



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



Number 18: September 1994

Editor: Fred S. Hickernell

ISSN 1060-0264

**Cannes, France
November 1-4, 1994**



**1994 IEEE
International Ultrasonics Symposium**

1994 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM

Tuesday, November 1, 1994 - Friday November 4, 1994

Le Hotel Martinez - Cannes, France

AN INVITATION FROM THE GENERAL CHAIRS

On behalf of the Symposium Organizing Committee and the Administrative Committee of the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society, it is a pleasure for us to invite you to come to Cannes, France, and attend the 1994 IEEE International Ultrasonics Symposium.

This Symposium will be a very special event. For the first time, this annual meeting will be held outside the North American territory, before the Symposium travels back overseas next year to Seattle. The format of the meeting will be quite classical, but a European touch will be added and it will be an unforgettable occasion for many of you to discover, or rediscover, what is going on in Ultrasonics in Europe.

This year's Technical Program Committee, chaired by Bernhard R. Tittmann, has worked since October 1993 to put together another outstanding technical program. Nearly 500 papers will be presented over the three days of the Symposium. The record number of submitted abstracts and their quality obliged us to organize an extra parallel oral session and an extra poster session. This Symposium will be more international than ever.

Janpu Hou has again organized an excellent short course program. It consists of six courses to be presented the day before the Symposium, Tuesday, November 1, 1994. Much effort has gone into preparing for these courses, and we hope you will consider attending at least one of them.

The social program for attendees and companions will have the traditional reception on Wednesday evening at the Hotel Martinez. Thursday night we will embark on a boat for a cruise between Cannes and the beautiful islands, Iles de Lerins, during which a gourmet dinner will be served. The tours arranged during the day, for those not attending technical sessions, are designed to make you discover the flavor of the French Riviera. They include travel to Grasse and the perfumes factories, Antibes and the very typical village of Saint Paul de Vence, Nice, Eze, the town of Monaco and the Chagall Museum.

The town of Cannes is very well known all around the world because of the International Film Festival occurring each year during the month of May. The International Ultrasonics Symposium will take place in one of the most famous landmarks of the French Mediterranean seashore: Hotel Martinez. It is a jewel of Art Deco design with a commanding position on the famous La Croisette overlooking the sea. This hotel offers some of the most spacious accommodation on the Cote d'Azur. It is the haunt of *la creme de la creme* of the movie world with frequent guests including Gina Lollobrigida, Elizabeth Taylor, Michael Douglas, Robert Mitchum, Julie Andrews and Blake Edwards. Let us add that Hotel Martinez is located across the street from the beach, that the town of Cannes is a wonderful place for shopping, and that the moun-

tains in the back country, where a number of villages hosted French painters, are worth the travel.

Gerard Quentin and Herman van de Vaart
General co-Chairs

AN INVITATION FROM THE TECHNICAL CHAIR

This year is unique in the history of this Symposium! For the first time we are going outside the United States and Canada, specifically to France, and thus we have truly become "international". This has been made possible by the hard work of many on both sides of the Atlantic and by an overwhelming realization that the world has shrunk and that our lives, both technical and personal, have become interwoven in an intricate mesh with our interactions extending across many international boundaries.

With the emphasis on "international", it is most fortunate that the organizers have been able to find a special place like Cannes, the city of the International Film Festival, as the site for this important event.

To assemble this year's program, the Technical Program Committee reviewed nearly 600 abstracts. Emphasizing the truly international character of the Symposium, this year over 50% of the contributed papers were submitted by authors from outside the U.S., representing contributions from a total of 35 countries. Thirty invited papers will highlight our oral and poster sessions with 26 from non-U.S. authors.

On behalf of the Technical Program Committee for the 1994 IEEE Ultrasonics Symposium, I extend to you an invitation for you and your colleagues to come to Cannes, France, to partake and participate in all elements of the Symposium activities.

A bientot a Cannes!

Bernhard R. Tittmann
Technical Program Chair

CANNES, THE HOST CITY

Cannes is the most brilliant resort of the French Riviera, an area called in French: "Côte d'Azur" (the name was invented by a French poet in 1887). Therefore, it is impossible to describe Cannes without referring to this very particular region.

We may wonder why this region has such a strong appeal to people all over the world. It has been only recently politically unified (in 1860). Even though it enjoys a pleasant and mild climate, it is easy to find warmer or drier ones; even though its mountains are high and jagged, more impressive ones can be found; even though its luxury hotels are numerous, other grander ones adorn other magnificent coast lines.

The reason is to be found in something impalpable although real: the "Côte d'Azur" is the landmark in human history of the birth of a new civilization: *the civilization of leisure*. The "Côte d'Azur" invented and created a new industry, a new way

of achieving economic growth: *tourism*.. Nowadays, of course, the industry of tourism is widely spread all over the planet and sumptuous hotels and grand tours are being offered in many areas. But here, 150 years ago, with the first fortunes of the *burgeoning capitalism*, appeared a way of life turned towards leisure, an economy entirely devoted to this activity and which transformed in less than 40 years one of the poorest regions of Europe into a place considered as the emblem of luxury and incredible wealth.

