



**IEEE
ULTRASONICS,
FERROELECTRICS,
AND
FREQUENCY CONTROL
SOCIETY
NEWSLETTER**



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1999 IEEE International Ultrasonics Symposium



Lake Tahoe, Nevada

October 17 - 20, 1999

1999 IEEE International Ultrasonics Symposium & Short Courses

October 17-21, 1999
Caesars at Lake Tahoe,
Lake Tahoe, Nevada

Invitation From The General Chair

It is my great pleasure and privilege to invite you to the 1999 Ultrasonics Symposium that will be held on October 17-20 at Caesars in Lake Tahoe, Nevada. The site of the Symposium is one of the more famous winter/summer resorts in Northern California and Nevada. Lake Tahoe and surrounding Sierra mountains provide a breathtaking backdrop to the Symposium this year.

The technical program committee has endeavored to provide a stimulating and interesting program with an excellent mix of invited and contributed presentations, and we are honored to have Professor Cal Quate start the proceedings with the plenary talk.

The social committee set an attractive social program both for the attendees and spouses. The conference dinner will take place at the famous Bonanza Ranch of television fame throughout the world. The surrounding old west towns and scenery provide ample opportunities for sight-seeing and visiting the not so distant California and Nevada gold rush days.

I hope that the combination of the technical program and the attractions and opportunities that the location offers will allow you all to have an educational and enjoyable symposium in the Sierra Nevada mountains.

B. T. Khuri-Yakub
General Chair

Message From The Technical Chair

On behalf of the Technical Program Committee, who put this Symposium together, I would like to invite you to the 1999 IEEE International Ultrasonics Symposium to be held in Lake Tahoe, Nevada. The number of submitted abstracts this year (630) has set a new record for the Symposium. The establishment of a new Technical Interest Group, Transducers and Transducer Materials, contributed significantly to this record response. To accommodate all of the outstanding submissions and the addition of the new interest group, we have decided to have five parallel oral sessions this year in addition to three poster sessions.

This year marks the success of our several-year effort to implement an all electronic abstract submission process. The electronic submissions have allowed us to provide rapid response to the authors, both in verifying receipt of their abstracts and in posting the results of the review by the Technical Program Committee. Although there may have been minor problems encountered by a few authors, the Technical Program Committee is indebted to the staff at FASS, who manage this symposium, for making this process run so smoothly.

The Lake Tahoe meeting of IEEE International Ultrasonics Symposium promises a superb technical program, featuring 22 invited speakers, presented in a spectacular setting. Although Caesars may be known for providing games of chance, you can bet this Symposium will be a winner. I hope that we will see you in Tahoe.

Eric S. Furgason
Technical Program Chair

Deadlines:

AudioVisual Requests *September 15, 1999*
Advance Registration *September 15, 1999*
Hotel Registration *September 24, 1999*

Symposium Organizing Committee General Chair

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Symposium Management

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Gail Gleichmann
gayleg@assoqh.org
Federation of Animal Sciences Societies (FASS)
1111 North Dunlap Avenue, Savoy, IL 61874

Registration & Fees

All Symposium participants and guests must register and are requested to wear badges. The Symposium fee includes admittance to all technical sessions, and a soft-cover copy of the Symposium Proceedings (except for students, retirees, one-day and guest registrants). Details of evening and social events are provided in the Social Program section.

Symposium Fees:
Advance On-Site
IEEE Members (a) \$330 \$370
Non-members (a) \$410 \$450
Students & Retirees \$50 \$60
Guests \$40 \$40
One-day Registration \$150 \$150

(a) Including soft-cover proceedings and CD-ROM.

Short Course Fees:
Advance On-Site
IEEE Members \$110 \$130
Non-members \$140 \$160
Students & Retirees \$50 \$50

The reduced rates for advanced registration are available only by completing the advance registration form available at piezo.stanford.edu/UFFC (it is also located at the center of the Advance Program), enclosing proper payment, and mailing to:

1999 IEEE International Ultrasonics Symposium
c/o FASS
1111 N. Dunlap Avenue
Savoy, IL 61874 USA
or FAX to: 217/398-4119

The Advance Registration form must be received by FASS by September 15, 1999. Postmarks do not apply. Each registrant must complete a separate Advance Registration Form. The remittance is payable, in US Dollars only, by personal or company check drawn on a US Bank, money order, VISA,

MasterCard, or American Express. Bank drafts, foreign currency, and purchase orders will not be accepted. For advance registration, the remittance must accompany the Advance Registration Form. On-site registration must be made in US dollars.

Refund Policy

There will be a \$25.00 service charge to process refunds for those who have pre-registered but who are unable, for whatever reason, to attend the Symposium. A letter requesting the refund should state the registrant's name and to whom the refund check should be made payable. No refunds will be given for requests received after October 10, 1999.

Hotel Reservation

For reservations, please mail Hotel Reservation Form available at piezo.stanford.edu/UFFC to Caesars Tahoe, PO Box 5800, 55 Hwy 50, Stateline, NV 89449, or fax to (775) 586-2024, or call the reservations department at (800) 648-3353.

Group Code: IEEE

Room Rates: \$90.00 + 10% room tax.

Rates applicable until September 17, 1999 after which reservations will be based on availability, at the prevailing rate.

Proceedings

The Symposium Proceedings including the CD-ROM version will be available in early 2000. A soft-cover copy will be shipped to all paid registrants except students, retirees, guests, and one-day registrants. A hard-cover copy may be ordered for an additional \$50.

Extra copies of the Symposium Proceedings may also be ordered at the registration desk. Additional soft-cover Proceedings, \$100; additional hard-cover proceedings, \$150.

For overseas mailing addresses, an additional \$55 per copy is required to defray the air and freight mailing costs.

Please note that only those papers that are presented at the Symposium will be included in the Proceedings.

Social Program

Evening Events

Monday, October 18, 1999
Social Reception
6:30 pm - 9:00 pm
Circus Maximus

After the first day's sessions, renew old friendships and make new ones at the Social Reception with hors d'oeuvres and libations.

Tuesday, October 19, 1999
Banquet
5:30 pm - 10:30 pm
Ponderosa Ranch
Price per person US \$50.00

The Ponderosa Ranch - legendary home of the Cartwrights of T.V.'s famous Western Series - BONANZA. Yes, it's also

here - amidst the towering pines, the clear skies, and the scenery that you come to Tahoe for! And with some creativity and planning, your night at the Ponderosa Ranch will be an Old Western Town come to life!

You will certainly enjoy being guests at the Ponderosa Ranch. Here you will tour the Ponderosa Ranch House and see Hop Sing's kitchen, Ben Cartwright's library, the barn, and collections of antique farm equipment, as well as the Optical Illusion Mine. You may browse the shops, have a drink at the Silver Dollar Saloon, see the Church of the Ponderosa, and much, much more.

Once in the main street of town, the activity increases. There could be square dancers performing, who may find willing participants from the crowd. The kidnapping that could have occurred earlier will, of course, soon come to trial, with Old Western Justice being served - yes, a hanging.

A Country Western Band will be performing in the Silver Dollar Saloon to provide that special musical sound to set the mood for listening, dancing, and for what is yet to come. A Can-Can Show, with an 1890's revue, could perform at a few select times throughout the evening, reminiscent of Miss Kitty and her girls.

You will enjoy smoked chicken and ribs, coleslaw, bread roll, ranch-style beans, and all you can drink from a souvenir Ponderosa tin cup.

A Country Dance Teacher could be on site to teach Western-style dancing to those who want to learn. Guns of Yesterday, the most motley crew you would ever have seen in the Old Wild West, could be causing their usual ruckus. You can't stop them from having gunfights during your party!

How many people today recall a real Old Time Medicine Show, complete with the "Elixir of Life" and "Marvelous Snake Oil"? This is a terrific addition to round out the evening!

You can even renew your wedding vows at the Church of the Ponderosa. Here, Reverend I. Am Wright and his lovely wife, Tammy Maybe Wright will be performing the ceremonies and passing out the "Ol' Weddin' Certificates".

Guest Program

A varied program is being planned to entertain those who register for the Symposium as guests. Registration permits you to enjoy our continental breakfast each morning, as well as the evening Social Reception. Three guest tours, individually priced, have also been arranged for the enjoyment of the guests.

PLEASE NOTE: Only registered GUESTS may attend the Guest Breakfast.

Guest Tours

Tour A: Tramway to Heavenly with Lunch

"We Breathe the Air the Angels Breathe"

Monday, October 18, 1999

11:00 am - 3:00 pm

Price per person (including lunch): US \$50.00.

That quotation is from "Roughing It", published by Mark Twain in 1872. Today that quote is as true as it was over 100 years ago at Lake Tahoe when Twain penned it! What better

way to breathe that wonderful mountain air and enjoy the spreading vistas of Lake Tahoe scenery than to take a cable car ride to the top of the mountain.

From the South Shore of Lake Tahoe, the guests will enjoy the serial tram ride to the "Top of the Tram" situated at 8200 feet at Heavenly. High above the city of South Lake Tahoe, you seem to be sitting "On Top of the World": special menus, unmatched ambiance, outside decks, beautiful views, truly a one-of-a-kind experience.

Tour B: M. S. Dixie II Emerald Bay Cruise with Lunch

Tuesday, October 19, 1999

10:15 am - 1:30 pm

Price per person (including lunch): US \$40.00.

A classic example of the riverboats found on the waterways of America during the steamboat era of the 1860s, the M. S. Dixie continues to provide the Dixie's famous tradition of great food and unbeatable hospitality. Your group will be welcomed aboard with the famed "Dixie Hospitality". The M. S. Dixie II will depart from the pier and begin leisurely cruising along the Southern Shoreline as the towering mountains above Stateline come into full view. Members and their spouses will enjoy sightseeing from all three decks on the M. S. Dixie II, the largest, most sophisticated paddle wheeler ever to cruise Lake Tahoe.

