what we are all about.

Probably the most important part of every IEEE Society's Constitution is the article that deals with the Field of Interest. It defines what technical field each Society is involved in, and at the same time attempts to avoid overlap or conflict with other Societies. Because of that, it is the article that is most closely scrutinized if a change is proposed; every society wants to protect its turf. Our Field of Interest has been dramatically expanded in the revised Constitution, and I thought it would be beneficial to print it once again in this message. It reads as follows:

"The scope of interest of the Society shall include the theory, technology, materials, and applications relating to:

- (1) the generation, transmission, and detection of mechanical waves and vibrations and their interaction with light and electric fields;
- (2) medical ultrasound, including hyperthermia, bioeffects, tissue characterization and imaging;
- (3) piezoelectric and piezomagnetic materials, including crystals, polycrystalline solids, films, polymers, and composites;
- (4) ferroelectric materials, including crystals, polycrystalline solids, films, polymers, and composites;
- (5) frequency control, timing, and time distribution, including crystal oscillators and other means of classical frequency control, and atomic, molecular and laser frequency control standards.

Areas of interest range from fundamental studies to the design and/or applications of devices and systems within the general scope defined above."

The old Constitution only specified the theory, design and applications relating to the generation, transmission and detection of bulk and surface waves, and their applications in industry, biomedicine and signal processing. As you can see, in the new version Ferroelectrics and all areas of Frequency Control, including non-crystalline frequency standards are included.

The change in the name of our Group from "Sonics and Ultrasonics Group" (SU) to "Ultrasonics, Ferroelectrics and Frequency Control Society" (UFFC) will also be reflected in the Transactions. Effective with the January 1986 issue, the new name will be "Transactions on Ultrasonics, Ferroelectrics and Frequency Control," (approval for that change was granted by the IEEE Publications Board). In fact, one of the main reasons for the expanded field of interest and the name change was to provide a recognized Society and a first class publication for both the Ferroelectrics and Frequency Control activities. Both these technical communities, although part of the Group on Sonics and Ultrasonics, did not feel adequately represented by the Group, and did not feel the SU-Transactions was recognized as the proper publication vehicle for their papers. With our three related activities now clearly shown on the new Transactions, I sincerely hope that researchers active in Ferroelectrics and Frequency Control, in addition to those active in Sonics and Ultrasonics, will consider the new developments. New Associate Editors have been appointed, and with an adequate flow of papers, it is not inconceivable to increase the publication schedule from bimonthly to monthly in the near future. And of course, we all hope that everybody in the Ultrasonics, Ferroelectrics and Frequency Control community will become a member of UFFC-S, if they are not already.

This is my last message as President of G-SU. On 1 January 1986, my successor will take over as President of UFFC-S. It has been a privilege serving you these past two years and I consider myself lucky to have been able to do it despite two major changes in my employment. It is also gratifying to see the changes that I worked so hard on now being implemented. I'd like to thank everybody who gave me support in that endeavor, and I hope you will give the same support to the next President.

Herman van de Vaart,
President

* * * * *

Congratulations

The following candidates have been elected to the Administrative Committee of the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society for a three-year term beginning 1 January 1986:

Colin K. Campbell
James G. Miller
Jeffrey S. Schoenwald

We wish the newly elected AdCom members success and thank all nominees for their willingness to serve and for permitting their names to be included on the ballot.

Revised Constitution

In order to better reflect current activities of the IEEE Sonics and Ultrasonics Group, the Administrative Committee at its meeting of March 26, 1985 voted to change the name of the group to IEEE Ultrasonics, Ferroelectrics and Frequency Control Society. In addition, it approved an increase in the number of elected members on the Committee from 9 to 12, in order to provide a better balance between elected members and ex-officio members. These changes have been incorporated in a revised Constitution together with some modifications to make it a more cohesive document. The new Constitution was endorsed by the IEEE Technical Activities Board at its meeting on May 31, 1985, and formally approved by the IEEE Executive Committee at its meeting on June 1, 1985. The proposed new Constitution will take effect January 1, 1985 unless ten percent of the Group members object within 30 days of mailing of this Newsletter. Objections should be mailed to IEEE Headquarters, 345 East 47th Street, New York, NY 10017-2394, U.S.A., Attention: Dr. Irving Engelson, TAB Staff Director. Printed below side by side are the old Constitution on the left and the new Constitution on the right.

CONSTITUTION IEEE SONICS & ULTRASONICS

Article I Name and Object

Section 1. This organization shall be known as IEEE Sonics and Ultrasonics.

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

Section 3. The Group shall aid in promoting close cooperation and exchange of technical information among its members and with the scientific community. To this end the Group will publish technical papers and hold meetings for the presentation of papers and their discussion, and through its committees shall study and provide for the needs of its members.

Article II Membership

Section 1. Membership in the Group shall be available only to members of the IEEE in any grade, including students, having a professional interest in any phase of Sonics and Ultrasonics.

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

Article III Field of Interest

The field of interest of the Group shall include the 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 ultra-

CONSTITUTION IEEE ULTRASONICS, FERROELECTRICS AND FREQUENCY CONTROL SOCIETY

Article 1 Name and Object

Section 1.1. This organization shall be known as the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society.

Section 1.2. Its objectives shall be scientific, professional, and educational in character. The Society shall strive for the advancement of the theory and practice of electrical and electronic engineering and of the allied arts and sciences, and the maintenance of a high professional standing among its members, all in consonance with the Constitution and with special attention to such aims within the field of interest of the Society as are hereinafter defined.