The region and its climate

The “Côte d’Azur” is a strip of coastal land which stretches from Menton near the Italian border to Cannes, near the Esterel Mountains. It is about 60 km long (some extend the appellation up to Saint Tropez and even further to Toulon, i.e. 100 km more). The Cannes-Menton strip has a population of over 1,000,000. The principal cities are: Nice (400,000), Antibes (70,000), Cannes (70,000), Grasse (40,000), and Monaco (40,000). Cannes is about 30 km from Nice. The main activities are tourism, arts & crafts, horticulture, perfume (in Grasse), and electronics. Sophia Antipolis, the biggest industrial park in Europe, has been created in a area located between Antibes and Valbonne.

The region is served by Nice International Airport, the second largest in France. The harbor of Nice is connected to Corsica by ferries.

The area enjoys exceptionally mild weather. In spite of a northern latitude (the same as Boston) the average temperature in January is 8°C with a midday average of 13°C. In winter, days are clear and bright, but nights are rather cold. In summertime, temperatures remain moderate with an average of 22°C. Peak temperatures seldom exceed 33°C during the day. The mountains protect the area from the cold winds from the north during winter and the sea moderates the summer temperature.

Moreover, fresh water is plentiful. The annual amount of rainfall exceeds that of Paris or London. It rains heavily but shortly in autumn and in spring, but the sun is generous: 2725 hours of annual sunshine as compared to 1465 in London. At the beginning of November the average daytime temperature is 18°C. Most of the time the heavy autumn rainfalls are over. Unfortunately, some years they may last till beyond mid November.

The region enjoys a quite unique geographical variety. On the eastern end, the young and high mountain ranges of the Alps, (their snow-capped summits 3300 m high can be seen from Cannes) plunge down into the sea between Nice and Menton and offer breath taking views. Toward the western side is the porphyry pink escarpment of the ancient mounts called the Esterel whose jagged profile gives its character to the town of Cannes. In between, woody hillsides and plains alternate. Within a short distance, the landscape changes drastically.

History

Originally, this area was inhabited by the Ligurians. Circa 400 B.C. some Greek seafarers from Phoecea in Asia Minor founded Nikkia (Nice) and Antipolis (Antibes). From their small settlements they traded with the locals. Then, during the first century B.C., the Romans arrived, won the battle of “la Turbie” and created a Roman province organized with highways and luxurious “villas”.

The fall of the Roman empire did not push the region into decline. On the contrary, it gained an unexpected intellectual prestige through a monastery located on the Lerins Islands just in front of Cannes. There, Saint Honorat created a renowned Christian monastery in a Europe dominated by the barbarians. It is there that Saint Patrick came to retire and learn before converting Ireland, and the rules of the Benedictine order were established.

Decline came in the 9th century when the Arabs, then called the Sarrazins, invaded parts of the Mediterranean shores and became masters of the sea. They raided and plundered coastal villages, terrorized the population and took the inhabitants away to be sold as slaves in Arabic countries. The economy changed completely because the natives had to avoid the dangerous sea shores and built their dwellings on steep hill tops. These perched and fortified villages are still to be seen nowadays: Saint Paul de Vence, Eze, Cagnes sur Mer, Gourdon, Peille. The proximity of the mountains overlooking the sea which is now one of the greatest charms turned out to be a major hindrance as it meant the impossibility of fleeing from maritime danger and the difficulty of building roads. The main trans-European highways crossed the center of the Alps through its paths avoiding the region.

For over 1000 years the region outside of the main trading flow remained poor and unattractive. It transformed itself into a border area and eventually the Esterel became a highwayman haunt. This poverty lasted even after the decline of the Arabic influence after the 15th century. At the end of this period, the Nice county was a part of the Piedmont Sardinia kingdom and Cannes and Antibes were part of the French province of Provence.

The new golden era: in the middle of the 19th century, the region invented the tourist industry.

The brilliant modern history started just after the end of the Napoleonic wars in which the region played an active role. Three main reasons can be given to explain this metamorphosis:

- The evolution of the European economy was the the start of the new capitalism. The riches that were being accumulated enabled an ever growing number of people to enjoy leisure. It began of course with the wealthiest - the English gentry and the reigning royal families. Then it reached the upper middle class and spread progressively to all social classes after the introduction of paid vacations after World War II.
- In 1860, the county of Nice joined France, effectively reunifying the entire country.. This gave the region its unity with a reliable administrative organization able to guarantee security to all famous visitors.
- The railway crossed the Esterel and reached Cannes in 1863 and then Nice in 1864. Henceforth, Nice was only within 21 hours from Paris!

From this time, all conditions were in place to enable wealthy Europeans to come and enjoy the charm of this area.