The group will enjoy both a terrific lunch and the spectacular scenery of Lake Tahoe as can only be appreciated from a vantage point on the Lake itself. The cruise is two hours of fabulous sightseeing.

The afternoon will be a perfect blend of Lake Tahoe's spectacular beauty and the charm of a Mississippi Riverboat. Let your mind wander back in history as you listen to the legends of Lake Tahoe. This is truly an afternoon of unforgettable scenery!

Tour C: Virginia City Tour with Lunch

Wednesday, October 20, 1999

10:00 am - 3:00 pm

Price per person (including lunch) US \$40.00.

Descending from the Tahoe Basin via Scenic Spooner Summit, your Tahoe Ambassador will set the mood for the day by sharing the history of the Great Bonanza Trail and the gold seekers who blazed the first trails for the white man into the area.

Our first stop will be Carson City, Nevada's Capitol City, where we will explore the Nevada State Museum. Housed in the old U.S. Mint building, it offers fabulous renditions of a working mine and a ghost town. The museum with its varied displays of Nevada's history truly sets the scene for sights to come.

Following the museum, your Tahoe Ambassador will take you past historic Victorian homes and view the Governor's mansion.

Proceeding to Virginia City, the exciting history of Virginia City, Nevada, will begin to unfold. Once the richest place on earth, you will hear of the many "rags to riches" and "riches to rags" tales. The gold and silver discoveries had a tremendous impact on the whole country. As an example, did you realize that Nevada was made a state because the Union needed Virginia City's riches to finance their Civil War effort?

After arriving in Virginia City, you will be escorted through the town. See historic mines, the old red light district, and the mansions built by the mine owners and supervisors.

Everyone needs some time to explore their particular interests. Optional individual activities include mansion tours or merely exploring the old time shops and gambling halls still in operation.

Your Tahoe Ambassador will be with you throughout the day, not only to share his/her knowledge of the area, but to ensure that all of the activities run smoothly, that you have someone along to answer all questions, but more importantly, to make sure a "good time is had by all".

Exhibits

The Exhibit Displays will be in the Augustus/Claudius rooms. Companies will display their products, and representatives will be there to meet Symposium attendees. The exhibits will be in place from October 18th in the morning, until noon October 20th. Companies with space reserved as of May 1999 include:

Sumitomo Electric U.S.A., Inc.
New York, NY

Panametrics, Inc.
Waltham, MA

W.L. Gore & Associates
Phoenix, AZ

Valpey-Fisher Corporation
Hopkinton, MA

Sensor Technology
Collingwood, ON, Canada

Seacor Piezo Ceramics
Branford, CT

Ritec, Inc.
Warwick, RI

Materials Systems, Inc.
Littleton, MA

Matec Instrument Companies, Inc.
Northborough, MA

SPECS, U.S.A., Inc.
Sarasota, FL

Crystal Technology, Inc.
Palo Alto, CA

Sound Technology, Inc.
State College, PA

Tetrad Corp.
Englewood, CO

1999 IEEE International Ultrasonics Symposium & Short Courses

Short Courses

Course 1: *Fundamentals of Ultrasonic Waves*
Instructor: *David Cheeke*

Concordia University
Montreal, Quebec, Canada
Time: *Sunday Morning, October 17, 1999*
8:00 a.m. 12:00 noon

Course 2: *Introduction to Surface Acoustic Wave Technology*
Instructor: *Donald C. Malocha*
University of Central Florida
Orlando, FL, USA

Time: *Sunday Morning, October 17, 1999*
8:00 a.m. 12:00 noon

Course 3: *Beamformation in Medical Ultrasound*
Instructor: *Kai E. Thomenius*
GE Corporate R&D
Niskayuna, NY USA

Time: *Sunday Morning, October 17, 1999*
8:00 a.m. 12:00 noon

Course 4: *Wavelets and Waves in SAW and BAW Devices: A Signal Processing Approach*

Instructor: *Ali R. Baghai-Wadji*
Vienna University of Technology
Vienna, Austria

Time: *Sunday Afternoon, October 17, 1999*
1:00 p.m. 5:00 p.m.

Course 5: *Ultrasound Systems for Blood Velocity Estimation*

Instructor: *Jørgen Arendt Jensen*
Technical University of Denmark
Lyngby, Denmark

Time: *Sunday Afternoon, October 17, 1999*
1:00 p.m. 5:00 p.m.

Course 6: *Micromachined Acoustic Sensors and Actuators*

Instructors: *Amit Lal*
University of Wisconsin
Madison, WI, USA

and
Richard M. White
University of California Berkeley
Berkeley, CA, USA

Time: *Sunday Afternoon, October 17, 1999*
1:00 p.m. 5:00 p.m.

Course 7: *Contrast Agents: Theory, Experiment, and Clinical Application*

Instructors: *John S. Allen, Katherine Whittaker*
Ferrara and Jonathan Lindner
University of Virginia
Charlottesville, VA, USA

Time: *Sunday Evening, October 17, 1999*
6:00 p.m. 10:00 p.m.

Course 8: *High Temperature Techniques using Ultrasound*

Instructor: *Donald E. Yuhas*

*Industrial Measurement Systems, Inc.
West Chicago, IL, USA*

*Time: Sunday Evening, October 17, 1999
6:00 p.m. 10:00 p.m.*

*Course 9: Finite Element Modeling of
Electromechanical Transducers*

*Instructors: Reinhard Lerch and Manfred
Kaltenbacher
University of Linz
Linz, Austria*

Time: Sunday Evening, October 17, 1999

Plenary Session

CIRCUS MAXIMUS Monday, October 18, 1999
8:00 a.m. – 9:30 a.m.

Welcome

Pierre T. Khuri-Yakub, General Chair

Technical Program

Eric S. Furgason, Technical Program Chair

Awards and Recognitions

Achievement Award

Distinguished Service Award

Outstanding Paper Award

Fellow Awards

Distinguished Lecturer Award

John R. Vig, UFFC-S President

Roger H. Tancrell, UFFC-S Awards Committee Chair

1999 UFFC-S Plenary Speaker Is There Life After Ultrasonics?

Calvin F Quate,

Leland T. Edwards

Professor (Research) of Engineering

Stanford University, Stanford, CA

Calvin F. Quate, PhD is the Leland T. Edwards Professor (Research) of Engineering, and Professor (Research) of Applied Physics by Courtesy. A brief outline of Quate's career: B.S. 1944, University of Utah. Ph.D. 1950, Stanford University. Professional Experience and Honors: Bell Laboratories, 1949-58. Sandia Corporation, 1959-61. Stanford University, 1961-present. He is a former member of the Defense Science Board. He serves on the scientific advisory board of Affymetrix, Santa Clara, and Zyomyx, Hayward. Elected to membership in the National Academy of Engineering, 1970; in the National Academy of Sciences, 1975; in the American Academy of Arts and Sciences (Fellow); in the Acoustical Society (Fellow). Royal Microscopical Society (Honorary Fellow). Awarded the IEEE Morris N. Liebmann Award, 1981; Rank Prize for Opto-electronics, 1982; IEEE Medal of Honor, 1988; President's National Medal of Science, 1992. Elected to membership in the Royal Society of London, 1995.

Ultrasonics a long and revered field of research is a late comer to the field of Scanning Probes, but it is gaining momentum. The advent of scanning probes has changed the crite-

ria for resolution for microscopes. The wavelength of the radiation no longer sets the limit on resolving power. Much of the work with scanning probes has been carried out with electrons in the STM, or the overlap of electronic wavefunctions in the AFM, or electric and magnetic fields in the SCM and MFM. Recent innovations include piezoelectric films which bend the cantilever to control the spacing between tip and probe arrays which enable us to increase the scanned area. We will review some of this in our talk and relate it to the latest advances to illustrate that Ultrasonics is on the verge of invading the field of scanning probes.

Invited Speakers:

Group 1 (Kathy Ferrara): Medical Ultrasonics

Dr. Gerald R. Harris

FDA/CDRH

*"Medical Ultrasound Exposure Measurements:
Update on Devices,
Methods, and Problems"*

Robert C. Waag and D. B. Phillips

University of Rochester Medical Center

*"Measurement and Correction of Ultrasonic
Wavefront Distortion"*

Greg E. Trahey, R. C. Gauss, and M. S. Soo

Duke University

"Adaptive Imaging in the Breast"

David T. Blackstock

University of Texas at Austin

"Nonlinear Acoustic Fundamentals"

Group 2 (Don Yuhas): Nde & Industrial Applications

Dr. Marvin A. Hamstad

NIST

*"Wideband Acoustic Emission Studies: Modeling,
Sensors, Equipment and Experimental Results"*

Dr. Leonardo Masotti, E. Biagi, M. Calzolari, L. Capineri,

S. Granchi, and M. Scabia

University of Florence

*"FEMMINA: A Fast Echographic,
Multiparametric Multi-Imaging Apparatus"*

Dr. Edward J. Stapes

EST

*"The Electronic Nose Simulation of Olfactory Response
Containing 500 Orthogonal Sensors in 10 Seconds"*

Dr. Showko Shiokawa and J. Kondoh

Shizuoka University

*"Surface Acoustic Wave Sensor for Liquid-Phase
Applications"*

Dr. Martin Spies

University of Saarland

*"Simulation of Ultrasonic Testing of Complex-Structured
Materials and Components"*

Dr. Kjetil F. Kaaresen

Norwegian Computing Center

"Sparse Spike Deconvolution"

Group 3 (Bikash Sinha): Physical Acoustics

Dr. John Vig
US Army CE COM
"Dual-Mode Oscillators for Clocks and Sensors"

Prof. Kenshiro Takagi
University of Tokyo
"Ultrasonic Phase Conjugation Waves-Generation, Visualization, and Applications"

Dr. Lane A. Gore and Dr. Ernie K. Kirchner
Teledyne MEC
"Applications of Thin-Film Transducers to BAW Devices for Microwave Frequency Electronic Systems"

Dr. Bikash Sinha and Dr. Smaine Zeroug
Schlumberger-Doll Research
"Applications of Sonics and Ultrasonics in Geophysical Prospecting"

Dr. Kenneth M. Lakin
TFR Technologies, Inc.
"Thin Film Resonators and Filters"

Group 4 (Gary Montress): Surface Acoustic Waves

Hideharu Ieki and M. Kadota
Kanazawa Murata Manufacturing Co., Ltd.
"ZnO Thin Films for High Frequency SAW Devices"

Guenter Martin
Institute of Solid State & Materials Research - Dresden
"Transversely Coupled Resonators and Filters (TCRFs)"

Yasushi Yamamoto, H. Kawahara, Y. Takahashi,
S. Yoshimoto, T. Tsuda, N. Sakairi, and R. Kajihara
NEC Corporation
"Intermediate Frequency SAW Filters for Mobile Phone Applications in Japanese Markets"

Carl M. Panasik
Texas Instruments Inc.
"Third Generation Cellular Communication Systems: Where's the SAW Device?"