Section 1.3. The Society shall aid in promoting close cooperation and exchange of technical information among its members and with the scientific community. To this end the Society will publish technical papers and hold meetings for the presentation of papers and their discussion, and through its committees shall study and provide for the needs of its members.

Article 2 Membership

Section 2.1. Membership in the Society shall be available only to members of the IEEE in any grade, including students, having a professional interest in any phase of Ultrasonics, Ferroelectrics and Frequency Control.

Section 2.2. Affiliates may participate in the Society activities as provided by the IEEE bylaws and subject to the applicable IEEE rules and regulations and any additional limitations imposed by the Society Bylaws.

Article 3 Field of Interest

Section 3.1. The scope of interest of the Society shall include the theory, technology, materials, and applications relating to:

- (1) the generation, transmission, and detection of mechanical waves and vibrations and their interaction with light and electric fields;

sonic devices and their applications in industry, biomedicine, and signal processing.

- (2) medical ultrasound, including hyperthermia, bioeffects, tissue characterization and imaging;
- (3) piezoelectric and piezomagnetic materials, including crystals, polycrystalline solids, films, polymers, and composites;
- (4) ferroelectric materials, including crystals, polycrystalline solids, films, polymers, and composites;
- (5) frequency control, timing, and time distribution including crystal oscillators and other means of classical frequency control, and atomic, molecular and laser frequency control standards.

Areas of interest range from fundamental studies to the design and/or applications of devices and systems within the general scope defined above.

Article IV Financial Support

Section 1. The Group shall collect from its members an annual assessment or fee, in accordance with the IEEE bylaws and applicable rules and regulations. The amount of the fee shall be prescribed in the bylaws.

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

Section 3. The Group may raise revenues by other means, such as advertising, shows, requests for contribution, and charges for sending out notices to non-Group members, provided such means are consistent with applicable IEEE rules and regulations, and do not encroach on revenue fields of prior established groups or sections. Any new revenue means not explicitly covered by IEEE rules and regulations must be approved by the General Manager, before being adopted by the Group.

Article V Organization

Section 1. The Group shall be managed by an Administrative Committee, consisting of 9 elected members-at-large plus not more than 3 past Presidents as members ex-officio and not more than 12 non-elected ex-officio members as prescribed in the bylaws.

Section 2. The terms of the 9 members-at-large of the Administrative Committee shall be for three years, 3 members to be elected each year. Only two consecutive terms are permitted for elected members. Eligibility is restored after a lapse of one year.

Section 3. The Administrative Committee shall annually elect from the committee a President and a Vice-President. The terms of office shall be for one year or until their successors take office. A Secretary-Treasurer shall be appointed annually by the President for a one-year term, which officer need not be a member of the Administrative Committee; he may be reappointed indefinitely.

Article 4 Financial Support

Section 4.1. The Society shall collect from its members an annual assessment or fee, in accordance with the IEEE bylaws and applicable rules and regulations.

Section 4.2. The Society may make registration charges at its Society meetings, symposia, conferences, and conventions. The registration fee for non-members of the IEEE may be higher than for IEEE members.

Section 4.3. The Society may raise revenues by other means, such as advertising, shows, requests for contributions, and charges for sending out notices to non-Society members, provided such means are consistent with applicable IEEE rules and regulations, and do not encroach on revenue fields of prior established groups or sections. Any new revenue means not explicitly covered by IEEE rules and regulations must be approved by the IEEE Executive Committee, before being adopted by the Society.

Article 5 Administration of the Society

Section 5.1. AdCom Membership and Offices

5.1.1. The Society shall be managed by an Administrative Committee (AdCom), consisting of a President, a Vice-President and not more than 12 elected members and not more than three past Presidents as ex-officio and not more than 12 non-elected members ex-officio as prescribed in the bylaws.

5.1.2. The terms of the 12 elected members of the AdCom shall be for three years, four members to be elected each year. Only two consecutive terms are permitted for elected members, but eligibility is restored after a lapse of one year.

5.1.3. The AdCom shall elect annually from the committee a President and a Vice-President, whose terms of office will be for one year. Both the President and Vice-President may not be elected for more than two consecutive terms. A Secretary-Treasurer shall be appointed annually by the President for a one year term; this officer need not be

Section 9. Newly elected President, Vice-President, and members of the Administrative Committee shall assume office on January 1 or immediately upon notification of election if this notification comes after January 1.

Section 6. The duties and responsibility of the officers shall be as defined hereunder and in the bylaws and as delineated by the Administrative Committee

Section 4. The President shall supervise the affairs of the Group, as directed by the AdCom and in accordance with his powers and duties as defined hereunder and in the bylaws. In the President's absence or incapacity, his duties shall be performed by the Vice-President. In the event that neither the President or Vice-President are available, these duties will be performed by an AdCom member appointed by the President.

Section 8. The President shall be an ex-officio member of all committees of the Group. He is an ex-officio member of the IEEE Technical Activities Board (TAB) and when notified of a meeting of said Board, he shall insure representation of the Group at such meeting by himself, or by an alternate. If an alternate can not be found, the President shall present the views of the Group by a letter of proxy on matters of concern to the Group.

Section 5. The Administrative Committee may utilize the services of Headquarters as bursar, for all or part of the Group funds, as provided by the IEEE bylaws and rules and regulations. If any part of the Group funds are received and deposited separately, the terms and conditions shall be in accordance with IEEE policies and subject to the provisions of the Group bylaws and to any special limitations imposed by the AdCom.