In 1834, Lord Brougham, Chancellor of England, “discovered” the bay of Cannes and from then on spent all the winters there until his death in 1868. He soon persuaded friends fit for his company to do the same and so attracted many English and Russian winter residents. When he died, the modest fishing village had grown into a small town of over 4000 inhabitants.

At the same times other wealthy English people settled in Nice for the winter and developed the "Promenade des Anglais". In 1866, Monte Carlo opened its casino which turned the poor "Principauté de Monaco" into a thriving gambling capital.

In winter, all of Europe rushed up. Dream villas and wonderfully styled "follies", as well as dubious ones, sprang up everywhere among lush gardens. Many magnificent "fêtes" were given. The eccentric Russian aristocracy came in large numbers and gave to some Nice districts a highly pronounced Slavic look. In 1880, the French writer Maupassant, walking by the Croisette in Cannes, exclaimed: "I just met three crowned princes, one after the other".

At the end of the 19th century, building grand luxury hotels became the fashion. First the Carlton was erected, followed by many more along the sea front such as the Negresco and the Rhul in Nice, the Eden Roc at Cap d'Antibes and... the Martinez in 1922.

Art is part and parcel of leisure. Therefore, artists settled down in large numbers. Writers included Mérimée, Maupassant, Maugham, Colette, Fitzgerald, Green. However, painters expressed their joy of living in the region best. Renoir settled down in Cagnes sur Mer at the beginning of the century, bringing with him the Impressionists. In the twenties, Van Dongen was in Cannes, Léger in Biot, H. Matisse in Nice. After World War II Picasso stayed in Antibes, then settled in Vallauris and finally in Mougins. Chagall painted in Vence, Miro in Saint Paul de Vence, de Stael and Hartung in Antibes.

Then, the 7th art arrived. In 1946, the first Cannes Film Festival was held and brought to the Croisette the greatest films stars with their glamour and eccentricity, as well as crowds of nobodies dreaming of rising to stardom.

Nowadays

The tourist industry still occupies a very important place in the local economy. It is now more active in summertime; people come for the sea and sunbathing. The competition with other faraway tourist countries is more severe as they can be easily reached by modern transportation.

The region is adapting itself in developing a new economy based on high technology. Large electronics companies were set up here: IBM opened its European Research Center, Texas Instruments, Digital Equipment, Thomson have been running big plants here for two decades.

The region is also adapting itself by developing a new form of tourism, the so-called business tourism with numerous conventions and exhibitions being held. Our Symposium is a clear demonstration.

Therefore the "Côte d'Azur" is ready for the 21st century.

Charles Maerfeld

Local Arrangements Chair

SHORT COURSES AND SYMPOSIUM INFORMATION

The IEEE Ultrasonics, Ferroelectrics and Frequency Control Society presents:

1. Six continuing education SHORT COURSES — Tuesday, November 1, 1994

2. IEEE 1994 INTERNATIONAL ULTRASONICS SYMPOSIUM — Wednesday-Friday, November 2-4, 1994

at Hotel Martinez, 73, La Croisette, 06406 Cannes Cedex BP 142, France. Tel. (33) 92 98 74 10, Fax. (33) 93 39 87 94.

Hotel Martinez is located in a commanding position on La Croisette overlooking the Mediterranean. It is just 30 minutes from Nice Airport, an hour from St. Tropez, and 15 minutes from Antibes. The hotel occupies a central position in Cannes, close to fine shopping and the Palais des Festivals.

IMPORTANT DEADLINES

Hotel Reservations	October 1, 1994
Advance Registration	
Short Courses	October 1, 1994
Symposium	October 1, 1994
Social Program	October 1, 1994
Special Audio-Visual Requirements	October 18, 1994

HOTEL RESERVATIONS

Le Hotel Martinez has reserved a block of rooms at special rates for Symposium attendees. To secure a room reservation contact the hotel directly. **Reservations must be received by the hotel by October 1, 1994.** Please reserve early to ensure availability. A one night deposit by check or credit card guarantee is required. The following special rates have been made available to attendees:

Single, mountain view:	620 FF
Double, mountain view:	720 FF
Single, sea view	720 FF
Double, sea view	820 FF

Please note that these rates are slightly higher than originally listed in the Call for Papers but include Continental Breakfast, VAT and gratuities.

Reservations can be made by telephone by calling (33) 92 98 74 10. You must specify "IEEE Ultrasonics Symposium" to obtain the special rates for the Short Courses and the Symposium. For those who want to spend an extra couple of days in Cannes, the special rates will also apply the weekends before and after the Symposium.

MESSAGES

Messages may be left for attendees and companions at the Registration Desk through Le Hotel Martinez telephone, (33) 92 98 73 00 or Fax. (33) 93 39 67 82. There will be a message board near the registration desk. Please note the registration desk hours below.

TRANSPORTATION

Cannes and the Hotel Martinez are easily reached by air, train or car.