Group 5 (Lew Brown): Transducers & Transducer Materials

Jonathan J. Bernstein, G. Kirkos, R. Miller, S. Finberg,
K. Houston, B. Xu, Y. Ye, and L.E. Cross
MEMS Technology Center
"Advanced MEMS Ferroelectric Ultrasound 2D Arrays"

L. Eric Cross
Penn State University
"High Strain, High Coupling Piezoelectric Ferroelectric Single Crystals: Current Status and Future Prospects"

Travel Awards for Students

We are delighted that you are interested in coming to the IEEE International Ultrasonics Symposium meeting this year in Lake Tahoe, Nevada and hope to see you there. The criteria for travel support for students will be the following:

1. Presenting at the meeting

2. Nearest graduation date
3. Farthest travel
4. One per lab
5. Earliest application

We hope you consider our Symposium for presentation of your work. We look forward to seeing you at the meeting.

You can email to Prof. J. F. Greenleaf at jfg@mayo.edu for student support. In your application you should provide the following information:

Name:
University:
E-mail address:
Full Address:
Program in which registered:
Expected date of degree:
Title of the paper:
Co-authors:
Work done and existing interest in ultrasonics:

Travel Assistance for Non-Students

Travel assistance is also available for non-students. However, it is offered to presenting authors only. Assistance is limited to economy return air fare for travel to the Symposium, registration fee and three nights' hotel accommodation.

You can email to Prof. B. T. Khuri-Yakub at khuri-yakub@stanford.edu for non-student travel support. In your application you should provide the following information:

Name:
Institution:
Department:
E-mail address:
Full address:
Title of the paper:
Co-authors:
Work done and existing interest in ultrasonics:

Limited funds are available to support student and non-student presenting authors at the 1999 symposium. Awards will be made on competitive basis.

The application deadline is July 15, 1999.

Notes and Corrections:

Jun-ichi Kushibiki, Ex-Vice Chairman of the UFFC Tokyo chapter, wrote to tell us that the "1999 Officers" listed which appeared on page 34 of the Spring 1999 UFFC-S Newsletter are actually the "1998 Officers." Please accept our apologies for the error.

Please also note that at press time, there was no Call for Papers available for the 2000 International Frequency Control Symposium.

1999 IEEE International Frequency Control Symposium

This year's IEEE International Frequency Control symposium (FCS) was held jointly with the 13th European Frequency and Time Forum (EFTF) in Besançon, France from April 13 to April 16, 1999. This marks the first time that the FCS has been held outside the United States and the first time that it has been joined with any other conference. This combined meeting was part of a two-conference trial of joint meetings between the FCS and EFTF. The second such meeting will be held in Baltimore in 2003. The reaction of attendees to these two joint meetings will be used to determine whether the two conferences will extend the practice.

With an attendance exceeding 650 and 320 papers accepted for presentation, this was clearly the largest single meeting ever held on the topic of time-and-frequency technology. The conference was hosted by the Société Française des Microtechniques et de Chronométrie and Co-Chaired by Raymond Besson of the Ecole Nationale Supérieure de Mécanique et des Microtechniques and Donald Sullivan of the National Institute of Standards and Technology (NIST). Fred Walls of NIST served as Chairman of the Technical Program Committee.

The technical program was opened with plenary presentations by Nobel Laureates William Phillips of NIST and Claude Cohen-Tannoudji of Ecole Normale Supérieure. The ensuing program was exceptionally well rounded with large numbers of papers on atomic clocks; time scales; time transfer; crystal oscillators; microwave oscillators; optical frequency standards; microwave and optical-frequency synthesis; piezoelectric materials; SAW and STW devices; sensors and actuators; and noise and stability in various devices. There was substantial international diversity among the 31 exhibitors at the conference, and the banquet and reception were lively and well attended. Special thanks go to Isabelle Bourgon, the very-well-organized Conference Secretariat, and to Barbara McGivney, Wendy Ortega and Mike Mirarchi for attending to the many organizational details that made the meeting run so smoothly.

At the awards ceremony, both FCS and EFTF awards were presented to the following seven individuals:

- IEEE W.G. Cady Award – presented to Raymond L. Filler “for contributions to the fundamental understanding of acceleration sensitivity, hysteresis and the aging of quartz resonators.”
- IEEE I.I. Rabi Award – presented to Bernard Guinot “for outstanding contributions to the definition and implementation of the concepts on which international timekeeping is based.”
- IEEE C.B. Sawyer Memorial Award – presented to Shih S. Chuang “for contributions and leadership in the development and commercialization of micro-machined quartz crystal devices.”
- European Time and Frequency Award – presented to G. John Dick “for outstanding contribution to development of cryogenic oscillators of different types with extremely low phase noise and for prediction of the importance of noise characteristics in oscillators associated with atomic frequency standards.”
- European Young Scientist Award – to three young scientists.
 - NoNI DiMarcq, “for outstanding degree of activity, initiative and creativity in the application of atom cooling to atomic frequency standards.”
 - Fillipo Levi, “for crucial experiments on dark lines in alkali vapors leading to the development of a cesium maser and other light-shift-free microwave frequency standards.”
 - Michael Tabor, “for development of very low noise oscillators using Galani phase noise cancellation technique and for development of interferometric phase/amplitude detection techniques to reduce noise in systems and oscillators.”

Submitted by Don Sullivan,
General Co-Chair

Two Tenure-Track Faculty Positions in Acoustics The University of Texas at Austin

The Department of Mechanical Engineering at The University of Texas at Austin anticipates filling two tenure-track positions at the level of Assistant Professor in the area of Acoustics (including Ultrasonics and Transducers). One position is in the Mechanical Systems and Design (MS&D) area of the Department, and the other position is in the Thermal/Fluid Systems (TFS) area. Candidates must possess a doctoral degree (or have all degree requirements substantially complete) in a field appropriate for teaching graduate courses and directing graduate research in Acoustics, and for teaching undergraduate courses in either the MS&D or TFS area of the Department. The candidate selected for the position must provide documents, including proper visa, proving eligibility to work in the U.S. Anyone interested in applying should send a resume, a list of at least three professional references, and a statement of career interests and objectives consistent with the position being applied for (MS&D or TFS) to Chair, Department of Mechanical Engineering, The University of Texas at Austin, ETC 5.160, Austin, TX 78712-1063. Applications should be received by December 31, 1999. The University of Texas at Austin is an Equal Opportunity, Affirmative Action Employer. Women and minorities are especially invited to apply.

IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society Administrative Committee

Society Officers

President	J. R. Vig <i>U. S. Army Communications- Electronics Command, Fort Monmouth</i>
President-Elect	F. S. Hickernell
Vice-President, Ferroelectrics	A. Safari <i>Rutgers University</i>
Vice-President, Frequency Control	J. A. Kusters <i>Hewlett-Packard CompaNY</i>
Vice-President, Ultrasonics	J. F. Greenleaf <i>Mayo Clinic</i>
Vice-President, Publications	J. Brown <i>JB Consultants</i>
Secretary-Treasurer	G. K. Montress <i>Raytheon Company, Research Division</i>

Elected Committee Members

1997 - 1999	W. D. Hunt <i>Georgia Institute of Technology</i>
1997 - 1999	D. R. Pape <i>Photonic Systems Incorporated</i>
1997 - 1999	B. R. Potter <i>Vectron Technologies Incorporated</i>
1997 - 1999	K. Yamanouchi <i>Tohoku University</i>
1998 - 2000	T. R. Gururaja <i>Hewlett-Packard CompaNY</i>
1998 - 2000	D. B. Hauden <i>LPMO-CNRS</i>
1998 - 2000	A. H. Meitzler
1998 - 2000	K. Uchino <i>The Pennsylvania State University</i>
1999 - 2001	S. M. Pilgrim <i>Alfred University</i>
1999 - 2001	H. F. Routh <i>Advanced Technology Laboratory</i>
1999 - 2001	S. E. Trolrier-McKinstry <i>The Pennsylvania State University</i>

1999 - 2001

M. Yamaguchi
Chiba University

Ex-Officio Committee Members

Awards	R. H. Tancrell <i>Tancrell Associates</i>
Fellows*	R. M. White <i>University of California, Berkeley</i>
Finance	H. van de Vaart <i>VDV Associates</i>
Historian*	F. S. Hickernell
Long Range Planning	D. C. Malocha <i>University of Central Florida, Orlando</i>
(Ad Hoc)	
Membership- Chapters	S. M. Pilgrim <i>Alfred University</i>
Newsletter*	W. D. Hunt <i>Georgia Institute of Technology</i>
Nominations	F. S. Foster <i>University of Toronto</i>
Standards	A. Ballato <i>U. S. Army Communications- Electronics Command, Fort Monmouth</i>
Transactions*	W. D. O'Brien, Jr. <i>University of Illinois, Urbana</i>
Senior Past President (1998 - 2001)	D. C. Malocha <i>University of Central Florida, Orlando</i>
Senior Student Member* (1998-1999)	C. H. Frazier <i>University of Illinois, Urbana</i>
Junior Student Member* (1999-2000)	K. E. Morgan <i>The University of Virginia, Charlottesville</i>

IEEE Headquarters

Director, Division IX*	
E. K. Reedy	
Managing Director, TAB*	M. Ward-Callan
General Manager, IEEE*	D. J. Senese

*Non-Voting Position

President's Message

What does the President of the UFFC Society do? Now that my two-year term is nearing completion, I would answer this question differently than I would have two years ago. The UFFC Society Constitution defines the president's two major

duties: "...The President shall supervise the affairs of the Society . . .," and, "...When the President is notified of meetings of IEEE Boards of which he/she is a member, the President shall insure representation of the Society at such meetings . . ."

