IEEE SONICS AND ULTRASONICS GROUP NEWSLETTER

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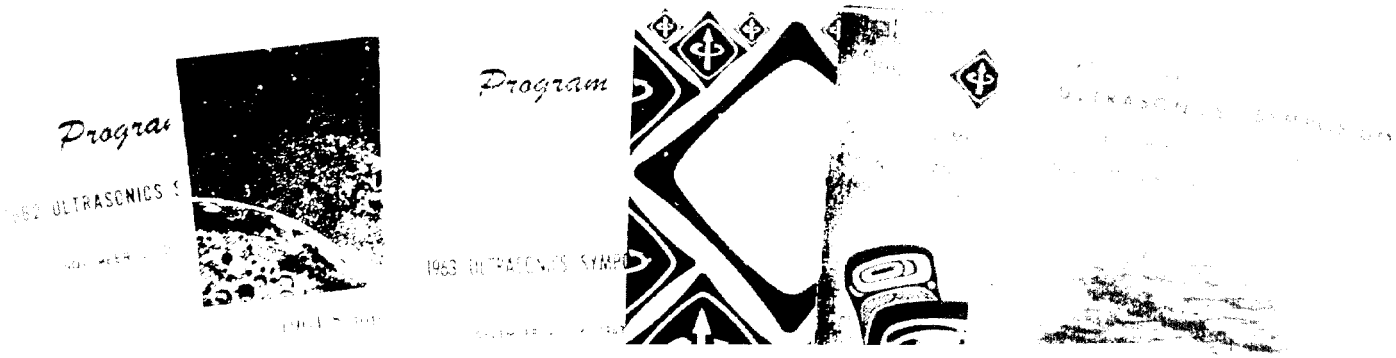

1983 ULTRASONICS SYMPOSIUM

Atlanta, Georgia
October 31, November 1, 2

Division IX Report

This is my first "letter" as Division Director, and it may be appropriate to briefly describe the new Division structure. As many of you may recall, the Institute bylaws were changed last year to authorize 10 technical divisions and the various Councils, Societies, and Groups were regrouped into these divisions. Commonality of technical interests was used as the primary criterion for the grouping.

Division IX, called Signals and Applications, contains four Societies and one group. These are:

- o Aerospace and Electronic Systems Society . . . . . } all three previously
- o Geoscience and Remote Sensing Society . . . . . } in Division III
- o Ocean Engineering Society . . . . . }
- o Acoustics, Speech and Signal Processing Society . previously in Division I
- o Sonics and Ultrasonics Group . . . . . previously in Division IV.

Incidentally, there is no essential difference between a Society and a Group. However, the word "Society" appears to carry some added prestige, especially when interacting with an outside organization, e.g., the American Physical Society, or the Society of Mechanical Engineers. I have discussed the question of changing from Group to Society with Dr. Herman van de Vaart, President of the SU Group, and he will consult with his AdCom to see whether they wish to make a change.

One of my hopes is that we will be able to identify a few projects where joint efforts by several Societies would be desirable to produce synergistic results. One idea being considered by other Divisions is to introduce a Division Magazine, which may be unaffordable by individual Societies. Another idea is to replace or supplement the Society Newsletters by a Division Newsletter: the larger circulation may produce cost savings and additional advertising. Still another idea is to open joint Chapters in Sections where the number of members of individual Societies is too small to support separate chapters of their own.

I would like to invite your ideas on these and related topics, and will discuss them with the Society leadership to see if some of them would be suitable for our Division. It will take a while for the five Presidents and me to get to know each other's views, but I am sure that all of us will be eager to receive such suggestions from our collective membership.

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By now every IEEE member knows that 1984 is our Centennial Year. The first major Institute-wide Centennial events were held in Washington in February. These included the Technical Press Briefing, and the Technology Policy Conference, both of which have been reported upon in the INSTITUTE. In parallel with these meetings there was a TAB orientation and management seminar for incoming Society Presidents and other offices, and a full-day TAB meeting. This intensive activity was exhausting but productive, and the participants came out of it with a greater awareness of the problems and issues, and also of the resources available in the Institute to resolve these problems.

I hope all members will try to attend at least one Centennial event during the year in their area. Almost all Sections are organizing Centennial Awards ceremonies, and in many cases these occasions provide an excellent opportunity for our society members to meet the local IEEE leaders and discuss setting up joint programs. Additional Institute-wide events are scheduled for May in Boston, October in Philadelphia, and December in San Francisco. Let us all participate in them this year when we can--not many of us will be here for the next Centennial!

Saj Durrani
Director, Division IX

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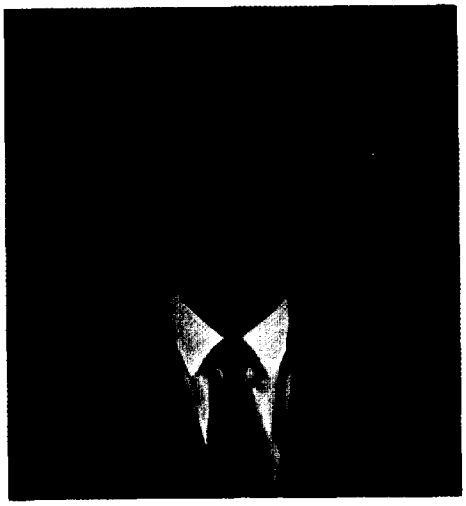
Meet Your Symposium Committee

General Chairman



PROFESSOR MOISES LEVY

Dr. Levy was born in Concepcion, Chirriqui, Republic of Panama. He received a B.S. degree in chemistry from the California Institute of Technology in 1952; an M.S. degree in chemical engineering from the same institution in 1955; and was awarded a Ph.D. in physics from the University of California, Los Angeles, in 1963.

He spent a year in Zurich, Switzerland as a NATO postdoctoral fellow at the Swiss Federal Institute. Dr. Levy has been on the faculty of the University of Pennsylvania and the University of California at Los Angeles. Since 1971 he has been a member of the Physics Department at the University of Wisconsin-Milwaukee, including a four-year term as department chairman.

Dr. Levy's research group currently numbers 1 postdoctoral fellow and 5 graduate students. The group works in the area of superconductivity and magnetic properties of materials. Current research programs involve superconducting PbO films, re-entrant superconductivity in $ErRh_4B_4$, and the magnetoelastic interaction in nickel and permalloy films. Dr. Levy is a member of the Administrative Committee of the Group on Sonics and Ultrasonics.