Section 7. The President, as soon as expedient after election, shall appoint the standing committees provided by the bylaws. Other special or ad hoc committees may be authorized by vote of the Administrative Committee and shall be appointed by the President. Committee members thus appointed shall serve until their successors are appointed or the committee dissolved.

Article VI
Nomination and Election of Administrative Committee

a member of the AdCom at the time of appointment and may be reappointed indefinitely.

5.1.4. Newly elected President, Vice-President, members of the AdCom and the newly appointed Secretary-Treasurer shall assume office on the first of January, unless a different date is provided by the bylaws.

Section 5.2. Duties and Responsibilities of the AdCom

5.2.1. The duties and responsibilities of the officers shall be as defined hereunder and in the bylaws and as delineated by the AdCom.

5.2.2 The President shall supervise the affairs of the Society, as directed by the AdCom and in accordance with his power and duties as defined hereunder and in the bylaws. In the President's absence or incapacity, his duties shall be performed by the Vice-President. In the event that neither the President nor the Vice-President is available, these duties shall be performed by an AdCom member appointed by the President.

5.2.3. When the President is notified of meetings of IEEE Boards of which he is a member, he shall insure representation of the Society at such meeting by himself, or by an alternate. If an alternate cannot be found, the President shall present the views of the Society by a letter of proxy.

5.2.4. The Administrative Committee may utilize the services of IEEE Headquarters as bursar for all or part of the funds of the Society, as provided by the IEEE bylaws and rules and regulations. If any part of the Society funds are received and deposited separately, the terms and conditions shall be in accordance with IEEE policies and subject to the provisions of the Society bylaws and to any special limitations imposed by the AdCom.

5.2.5. Neither the Society, nor any officer or representative thereof, shall have any authority to contract debts for, pledge the credit of, or in any way bond the IEEE, except in accordance with budgets previously approved.

Section 5.3. Sub Organization of the Society

5.3.1. The Administrative Committee may establish standing and ad hoc committees as provided by the bylaws. All appointments to committees shall be for a term of one year or until successors are appointed or the committees dissolved, except where other specifically designated terms of office are established by the AdCom.

5.3.2. The President shall appoint the Chairman and give charge to each committee of the Society. The appointment of each new Chairman shall be ratified by a majority of the elected members of AdCom.

5.3.3. The President shall be an ex-officio member of all committees of the Society.

Article 6
Election and Nominations of the AdCom

Section 6.1. Elections

Section 2. Election of the 9 members-at-large of the Administrative Committee shall be as prescribed in the bylaws.

Section 3. Within-term vacancies on the Administrative Committee shall be filled by appointments, for the unexpired terms, by the remainder of the Committee.

Section 1. The nominating procedure shall include provision for petition by Group members to place a name on the ballot.

Article VII Meetings

Section 1. The Group may hold meetings, conferences, symposia, or conventions either alone or in cooperation with Sectional, Regional, or National Convention Committees of the IEEE, or other technical organizations, subject to IEEE rules and regulations. The Group shall sponsor at least one technical conference of national scope each year, which may be held during the International Convention, or during some other IEEE meeting, or as a separate conference.

Section 2. The Administrative Committee shall hold at least one meeting annually. Other meetings of the Administrative Committee shall be held at such times as are found necessary and/or convenient. Special meetings of the committee may be called by the President of the Group at his own discretion or upon request of other members of the Committee.

Section 3. Seven members of the Administrative Committee shall constitute a quorum. All members, including members ex-officio, shall have an equal vote.

Section 4. A majority vote of those members of the Administrative Committee attending a meeting shall be necessary for the conduct of its business except as otherwise provided in this constitution.

Articles IX Publications

Section 1. Publications undertaken by the Group shall be subject to IEEE policies and to any further guidance or controls prescribed by the Administrative Committee shall appoint such editors as may be required to implement the publication program. The duties of an editor, and his compensation, if any, shall be as prescribed in the bylaws.

Article VIII Amendments

Section 1. Amendments to this constitution may be initiated by petition submitted by twenty-five members of the Group, or by the Administrative Committee, such proposal being submitted to the IEEE TAB, and to the Executive Committee the IEEE for

6.1.1 Election of the 12 members of the AdCom shall be by mail ballot to the entire Society membership as prescribed in the bylaws.

6.1.2. Within-term vacancies on the AdCom shall be filled by appointments, for the unexpired terms, by the President. The appointment shall be ratified by a majority vote of the AdCom.

Section 6.2. Nominations

6.2.1. The nomination procedure and the makeup of the Nominating Committee shall be as prescribed in the Bylaws. The nomination procedure shall include provision for the Society members to place a name on the ballot.

Article 7 Meetings

Section 7.1. General Meetings

7.1.1. The Society may hold meetings, conferences, symposia, or conventions either alone or in cooperation with Sectional or Regional Committees of the IEEE, or other technical organizations subject to IEEE rules and regulations. The Society shall sponsor at least one technical conference of international scope each year.

7.1.2. Meetings conferences, symposia or conventions of the Society shall be open on an equal basis to all members of the IEEE, and may be attended by non-IEEE members.

Section 7.2. AdCom Meeting

7.2.1. The AdCom shall hold at least two meetings annually, as specified in the Bylaws. Additional meetings of the AdCom may be called by the President of the Society at his own discretion or upon request of at least three other members of the AdCom and held at such times as are found necessary and /or convenient.

7.2.2. Nine members of the AdCom shall constitute a quorum. All members, including ex-officio members, shall have an equal vote unless otherwise provided.