By Air: Nice airport is located 30 km from Cannes. Daily nonstop flight by major airlines connect Nice with more than 40 major world cities, including Paris, London, Amsterdam and New York. From the U.S. you can fly non-stop from New York to Nice or connect through Paris, London, or Amster-

dam. There is at least one flight every hour to Nice from Paris Orly and eight (8) per day from Paris Charles de Gaulle. All major car rental agencies have offices at the airport.

There is also a shuttle bus from Nice Airport to the railway station at Cannes with a fare of 70 FF. A special arrangement has been made for conference attendees: if you request it, the bus driver will drop you off at the Hotel Martinez with no extra charge. Signs will lead you to the shuttle terminal at the airport. Be sure to take the shuttle marked "Cannes par Autoroute".

By Train: TGV lines run from Paris to Cannes. You must get off at the Cannes railway station, which is located 500 m from the Martinez. It is recommended that attendees from outside Europe who want to travel by train should purchase a Eurailpass prior to their trips.

By Car: Drive to the city center down the "Boulevard de la Croisette", which is the avenue along the seafront. Hotel Martinez is located between the Festival Palace and the Palm Beach. The hotel will provide valet parking.

SHORT COURSES REGISTRATION AND FEES

The following six short courses are scheduled for Tuesday, November 1, 1994:

Course 1: 8:00 hr to 12:00 hr, Salon des Peintres.
 "Composite Piezoelectric Materials for Acoustic Imaging Transducers"
 Instructor: Wallace A. Smith, Office of Naval Research.

Course 2: 13:00 hr to 17:00 hr, Salon des Peintres.
 "Medical Imaging"
 Instructor: Tom Shoup, Imaging Systems Division, Hewlett-Packard Company.

Course 3: 18:00 hr to 22:00 hr, Salon des Peintres.
 "Piezoelectric Ceramics: Properties, Measurement Techniques, and Applications"
 Instructor: T. Raj Gururaja, Hewlett-Packard Company.

Course 4: 8:00 hr to 12:00 hr, Salon Lerins.
 "SAW Devices for Public Communications Systems"
 Instructor: Gerd Riha, Siemens Matsushita Components.

Course 5: 13:00 hr to 17:00 hr, Salon Lerins.
 "Bulk Acoustic Waves: Fundamentals, Applications, and Modeling"
 Instructor: A. R. Baghai-Wadji, Technische Universitat Wien.

Course 6: 18:00 hr to 22:00 hr, Salon Lerins.
 "Fundamentals of the Finite Element Method for Piezoelectric Resonators"
 Instructor: Yook-Kong Yong, Rutgers University.

Registration for the short courses is on a first-come, first-serve basis. Registration will be accepted with the fee up to the time of the short courses. However, attendance for each course is limited and the courses may be closed prior to November 1, 1994. We reserve the right to cancel any course due to insuf-

ficient pre-registration. Short course fees for *each course* are as follows:

	Advance Registration	On-Site Registration
IEEE Member	\$ 110.00	\$ 120.00
Nonmember	\$ 140.00	\$ 150.00
Students and retirees	\$ 40.00	\$ 50.00

Advance registration by mail is encouraged.

For advance registration, complete and mail the registration form located in the middle of this program. The Advance Registration Form must be received at LRW Associates by October 1, 1994. *Postmarks do not apply.*

SYMPOSIUM REGISTRATION AND FEES

All Symposium participants and their companions must register and receive badges. The Symposium fee covers all technical sessions, the Wednesday evening reception, and the cost of one copy of the 1994 Symposium Proceedings. There is no companion registration fee. Tours are priced separately. Registration fees are as follows:

	Advance Registration	On-Site Registration
IEEE Members	\$ 285.00	\$ 315.00
Nonmembers	\$ 360.00	\$ 395.00
Students	\$ 25.00	\$ 40.00
Life Members	No charge	No charge

Advance registration by mail is encouraged.

For advance registration, complete and mail the registration form in the middle of this program. This form, along with a check or money order in US currency only, must be received at LRW Associates by October 1, 1994. *Postmarks do not apply.* No purchase orders or letters of credit will be accepted. The use of credit cards is highly recommended.

There will be no one day registration at the Symposium.

UFFC MEMBERSHIP ENROLLMENT

Upon registration, all current IEEE members may enroll — **Free of Charge** — in the Ultrasonics, Ferroelectrics and Frequency Control (UFFC) Society for 1995, provided they were not already a UFFC member in 1994. All enrollments will be effective January 1, 1995, and new members will receive all issues of the UFFC Transactions and the Newsletter published in 1995. An IEEE/UFFC membership booth will also be located in the exhibit area where additional information regarding IEEE membership.

EXHIBITS

The 1994 Ultrasonics Exhibition will be held in the Salon Bermudes and the Salon Bahamas. Several companies will display their products and their representatives will be on hand to meet with symposium registrants.