Editor's Note: This is Professor Levy's second tour of duty as a General Chairman for the Ultrasonics Symposium. His first was the highly successful meeting in Milwaukee 1974 (remember the crunchy apples at afternoon break?). Join me in expressing our gratitude to Moises for going the second mile, it's hard but it's the most rewarding.

Technical Program Chairman

REYNOLD S. KAGIWADA

Reynold Kagiwada was born in Los Angeles, California. He received his B.S., M.S., and Ph.D. in physics from the University of California at Los Angeles.

After graduating, he was on the physics faculties of both the University of California at Los Angeles and the University of Southern California. In addition to his teaching responsibilities, his research was in the field of ultrasonics and superfluids.

In July of 1972, Dr. Kagiwada joined TRW as a member of the professional staff in Systems Group Research Staff to establish a research group on Surface Acoustic Wave devices. He was engaged in the research and evaluation of acoustic wave devices for utilization in various types of communication systems. This group gradually grew to include work on millimeter waves, III-V material growth and characterization, laser annealing of semiconductors, shallow bulk acoustic waves, acousto-optic modulators, and Josephson Junctions. In June 1980 he became the manager of the Microwave Products Department of the Microelectronics Center. The Microwave Products Department is responsible for fabricating all the microwave acoustics devices, the gallium arsenide devices and integrated circuits, and millimeter wave devices. Dr. Kagiwada has co-authored many papers in the field of surface acoustic waves and shallow bulk acoustic waves.

Dr. Kagiwada is a senior member of the Institute of Electrical and Electronics Engineers. He is a member of the American Physical Society, the Acoustical Society of America, the Association of Old Crows, Sigma Pi Sigma and Sigma Xi. He has served on a variety of committees.

Symposium Committee

Local Arrangements

G. PETE RODRIGUE

Dr. Rodrigue received B.S. and M.S. degrees from Louisiana State University. After earning his Ph.D. in Applied Physics from Harvard, he joined the Sperry Microwave Electronics Company in Clearwater, Florida, where he worked on various microwave devices in R&D work for 10 years. Thereafter he joined the EE faculty at Georgia Tech, where he has the rank of Regent's Professor, with teaching, consulting, and research activities. He has served as Chairman of the Georgia Tech. Executive Board, has received distinguished teaching awards, and has chaired various faculty committees.

In the IEEE he served as President of the MTT Society in 1976 and was on that ADCOM from 1970-1980. He chaired the Steering Committee for the 1974 International Microwave Symposium in Atlanta, and served on Steering Committees for Magnetism and Magnetic Materials and S-U Symposiua, and has been on Technical Program Committees for several Conferences. He was an organizer, first chapter chairman, and on committees for the Atlanta Section Chapter of AP/MTT.

Dr. Rodrigue was a member of IEEE's Technical Activities Board in 1976, 1979, and 1980. In the latter two years he was Chairman of the TAB Technologies Committee's Administration. He has been a member of the IEEE Publications Board for several years recently. This is his second year as IEEE Vice President for Publications, in which capacity he chairs the Publications Board. He has served as a member of the IEEE Board of Directors and its Executive Committee for 1982 and 1983. Dr. Rodrigue has served on a variety of IEEE standards and other committees, including Long Range Planning, Nominations and Appointments, and Finance.

Finance

HARRY L. SALVO, JR.

Dr. Salvo was born in Racine, Wisconsin, on March 26, 1947. He received his B.S., M.S., and Ph.D. degrees in physics from the University of Wisconsin-Milwaukee in 1969, 1974, and 1979, respectively. He has been a member of the faculty of the University of Wisconsin-Parkside and the Milwaukee School of Engineering. Since 1979 he has been with the Advanced Technologies Laboratory of the Westinghouse Defense and Electronics Center in Baltimore, Maryland.

Dr. Salvo's group, Microwave Acoustics, is involved in the research and development of both bulk acoustic and surface acoustic wave devices for use in RADAR and ECM systems. Current work involves microwave delay lines and resonators using zinc oxide thin film transducers, chirp transform techniques, and magnetoelastic surface wave devices. Dr. Salvo is a member of the American Physical Society and the I.E.E.E.

Symposium Committee

Publications

MARK C. LEE

Dr. Lee received his B.S. degree in physics from National Taiwan University ('65), and his M.S. and Ph.D. in experimental physics from UCLA ('68, '71). His dissertation was in the area of spin-phonon interactions in the magnetic structures of heavy rare-earth metals. After postdoctoral work under an Air Force fellowship at the University of Wisconsin, Milwaukee, he joined Wyle Laboratories as a senior specialist working with atmospheric sound absorptions, noise controls and sound propagation in porous materials. He later joined Aerojet Electrosystems, investigating PZT transducer performances crucial to Naval ASW training. He joined Jet Propulsion Laboratory as a senior scientist in 1978. One of his responsibilities at JPL is the exploration of ultrasounds for material investigation and processing in the microgravity environment. He has published over 50 technical papers in various professional journals. He is a member of IEEE, Acoustical Society of America and NASA Containerless Science Working Group.

Publicity

KUO-HSIUNG YEN

Kuo-Hsiung Yen received his B.S.E.E. from the National Taiwan University in 1964, M.S.E.E. from the National Chiao-Tung University in 1967 and Ph.D. in Electrophysics from Polytechnic Institute of New York (PINY) in 1972.

From June 1972 to September 1974, he was a postdoctoral fellow and later a research associate at PINY. While there, he carried out theoretical and experimental investigations of acoustic networks, SAW scattering and guiding, SAW filters and resonators, and SAW devices using Si/$LiNbO_3$ structures.

He joined TRW in October of 1974 to work on SAW devices. He has been involved in the design and fabrication of surface acoustic wave, shallow bulk acoustic wave and magnetostatic surface wave devices. In addition, he had also worked on VPE growth of AlN on sapphire, RF-sputtering deposition of ZnO film, LPE growth of GaAs and InP and fabrication of GaAs TED's, and Schottky barrier diodes. He is presently section head of the Microwave Acoustics Section in the Microwave Products Department of the Microelectronics Center.

Dr. Yen is a member of IEEE and Sigma Xi.

1983 Ultrasonics Symposium Technical Program

The 1983 Ultrasonics Symposium promises to be more exciting than ever. Over 300 abstracts were received, including 21 invited. The general comments from the Technical Program Committee indicate that the quality of the abstracts received was unusually high.

The Technical Program Committee met on August 5 to select papers for presentation. Because of the large number of high quality abstracts received, the Committee has decided to hold four parallel sessions. The Symposium is now divided into the Opening Plenary Session, 44 regular sessions, and 1 poster session. A total of 278 papers will be presented in the 3 days.