Two years ago, I would have said that the first is the primary duty, and the second is a perfunctory role. Well, if I measure the importance of the two roles by the relative amounts of time I have devoted to them, the second is the more important one (I would estimate the relative times spent to be about 1 to 10).

Supervising the society's activities is the easier part of the job, thanks to the outstanding volunteers who serve the Society: the president-elect; the vice presidents; the committee chairs, vice-chairs, and members; the secretary/treasurer; the AdCom members; the editor-in-chief and associate editors; and the symposium officers. Thanks primarily to their efforts, the UFFC-S has made important progress during the past two years.

The most important measure of a Society's progress, in my opinion, is the impact on the membership. According to this measure, the most important decision by the UFFC Society, not just during the past two years, but ever, has been to digitize the back issues of all UFFC-S publications and to make the resulting products available to the members at an affordable price (see elsewhere in this Newsletter for details). Other important recent accomplishments/actions include, the agreement with the Electron Devices Society for reciprocal access to on-line publications, improvements in the quality, timeliness and special issues of our Transactions, the creation of two student AdCom member positions, highly successful symposia, and bringing "new blood" into the Society's leadership - with the appointments of new vice-presidents, committee chairs and student AdCom members.

With respect to representing UFFC-S on IEEE Boards, this part of the job can, at times, be frustrating. It is not easy to

change an organization of nearly 350,000 members. But, when one succeeds in making a change for the better, the job can be highly satisfying.

My most important accomplishment has been to propose, and shepherd through the approval process, the creation of the IEEE Sensors Council. Whereas before, the IEEE's sensor activities were scattered throughout many societies, and the principal sensor publications were by commercial organizations, now, the IEEE has a focus on sensors and the possibility of becoming the dominant professional society, and publisher, in this important field. I had also participated in the deliberations of numerous IEEE committees. The topics included: how to restructure the IEEE's financial management and how to streamline the organization; transnational issues, i.e., how to increase membership from outside N. America and the participation of such members in the leadership of the IEEE; how to improve the image of IEEE members and the image of the IEEE brand; and ethics issues, such as the possible conflicts of interest by IEEE editors who also serve as editors of competing journals. The debates about these issues will probably continue well beyond the end of my term.

On Jan 1, 2000, Fred Hickernell will become President of the UFFC-S. He will be taking over a society that is in good shape, both technically and financially. I wish him well, and hope that he will have at least as much fun being president as I did.

John Vig
President, UFFC-S

AdCom Briefs

The Administrative Committee (AdCom) meeting of the *Ultrasonics, Ferroelectrics, and Frequency Control Society (UFFC-S)* was called to order at 9:02 A.M., 18th June 1999, by J. R. Vig, UFFC-S AdCom President, at the Hotel Sofitel, Chicago (Rosemont), Illinois. Introductions of attending members were conducted.

J. R. Vig, UFFC-S AdCom President, introduced C. H. Frazier (University of Illinois) and K. E. Morgan (University of Virginia - Charlottesville), the UFFC-S's AdCom Student Members for 1999.

G. K. Montress, UFFC-S Secretary/Treasurer, moved to approve the minutes of the 4th October 1998, UFFC-S AdCom meeting. The motion was seconded by R. H. Tancrell. The motion passed, with two minor typos noted for correction prior to submission to IEEE for archiving.

G. K. Montress, UFFC-S Secretary/Treasurer, reported that two e-mail/FAX ballots had been conducted during the time period from 5th October 1998 to 17th June 1999. These ballots approved: the UFFC-S President's Committee Chair and Representative appointments for 1999 and a \$2k UFFC-S





start-up funding contribution to the IEEE's newly created Sensors Council.

The *UFFC-S* AdCom approved a plan to put all of the *UFFC-S*'s Conference Proceedings (US, FCS, and ISAF) and Transactions onto a set of CR-ROMs. They should be available in early 2000, and will be available to all *UFFC-S* members.

W. D. O'Brien, Jr., *UFFC-S* Transactions Editor-in-Chief, presented oral and written reports. The Federation of Animal Science Societies' (FASSs') handling of the editing and preparation operations for the *UFFC-S* Transactions continues to go very well in 1999. A new printer (Imperial Printing) is now handling the *UFFC-S* Transactions for FASS.

W. D. O'Brien, Jr., *UFFC-S* Transactions Editor-in-Chief, reported that the *UFFC-S* Transactions are available on-line now, beginning with the January 1997 issue. All *UFFC-S* members in good standing should be able to access the *UFFC-S* Transactions on-line.

The *UFFC-S*'s AdCom approved funds to place the 1995 and 1996 volumes of the *UFFC-S* Transactions on line as well, as soon as possible.

The *UFFC-S*'s AdCom approved a CY2000 budget of \$44k for the *UFFC-S* Transactions Editor-in-Chief.

W. D. O'Brien, Jr., *UFFC-S* Transactions Editor-in-Chief, reported that five additional Special Issues of the *UFFC-S* Transactions are currently in progress, specifically: a Special Issue on Applications of Ferroelectrics, a Special Issue commemorating the 30th Anniversary of Piezoelectric PVDF, a Special Issue on Frequency Control and Precision Timing, a Special Issue on the Joint Korea-United States Workshop on Nondestructive Evalua-

tion, and a Special Issue on Modeling, Optimization, and Design of Surface and Bulk Acoustic Wave Devices.

W. D. Hunt, *UFFC-S* Newsletter Editor-in-Chief, presented an oral report. The deadline for submission of material for the September 1999 (Fall) issue of the *UFFC-S* Newsletter is approximately 5th August 1999. This earlier than usual deadline is due to the fact that the 1999 IEEE International Ultrasonics Symposium is scheduled for 17th - 20th October 1999 and the *UFFC-S* Newsletter will contain information describing arrangements for the meeting.

H. van de Vaart, *UFFC-S* Finance & Operations Committee Chair, presented oral and written reports. The *UFFC-S* remains in good financial shape, with reserves of approximately \$728k as of 31st December 1998.

The *UFFC-S*'s budget for CY2000 was approved.

A. Safari, *UFFC-S* Ferroelectrics Vice-President, presented oral and written reports. The 2000 ISAF will be held in Honolulu, Hawaii with A. Kingon and D. Viehland serving as General Co-Chairs and the 2002 ISAF will be held in Gaithersburg, Maryland with S. Freiman serving as General Chair. Niagara Falls, Canada, is the venue for the 2004 ISAF, with S. M. Pilgrim serving as General Chair.

J. A. Kusters, *UFFC-S* Frequency Control Vice-President, submitted a written report. The 1999 IEEE International Frequency Control Symposium was held in Besancon, France, as a joint meeting with the 13th European Frequency & Time Forum. The meeting was very successful, with 656 attendees.

J. A. Kusters, *UFFC-S* Frequency Control Vice-President, noted that the 2000 IEEE International Frequency Control



Symposium will be held in Kansas City, Missouri, on 6th - 9th June 2000. It will be the first jointly sponsored meeting with the EIA. J. D. Prestage has agreed to serve as Technical Program Chair for the meeting.

J. F. Greenleaf, *UFFC-S* Ultrasonics Standing Committee Chair, presented an oral report. The 1999 IEEE International Ultrasonics Symposium will be held in Lake Tahoe, Nevada; the 2000 IEEE International Ultrasonics Symposium will be held in San Juan, Puerto Rico; the 2001 IEEE International Ultrasonics Symposium will be held in Atlanta, Georgia; the 2002 IEEE International Ultrasonics Symposium will be held in Munich, Germany; and the 2003 IEEE International Ultrasonics Symposium will be held in Honolulu, Hawaii, with J. F. Greenleaf and W. D. O'Brien, Jr., serving as General Co-Chairs for the meeting.

R. H. Tancrell, *UFFC-S* Awards Committee Chair, presented oral and written reports. B. R. Tittmann is the current *UFFC-S* Distinguished Lecturer for 1998-1999. The title of his presentation is: "Turning Up the Heat on NDE". B. T. Khuri-Yakub is the *UFFC-S*'s 1999-2000 Distinguished Lecturer. The title of his presentation is: "Capacitive Micromachined Ultrasonic Transducers".

The *UFFC-S* AdCom approved an increase in the Distinguished Lecturer's travel budget. Effective immediately, the budget will be \$20k per distinguished lecturer.

R. H. Tancrell, *UFFC-S* Awards Committee Chair, is formulating a plan for a uniform set of *UFFC-S* sponsored awards which spans the three primary technical areas of interest to the *UFFC-S*. He is coordinating this effort with the Ferroelectrics, Frequency Control, and Ultrasonics Standing Committees.