Article 8 Publications

Section 8.1. Publications undertaken by the Society shall be subject to IEEE policies and to further guidance or controls prescribed by the AdCom or its duly appointed committees. The Society shall be responsible for the financial aspects of its publication program.

Section 8.2. The President, with the advice and consent of the AdCom, shall appoint such editors as may be required to implement the publication program. The duties of an editor, and his compensation, if any, shall be as prescribed in the bylaws.

Article 9 Amendments and ByLaws

Section 9.1. Amendments

9.1.1. Amendments to this Constitution may be initiated by the AdCom, or by petition submitted by at least one hundred members of the Society. Proposed amendments shall not conflict

approval. After such approval, the proposed amendment shall be publicized in the Group Transactions or Newsletter, with notice that it goes into effect unless ten percent of the Group members object within 30 days of mailing the publication. If such objections are received, a copy of the proposed amendment shall be mailed with a ballot to all members of the Group at least 30 days before the date appointed for return of the ballots, and the ballots shall carry a statement of the time limit for their return to the IEEE office. When a mail vote of the entire Group membership is made necessary, approval of the amendment by at least two-thirds of the ballots returned shall be necessary for its enactment.

with the IEEE Constitution.

9.1.2. Initial approval of an amendment to this constitution as initiated by AdCom requires a two-third vote of the AdCom members present at a meeting, provided that notice of the proposed amendment has been sent to each member of the AdCom at least 15 days prior to such meeting. After having been submitted to the TAB, and by the TAB to the IEEE Executive Committee for approval, the proposed amendment shall be published in the Newsletter, or otherwise publicized by direct mailing to the membership, with notice that it goes into effect unless ten percent of the Society members object within 30 days of mailing. If sufficient objections are received, a ballot by mail shall be initiated as prescribed in Section 9.1.4.

9.1.3. Amendments to this Constitution initiated by petition of the members of the Society shall be published in the Newsletter, or otherwise publicized by direct mailing to the membership. These amendments will be voted on by mail ballot as prescribed in Section 9.1.4.

9.1.4. If a mail ballot is initiated, a copy of the proposed amendment shall be mailed with a ballot to all members of the Society at least 30 days before the date appointed for return of the ballots, and the ballots shall carry a statement of the time limit for their return to the IEEE office. When a mail vote of the entire Society membership is made necessary, approval of the amendment by at least two-thirds of the ballots returned shall be necessary for its enactment.

Section 9.2. Bylaws

Section 2. Suitable bylaws, and amendments thereto may be adopted by a two-thirds vote of the Administrative Committee in meeting assembled, provided that notice of the proposed bylaw, or amendment, has been sent to each member of the Administrative Committee at least a week prior to such meeting; or by a bylaw, or amendment, may be adopted by a two-thirds mail vote of the members of the Administrative Committee provided a 30-day period is provided for such responses. In either event, the proposed bylaw or amendment shall be published in the Group Transactions or Newsletter. No bylaw, or amendment, shall take effect until it has been published and has been mailed to the Secretary of TAB, and he has obtained approval of the General Manager.

9.2.1. Suitable Bylaws, and Amendments thereto, may be adopted by a two-thirds vote of the AdCom members present at a meeting, provided that notice of the proposed Bylaw, or Amendment, has been sent to each member of the AdCom at least 15 days prior to such meeting; or a Bylaw, or Admendment may be adopted by a two-thirds mail vote of the members of the AdCom, provided a 30-day period is provided for such responses. In either event, the proposed Bylaw, or Amendment, shall be published in the Society Newsletter. No Bylaw, or Amendment, shall take effect until it has been received by the TAB Secretary.

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Ultrasonics, Ferroelectrics and Frequency Control

Sounds Like A Winning Combination

Frequency Control Symposia

39th ANNUAL SYMPOSIUM

The 39th Annual Frequency Control Symposium was held in Philadelphia, PA on 29-31 May 1985. The Symposium was cosponsored, for the third year, by G-SU and the Electronics Technology and Devices Laboratory of the U.S. Army ERADCOM. Of the 459 attendees, 114 (25%) were from outside the USA. Twenty-six countries were represented. An additional indication of the international nature of this symposium is that, of the 88 papers presented, 38 (43%) had authors/coauthors from outside the USA.

The Symposium technical program consisted of 19 sessions. The session topics included: quartz resonator design, filters, SAW devices, frequency stability, crystal resonator nonlinearity, time distribution and transfer, cesium beam frequency standards, and hydrogen masers and rubidium oscillators. The Symposium was supported in part by exhibitors who rented 15 exhibit booths.

A panel discussion on "Noise in Resonators, Filters and Oscillators" was held during the evening of 29 May. The session was well attended and, due to the extensive discussions, lasted late into the evening. The session was chaired by J. Barnes, Austron, Inc. The panelists were: A. Benjaminson, ST Research, Inc.; M. Driscoll, Westinghouse, Inc.; J. Gagnepain, Laboratoire de Physique et Metrologie des Oscillateurs, France; B. Parzen, Consultant; R. Smythe, Piezo Technology, Inc.; C. Stone, Brightline Inc.; and F. Walls, National Bureau of Standards.

The award dinner was held on 30 May. For the second year, there was no banquet speaker; for the second year, the award dinner sold out completely. Three awards are presented annually at the award dinner: the Cady Award, the Rabi Award and the Sawyer Award.

The Cady Award was presented to John A. Kusters, Hewlett-Packard Co., by Erroll EerNisse, Quartex, Inc.; for his contributions to the development of SC-cut and other doubly rotated quartz resonators.