This year's Symposium will cover several interesting and exciting topics. These include Medical Ultrasonics, Acoustic Microscopy, Transducer Arrays, Nondestructive Evaluation, Sensors, Robotic and Intelligent Machines, Piezoelectric Materials, Physical Acoustics, Photo-acoustic Spectroscopy, Porous Media, Acoustic Levitation, Acousto-Optics, Thin Film Piezoelectric Material, Bulk Wave Resonators and Transducers, High Frequency Bulk Mode Resonators, Magnetostatic Waves and Interactions, and last--but far from least--Surface Acoustic Wave Technology.

There are seven Medical Ultrasonic Sessions which deal with fundamental and applied topics in medical and biological ultrasound. Included are sessions devoted entirely to Doppler flow measurement techniques, ultrasonic tissue characterization, and hyperthermia. Other sessions deal with two-dimensional imaging for medical diagnosis and related instrumentation.

Two full sessions on Acoustic Microscopy deal with the latest breakthroughs and achievements in the field. A Transducer Array Session discusses real time acoustic imaging, which is widely used in medical ultrasound and non-destructive testing and sonar.

The area of Industrial Ultrasonics is widely represented, with seven sessions on Nondestructive Evaluation, a sensor session and one on robotics and intelligent machines. The nondestructive evaluation covers the areas of materials processing and control, scattering theory, residual stress and mode conversion applications. The growth of nondestructive evaluation has been caused by the tremendous interest within the sonics and ultrasonics community. The sensor session covers a broad range of applications, including densitometry, accelerometry, photometry, and anemometry. The session on robotics and intelligent machines shows the role which ultrasonics plays in robotics and how sensors are designed to interface with computers which collect, process and direct.

A Piezelelectric Materials and Transducers Session describes new composite piezoelectric materials. These materials possess unique performance characteristics which create new areas in sensor and nondestructive testing.

The nine sessions on Physical Acoustics cover a wide spectrum of topics. These include photo-acoustic spectroscopy, porous media and acoustic levitation. The two sessions on Photo-acoustic Spectroscopy include work on techniques to improve the resolution of thermal wave microscopy, detection of ultrasonic waves from resistive heating, and high energy synchronized X-ray generated ultrasound. The Porous Media Session demonstrates the need for understanding ultrasound propagation in Porous Media for gas and oil exploration. The two sessions on acoustic levitation have collected the foremost authorities in the field. Some of these papers will discuss the results of acoustic levitation for processing materials in space.

Increased interest in the field of acousto-optics necessitated the formation of two sessions. The major bulk of the papers deals with the development of wideband acousto-optic Bragg cells for use in RF spectrum analyzers. Other topics covered include acousto-optic deflectors, fiber optic modulators, tunable filters and a four-channel, two-dimensional, acousto-optic signal processor.

Other session topics include Thin Film Piezoelectric Materials, Bulk Wave Resonators and Transducers, High Frequency Bulk Mode Resonators and Magnetostatic Waves and Interactions.

Surface Acoustics Wave (SAW) Technology still remains the dominant area for the 1983 Symposium. Ten sessions are scheduled on this topic. The session topics spread the spectrum from SAW filter design and packaging to SAW-based signal processors. Other session areas include SAW oscillators, SAW memory correlators, acousto-electric devices, dispersive filters and SAW resonators. In these sessions, to provide a contrast with the relatively mature technology, invited speakers will address the potential signal processing capabilities of several advanced and competing technologies, including digital semiconductor very-high speed integrated circuits and analog semiconductors, acousto-optics and superconductive devices.

We hope that everyone involved or interested in Sonics and Ultrasonics will be able to attend the 1983 Sympoisum in Atlanta. This is truly an outstanding technical program.

R. S. Kagiwada, Chairman
Technical Program Committee

Invited Speakers

R. E. Apfel
Yale University

"Acoustic Levitation: Progress and Possibilities"

M. J. Buckley
Rockwell International Science Center

"In-SITU Process Monitoring and Control for Structural Components"

D. Cathignol
Appliquees a la Clinique

"Limitations of Coded Doppler Velocimeters"

J. H. Contrell
NASA Langley

"Radiation Stress in Solids"

L. E. Cross
Pennsylvania State University

"Piezoelectric Composites"

S. Datta
Purdue University

"Reflection and Mode Conversion of Surface Acoustic Waves in Layered Media"

S. W. Flax
General Electric Medical Systems

"Textural Variations in B-Mode Ultrasonography"

J. Ketterson
Northwestern University

"Probing Collective Modes of Superfluid He^3 with Zero Sound"

G. S. Kino
Stanford University

"Cross-Coupling in Transducer Arrays"

E. G. Lierke, R. Grossbach, Battelle Institute E.V.
and P. Clancy, ESTEC, Noordwijk

"Acoustic Positioning in Mirror Furnaces - ESA Activities in Materials Processing"

T. R. Meeker
Bell Laboratories

"Packaging and Reliability of SAW Filters"

J. G. Miller
Washington University

"Ultrasonic Tissue Characterization"

I. Rudnick
University of California at Los Angeles

"Viscoelasticity of Liquid Helium III and Zero Sound"

D. Rugar
Stanford University

"Recent Developments in High Resolution Acoustic Microscopy at Stanford"

E. Stern
MIT Lincoln Laboratory

"Comparison of New Analog Device Technologies for Signal Processing"

R. Stokes and M. Delaney
TRW

"Aging Mechanisms in SAW Oscillator"

B. Tittmann
Rockwell International Science Center

"The Role of Pore Fluids in the Dissipation of Acoustic Waves in Porous Media"

K. Tsubouchi and N. Mikoshiba
Tohoku University, Japan

"Zero Temperature Coefficient SAW Delay Line on AlN Epitaxial Films"

R. S. Wagers
Texas Instruments, Incorporated

"Modeling of GaAs Monolithic SAW Memory Correlators"

T. G. Wang
Jet Propulsion Laboratory

"High Temperature Acoustic Leviataion"

T. A. Zimmerman
TRW

"VHSIC and Signal Processing"

1983 ULTRASONICS SYMPOSIUM ARRANGEMENTS

The 1983 Ultrasonics Symposium will be held at the Marriott Hotel in Atlanta on Monday, October 31, through Wednesday, November 2. Atlanta's principal claims to fame were Coca-Cola and Margaret Mitchell's "Gone with the Wind". But Atlanta is now the transportation, financial and technical hub of southeastern United States. The new Atlanta offers her visitors an impressive list of historical, cultural, educational and entertaining attractions, superior hotel and convention facilities.