S. M. Pilgrim, *UFFC-S* Chapter/Membership Services Committee Chair, presented an oral report.

A. Ballato, *UFFC-S* Standards Committee Chair, presented written and oral reports. The *UFFC-S*'s Standards Committee is currently responsible for nine items: eight standards and one project.

F. S. Foster, *UFFC-S* Nominations Committee Chair, presented oral and written reports. The election for new *UFFC-S* AdCom members with their three year terms in office starting on 1st January 2000 will be held later this Summer (1999). The slate of nominees from IEEE Regions 1 - 7 is: L. Brown, M. M. Driscoll, R. L. Filler, R. M. Garvey, T. E. Parker, and T. Sinclair. Nominees from IEEE Regions 8 - 10 are: C. C. W. Ruppel, D. P. Tsarapkin, and A. F. W. van der Steen. Three new *UFFC-S* AdCom members will be elected from among the Regions 1 - 7 candidates, while one new *UFFC-S* AdCom member will be elected from among the Regions 8 - 10 candidates. The election should be completed by early November 1999.

D. C. Malocha, *UFFC-S* Long Range Planning Committee Chair, indicated that the *UFFC-S*'s Strategic Planning Document is operative, and he is coordinating efforts to achieve its major objectives.

The next *UFFC-S* AdCom meeting will be held at 9:00 A.M., on Sunday, 17th October 1999, in conjunction with the 1999 IEEE International Ultrasonics Symposium, in Lake Tahoe, Nevada.

The *UFFC-S* AdCom meeting adjourned at 5:54 P.M.

Gary K. Montress
UFFC-S AdCom Secretary/Treasurer, 1999

UFFC Digital Archive On Its Way

Get ready to be able to clear out some needed shelf space in your office. Work has initiated on the creation of a complete digital archive of all the material published by the UFFC since its inception. The UFFC Digital Archive should become available sometime during the first half of 2000. The collection will include all copies of the Transactions on Ultrasonics, Ferroelectrics and Frequency Control (formerly known as the Transactions on Sonics and Ultrasonics) as well as the conference proceedings from the Frequency Control Symposium, the Ultrasonics Symposium, and the International Symposium on the Applications of Ferroelectrics. The earliest of these publications, the Proceedings of the Frequency Control Symposium, first appeared in 1947 so we will begin with a digital archive which spans roughly 50 years of the scholarly work of the UFFC Society. As a bonus, and in the interest of making the historical materials of the society widely available, all issues of the UFFC Newsletter will also be included. Further, Roger Ward has obtained permission for electronic publication of two out-of-print, classic texts:

R. A. Heising, *Quartz Crystals for Electrical Circuits*,
D. Van Nostrand Co., 1946.

V. E. Bottom, *Introduction to Quartz Crystal Unit Design*, Van Nostrand Reinhold Company, 1982.

In the future, there is the possibility that we may wish to add more books to the UFFC Digital Archive. If you know of a book relevant to the UFFC which is out-of-print and for which you are willing obtain the permission to publish on the web, please feel free to contact John Vig at J.Vig@IEEE.org.

Federation of Animal Science Societies (FASS), the current publisher of the Transactions and manager of the Transactions website, has been selected as the contractor for this project. Chuck Sapp, the Executive Vice-President of FASS, said, "The work is underway and progressing very well. We are very excited about this opportunity to render the collected works of the UFFC into archival digital form. Given that we have also been selected to be the web site manager for the organization, we can provide a seamless digital library with the new issues of the Transactions being added continuously to the collection. This is a new business area for us that we are eager to get into. Recently, we have signed contracts with three more organizations to create digital libraries for them as well."

The UFFC Digital Archive will be accessible via the official UFFC website and a set of CD ROMs. There will be be-

tween 12 and 16 CDs in the CD ROM set and due to the nature of this form of the archive the titles, authors and abstracts of the entire collection will appear on the lead CD. One can search this data set and will be directed to the CD/s where the papers are found. For the web version of the Digital Archive, however, the text of the articles will also be searchable and one can search through the entire collection more extensively. Further the web version will be more easily upgraded as new Transactions and Symposium Proceedings are published.

How much will this wonderful library cost me, you ask. For UFFC members it will cost only \$30. There was strong feeling on the part of Jan Brown, chair of the subcommittee that spearheaded the creation of the library, that this should be considered a member benefit and not be terribly expensive. For

nonmembers the cost will be \$250. If you are a member and purchase the CD ROM Digital Archive, you will have access to the web version as long as you maintain your membership. A nonmember who purchases the CD ROM Digital Archive will have access to the web version for one year. If you decide to cancel your membership in the UFFC, you will no longer be able to access the web version of the archive.

"The most important decision made by the UFFC Society," said President John Vig, "not just during my term, but I believe ever, has been to digitize the back issues of all UFFC-S publications and to make the resulting products available to the membership at an affordable price. To the best of my knowledge, no other action has benefited the membership of UFFC-S in such a far-reaching way."

Changes Afoot for the UFFC Website

The decision was reached by ADCOM at its June meeting to consolidate the web activities of the UFFC and over the next few months these changes will begin to take form. We wish to thank Ryszard Lec who has served as the volunteer webmaster for the past few years. FASS, the publisher of the Transactions, has been retained as the webmaster and will provide professional maintenance of the website's various aspects. One can think of this website as being comprised of two main parts. One will be the UFFC Digital Archive with by the middle of next year will contain the collected works of the UFFC as well as being continuously updated to include new issues of the Transactions and Symposium Proceedings. The other will include information on, at a bare minimum, the activities of the Ultrasonics, Ferroelectrics and Frequency Control portions of the UFFC. This portion will have web editors for the different sections of the UFFC as well as a Web Editor-in-Chief. Anyone wishing to post something on the web, say for the Ultrasonics section, would contact the Web editor for Ultrasonics. The Web editor for US would review and edit the material and send it onto the Web Editor-in-Chief for approval and further editing. The Web Editor-in-Chief would then send the material onto the FASS webmaster for posting. In this manner, the society has only one person who interacts with the FASS webmaster. This will ensure the integrity of the website and the efficiency with which material is posted. "We really want to get beyond just supplying information on the activities of the society and make full use of the possibilities provided by the web," says Richard Chiao, the new Web editor for Ultrasonics, "Initially on a trial basis in the Ultrasonics section of the site, we would like to try to boost user interaction on the site. For example, we want to try having regular, contributed web articles (which will preferably include links to software and data used in the paper so that readers can really get into the paper - enabling a new level of collaboration), a quick demo section on latest results, a collection of software tools and data, etc."

The contact information for the editors is given below and you are welcome to contact them with contributions and suggestions you might wish to make regarding the sight.

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Frequency Control Web Editor:

John Vig, Ph.D.

WELCOME NEW UFFC-S MEMBERS

“We welcome the following new members to the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society who have joined in the past six months.

Woowai Lau	AZ	Max I Fomitchev	OK	Kazuhiro Sunagawa	Japan
Douglas J Arnold	CA	Youssry Y Botros	OR	Sadahara Kanda	Japan
Xinwei Hao	CA	Judd S Gardner	PA	Toshihiro Ohtani	Japan
Henry G Pavy	CA	Dan Nehring	PA	Kiyotsugu Sekioka	Japan
Mernyl Don Gallego	CA	Janette Santana	PR	Yuu Ono	Japan
David J Powell	CA	Noel C Eck	SD	Jaesub Hwang	Korea
James Edmond Chomas	CA	Kofi Korsah	TN	Hyunjune Yim	Korea
Adam R Ostergren	CA	Nicholas G Zacharopoulos	TX	Younho Cho	Korea
Kam Yin S Wong	CA	Paul D Key	TX	Joon-Hyun Lee	Korea
Marco SicCARDi	CA	David Dao Nguyen	UT	Dong-Jin Yoon	Korea
Paul Reynolds	CA	Steven Daniel Erickson	VA	Bongyoung Ahn	Korea
Jacob M Li	CT	Hong Wan	WA	Seung Seok Lee	Korea
Zhi Yang	CT	Yadong Li	WI	Seunghee Lee	Korea
Daqing Piao	CT	Alejandro Perez Williams	Argentina	Jong-Seob Jeong	Korea
Philip Tang	FL	Sergio Raul Gomez	Argentina	Yang-Mo Yoo	Korea
Christoph T Schroeder	GA	Humberto Ruben CAmpodonico	Argentina	Donghyun Kim	Korea
Marvin E Frerking	IA	Toby D Tomlin	Australia	Jeong Seok Kim	Korea
Jeremy C Snarski	IL	Gernot Hueber	Austria	Maria E Fuentes-Montero	Mexico
Jose C Lleraza Jr	IL	Nermin Fejzic	Bosnia and Herzegovina	Mehdi Lebiad	Morocco
William Ho	IL	Oswaldo P Paixao	Brazil	Evert Dekker	Netherlands
Chi Zhang	IL	Hiroyuki Kitabayashi	Canada	Joerg C Schlegel	Netherlands
David A Payne	IL	Paul R Bowler	Canada	Rene Breeuwer	Netherlands
Shan Wan	IN	Chad Edward Jewers	Canada	Birgit Vaneker	Netherlands
Yonald Cherry	MA	Mark C Madsen	Canada	Sigmund Bardal	Norway
Francis P Harrington	MA	Yuanyuan Wang	China	CArlos Menendez	Peru
Rajesh K Panda	MA	Hani A Youssef	Egypt	Juan A Deustua	Peru
James C Maxwell	MA	Hani A Youssef	Egypt	Korneta Andrzej	Poland
Minya Liang	MI	Khaled Anwar Maarouf	Egypt	E Soczkiewicz	Poland
Steven R Wedan	MN	Olivier Rousset	France	Kui Yao	Singapore
Daniel T Groebner	MN	Laurent Sandrin	France	Gonzalo Fuentes Iriarte	Sweden
John J Cipollone	MO	Naim BajcinCA	Germany	Yung-Yaw Chen	Taiwan
Beth J Geiman	NC	Markus Becker	Germany	Yao-Ming Tsai	Taiwan
Jason M Zara	NC	Tej Paul	India	Fuh-Liang Wen	Taiwan
Katherine J DunCAN	NJ	Hossein Hamdollahpour	Iran	Tzu-Lun Weng	Taiwan
Gary E Ruland	NJ	Reza Kabiri Moridi Far	Iran	Kampol Vichienhotu	Thailand
Paul M Bridenbaugh	NJ	Ali Andalib Zoghi	Iran	Zeynep Akalin	Turkey
Ken Bernard	NM	Ran Manor	Israel	A Almatawaa	United Kingdom
Alan Macrobbie	NY	Josef Keller	Israel	Jose M Carmena	United Kingdom
James C Lacefield	NY	Silvano Ossola	Italy	Rodrigo San Vicente	Uruguay
Saptarshi Bhattacharyya	NY	Vittorio M Passaro	Italy	Javier E Navarro	Venezuela
Michelle A Cloyd	OH	Takashi Ueno	Japan		