The Rabi Award was presented to Prof. Norman Ramsey, Harvard Univ., by Robert Vessot, Smithsonian Astrophysical Observatory, for his contributions to the development of atomic frequency standards.

The Sawyer Award was presented to Thyrgve Meeker, AT&T Bell Laboratories for his contributions to the theory and design of piezoelectric quartz devices. The award was presented by Warren Smith, AT&T Bell Laboratories and Baldwin Sawyer of Sawyer Research Products, Inc.

The proceedings of the 39th Annual Symposium on Frequency Control will be available from the IEEE, Cat. No. 85CH2186-5, starting approximately in September 1985.

John Vig
U.S. Army ERADCOM

CALL FOR PAPERS

The 40th Annual Frequency Control Symposium is scheduled to be held on 28, 29 and 30 May 1986 in Philadelphia, PA. Authors are invited to submit papers dealing with recent progress in research, development and applications represented by the following topics:

- Fundamental Properties of Piezoelectric Crystals
- Theory and Design of Piezoelectric Resonators
- Resonator Processing Techniques
- Filters
- Surface Acoustic Wave Devices
- Quartz Crystal Oscillators
- Signal Processing and Frequency Control Circuitry
- Atomic and Molecular Frequency Standards
- Frequency and Time Coordination and Distribution
- Applications of Frequency Control Devices
- Measurements and Specifications

Two copies of a summary in sufficient detail for evaluation of the prepared paper (≥ 500 words), together with the author's name, address and telephone number should be sent to the Technical Program Chairman:

Dr. Leonard S. Cutler
Hewlett-Packard Laboratories
1651 Page Mill Road
Palo Alto, CA 94304

The deadline for submission of summaries is 20 January 1986.

A CALL FOR SUPPORT

With the recently approved name change for the group, and the formal incorporation of frequency control as an area of interest for our society, the role of the Frequency Control Symposium within the IEEE has increased significantly. Therefore, I would like to encourage members of the society working on research related to frequency control applications to consider submitting papers covering their work to next year's Frequency Control Symposium. Also, with the increased scope of our society, we should make every effort to encourage members of the frequency control community who have not previously been associated with the group to take an active role within our new society.

Thomas E. Parker
Raytheon Research Division

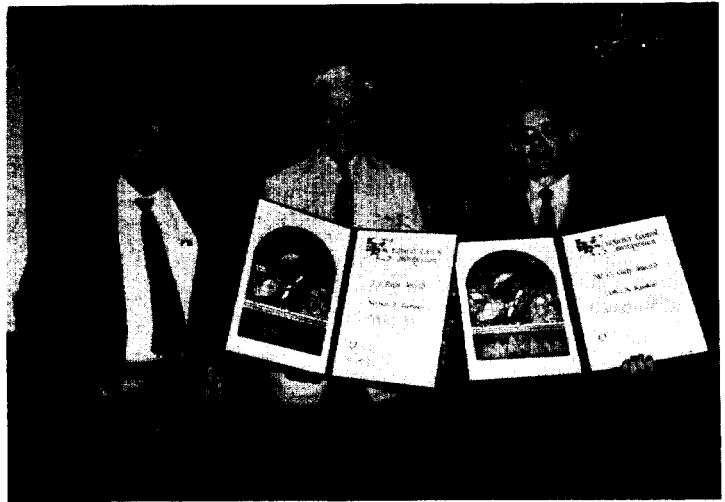
Frequency Control Symposium

AWARDS

Thrygve Meeker, Sawyer Award

Professor Norman Ramsey, Rabi Award

Jack Kusters, Cady Award



CHAIRMEN

Samuel Stein, Technical Program Chairman (on left) and John Vig, General Chairman (on right) with the three award winners.

AWARD DINNER

E. EerNisse, W. Smith, T. Meeker, N. Ramsey, J. Kusters, H. Van de Vaart and J. Vig at the Symposium Award Dinner.



Chapters – Membership Report

At its last meetings the Administrative Committee combined the functions of the chapters and membership support functions into one activity. This was done as part of the restructuring that will make us the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society (UFFCS) as of January 1, 1986. The combination of these changes provide us with a unique opportunity for supporting chapter activities and providing the benefits of membership to a greater percentage of the people active in our field. Let's remember that increased membership will have the combined effect of increasing the resources available to support the Society's publications and the papers available for publication in the Transactions, increasing its value to all members.

The potential for member benefit of the increased scope of GSU/UFFCS charter must be clear. Though discussed elsewhere in this Newsletter, it is appropriate to summarize within the context of membership development:

- * A Transactions with significantly expanded coverage.
- * Enlarge editorial support which, for authors means more rapid review and timely publication of submitted papers and, for readers, more timely availability of published technical material.
- * Three symposia: Ultrasonics Symposium - annually
Ferroelectrics Symposium - Triannually
Frequency Control Symposium - Annually
- * Broader range of topics available in which to select the Distinguished Lecturer.
- * Nine chapters with increased of local programming.
- * Newsletter with greater coverage of happenings in the field.
- * More opportunities to interact technically and socially with colleagues on professional interests.

The job of bringing the benefits of memberships to our colleagues in the field can be approached through two key questions: "What are our greatest areas of opportunity for membership development?" and, "How do we provide member services which will exploit these opportunities?" A part of the first question is answered by recalling the analysis in the Chapters' column of the last Newsletter where it was noted areas with newly formed chapters increased twice as fast in membership after chapter formation as before. It would be simple motherhood/fatherhood to say local visible activities help to develop membership. The fact that actual membership statistics in areas where chapters have been formed document this fact gives us a tool we can confidently inject into our membership strategy. Thus anything we can do to enhance effective chapter programming will clearly enhance membership growth.