The meeting rooms (Grand Ballroom, North, Central and South and Plantation Suites) at the Marriott Hotel are immediately adjacent to each other, which allows convenient "hopping" among parallel sessions. The professionally managed exhibit, organized for the first time, will be held in the Tara Ballroom, immediately adjacent to the Technical Sessions. This will provide for maximum interaction betweeen symposium attendees and exhibitors.

The traditional Reception will be held on Monday evening, October 31st, in the Courtyard of the Marriott. On Tuesday, Symposium participants will have the opportunity to gather for a glittering evening atop the Twin Towers overlooking the gold-domed Capitol and the Atlanta Skyline. The evening will be complete with cocktails, dining, music and entertainment.

A full spouse's program has been developed and will offer daily tours of Atlanta and its environs, providing a taste of the history, culture, and natural beauty of this capital of the "new South".

HOTEL

The Symposium will be held at the Atlanta Marriott Hotel, Courtland International Boulevard, NE Atlanta, Georgia 30043 (404) 659-6500. The hotel is readily accessible to all transportation. Reservations must be received by October 8, 1983.

CLIMATE

For the month of November the average temperature in Atlanta is 51°F, with an average high of 62° and an average low of 41°. During the month of November the average relative humidity is 70% and the average rainfall is 3.4 inches.

TRANSPORTATION

Airline service is through Atlanta's new Hartsfield International Airport facility. The airport is approximately 12 miles south of city center. Taxi, limousine, and airport bus service is available between the airport and all major hotels. Taxi fare to the conference hotel will be about $15, while limousine and airport bus fares will be about $5.50 per person.

DELTA AIRLINES

Delta Airlines is the official airline for the 1983 Ultrasonics Symposium. Delta is offering a special conference rate, the BCD, which affords a 30% discount for attendees traveling round trip on Delta to the meeting. Flight arrangements to Atlanta must be between October 28 and November 1, 1983, and tickets must be purchased seven (7) days prior to your departure. Refer to File #866AA612. For reservations and information, call Delta or your local travel agent. Toll Free 800-241-6760 (Continental United States); 800-282-8536 (Georgia only).

ATLANTA ATTRACTIONS

Atlanta is a city of spirit, fiercely loyal to her past, yet anxious to get on with the future. She's a proud spirit...proud of her origins as a terminus railroad town...proud of her gracious Southern heritage...proud of her meteoric future as the "World's Next Great International City." Attractions include: Six Flags Over Georgia, Atlanta Memorial Arts Center, The Cyclorama, Stone Mountain National Park, Martin Luther King, Jr. Memorial, and Margaret Mitchell Estate--PLAN TO BRING YOUR FAMILY.

TWIN TOWERS GET AWAY

If there is adequate interest shown by advanced registration, a get-away evening will be planned for Tuesday, November 1, 1983. Entitled "Glamour, Glitter and Gracious Entertaining," you will travel by shuttle bus to the new Atlanta Twin Towers on Capitol Hill. En-route you will see highlights of Atlanta's towering downtown skyline. Enjoy dining and entertainment on the twentieth floor overlooking the gold-domed capital and view the exciting Atlanta skyline by night. Twinkling stars and lights will set the tone for an enchanging evening including a delicious menu and bluegrass music. Beer, wine and alcoholic beverages will be served. The price of $22.00 per person includes transportation, dinner and drinks.

EXHIBITION

A professionally managed exhibition has been organized to accompany this year's technical program. Thus far, the following companies have signed up as exhibitors:

Allied Corp.
Anderson Labs
Crystal Technology, Inc.
Engineered Materials
Marconi EDL, Ltd.
MATEC
MEA (Calif), Ltd.
Murata Erie North Amer., Inc.
Olympus Corp. Of America
Panametrics, Inc.
Phonon, Corp.
Piezo Crystal Co.
Raytheon
RF Monolithics
SAWTEK, Inc.
Sawyer Research
Sonoscan, Inc.
Texas Instruments
Ultrasonics-Butterworth Scientific, Ltd.
Valpey Fisher
Westinghouse (DEC)

SPOUSE'S PROGRAM

Complimentary coffee and rolls will be provided each morning of the conference. The location will be posted in the registration area. If there is adequate interest shown by Advanced Registration, Three spouses tours will be arranged; these include:

Tour 1: Monday, October 31, 1983 — Elegant Atlanta And The Cyclorama
10:00 a.m. - 3:00 p.m.

A tour of downtown Atlanta and Atlanta's elegant Northwest residential area with lunch at the Swan Coach House. A visit to the Cyclorama and the Martin Luther King Center. Cost of $22.00 includes transportation, lunch and admissions.

Tour 2: Tuesday, November 1, 1983 — A Day In The Georgia Mountains
9:00 a.m. - 5:00 p.m.

Visit to Dahlonega...where gold was discovered in 1828 and the site of a U. S. mint during the gold rush days. Tour the Courthouse Gold Museum and enjoy a delicious Southern luncheon at the delightful Smith House Restaurant. Continue on to Helen, Georgia, where the natural autumn beauty of the mountains form a background for the quaint cobblestone streets and old style buildings. Returning to Atlanta, stop at Babyland General Hospital...home of the Little People, nationally known Soft Sculpture Babies. Return to your hotel, approximately 4:30 p.m. Price of $26.00 includes transportation, lunch, and admissions.

Tour 3: Wednesday, November 2, 1983 — The Mystique of Margaret Mitchell
9:30 a.m. - 1:00 p.m.

Visit "Gone With The Wind", drive down Tara Boulevard to Jonesboro...Margaret Mitchell's grandparents lived here. The first stop is gracious Lovejoy Plantation (c. 1836), home of Betty Talmadge and very likely the model for Ashley Wilkes' Twelve Oaks. This Greek Revivial plantation-style home is filled with Mrs. Talmadge's price-winning needlepoint as well as authentic antebellum furnishings. On to Ashley Oakes, a century-old home lovingly restored to its original Sourthern charm by its present owners. Many of the antique furnishing were collected in Europe, an extensive collection of Waterford crystal displayed with superb taste highlights this excursion into the plantation South. The price of $16.00 includes transportation and entrance fees.

POSSIBLE EXTENSION OF FUTURE ULTRASONICS SYMPOSIA TO FOUR DAYS

This memorandum was received from an advisory committee consisting of G.W. Farnell, J.D. Larson and R.C. Williams, organized for the purpose of guiding the format of future Ultrasonic Symposia. Your careful attention to its comments and response is needed.