ISAF 2000—Hawaii

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On the Applications of Ferroelectrics
Announces—**

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***“A New Millennium Celebration of the
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**Sponsored by the Ultrasonics, Ferroelectrics and Frequency
Control Society of the IEEE**

IEEE FELLOW NOMINATIONS

It is not too early to be thinking about Senior Members of the UFFC Society that you would like to nominate for the Fellow grade. Nominations will be due in March of 2000 and forms will be ready by November, 1999. To refresh your memory on the process it is described in the paragraphs that follow which focuses on the IEEE Fellow Committee and how it operates.

The IEEE Bylaws define the Fellow grade as one of unusual distinction in the profession, to be conferred only by initiation of the Board of Directors upon a person of outstanding and extraordinary qualifications and experience in the IEEE designated fields, who has made important individual contributions to one or more of those fields. A nominee must be a Senior Member of the Institute and have been a member in any grade for at least five years prior to January 1 of the year of election.

The Fellow Committee, appointed by the Board of Directors, has the responsibility of making recommendations to the Board of Directors for nominees to be conferred the grade of Fellow.

The Fellow Committee acts as a guardian of IEEE Fellow grade standards and works carefully and faithfully to maintain these standards uniformly throughout the IEEE. The committee is concerned with determining whether the applicants meet the requirements of the IEEE Bylaws, and it seeks assistance from many sources in adjudicating the nominations.

The Fellow Committee depends upon the nominator of a candidate to furnish all of the basic necessary information requested on the nomination form and to point out the unique contributions of the candidate in a concise and succinct statement.

The Fellow Committee depends upon the society evaluations of the technical contributions of the candidates and their ranking of the candidates.

The Fellow Committee depends upon the Fellow grade references to comment on the candidate's specific NOMINATIONS achievements which they are qualified to judge.

The Fellow Committee will consider brief letters of endorsement from IEEE sections, chapters and committees.

In the processing by the Fellow Committee, the candidates' dossiers are evaluated on a basis of eight criteria:

1. Individual contributions as engineer, scientist, originator, technical leaders, or educator.
2. Evaluation by an IEEE society. Note that only one IEEE society evaluation is to be submitted for each candidate. The nominator is responsible for selecting the IEEE society that best reflects the candidate's field of technical accomplishments.
3. Tangible and verifiable evidence of technical accomplishments, such as technical publications, patents, reports, or published descriptions of products, facilities, and/or service.
4. Opinions of confidential Fellow references who are qualified to judge the work of the candidate (where possible, these should be associated with other than the candidate's own organization).
5. Service to IEEE and its predecessors, the AIEE or IRE.
6. Professional engineering service other than the IEEE.
7. Opinions of endorsers.
8. Total years in the profession.

Having considered all of the valuable information supplied from these many sources, a consensus of committee judgments is reached on the nominees to be recommended to the Board of Directors for evaluation to the IEEE Fellow grade, taking into account the maximum number of recommendations permitted by the IEEE Bylaws which can be submitted annually.

If you are interested in nominating one of our UFFC Society members you may obtain the necessary forms from Joann Kilyk, IEEE Fellow Committee, 445 Hoes Lane, Piscataway, NJ 08854, (732) 562-3843.

The following is a list of members of the UFFC-S who are eligible to be nominated for the rank of Fellow.

Congratulations in Order

Dr. Narendra Batra, Senior Member of IEEE and a long time dedicated member of the UFFC-S TPC committee was elected as a FELLOW of American Society for Nondestructive Testing (ASNT) in October, 1998.

UFFC Senior Members

Farhat Abbas	Albert Goldstein	Qing-Huo Liu	Chandra M Sehgal
Sheikh K Alam	Jacques Graffeuil	Jian-Yu Lu	Franz J Seifert
G. Arlt	John G Gualtieri	Shengguo Lu	A Hamit Serbest
Omar R Asfar	Zhilun Gui	Reinhold Ludwig	P M Shankar
Darrell L Ash	Gabriele Guidi	Wei-Gen Luo	David P Shattuck
Abdullah Atalar	Ian L Guy	Lute Maleki	Tadashi Shiosaki
Sarah Audet	Amin M Hanafy	Leo A Mallette	R A Sigelmann
Alireza Baghai-Wadji	Craig J Hartley	Stephen J Martin	Seth D Silverstein
Narendra K Batra	Gordon Hayward	Rafael Martinez-Ona	Peter M Smith
Henri Baudrand	Ping He	Duane J Matthiesen	Thane Smith
Madjid A Belkerdid	Thomas S Hickernell	Hewlett E Melton Jr	Wallace A Smith
Paul J Benkeser	Vincent M Hietala	Robert L Miller	Kawan Soetanto
Raymond J Besson	S T Hsu	Robert M Montgomery	Waldemar Soluch
Nihat Bilgutay	Takeshi Inoue	K Saba Mylvaganam	Thomas L Szabo
M F Black	Toshio Ishizaki	Mitsuo Nakazawa	Hiroshi Takeuchi
Theron V Blalock	Faquir C Jain	Carlo N Naldi	Yasuhiro Takeuchi
Gerald V Blessing	Bernhard H Jakoby	Gifford Neill	Andrew C Tam
Shira L Broschat	Cheng-Kuei Jen	Juan Obregon	George W Taylor
Lewis F Brown	Peng Jiang	Bryan Owings	Tat-Jin Teo
Jan Brown	Joie P Jones	R K Pandey	Johan M Thijssen
Werner Buff	S G Joshi	Hyunwook Park	Charles Thompson
I C Chang	Fabien Josse	Song B Park	Kohji Toda
David Cheeke	Hirofumi Kawashima	Jeffrey A Pawlan	Piero Tortoli
Ai Chen	Bruce D Keller	Peder C Pedersen	Dmitry P Tsarapkin
Noriyoshi Chubachi	Peter Kellman	Soo-Chang Pei	C W Turner
Fernand S Cohen	Kenneth R Kelly	David Penunuri	Shin-Ichiro Umemura
R L Cook	Lawrence W Kessler	Harry E Peters	Satish S Udpa
S E Craig	Pawel Kielczynski	Dennis L Polla	Leo P Van Biesen
Aime S De Reggi	Toshihiro Kojima	William E Powell	Sabine Van Huffel
Upkarjit S Dhaliwal	Kofi Korsah	John P Powers	John Vetelino
Steven R Doctor	Masanori Koshiba	Daniel Queen	Bruce A Vojak
Yizhong Dong	John A Kosinski	Gerard J Quentin	Shusou Wadaka
Kevin D Donohue	Hayrettin Koymen	T A Rabson	Fred L Walls
Louis G Durand	Shogo Kozaki	Stanley A Reible	Roger W Ward
Peter D Edmonds	Frederick W Kremkau	Wei Ren	John H Wasilik
Helmut Ermert	Venceslav F Kroupa	William J Riley Jr	Keith A Wear
Karl F Etzold	Andrew D Kucar	Gerald E Roberts	Robert Weigel
David H Evans	J A Kusters	Maev Roman	Robert B Wiggins
Ernest J Feleppa	Kenneth M Lakin	Brian E Rose	Richard S Withers
Katherine Ferrara	Sidney B Lang	E Wayne Rothermich	Gan Woon-Siong
Raymond L Filler	Theodoros Laopoulos	Manas K Roy	J Nelson Wright
Peter J Fish	Hugh G Larsen	Clemens C Ruppel	Masatsune Yamaguchi
Frederick M Fliegel	John D Larson	Harry L Salvo Jr	Ahmed M Yamani
F Stuart Foster	William M Leach Jr	Ram P Samy	Linxin Yao
Leon A Frizzell	John N Lee	Jafar Saniie	Hao Ying
Akira Fukumoto	Oswald J Leroy	F Williams Sarles	Suk Wang Yoon
Eric S Furgason	Marc Lethiecq	V Hugo Schmidt	Bernhard G Zagar
Shangkai Gao	Longtu Li	Susan C Schneider	Fu-Xue Zhang
Dr Solomon R Ghorayeb	Maoqiang Li	Walter A Schulze	Shu-Yi Zhang
Allen W Glisson Jr	Teong C Lim	O Schwelb	Yixin Zhon

Joint Korea-United States Workshop on Nondestructive Evaluation

The Korean Society for Nondestructive Testing (KSNT) and the IEEE UFFC Society together organized a *Joint Korea-United States Workshop on Nondestructive Evaluation* held at the International House of the Pusan National University, May 24-27, 1999. Pusan is prominent both as a highly industrialized port city of 4.5 million people, and for its National University which is the second largest in South Korea. The workshop was largely supported by the Korean Science and Engineering Foundation, with further assistance provided by a number of Korean professional societies, the Mechanical Engineering School of the Pusan National University, and the Korean Chapter of the IEEE.