Companies with space reserved as of June 15, 1994 include:

- Intec Research Company
- Sawyer Research Products
- Ultra Optec, Inc
- Ritec, Inc
- Staveley Sensors, Inc
- Valpey Fisher

Additional information regarding exhibits may be obtained

INVITED PAPERS

The IEEE 1994 Ultrasonics Symposium Technical Program Committee has invited the following individuals to highlight new, emerging and outstanding technical aspects of Ultrasonics phenomena:

"Material Characterization and Resonant Scattering by Cylinders" — **M. Talmant and H. Batard**, University of Paris VII, France

"Power Ceramic Materials for Piezocomposite Hydrophone" — **L. Eyraud**, INSA Laboratoire de Genie Electrique et Ferroelectricite, Villeurbanne, France

"New Technologies in High-Power Ultrasonic Industrial Applications" — **J.A. Gallego-Juarez**, Instituto de Acustica, Spain

"Microbubble Based Echo Enhancing Agents - Basic Characteristics, Clinical Diagnostic Value and Potential Impact on Technology" — **R. Schlieff**, Clinical Development Ultrasound and Magnetic Resonance Contrast Media, Shering AG, Berlin, Germany

"Recent Advances in Non-Contact and Air-Coupled Transducers" — **D.A. Hutchins**, University of Warwick, Department of Engineering, Coventry, England

"Ultrasonic Propagation in Quasicrystals and Quasiperiodic Structures" — **A. Zarembowitch**, Universite Pierre & Marie Curie, Paris, France

"Chaotic Behavior in Acoustic Cavitation" — **W. Lauterborn**, Technical University of Darmstadt, Darmstadt, Germany

"An Acoustic Mode Method for the Description of Scattering and Mode Conversion Processes" — **R. Briers and O. Leroy**, Interdisciplinary Research Center, University of Loewen, Belgium

"Ultrasonic Sensors in Air" — **V. Magori**, Siemens Ag, Munich, Germany

"Review of SAW Oscillator Performance" — **G. Montress**, Raytheon Research Division, Lexington, MA

"Acoustic-Wave Based Monolithic Microsensors" — **M.J. Vellekoop**, Delft University of Technology, Electronic Instrumentation Lab, Delft, The Netherlands

"Net Shape Piezoelectric Materials" — **L. Bowen**, Materials Systems Inc., Littleton, MA

"Quantitative Imaging of Transient Acoustic Fields by Optical Interferometry" — **D. Royer**, Laboratoire Ondes et Acoustique, University of Paris VII, Paris, France

"Phase Aberration Correction With Time Reversal Mirrors" — **M. Fink**, Laboratoire Ondes et Acoustique, Paris, France

"GHz Range SAW Devices" — **K. Yamanouchi**, Tohoku University, Research Institute of Electrical Communication, Sendai, Japan

"NDT Ultrasonic Techniques in Nuclear Industries" — **P. Benoist**, Service des Techniques Avancees, Centre d' Etude Nucleaires de Saclay Yvette, France

"Review of Models for Low-Loss Filter Design and Applications" — **C. Ruppel**, Siemens AG, Corporate Research and Development, Munich, Germany

"Phononic Localization in Complex Structures" — **A. Alippi**, Istituto di Acustica-CNR, Rome, Italy

"Ultrasonic Characterization of Brittle Damage in Rocks" — **C.M. Sayers**, Schlumberger Cambridge Research, Cambridge, England

"Scanning Tunneling Microscopy on Surface Acoustic Wave Fields" — **H.-J. Frohlich**, Paul-Drude-Institut fur Festkorperelektronik, Berlin, Germany

"Very High Frequency EMAT for Resonant Measurements" — **K. Kawashima**, Tokyo Engineering University, Tokyo, Japan

"Quantitative Ultrasonic Tissue Characterization of Vascular Pathology" — **S. Wickline**, Jewish Hospital Cardiology, St. Louis, MO

"Spectral Theory for IDTs" — **E. Danicki**, Polish Academy of Sciences, Warsaw, Poland

"Applications of 3D Medical Imaging" — **B. Lees**, Middlesex Hospital, Department of Radiology, London, England

"Finite Amplitude Ultrasound Beams" — **J. Naze-Tjøtta and Sigr Tjøtta**, University of Bergen, Department of Physics, Bergen, Norway

"Nonlinear Rayleigh Waves" — **Z. Zabolotskaya**, University of Texas at Austin, Department of Mechanical Engineering, Austin, TX

"Collinear Acousto-Optic Devices and Applications" — **V.I. Pustovoit**, Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russia

"Frequency Trimming of SAW Devices" — **T. Uno**, Kanagawa Institute of Technology, Department of Electronics & Electrical Engineering, Kanagawa, Japan

"An Analysis of Russian and Worldwide SAW Literature" — **V.G. Mozhaev**, Moscow State University, Moscow, Russia

by contacting LRW Associates, 1218 Balfour Drive, Arnold, MD 21012, Tel: (301) 647-1591.