The Sonics and Ultrasonics Group has always been a relatively small Group/Society of the IEEE. The Ultrasonics Symposium is the major conference of the Group and should continue to provide a forum for the closely knit members of this Group to present and discuss their work. However, the expanded vitality and successes of the ultrasonics field should prompt us to consider altering the way we run the Ultrasonics Symposium.

The size of the annual Ultrasonics Symposia has been growing over the years. This fact is a welcome reflection of the continuing and expanding strength of the technical areas encompassed by the Sonics and Ultrasonics Group. This growth is also a result of the dedicated efforts of those who have run the Symposia. But success brings with it a problem which the Group must face: The Symposium no longer fits well into three days. Instead of the early 1970's format of relatively relaxed 9-to-5 meetings with a few parallel sessions and with two hours for lunch, we have seen longer hours, more parallel sessions and more poster sessions in recent Symposia. If we continue to have more papers contributed to the Symposia in future years, the Sonics and Ultrasonics Group must adopt one of the following alternatives:

1. Continue in the direction we have been going by adding more parallel sessions and poster sessions.

2. Go to a four-day Symposium, which will reduce the number of parallel sessions, and relax the schedule so that more time can be devoted to that all-important "symposium in the hallways."

3. Be more selective in accepting contributed papers and thereby make the Symposium conveniently fit into three days without excessive parallel sessions.

The purpose of this memorandum is to clarify the issues and stimulate feedback from the members of the Sonics and Ultrasonics Group and the Ultrasonics Symposium attendees concerning future directions for the Symposia. In doing this, we have chosen to present the arguments for the last two alternatives, which are the two basic ways to deviate from the current trend. The separate cases are presented through pairs of contrasting viewpoints.

We solicit your opinions on the issues presented here and suggest that you contact any member of the Advisory Committee to express your views. Also, a questionnaire will be handed out at the 1983 Ultrasonics Symposium in Atlanta.

Case for a Four-Day Ultrasonics Symposium

1. Historically, the attendances at the Ultrasonics Symposia appears to have been closely linked to the number of papers. More papers mean larger attendance.

2. Accepting more papers allows more authors to attend the Symposium. This is especially true for foreign authors.

3. A large attendance at the Ultrasonics Symposium is an indication that it is a technical and financial success.

4. The growth in the Ultrasonics field means that more high-quality work is being done and this is reflected in an expanded number of high-quality contributed papers. We should provide space in the Symposium for papers that meet the technical standards we have adopted in the past.

5. Reducing the Symposium to the approximately 220 time slots in 3 days, typical of pre-1980 Symposia would push the paper rejection rate up to about 25%. A lot of good papers would be rejected.

Case for a Three-Day Ultrasonics Symposium with More Selective Refereeing

1. Good technical programs stimulate large attendance. One measure of the quality of a technical meeting is the ratio of the number of attendees to the number of papers. By this measure, the Ultrasonics Symposium rates low in comparison to many other IEEE meetings.

2. More selective refereeing will enhance the stature of the accepted papers and thereby total attendance will be maintained or expanded.

3. For many years, the Symposia have been on a sound financial basis. Technical success is best judged by the technical quality of the papers.

4. Recent Symposia have contained a number of papers of marginal interest or technical content. These papers should have been rejected.

5. Many well respected technical meetings have paper rejection rates approaching 50% or more.

Continued --

6. It is difficult to establish uniform acceptance criteria across all specialty areas. Preset maxima on the number of accepted papers would cause some papers to be rejected more because of lack of fit than because of their technical quality.

7. A more leisurely, four-day symposium allows more time for interaction with others outside of your own specialty area of ultrasonics.

8. A four-day symposium could be set up as a series of overlapping 2- and 3-day mini-symposia on the various specialty areas of Sonics and Ultrasonics. The papers in any one area would last 3 days or less.

9. The additional costs associated with adding a fourth day would be offset by additional attendance.

Continued --

6. Goals for accepting papers could be established by having the Program Committee Chairman set the number of sessions in each specialty area after receiving the contributed papers, but in advance of the final meeting of the Program Committee.

7. By having papers in all of the specialty areas of Ultrasonics presented in the same three days, there is maximum opportunity for interaction and cross fertilization.

8. Three days is the maximum length of time that one can listen to 15-minute papers before exhaustion sets in.

9. A 3-day symposium costs less to run than a four-day symposium.

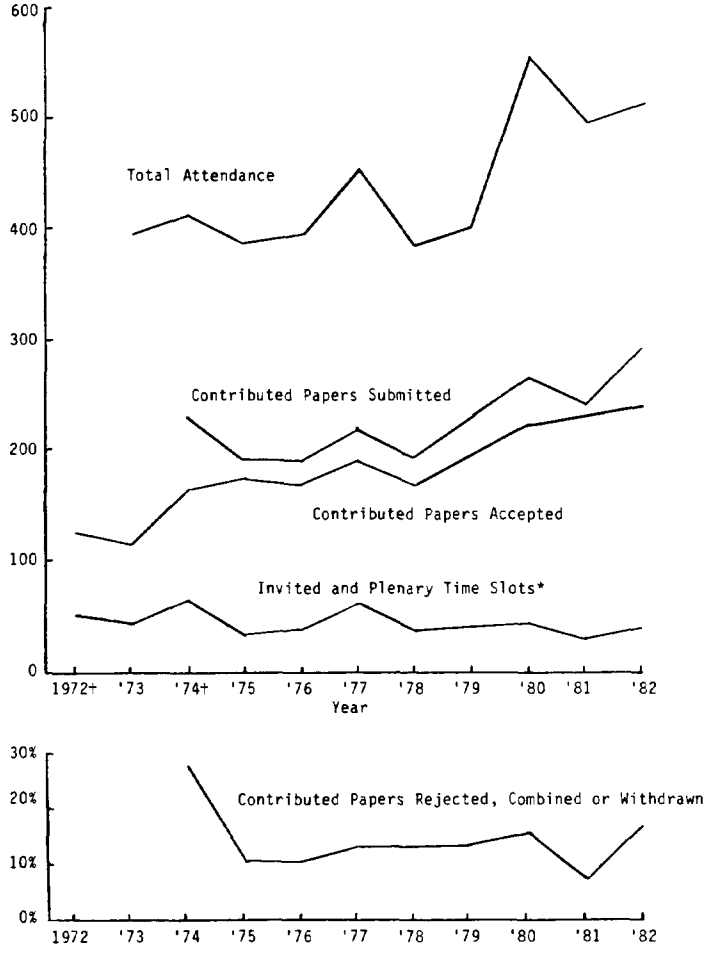


Figure 1. Numbers of papers and attendance at previous Ultrasonics Symposia.