The other area is identified by noting that only approximately half the Ultrasonics Symposium and ten to twenty percent of the Ferroelectric and Frequency Control Symposia are GSU members. This means that almost 1000 people active in our technical community annually attend our symposia as nonmembers. If it is generally true as in my own organization that only a small percentage of the workers in the field are able each year to attend the symposium, there actually may be several thousand truly active workers in our technical community who are neither enjoying nor contributing to GSU membership. Bringing these workers in

could more than double our present membership of slightly over 2000.

How we develop our Society with its expanded charter and Transactions, three symposia and membership and chapter support activities is limited only by our imaginations. You will be reading elsewhere about efforts to broaden the Transactions and better serve our three symposia attendees, extra copies of our first expanded issue, January 1986 will be printed and mailed to them along with an invitation to publish and to join. Each of our three symposia will have a membership developmental chairperson who will work with each symposium committee to achieve best arrangements to encourage membership. It is expected this will include staffing a membership booth and providing a variety of inducements for joining. Specifics, obviously, will be worked out with each symposium committee. Any suggestions from readers would be welcome.

For chapters the usual question is how to provide support which will help to develop improved program series and any other activities which would strengthen the chapter. Presently, the Group provides a Distinguished Lecturer each year. The Distinguished Lecturer is always an internationally known person in our field and is available at no cost to provide his lecture. Further, the Group will provide a \$250 stipend to any chapter requesting it. This can be used to augment any area of chapter activities including bringing in a speaker who could not otherwise afford to come. Also there is a Chapter Presidents' Luncheon at the Ultrasonics Symposium, this year on October 17 in San Francisco.

Some IEEE societies use their local chapters as the focal points for organizing their symposia. This has not been the primary approach for GSU because formation of our chapters has been relatively recent. Further, the Frequency Control Symposium, which until recently was and still is jointly sponsored by the Army has traditionally been at the same location. Both the Ultrasonics and the Ferroelectric Symposia have regularly moved to various locations across the country. Any local chapter which feels its location would be appropriate and would like to organize either of these Symposia for a future date should contact the Ultrasonics or Ferroelectrics Committee Chairpersons, respectively, G.W. Farnell (514) 392-5859 or C. E. Land (505) 844-6385.

Another approach used by some chapters in other societies is the one day seminar for which a fee is charged. In many places the session is on a week day and many of the employers pay the fee. A variation on this is a Saturday seminar or to run the seminar on a series of weekly programs, for example, four. A benefit of this type of program is that a hot topic and be given reasonably comprehensive coverage and the resources are available to bring in nationally recognized speakers.

Several suggestions have been made for a speaker's bureau. To do this on a broad basis will require organizing logistics to a scale which has not been available in the past. In this respect a planning meeting for chapter representatives is being planned for the evening of October 16 at the Ultrasonics Symposium in San Francisco. This is the same evening as the stand up reception. We will have a private room and be able to order any needed food to augment what we got at the reception. Exact time and room will be announced. All thoughts on improving chapter programming including any needed support from the

Administrative Committee will be discussed. Every chapter is urged to have, at least, one representative and any number is welcome. (Note that this is separate from the already mentioned Chapter President's Luncheon.) I should appreciate knowing who is coming simply so I can arrange for an appropriately sized room and inform the hotel about the number of people who may have requests for food service.

Anyone having ideas for or would like to participate in membership and chapter development activities is encouraged to contact me either by phone (301) 765-4027 or by writing me at Westinghouse DEC, P.O. Box 746, MS 335, Baltimore, MD., 21203. Please let me hear from you.

R.A. Moore, Chairman

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Boston Chapter

On January 1, 1986 the IEEE Sonics and Ultrasonics Group will become the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society. In the spirit of this broader charter, the chapter meetings planned for the 1985-86 year will reflect the interests of our new constituency.

A preview of some of our first seminar topics is given below:

- Wednesday, September 18 - An Alternate Approach to Low-Noise Microwave Frequency Synthesis - Zvi Galani (Raytheon)
- Tuesday, November 19 - Progress in Medical Imaging - Tom Szabo and Paul Magnin (H-P)
- Tuesday, January 7 - Transducers, Sensors, and Actuators - Robert E. Newnham (G-SU National Lecturer)

Speaking for the G-SU Boston Chapter, I want to thank Rick Webster, last year's chairman, for the time and effort he invested in making the 1984-85 seminars such a success.

Joe Callera
Chairman, Boston Chapter

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Tokyo Chapter

1. Technical Meetings
Tokyo Chapter held 5 technical meetings and 29 papers were presented during half a year in 1985 in conjunction with the Technical Group on Ultrasonics of the Institute of Electronics and Communication of Japan as follows:

Dates	Papers	Place
January 31	8	Kyoto
February 22	4	Tokyo
March 22	4	Tokyo
May 24	5	Tokyo
June 21	8	Tokyo

2. The Symposium on Ultrasonic Electronics
The 6th Symposium on Ultrasonic Electronics will be held on December 10-12, 1985, in Tokyo, sponsored by the SU Tokyo Chapter.

3. National Lecturer in Tokyo
We have invited Professor Robert E. Newnham to Japan as the IEEE SU National Lecturer for 1985/86 to talk

an invited paper at the 6th Symposium on Ultrasonic Electronics and several lectures in Tokyo, Kyoto (Osaka) and Sendai.