The workshop sessions were co-organized by Professors John Harris (University of Illinois) and Joon-Hyun Lee - Pusan National University. Korean and U. S. scientists from academia, government and industry were invited to report the status of NDT technology in their respective countries. The workshop attendees numbered 124 and included Dr. Hong-Geun Chang and Dr. Hae Lee, respectively president and past-president of the KSNT. Dr. William D. O'Brien from the University of Illinois and Dr. Gerald Blessing from the National Institute of Standards and Technology were UFFC Society representatives. Many of the participants are shown in the ac-



companying photograph. A list of the speakers and their abstracts can be found at <http://uffc.brl.uiuc.edu/abstracts/intro.html>. While a majority of these papers discuss ultrasonic techniques, eddy current technology is also represented. The workshop ended with tours provided of Professor Lee's university research laboratories in Materials, Strength, and NDE, and of the Kori Nuclear Power Plant near Pusan.

UFFC-S Society Passes Periodicals Review

The IEEE Periodicals Review Committee reviews the various societies' periodicals every few years. The UFFC-S's Transactions were reviewed in June of 1999. Our Editor in Chief, Bill O'Brien, and our VP for Publications, Jan Brown, prepared the required documentation, and Bill made the presentation to the Review Committee. Thanks to Bill and Jan's

efforts, and the outstanding quality of our transactions, the review went very well.

At the end of the review, one of the Committee members remarked, half kiddingly, that maybe the Committee should go out of business and just provide the UFFC-S periodicals report for other societies to follow.

Tokyo Chapter

The Tokyo Chapter held the following five technical meetings during the first half of 1999, in conjunction with the Technical Group on Ultrasonics of the Institute of Electronics, Information and Communication Engineers of Japan.

Date	Papers	Venue
January 21-22	18	Kyoto
February 12	9	Kanagawa
April 27	7	Tokyo
May 24	7	Yokohama
June 21	6	Tokyo

The 20th Symposium on Ultrasonic Electronics (USE99) will be held under the sponsorship of the UFFC-S Tokyo Chapter on November 17-19, 1999, at Japan Women's University in Tokyo. Most of the papers presented at the last year's Symposium (USE98) have recently been published in the special issue of *Jpn. J. Appl. Phys.*, Vol.38, No.5B(1999).

We are inviting Prof. B.T. Khuri-Yakub, the UFFC-S 1999-2000 Distinguished Lecturer, to Japan. He kindly accepted our invitation to give lectures at several meetings such as the USE99. Tokyo Chapter is now contacting him to arrange the schedule of his lectures.

The officers of the Tokyo Chapter have been changed. The new officers for 1999-2000 are:

Chairman: Professor Kiyoshi Nakamura,
Graduate School of Engineering,
Tohoku University,
Aramaki-Aza-Aoba 05, Aoba-ku, Sendai 980-8579.

Vice Chairman: Dr. Sadayuki Takahashi,
Research and Development Group,
NEC Corporation,
Miyazaki 4-1-1, Miyamae-ku, Kawasaki 216-8555.

Secretary: Associate Professor Ken-ya Hashimoto,
Faculty of Engineering, Chiba University,
Yayoi 1-33, Inage-ku, Chiba 263-8522.

Treasurer: Associate Professor Ken Yamada,
Graduate School of Engineering,
Tohoku University,
Aramaki-Aza-Aoba 05, Aoba-ku, Sendai 980-8579.

Sadayuki Takahashi
Vice Chairman,
UFFC-S Tokyo Chapter

Call For Papers

Special Issue on Modeling, Optimization and Design of Surface and Bulk Acoustic Wave Devices

(Submission Deadline: December 15, 1999)

The *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* invites the submission of manuscripts on any of the following topics concerning modeling, optimization and design of surface and bulk acoustic wave devices:

- SAW and BAW effects and devices
- Periodic structures and models
- Nonperiodic structures and models
- 2D and 3D models
- Waveguide structures
- Multi-track structures
- Multilayered structures
- Second- and higher order effects
- Models for packages, bond wires and EM interference
- Model reduction techniques
- Parameter extraction techniques
- Equivalent circuit models
- Frequency-domain methods
- Time-domain techniques
- Integral-equation based and boundary element methods
- Finite element methods
- Finite difference time domain methods
- Wavelet-based methods
- Parallel computing environments
- Fast algorithms
- Filter and transducer design techniques
- Linear and nonlinear optimization techniques

- Stochastic optimization
- Simulated Annealing
- Evolutionary computation
- Learning algorithms

All contributions to the *UFFC Transactions* must be sent to the Editor-in-Chief:

William D. O'Brien, Jr.
Department of Electrical and Computer Engineering
University of Illinois
405 North Mathews
Urbana, IL 61801
217/333-2407

In the transmittal letter identify that the contribution is being submitted for publication consideration for Modeling, Optimization and Design of Surface and Bulk Acoustic Wave Devices Special Issue. Consult the "Information for Contributors" for manuscript preparation and submission requirements that is published in the most recent January issue, or access the *UFFC Transactions* Home Page at <http://www.ieee.org/uffc/tr>.

All papers are subject to the normal peer-review process. Submission deadline is December 15, 1999 and the expected publication date is late-2000.

The guest editor for this special issue is Dr. Ali R. Baghai-Wadji.

28th Symposium on Electro-Mechanical Functional Devices

The 28th Symposium on Electro-Mechanical Functional Devices (EM Symposium) was held at the Tokyo Metropolitan University in Japan on May 27th and 28th 1999. The IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society's Tokyo Chapter is one of the sponsors of this symposium. There were 23 oral presentations at the two-day symposium with over 160 attendees. Dr. Fred Flickernell was the invited tutorial speaker on the topic, "Thin-Films on SAW Substrates: Dreams Anticipated, Promises Fulfilled, and Opportunities Awaiting." Following the symposium, Dr. Hickernell was a guest lecturer at Tamagawa University hosted by Professor Toshihiro Kojima. The day following the Tamagawa lectures, the Hickernells spent the day in the Kamakura-Yokohama area with Professor Kojima and Dr. Jun Yamada. The following is some historical information on the EM Symposium adapted from a review by Professor Y. Tsuzuki at the 25th anniversary meeting. Some photos in connection with the EM Symposium and Tamagawa lecture taken by Dr. Masao Takeuchi of Tamagawa University accompany this article.

The Symposium on Electro-Mechanical Functional Devices has been organized by the "EM Committee," which was originally established in 1969 as one of the research commit-

tees in the Institute of Electrical Engineers of Japan (IEEJ). Professor M. Onoe (Professor Emeritus of the University of Tokyo and former Director of the Institute of Industrial Science (IIS)) chaired the EM committee in its initial stage. In conjunction with the committee, technical meetings were most frequently held at IIS with researchers from both universities and industries. Through the meetings, Professor M. Onoe was keen for stimulating quartz device technology and led Japanese quartz people into today's international level. In 1971, the first EM symposium was held as an open forum of the EM committee.

After Professor M. Onoe, Professor M. Ariga (Professor Emeritus of Tokyo Metropolitan University) and then Professor Y. Tsuzuki of Yokohama National University succeeded as chairmen. Thanks to their tireless zeal, the EM symposium has grown into one of the three prestigious conferences on ultrasonics in Japan, and is now a key conference for acoustic wave device engineers, in particular for those working on quartz related devices.

Since Professor M. Yamaguchi of Chiba University was appointed to be the present chairman, he has positively opened the door to SAW device researchers attempting to make the symposium more general to those who are interested in EM devices of time and frequency. In 1993, he started the scheme for tutorial talks by foreign researchers. The following have present da tutorial lectures on areas of interest to researchers in Japan:

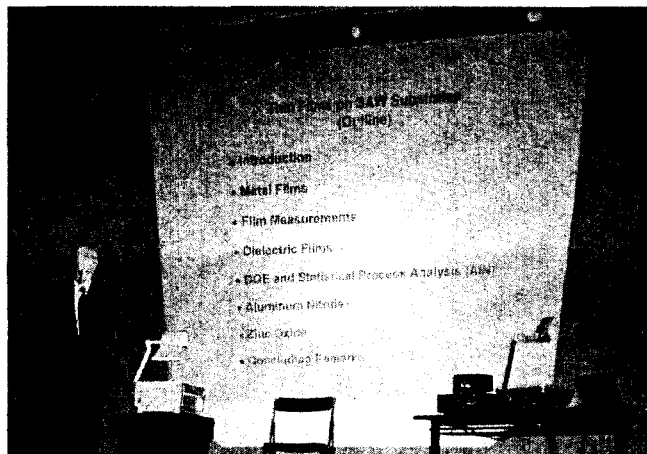
Professor Lee of Princeton University and Mr. Clinton Hartmann (1993)



While Fred delivers his talk, Thresa is enjoying lunch with Masayo Kojima and Hisako Yamada.



Tokyo Metropolitan University – Site of the 28th Symposium on Electro-Mechanical Devices.



Fred Hickernell of Motorola Inc. and the University of Arizona delivers a talk on thin films



Lunch at Tamagawa University with M. Takeuchi (L), T. Koike and T. Kojima (R).



Question time at Tamagawa University seminar.

Dr. David Morgan (1994)
Professor Raymond Besson of ENSMM (1995)
Dr. Clemens Ruppel of Siemens (1996)
Prof Y.-K. Yong of Rutgers University (1997)

During the last 28 years, EM devices have been successfully applied to various modern digital and/or communication systems, and their market has significantly and unexpectedly grown. Quartz oscillators are now widely used, not only in clocks and watches, but also in most electronics products as highly stable time and frequency standards. SAW devices established their status as high performance filters in VBF and UBF ranges. In accordance with such situations, the annual symposium has frequently



Seminar attendees at Tamagawa University.

adopted such issues to discuss from both points of view device developments and systems applications. Since miniaturization is a very crucial technology to be developed in EM devices, sophisticated micromachining and/or thin-film technologies, applicable to device fabrication, have also been one of the main topics in the symposium.