In addition to acknowledging the support of the exhibitors listed above, the Symposium Steering Committee would like to acknowledge the support of Thomson Microsonics for supplying the Symposium Registration Bags.

COMPANION SOCIAL PROGRAM

Wednesday, November 2, 1994 — Grasse and Cannes

13:30 hr - 17:00 hr. Price: \$20.00

Deluxe Motorcoach with English-speaking Guide

Today's tour starts with a trip to Grasse, the world center of the perfume industry, where we will visit the Fragonard perfume factory and see how perfume is made. We will also tour the city and learn of its history, including that of Admiral de Grass, who became famous during the American Revolution. We will then return to Cannes for a walking tour of the city's most commercial street — Rue d'Antibes. The tour will end at the Hotel Martinez.

Thursday, November 3, 1994 — Antibes and Saint Paul de Vence

9:00 hr - 16:00 hr. Price: \$50.00

Deluxe Motorcoach with English-speaking Guide

Today's tour will take us to Antibes where we will walk through the old town, visit its open air market and the Picasso Museum. This museum is housed in the former Chateau of the Grimaldi family. Picasso spent several months at the chateau during 1946, left the entire production of this period for permanent rent, and then added 200 ceramics which were later Produced in Vallauris.

A three-course lunch is included in the tour price and will include salad, fish provençal, dessert and wine.

At 13:30 hr we will leave Antibes for Saint Paul de Vence. This medieval village, which looks like a long ship made of stones fixed atop a wave, became an artist's center in the 1920's, with artists such as Renoir and Modigliani. After World War II Picasso, Matisse, Chagall (his tomb is in the village graveyard), Calder, and Miro came to the village, which now has many art galleries and artisan's shops on its narrow streets. The Maeght Foundation, one of the most important museums of modern art in France, is located in Saint Paul.

We will return to the Hotel Martinez by 16:00 hr.

Friday, November 4, 1994 — Villefranche and Saint Jean-Cap Ferrat

9:00 hr - 12:30 hr. Price: \$20.00

Deluxe Motorcoach with English-speaking Guide

Today's tour will take us to Villefranche sur Mer, famous for its harbor, citadel and Cocteau Chapel. The citadel was build in the 16th Century by the Dukes of Savoy, who ruled the county of Nice. It now houses the Town Hall, Chapel Saint Elme, and several museums. The frescos at the Cocteau Chapel, named after the artist in 1957, depict laic and religious scenes, particularly those of Saint Peter's life.

At 11:00 hr we will continue to Saint Jean Cap Ferrat peninsula. We will visit the Rothschild Foundation, a beautiful villa built at the turn of the century which holds the art

collection of Beatrice de Rothschild. This collection, which now belongs to the Academy of Fine Arts, includes tapestries, furniture, china, and paintings from the 14th to 19th centuries. There are also magnificent gardens on the grounds.

We will return to Cannes at 12:30 hr.

Saturday, November 5, 1994 — Nice, Eze, and Monaco

9:00 hr - 16:30 hr. Price: Adults \$50.00, Children \$40.00

Deluxe Motorcoach with English-speaking Guide

For those attendees and their companions/family who plan to stay over the weekend, an all day trip has been arranged for Saturday. The first stop of the tour will be in Nice at the Chagall museum. The permanent collection includes paintings, stained glass windows, mosaics, tapestries, engravings, lithographs, and ceramics. At 11:00 hr we will visit the old town, including the Cours Saleya and the Flower Market. Lunch at Restaurant "La Feneira" in the old town is included in the tour.

We will depart Nice at 13:30 hr to visit Eze, a medieval village perched like an eagle's nest on the rocks 427 meters above sea level. It was founded in 350 BC and later fortified against Saracen pirates, but the citadel was pulled down during the reign of Louis XIV. We will visit the town, now an artist center, with its carefully restored houses. From nearly every street corner you will see magnificent views of the mountains and the sea.

At 14:30 hr we will depart for Monaco, where we will tour the old town, pass by the Oceanographic Museum (made famous by Jacques Cousteau), and walk through the St. Martin Gardens to St. Nicolas Cathedral. Here Princes and Princesses of Monaco, including Princess Grace, are buried. The tour will then continue to the Palace.

The tour will return to Cannes at 16:30 hr.

EVENING SOCIAL EVENTS

Wednesday, November 2: 17:30 hr - 19:30 hr — Social Gathering

Enjoy our Cocktail Party in the Salon Riviera. Entertainment will be provide by a folkloric singing and dancing group from Provence. Hors d'oeuvres will be served. For those who prefer to have a formal dinner after the cocktail party, the Social will end in time for you to plan dinner at one of the many fine restaurants in Cannes. All attendees and companions should wear their badges to gain entrance to the cocktail party.