Nobuo Mikoshiba
Chairman, Tokyo Chapter

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Baltimore, Washington and Northern Virginia Chapter

The following were the chapter activities during the past year.

1984-1985 was again a very successful year for our rather young S.U. chapter. In September 1984, we planned five technical presentations - one every alternate month beginning October 1984.

1. October 16, 1984 8pm Ramada Inn, Calverton, MD.
Dr. A.E. Clark of Naval Surface Weapons Center, M.D., presented a very good seminar on "Magnetostrictive Transducer Materials". Thirteen local S.U. professionals attended the technical meeting and there was a very lively question and answer period after the talk.
2. Tuesday, December 4, 1984 8pm Ramada Inn, Calverton MD.
Dr. Boro Djordevic of Martin Marietta, MD, gave a very good presentation on "From Ultrasonic Transducer to Robotic C-Scan". The talk was attended by eleven persons. Dr. Djordevic discuss how very large airframe components of complex shape can be inspected ultrasonically using robots.
3. Tuesday, February 5, 1985 8pm Ramada Inn, Calverton, MD.
For those of us who could not make it to the 1984 Dallas IEEE S.U. Symposium and listen to "The Stanford Artificial Ear Project" by Dr. Robert L. White, this talk titled "Electro-Acoustics and the Ear: Hearing aids and Personal Sound Exposure Meters" by Dr. V. Nedzelitisky of NBS, Washington served as a very good substitute. This was a joint meeting with the Washington, DC Chapter of Acoustical Society of America. Despite very trecherous snow and sleet weather conditions, nine professionals braved their way to attend this talk.
4. Tuesday, April 2, 1985 8pm Ramada Inn, Calverton, MD.
Dr. A. Ballato - National S.U. Speaker for 1984-85 gave the most interesting talk on "Frequency and Time Sources: Past, Present and Future". Perhaps many other S.U. members all over the country attended his talk during the last year. There was a very interesting discussion between the speaker and Mr. Robert McCracken who worked on the original NBS Atomic Clock Project. Fifteen members attended this talk.
5. Tuesday, June 4, 1985 Ramada Inn, Calverton, MD.
This was the last meeting of the year. Dr. Joseph F. Weller of Naval Research Laboratory gave a seminar on "Acoustio-Optic Devices for Microwave Applications". Eleven members attended this seminar. There was a very good discussion following the seminar.

We have elected the next year 1985-86 committee for our chapter. The Committee members are:

Chairman: Dr. Joel Rosenbaum
Westinghouse DEC
Baltimore, MD
(301) 765-7574

Vice-Chairman: Dr. Manas K. Roy
Bendix Communications
Columbia, MD
(301) 583-4553

Secretary & Treasurer Dr. Harry L. Salvo
Westinghouse DEC
Baltimore, MD
(301) 765-4290

Meeting Arrangements Officer: Dr. Paul Gammell
Naval Surface Weapon
Silver Spring, MD
(301) 394-1959

We are planning an even more interesting year. We urge all the IEEE S.U. members belonging to our chapter to participate in the activities of the S.U. Our activities are announced every month in the IEEE newsletter Scanner published by the Washington/Northern Virginia Sections. We will appreciate your comments and suggestions.

Narendra K. Batra, Chairman
B.W. and NVA Chapter

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Long Island Chapter

The activities of the Long Island SU Chapter were summarized in the last newsletter. The Vice Chairman, Professor J.P. Parekh, Dept. of Electrical Engineering SUNY, Stony Brook, N.Y. 11794 (516) 246-7760, and the Secretary-Treasurer, Dr. Bernard Similowitz, Vice President Research and Development, General Microwave Corp., 155 Marine St., Farmingdale, N.Y. 11735 are putting a new slate of officers together for the coming year.

Richard La Rosa
Past Chairman, L.I. Chapter

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Orlando Chapter

On June 3, 1985 the Orlando Chapter of the Sonics and Ultrasonics Chapter were formed. The section was formed because of the growing numbers of engineers who have shown interest in this subdiscipline in electrical engineering in the Orlando area. A note of appreciation is due to Dr. Ballatto for visiting our section as the SU National Lecturer which acted as a catalyst for the formation of the chapter. He was invited through our Communication's chapter and made an excellent presentation.

Because of summer conflicts, we are just beginning organizational activities. Section officers and the year's activity schedules will be arranged in August. The chapter looks forward to a rewarding and challenging first year.

Don Malocha, Chairman

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Santa Clara Valley

The Santa Clara Valley Chapter of G-SU will meet in

the Applied Physics building at Stanford University. On Wednesday, 11 September Dr. Peter Tassenden of the Department of Radiology at the Stanford University Medical Center will address the group on the topic "The Practical Aspects of Clinical Hyperthermia". The November speaker will be Bob Bray from Hewlett Santa Rosa who will speak on, "SAW Production at Hewlett Packard".

The Chapter is looking for qualified speakers to round out their program. Anyone interested in speaking or attending the meetings can contact Larry Castelli, Chairman or Waguih Ishak, Program Chairman. The following is the officers of the Santa Clara Valley Chapter.