\+ 1972 and 1974 were 3½-day meetings.

• Invited papers = 2 slots, plenary papers = 3 slots.

Ad Com Briefs

The G-SU Ad Com met on March 15, 1983 at the Marriott Hotel in Atlanta, GA, presided over by W.D. O'Brien, President. Sixteen people attended, including several future symposia chairmen.

More than half of the meeting was taken up by a discussion on the rewritten Constitution. The major part of the discussion centered around the imbalance of the number of elected and ex-officio members of the Ad Com. A proposal to reduce the number of ex-officio members was considered impractical, as was a proposal to limit their term of office. Ad Com finally voted in favor of increasing the number of elected members from 9 to 12, and to ensure adequate control by the elected members by requiring ratification of appointed ex-officio members by the elected members. The increase in the number of elected members from 9 to 12 will also provide a mechanism for electing Ad Com members who reside outside regions 1-6. The details of the election process will be spelled out in the Bylaws. A total of 13 motions were presented for various other changes in the Constitution. Finally, a motion to accept the Constitution as amended passed unanimously. The new Constitution must now be submitted to TAB, and by TAB to the IEEE Executive Committee for approval, and will then be published in the Newsletter. Since time limitations prevented discussion of the proposed new Bylaws, this will be picked up at the Fall Ad Com meetings.

H. van de Vaart reported that the G-SU income and expenses for the period 1/1/82 to 12/31/82 were $118.2K and $121.1K, respectively, for an operating deficit of $2.9K. The net worth of the group as of 12/31/82 was $103.7K.

Final reports on the 1982 Ultrasonics Symposium were presented by B.R. McAvoy, General Chairman, and B. Potter, Finance Chairman. Total paid registration for the Symposium was 446. The total attendance was 544 with 32 guests, 43 students, and 23 sponsors and complimentary registrations. Overseas paid registration was 89 plus 7 students for a total of 96. The registration figure for California residents was 107 or nearly 20% of the total. Slightly over half of the 224 registering (paid) at the Symposium indicated staying at the Town Country Hotel (120). The international character of the Symposium was attested to by participants from Cape Town (South Africa), Brazil, Egypt, and China to name a few. Financially, the Symposium was a success. Including the income from the Book Broker program, the Symposium netted a surplus of just over $5,000.

The budget for the 1983 Symposium was presented by M. Levy, General Chairman, and H. Salvo, in charge of Finance. After some changes, the proposed budget was approved. G.P. Rodrigue, in charge of Local Arrangements, reported that a fairly extensive spouse's program is being planned, with guided tours for each of the three days of the Symposium. A cocktail party for all attendees is scheduled for Monday night, and the President's reception on Tuesday night will be followed by an evening of entertainment in the new Twin Towers on Capitol Hill. Delta Airlines has been chosen as the Official Symposium Airline and they will provide substantial fare discounts and a special 800 number for reservations.

Regarding the 1984 Symposium in Dallas, TX, L.T. Claiborne reported that a letter of agreement was signed with the Dallas Hilton confirming November 14, 15, and 16 as the dates for the Symposium, and tentatively holding November 13 as well in case Ad Com decided to go to a four-day Symposium. This latter point again prompted extensive discussion. R.C. Williamson reported that he and J.D. Larson are preparing a report which he hopes to present at the Fall Ad Com, outlining the various issues, pro and con, related to the recent increase in papers and attendance at the Symposium. L.T. Claiborne was instructed to prepare two budgets, one for a three-day meeting, and one for a four-day meeting. A final decision can then be made at the Fall Ad Com meeting. In order to find out how the membership at large feels about this issue, R.S. Wagers presented a motion, seconded by A.D. Ballato, "that R.C. Williamson continues to prepare his statement on the three-day/four-day issue, together with a questionnaire for publication in the Newsletter."

Beyond 1984, the Cathedral Hill Hotel (formerly the Jack Tar Hotel) will be the site for the 1985 Symposium, October 16-18. General Chairman is W.R. Shreve; Technical Program Committee Chairman is J.D. Larson. The 1986 Symposium will be held in Williamsburgh, VA, November 17-19. General Chairman is R.A. Moore; Technical Program Committee Chairman is J.G. Miller, and Local Arrangements will be handled by J.S. Heyman. The 1987 Symposium is planned for Denver, CO, and the 1988 Symposium will be held in Chicago, IL.

Reports were presented by the Chairmen of the Nominations, Technical Activities, Membership and Chapters Committees. These reports already appeared in the April issue of the Newsletter.

W.D. O'Brien reported on a drive by IEEE TAB to require parity between the number of Technical Division Directors (presently 8) and the number of Regional Directors (presently 10). A petition was initiated by TAB that reads as follows: "We, the undersigned members of IEEE, petition for an amendment to Article VI of the Constitution, adding the statement that "The number of Divisional Delegates/Directors shall be equal to the number of Regional Delegates/Directors." W.D. O'Brien strongly recommended support for the petition.

The next Ad Com Meeting will be held the day before the 1983 Ultrasonics Symposium, Sunday, October 30, 1983, starting at 1:00 pm at the Marriott Hotel, Atlanta, GA.

H. van de Vaart, G-SU, Secretary-Treasurer

CHAPTERS REPORT

By now chapters should have most, if not all, of their 1983/84 program schedule organized. All should have contacted Dr. George Alers our National Lecturer for 83/84. His topic is, "Quantitative Nondestructive Evaluation - A Timely Confluence of Science, Engineering and Economics." He heads his own company, Magnasonics, in Albuquerque, N.M., and can be reached by phone at (505) 262-7828.

Some chapters find joint meetings with other IEEE chapters and with other appropriate technical organizations an effective approach to broadening the areas available for programs. Various chapters have reported excellent joint meetings with MTT, AP, various active device and medical groups. If your section has an organization meeting in which all chapters are brought together this is a good time to organize joint meetings.

Since the last newsletter we have both lost and gained ground toward organizing future chapters. The chapters count is still 6 US and no foreign chapters. As of the last newsletter we had 1 US and 3 foreign groups considering organizing. The US effort folded because the key person moved. However, the Japanese group under the leadership of Professor Nobuo Mikoshiba has moved ahead and submitted its applications to headquarters. Required approval by SU has been provided. It is possible their chapter will be chartered by the time of the Atlanta symposium. Anyone interested in starting a chapter should contact the writer as indicated below.