Thursday, November 3: 18:30 hr - 22:30 hr —Evening Cruise, \$60.00

A very special event is planned for tonight. We have reserved a luxury yacht which will cruise along the Bay of Cannes. A gourmet dinner will be served on board. We will approach the Isle St. Margerite with its illuminated 17th century fort. The famous man with the iron mask was interned here. Departure will be from the wharf just next to the Palais de Festival. It is within walking distance but a shuttle bus will be available starting at 18:00 hr. Attendance is strictly limited to 200 on a first come first serve basis, so be sure to reserve your tickets with your advance registration.

VOLUNTEERS

If you wish to assist in the organization of any of the future Symposia or want to be considered for membership in one of the many IEEE Ultrasonics, Ferroelectrics and Frequency Control Society subcommittees, please contact any of the

Symposium organizers or Society Officers listed in this booklet or send a note to: Harry L. Salvo, UFFC President, Westinghouse Electric Corporation, Electronic Systems Group, Severna Park, Maryland 21146; Tel. (410) 765-4290; Fax. (410) 765-7370.

IEEE 1994 INTERNATIONAL ULTRASONICS SYMPOSIUM TECHNICAL PROGRAM COMMITTEE

TECHNICAL PROGRAM CHAIR

Bernhard R. Tittmann *The Pennsylvania State University*

GROUP 1

Katherine Ferrara *Riverside Research Institute*
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Stuart Foster *University of Toronto*
Jean-Francois Gelly *Thomson Microsonics*
Gerard Gimenez *Institute National; des Sciences Appliquées*
James F. Greenleaf *Mayo Clinic*
Masao Ide *Musashi Institute of Technology*
Reinhard Lerch *University of Linz*
James G. Miller *Washington University*
William D. O'Brien, Jr. *University of Illinois*
Kevin J. Parker *University of Rochester*
Helen F. Routh *Advanced Technology Laboratories*
Mark E. Schafer *Sonic Technologies, Inc.*
Thomas Shoup *Hewlett-Packard*
Kirk Shung *The Pennsylvania State University*
Steven Smith *Duke University*
Wallace Smith *Office of Naval Research*
Roger H. Tancrell *Consultant*
Kai Thomenius *Interspec, Inc.*

GROUP 2

Eric S. Furgason *Purdue University*
Vice Chair
George Alers *National Institute of Standards & Technology*
Richard L. Baer *Hewlett-Packard Laboratories*
Narendra K. Batra *Naval Research Laboratory*
Gerald V. Blessing *National Institute of Standards & Technology*
Peter Cawley *Imperial College*
David Cheeke *Concordia University*
Patrick Johnston *NASA Langley Research Center*
Lawrence W. Kessler *Sonoscan, Inc.*
Doron Kishoni *The College of William & Mary*
B.T. Khuri-Yakub *Stanford University*
M. Edward Motamedi *Rockwell Int'l Science Center*
Bernard Nouailhas *Electricité de France*
Emmanuel P. Papadakis *Iowa State University*
Gerard J. Quentin *Universite Paris*
Daniel Royer *Lab. Ondes et Acoustique ESPCI*
Jafar Saniie *Illinois Institute of Technology*
Jeffrey S. Schoenwald *Rockwell Int'l Science Center*
Tony Sinclair *University of Toronto*
Bernhard R. Tittmann *The Pennsylvania State University*
Jiromaru Tsujino *Kanagawa University*
James W. Wagner *Johns Hopkins University*
Donald E. Yuhas *Consultant*
Manell Zakharia *LASSO/ICPI, Lyon*

GROUP 3

Arthur Ballato *U.S. Army Research Laboratory*
Vice Chair
John D. Adam *Westinghouse Electric Corp.*
Adriano Alippi *Istituto Di Acustica-CNR*
Raymond J. Besson *Ecole Nationale Supérieure de Mécanique et des Microtechniques*
Mack A. Breazeale *University of Mississippi*
Jan Brown *Consultant*
Helge E. Engan *Norwegian Inst. of Tech.*
Gerald W. Farnell *McGill University*
Brage Golding *Michigan State University*
David L. Hecht *Xerox Corporation*
Kenneth Lakin *TFR Technologies, Inc.*
Oswald Leroy *K.U.L. Campus Kortrijk*
Moises Levy *Univ. of Wisconsin - Milwaukee*
Dennis R. Pape *Photonic Systems Incorporated*
Martine Rousseau *Université Pierre et Marie Curie*
Harry L. Salvo, Jr. *Westinghouse Electric Corp.*
Susan C. Schneider *Marquette University*
Bikash K. Sinha *Schlumberger-Doll Research Ctr.*
Jan G. Smits *Boston University*
Richard Stacey *City University London*
Chen S. Tsai *University of California - Irvine*
John R. Vig *U.S. Army Research Laboratory*
Yook-Kong Yong *Rutgers University*