Chairman

Larry Castelli
Crystal Technology, Inc.
1035 E. Meadow Circle
Palo Alto, CA 94303
415-856-7911

Program Chairman

Waguih Ishak
Hewlett-Packard
1501 Page Mill Rd., 28C
Palo Alto, CA 94304
415-857-4449

Treasurer

Bill Shreve
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Palo Alto, CA 94304
415-857-2664

Larry Castelli, Chairman

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CHAPTER CHAIRMAN ROSTER

Mr. Joseph Callerame Raytheon Research Division 131 Spring Street Lexington, MA 02173	President Boston (617) 860-3051
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Prof. J. P. Parekh Department of Electrical Engineering State University of New York Stonybrook, NY 11794	President Long Island (516) 246-7760
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Dr. Chen S. Tsai University of California School of Engineering Irvine, CA 92717	President Orange County (714) 856-5144
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Dr. Donald C. Malocha 409 Bay Tree Lane Longwood, FL 32779	President Orlando
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Dr. Mark A. Jerabek West Virginia University Department of Electrical Engineering Morgantown, WV 26506	President Pittsburgh (304) 293-6375
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CHAPTER CHAIRMAN ROSTER (continued)

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President
Santa Clara Valley
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Prof. Nobuo Mikoshiba
Research of Institute Electrical
Communications
Tohoku University
Katahira Sendai
Japan

President
Tokyo
0222 27 6200 2720

Dr. Joel Rosenbaum
Westinghouse Defense Center
P.O. 1521, MS 3717
Baltimore, MD 21203

President
Washington
(301) 765-7569

RAYLEIGH WAVE CENTENARY SYMPOSIUM (cont'd)

Miss Judith Barnes, Administrative Secretary to the Rank Prize Funds, was symposium coordinator. Professor E. A. Ash and Professor E. G. S. Paige were the Scientific Organizers for the symposium.



Rayleigh Wave Centenary Symposium

To celebrate the centenary of the discovery of Rayleigh waves, the Rank Prize Funds sponsored a three-day international symposium July 15th to the 17th in London, England. The symposium was held in The Royal Institution where Davy, Faraday and Rayleigh gave some of their epoch-making lectures. There were approximately 100 participants from England, Western Europe, Japan and the United States. There were 22 papers presented on a wide range of Rayleigh wave topics. The gathering was highlighted by a banquet at The Goldsmiths' Hall.

The Royal Institution of Great Britain, site of the Rayleigh Wave Centenary Symposium.



An international exchange of views at the Centenary Symposium banquet between the Dieulesaints of France and the Hickernells of Arizona.



Five former members of the Texas Instruments' SAW research group toast their reunion at a reception held during the Rayleigh Wave Centenary Symposium in London, England. Shown from left to right are: Bill Shreve - now at Hewlett-Packard, Ron Rosenfeld - SAWTEK, Bob Wagers - now at Fisher Controls, Lew Claiborne - still at Texas Instruments, and Clint Hartmann - founder of RF Monolithics.

SU Transactions – Parting Words

The Transactions on Sonics and Ultrasonics will end the year 1985 with approximately 950 pages of text. Two of the issues are Special Issues, "Acoustic Microscopy" and "SAW Correlators and Convolvers." Both are exceptional issues that will add to the archives of these two technologies. The two fine Special Issues from 1984, "Digital Acoustic Imaging" and "Ultrasound Hypothermia" together with the two 1985 Special Issues have added a backlog of manuscripts that is consistent with faster turnaround of publishing. I would like to thank all the authors and guest Editors for their efforts in participating in the Special Issues.

For 1986, the Transactions will plan on approximately 800-900 pages. Two Special Issues are under way: "Photo Acoustics" and "Acoustic Sensors."

Both of these topics are excellent choices for Special Issues. With the two Special Issues and the addition of our new areas from Frequency Control and Ferroelectrics, the backlog may further increase. If necessary, we will publish both a Special Issue and Regular Issue in the same month as Part I and Part II. The backlog may be controlled in this manner if it becomes too large. If it becomes persistent, the number of issues per year may be increased. 1986 will be an exciting year with the new names of our Group and Transactions that will encompass our added technologies and members of Frequency Control and Ferroelectrics. Your continued support of publishing in the Transactions is solicited and appreciated.

It has been nearly 15 years since I had the honor of assuming Editor in Chief of The Transactions on Sonics and Ultrasonics. My predecessor, Oskar Mattiat, did a fine job of getting the Transactions settled into a quarterly publication. Those years laid the foundation of our Publications. We have since gone to publishing bi-monthly and this year, 1985, we will set a record of pages published, approximately 950.

I would be remiss if I did not mention and give credit to the vast majority of people who were and are associated with our Sonics and Ultrasonics Publications. The list is extensive; the Associate Editors, the reviewers, the authors, the support of the AdCom and its members. Even the membership of the Group is a supporting body since they provide both financial and technical inputs to our Group's activities; and Publications is a major part of the activities.

The other major participating individuals are those in IEEE Headquarters and the publishing department. I shall always be indebted to Ann Burgmeyer for her patience, understanding, and guidance. We shared many paths of mutual help over the years along with the entire IEEE publishing staff. They are a commendable group of people. Last of all, my full time partner, my wife who endured all the hours of my working at home on the Publications and to her ever present help in fulfilling my typing whenever the need arose.

I have enjoyed by tenureship throughout the years but most important I have enjoyed the associations of the many friends and associates with whom I have worked on the Transactions. They have made a lasting happy memory which I shall hereafter cherish. To all of you I say thank you for your help, your cooperation, and for the moments we shared. May all of you have continued success in your professional and personal life.

To Bill O'Brien, my successor, I want to wish the best of success with the Transactions and their publications. I'm sure they will continue on to be a valuable part of our membership and the technical community.

Stephen Wanuga
Editor, IEEE Transactions
on Sonics and Ultrasonics

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