Presently, fundamental resonance frequencies of commercially available SAW and bulk quartz filters for mobile telephone systems are about to attain to 2.5GHz and 100 MHz, respectively. Sensors like acoustic gyroscopes are also being paid much attention for their promising future in automatic control applications. Such developments of EM devices suggest that the research fields covered with the EM symposium and its importance could extensively be increased in the future.

The Ultrasonics community lost a good friend and capable colleague. Frank Moeller succumbed to Amyotrophic Lateral Sclerosis (ALS, also known as Lou Gehrig's Disease) during sleep on August 22nd, 1999 at his home in Plano, Texas.

Frank was born on December 3rd, 1961 in Germany. He studied electronic engineering at the Ilmenau Institute of Technology (now Technical University of Ilmenau), Germany, where he received his Engineer Diploma in 1988 and Ph.D. degree in Electrical Engineering in 1991. From 1990 to 1996, he was a scientific assistant for research and teaching in the Department of Electrical Engineering and Information Technology, Institute of Solid State Electronics, Technical University of Ilmenau. His research included passive remote-controlled SAW sensors, active SAW devices using layered structures, and SAW devices modeling, simulation and design. He also taught electronic circuit classes and developed undergraduate teaching laboratories. He was twice a visiting scholar in the Department of Electrical and Computer Engineering, University of Central Florida, Orlando.

Frank joined RF Monolithics in Dallas as a SAW design engineer in the summer of 1996. He was involved with the design of low-loss SAW filters and the development of



software synthesis tools. He had made significant contributions to RFM's new SAW product development. Beginning the fall of 1999, he was an R&D scientist at RFM.

Frank had been an active participant of IEEE professional activities. He served as peer reviewer of a number of manuscripts submitted to the UFFC Transaction, and was a familiar face in IEEE International Ultrasonics Symposia. He had authored or co-authored more than 20 journal articles and other written publications, delivered more than 20 oral and poster presentations, was a co-inventor of 4 patents granted by the former East German government, and was a co-inventor of one patent presently pending.

Throughout his short life, Frank was known as a hard worker with unquestionable work ethic, a devoted husband, and a loving father. He was patient, kind and always willing to help. Frank Moeller was survived by his wife of fifteen years, Andrea, and three young children, Tobias, Torsten and Maria, ages 14, 11 and 10.

A trust fund is being set up to help Frank's family but is not yet in place. If you would like to make a tax deductible contribution, please contact either Rodolfo Chang at rechang@rfm.com or Shen Jen at shenjen@rfm.com. Your kindness will be greatly appreciated.

Nominations for UFFC-S DISTINGUISHED SERVICE AWARD

The Distinguished Service Award is a new award created by AdCom to recognize long-term support of the Society's activities. The first Award was presented in 1997. Recognition is given to those who innovate new Society programs, administer major Committees, manage Society functions, or promote the Society's areas of technical interest to the larger community. The recipient usually has served for many years with sustained participation in the Society's management. Selection is made by the Officers and the Awards Committee. Nominations may be submitted at any time. Who is the person you would like to honor in this way?

Photocopy this section and send via FAX or mail:
(You may submit more than one if you wish.)

Suggestions for the next **Distinguished Service Award**:

Your Name/Address: _____

Send at anytime to: Roger H. Tancrell
Chair, UFFC-S Awards Committee
7 Valyn Lane
Wilmington, MA 01887-1147
Tel/FAX: (978) 657-9748
e-mail: r. tancrell@ieee.org

Nominations for DISTINGUISHED LECTURER AND/OR TOPIC

The UFFC-S Distinguished Lecturer is welcomed by organizations around the world to present an up-to-date review of new developments in ultrasonics, ferro-electrics, or frequency control. The Distinguished Lecturer represents the Society to the larger technical community, and stimulates interest in the Society's professional areas. Recent lecturers have spoken to local chapters, universities and companies throughout North America, Japan, Europe, China, and South America.

Which topics would you like to hear? Which member would give a stimulating lecture? Fresh ideas are always welcome. Nominations may be submitted at any time. Be heard by filling out the attached form.

Photocopy this section and send via FAX or mail:
(You may submit more than one if you wish.)

Suggestions for the next **Distinguished Lecturer and/or Topic**:

Your Name/Address: _____

Send at anytime to: Prof. Mack A. Breazeale
Chair, UFFC-S Distinguished Lecturer
Subcommittee
The National Center for Physical Acoustics
University of Mississippi
University, MS 38677
Tel: (601) 232-7490
FAX: (601) 232-7494

Future UFFC-S Symposia

ULTRASONICS SYMPOSIA

2000 IEEE International Ultrasonics Symposium

San Juan, Puerto Rico

For information contact:

Madjid A. Belkerdid, *General Chair*
University of Central Florida
Department of Electrical & Computer Engineering
Orlando, Florida 32816-2450 USA
(407) 823-5793 (Phone)
(407) 823-5835 (FAX)
mad@enr.ucf.edu (e-mail)

2001 IEEE International Ultrasonics Symposium

Atlanta, Georgia

For information contact:

Mack A. Breazeale, *General Co-Chair*
University of Mississippi
National Center for Physical Acoustics
University, Mississippi 38677 USA
(601) 232-7490 (Phone)
(601) 232-7494 (FAX)
breazeal@olemiss.edu (e-mail)

or

William D. O'Brien, Jr., *General Co-Chair*
University of Illinois
Department of Electrical
& Computer Engineering
Bioacoustics Research Laboratory
405 North Mathews Avenue
Urbana, Illinois 61801-2991 USA
(217) 333-2407 (Phone)
(217) 244-0105 (FAX)
wdo@uiuc.edu (e-mail)

2002 IEEE International Ultrasonics Symposium

Munich, Germany

For information contact:

Helmut Ermert, *General Chair*
Ruhr-Universitaet Bochum
Lehrstuhl fuer Hochfrequenztechnik
Department of Electrical Engineering
Geb. IC 6.132
Bochum D-44780
GERMANY
(49) 234-700-2842 (Phone)
(49) 234-709-4167 (FAX)
helmut.ermert@ruhr-uni-bochum.de (e-mail)

2003 IEEE International Ultrasonics Symposium

Honolulu, Hawaii

For information contact:

William D. O'Brien, Jr., *General Co-Chair*
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Department of Electrical
& Computer Engineering
Bioacoustics Research Laboratory
405 North Mathews Avenue
Urbana, Illinois 61801-2991 USA
(217) 333-2407 (Phone)
(217) 244-0105 (FAX)
wdo@uiuc.edu (e-mail)

or

James F. Greenleaf, *General Co-Chair*
Mayo Clinic
Ultrasound Research
200 First Street SW
Rochester, Minnesota 55905 USA
(507) 284-8496 (Phone)
(507) 266-0631 (FAX)
jfg@mayo.edu (e-mail)

FREQUENCY CONTROL SYMPOSIA

2000 IEEE International Frequency Control Symposium

Kansas City, Missouri — 6 - 9 June 2000

For information contact:

Donald B. Sullivan, *General Chair*
National Institute of Standards & Technology
Time & Frequency Division
Division 847
325 Broadway
Boulder, Colorado 80303 USA
(303) 497-3772 (Phone)
(303) 497-6461 (FAX)
donald.sullivan@nist.gov (e-mail)

2001 IEEE International Frequency Control Symposium

Seattle, Washington

For information contact:

Errol P. EerNisse, *General Chair*
Quartztronics, Inc.
1020 West Atherton Drive
Building C
Salt Lake City, Utah 84123 USA
(801) 266-6958 (Phone)
(801) 266-7985 (FAX)

Future UFFC-S Symposia *cont.*

2002 IEEE International Frequency Control Symposium Venue To Be Determined

For information contact:

Errol P. EerNisse, *General Chair*
Quartztronic, Inc.
1020 West Atherton Drive
Building C
Salt Lake City, Utah 84123 USA
(801) 266-6958 (Phone)
(801) 266-7985 (FAX)

FERROELECTRICS SYMPOSIA

2000 IEEE International Symposium on Applications of Ferroelectrics

Honolulu, Hawaii

For information contact:

Dwight Viehland, General Co-Chair
Naval Sea Command
Code 2132; Building 1170
Newport, Rhode Island 02841
(401) 832-5107 (Phone)
(401) 832-6461 (FAX)
viehlandd@npt.nuwc.navy.mil (e-mail)

Editor's Note:

There are a lot of wonderful things happening in the UFFC Society these days. The very active UFFC-S Tokyo Chapter sponsored the 28th Symposium on Electro-Mechanical Functional Devices and invited Dr. Fred Hickernell to give a tutorial on his work and his perspectives on thin films. There was a joint Korea-US Workshop on Nondestructive held at Pusan National University. There was April in Besancon for his year's International Frequency Control symposium which was held jointly with the 13th European Frequency and Time Forum. As the frequent flier miles pile up we get ready to descend upon Lake Tahoe, Nevada, for the last International Ultrasonics Symposium of the millennium while General Program Chair, Pierre Khuri-Yakub sets the stage. Meanwhile,

the AdCom voted at its Chicago meeting in June to create the UFFC Digital Archive which will give all who buy it web and CD ROM access to the scholarly products of our society. When you use the UFFC Digital Archive in the future, keep in mind that this project would not have been completed without the forethought and persistence of our exiting president, John Vig. We all owe him a debt of thanks in seeing this done. As Fred Hickernell gets ready to take over as president this fall, we wish him all the best for a productive, landmark administration.

William Hunt
Editor



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