Anyone desiring activity with any of our present chapters should contact them directly as indicated in their reports. For information on the Irvine Chapter contact Dr. Chen S. Tsai (714) 833-5144 at the University of California, Irvine, CA. For information on the Pittsburgh Chapter contact Bruce McAvoy, Westingshouse R&D Center, Pittsburgh, PA (412) 256-7267. Contact H.R. Carleton, State University of New York, Stony Brook, NY (516) 246-5980 for information on the Long Island Chapter.

R.A. Moore
Chapters Coordinator
(301) 765-4027

SANTA CLARA VALLEY

The GSU chapter in the San Francisco Bay Area is moving into its fourth year of operation. Interest continues high throughout the membership. For example, average attendance at the monthly meetings exceeds 30 people.

For the 1983-84 year, the new officers are:

John D. Larson - Chairman
Alan Selfridge - Program Chairman
William Shreve - Secretary/Treasurer.

Planning is now under way for 9 meetings. The choice of topics was made based on the results of a membership interest survey. The programs will emphasize medical applications of ultrasound, signal processing, NDE, and sensors.

The Santa Clara Chapter will typically meet at 8:00 pm, the 3rd Wednesday of each month, at the Hewlett-Packard Corporate building, 3000 Hanover St., Palo Alto. Visitors to the area are encouraged to attend.

John D. Larson
Chairman
(415) 857-2930

BALTIMORE-WASHINGTON-VIRGINIA

The following is the planned schedule for the coming year:

Loudspeakers, speaker to be determined, in October 1983.

"Speech Output and Synthesis Systems," by Douglas Hogan, Private Consultant, on December 13, 1983.

Acoustic-Optics and Signal Processing by Dr. Norman Berg, Harry Diamond Labs, in February 1984.

"Quantitative NDE" (IEEE SU National Lecture), by Dr. George Alers, Magnasonics, Inc., on April 10, 1984.

Biomedical Applications of Acoustics, speaker to be determined, in May 1984.

For further information, please contact Gerald Blessing at (301) 921-3646, or Secretary Joel Rosenbaum at (301) 454-9839.

Gerald V. Blessing
Chairman, SU Group
Baltimore-Washington-Virginia Section

BOSTON

The Boston Chapter had six meetings during the 82-83 season. The scope of the subject areas was quite broad with 2 talks on medical ultrasound, 2 on SAW devices, one on magnetostatic waves and one on bulk waves. In May, the new officers were elected and they are listed below:

Chairman - James Sethares RADC/EEA
Vice Chairman - Paul Meyer
Sperry Research Center
Sec.-Treas. - Richard Webster RADC/EEA

Jim Sethares has already scheduled 5 talks for the coming year. Of particular interest will be George Alers, the G-SU National Lecturer, who will speak in September on the subject of nondestructive evaluation. In October Bob Moore will present a talk on bulk microwave acoustic technology and in December Robert Carter of Piezoelectric Products will discuss some very novel piezoelectric devices.

Thomas E. Parker
Former Chapter Chairman
617/863-5300 X3084

LET'S HEAR IT FROM GEORGE

The following is the present schedule for the 1983-1984 National Lecturer, Dr. George A. Alers.

September 20 - Marquette University, Milwaukee, WI.
September 21 - Penn State, University Park, PA.
September 22 - Boston IEEE Section, Boston, MA.
September 23 - MIT, ME Department, Cambridge, MA
November 8 - John Carroll University, Cleveland, OH.
November 10 - IEEE and ASNT, Richmond, VA.
December 8 - Wayne University, Detroit, MI.
February 21 - Georgia Tech, Atlanta, GA.
April 19 - Naval Research Labs, Washington, D.C.

Nobody from the West Coast yet! There is still plenty of time to contact George at Magnasonics, (505) 265-7828. Your University or IEEE section will be missing a very informative and timely talk if you don't call George soon or corner him at the Ultrasonics Symposium.

MEMBERSHIP

The Sonics and Ultrasonics Group membership is currently 2036, an increase of 1.3% from the same time last year, and the Group ranks seventeenth in growth out of 33 groups. While we continue to show a small increase in growth, as a practical matter the Group size is relatively constant and this state of affairs causes us some concern. We invite suggestions for improving our ability to attract and retain members.

In this article we continue our review of various aspects of the IEEE and the Sonics and Ultrasonics Group in order to help the reader to full awareness of the value of membership. The IEEE sponsors a variety of educational programs covering many subjects for both technical and personal development. Short Courses, conducted by local Sections, Societies or Regions, provide members with an opportunity to advance their technical knowledge. These courses take from one to three days, and are available for university participation and for industry in-house programs.

Self-study courses, which are available from the IEEE, offer a variety of educational opportunities. These courses are designed to satisfy members' needs to conveniently obtain knowledge on an individual basis. Included are courses such as: Understanding Microprocessors, Financial Management, Digital Instrumentation, Modern Control Theory, and many others for personal and technical development. The IEEE also has available, on a rental basis, videotaped short courses for use by small groups.

The IEEE maintains an Engineering Societies' Library which is available to those who need engineering information. Services are available to each IEEE member, including photocopying, microfilm, literature searches, book loans and a bibliographical library. This library is located in New York City, and may be used through mail or telephone inquiries, as well as by personal visit.

As in the past several years, we shall offer S&U group memberships free of charge to persons who join at our forthcoming Symposium in Atlanta. Application forms and other information will be available at the membership booth. All members can assist us by encouraging non-member acquaintances who are attending the meeting to consider the merits of group membership.

William J. Tanski
GSU Membership Chairman
(203) 431-5472

1984 CENTENNIAL ACTIVITIES

The highlight of the IEEE centennial year activities will be the May 14, 1984, Centennial Day program at ELECTRO in Boston, Mass. Activities will include the IEEE awards presentation and reception for representatives of 100 invited societies or associations from around the world, and a major address and presentation of the Centennial Medal to past and present Institute Presidents, Medal of Honor recipients, and others.

Other key centennial year activities already scheduled include:

Jan. 30, 1984: Ceremonies at the IEEE Power Meeting in Dallas, Texas.

May 13, 1984: A special program to celebrate the anniversary of the May 13 founding of the American Institute of Electrical Engineers in 1884 and of the Institute of Radio Engineers in 1912, to be held in New York City with the help of the IEEE New York Section.

Oct. 7-8, 1984: A centennial convocation at the Franklin Institute in Philadelphia, PA with a series of meetings and a convocation of former Medal of Honor recipients.

Plans also include a Technical Activities Board Centennial Conference and a West Coast Celebration, but the exact days and locations for these events have not yet been determined.

EDITORS THANK YOU

The editor appreciates the articles from various members which make-up this issue of the G-SU newsletter. Newsworthy articles from any G-SU member are welcomed.

ELECTION TIME

Fifteen IEEE offices, including those of President-Elect and Executive Vice-President, must be filled this fall in the Institute's annual election. This means that the postman will shortly be delivering the ballots on which IEEE voting members can indicate their preferences. Your newsletter editor received biographical sketches and statements from Hans C. Cherney, candidate for the position of President-Elect and from G.P. Rodrigue, candidate for the position of Executive Vice-President. It was not possible to print all of the information received. The statements from each candidate are printed here. Readers may refer to the IEEE publication The Institute for information on all of the candidates.

STATEMENT

Hans C. Cherney

Over the last decade the membership of the Institute has increased by 40%. Our technical activities, our conferences and publications have grown at a similar pace. These changes have brought benefits to many members. At the same time they impose great responsibilities on the IEEE leadership to ensure that the members in fact obtain what they need from a large and complex organization.

In my two years as Regional Director I visited all Sections in the Region using the resources of the Institute to meet the demands of the members. As Vice President of Regional Activities I continued the pattern world-wide of bringing Institute means to bear selectively on Region and Section opportunities and problems. In addition, as a member of the Board of Directors for three years and as a member of the IEEE Executive Committee I participated in decisions affecting the Institute as a whole and acquired an intimate knowledge of the way the IEEE operates. With the changes in technologies, the demands on our profession are changing at a rapid pace. Quality assurance, productivity and manufacturability have joined R & D as areas of importance in determining the future of our industries and profession. The IEEE must assist its members to grow with these changes, indeed to stay ahead of them.

As President I would use my extensive experience as a volunteer IEEE leader to make the Institute responsive to the members' interests and needs whether these concern our technical societies, geographical entities or professional activities.

STATEMENT

G.P. Rodrigue

The IEEE's strength is its members; this tremendous reservoir of talent is what makes IEEE work. The capable IEEE Staff facilitates the operation, but the vast majority of activities is done by volunteers.

IEEE has achieved preeminence in the dissemination of information through its publications and conferences. Volunteer effort makes these products available at costs well below those from commercial competitors.

Considerable work remains in developing Electrical Engineering as a life-long professional career. Electrical Engineering offers exciting challenges to young people. For too many, however, the promise of a stimulating, lifelong career is not fulfilled. IEEE must promote the quality of lifetime careers in engineering. We must greatly facilitate the continuing education of practicing engineers. I intend "continuing education" to include all aspects of improving and updating the capability of working engineers, not only formal courses. Review and tutorial articles and compendia should be emphasized in IEEE's publications in addition to the highly specialized papers of our journals. When experienced engineers have current training and capabilities, they should command better salaries and working environments. The technical practice of engineering should hold adequate incentives (salaries, recognition) for continuing productivity.

Public understanding of technology is another area needing 'attention'. The public frequently feels threatened by developing technology; technology is viewed as a problem rather than as part of a solution to world problems. Through its Regional organization and its Public Information Committee IEEE should develop programs aimed at a better reciprocal understanding between engineers/scientists and the public.

The IEEE should continue to strive for cooperation with industry and other engineering societies. The engineering community can speak most effectively when a true consensus exists. However, the IEEE is primarily an organization of individual members and must serve their needs.

My engineering career of some twenty-five years has been approximately equally divided between industry and education. My IEEE activities have run the gamut from section and chapter activities through conferences and society offices to service on major committees and boards. This range of service has provided a good perspective of IEEE member concerns and Institute opportunities.

IEEE TRANSACTIONS ON SONICS AND ULTRASONICS

The number of pages published in the Transactions has recently been affected by a slowing down of papers submitted for publication. There are a number of reasons for this: growth in the number of pages submitted to the Ultrasonic Symposium Proceedings, the recent recession, more competitive journals, and lastly, a lack of response by many workers in our Group to publish and help solicit papers from coworkers and other professional acquaintances. Since the Transactions is a major benefit to our Group and professional community, I would like to urge and make a special appeal to all to write and help solicit more papers for publication in our Transactions. Everyone benefits and our Group grows stronger as we become cooperative in such participation.

I would like to request a volunteer or submittal of a potential Book Review Editor for our Transactions. There have been and are many new books being published in the area of Sonics and Ultrasonics. Book Review reports published in our Transactions offer the readers a quick appraisal or opinion on the content and relative merit of the particular subject. I would appreciate hearing from anyone who would like to help in this capacity. The Book Review Editor would receive books from publishers and send them out to professionals who have extensive experience in the subject matter. The reviewer, in all cases, is awarded the book as a complimentary copy as a token of appreciation for his participation.

It gives me great pleasure to announce some excellent forthcoming "Special Issues" in our Transactions. The subjects are very timely, important, and interesting, and the Guest Editors are an excellent group of renowned professional associates to many of us.

"Special Issue on Digital Ultrasonic Imaging"
July 1984

Prof. Glen Wade
Dept. of Electrical and Computer Engineering
University of California
Santa Barbara, CA 93106
(805) 961-2508

Prof. Hua Lee
Dept. Electrical Engineering
University of Illinois
Urbana, IL 61801
(217) 333-2407

"Special Issue on Ultrasound Hyperthermia"
September 1984

Leon A. Fuzzell
Proacoustics Research Laboratory
University of Illinois
1406 West Green Street
Urbana, IL 61801
(217) 333-0849 (1640)

Stephen A. Goss
Indianapolis Center for Advanced Research
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926 West Michigan
Indianapolis, IN 46223
(317) 264-4618

"Special Issue on Acoustic Microscopy"
March 1985

Dr. S. Bennett
Edward L. Ginzton Laboratory
Stanford University
Stanford, CA 94305

Dr. Kumar Wickramasinghe
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London WC1E,7JE England

Prof. Noriyoshi Chubachi
Research Institute of Electrical Communication
Tohoku University
Katahira 2-1-1
Sendai 980, Japan

"Special Issue on SAW Convolvers and SAW Conductors"
July 1985

Prof. W. C. Wang
Polytechnic Institute of New York
Microwave Research Institute
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Farmingdale, NY 11735
(516) 454-5075

The Call for Papers is published in the July 1983 Issue of the Transactions on Sonics and Ultrasonics for the first 3 Special Issues and will be published soon for the 4th Special Issue.

Please contact any of the Guest Editors for further information.

Stephen Wanuga
Editor, Transactions on Sonics and Ultrasonics

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