GROUP 4

Gary K. Montress *Raytheon Research Division*
Vice Chair
Eric L. Adler *McGill University*
Kushal Bhattacharjee *TRW*
Curt A. Flory *Hewlett-Packard*
Ed Garber *TRW*
Thomas W. Grudkowski *United Technologies Research Ctr.*
Daniel Hauden *Centre National de la Recherche Scientifique*
Brent Horine *SAWTEK, Inc.*
Janpu Hou *AlliedSignal Inc.*
William D. Hunt *Georgia Institute of Technology*
Shen Jen *Hartmann Research Incorporated*
John A. Kosinski *U.S. Army Research Laboratory*
Charles Maerfeld *Thomson Microsonics*
Donald C. Malocha *University of Central Florida*
David Penunuri *Motorola, Inc.*
Victor Plessky *Advanced SAW Products SA*
Bob R. Potter *RF Monolithics*
A. Ronnekleiv *Norwegian Institute of Technology*
Clemens C. W. Ruppel *Siemens AG*
Tadashi Shiosaki *Kyoto University*
Adrian Venema *Delft University of Technology*
Peter V. Wright *RF Monolithics*
Kazuhiko Yamanouchi *Tohoku University*

IEEE 1994 INTERNATIONAL ULTRASONICS SYMPOSIUM ORGANIZING COMMITTEE

GENERAL CO-CHAIR

Gerard Quentin,
Universite Paris VII



Gerard Quentin



Herman van de Vaart

GENERAL CO-CHAIR

Herman van de Vaart,
AlliedSignal Inc

TECHNICAL CHAIR

Bernhard R. Tittmann,
The Pennsylvania State
University



Bernhard Tittmann



Madjid A. Belkerdid



Charles Maerfeld

FINANCE

Madjid A. Belkerdid,
University of Central Florida

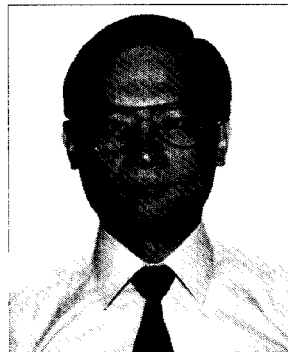
LOCAL

ARRANGEMENTS

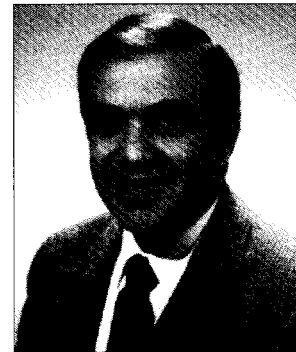
Charles Maerfeld,
Thomson Microsonics

SHORT COURSES

Janpu Hou,
AlliedSignal Inc



Janpu Hou



Moisés Levy

PROCEEDINGS EDITOR

Moises Levy,
University of Wisconsin-
Milwaukee

CONFERENCE MANAGEMENT

LRW Associates

COMPANION PROGRAM

Emma Maerfeld

GENERAL CO-CHAIR — Gerard J. Quentin

Gerard J. Quentin was born in Paris, France, in 1939. He received his M. S. degree in 1959, 3rd Cycle Thesis, 1962, and These d'Etat, 1967, all from the University of Paris. He was Master Assistant 1962-1968; Master of Conference 1969-1971; and Professor 1971. He is currently Professor at Universiti Paris 7 — Denis Diderot.

He began his scientific work on chemisorption in Tellurium, then moved to acoustoelectric phenomena in Tellurium (Thesis). Dr. Quentin was the first to measure the whole set of elastic constants and the d_{11} piezoelectric constant of this material. He then studied acoustoelectric phenomena in both extrinsic and intrinsic Tellurium. He left the field of Solid State Physics in 1971 to devote himself to the study of Ultrasonic Scattering both in Nondestructive Evaluation and in Underwater Acoustics. He studied scattering of bulk ultrasonic waves from random and periodic rough surfaces, Rayleigh waves from surface cracks, bulk waves from cylinders, spheres and shells in water. Part of this work specialized in the propagation of surface, interface and plate waves: Rayleigh, Lamb, Scholte-Stoneley, Franz, Whispering Gallery.... This team was one of the first in Europe to develop Ultrasonic Spectroscopy. His current work includes: ultrasonic characterization of plane multilayered media, laser-ultrasonics, scattering from multilayered shells, inverse problem resolution, Artificial Intelligence, and theoretical studies of evanescent ultrasonic waves.

Professor Quentin has worked in numerous other laboratories (University of Tennessee, University College, Rockwell, Ohio State, Catholic University of America, I. G. M., Leuven Universiteit,...). He was Head of the "Optical Ultrasonics" team of the Solid-State Physics Group (University Paris 7). He has co-authored more than 150 publications (90 in refereed journals), more than 40 invited papers, and two patents. Presently he is Head of the Acoustical Society of France.

He presented his first invited paper at the IEEE Ultrasonics Symposium in 1965, the last one in 1990. He has been a Technical Program member since 1989, and is AdCom ex-officio as General Chair of the 1994 IEEE Ultrasonic Symposium.

Professor Quentin is married, has two daughters and four grandchildren.

GENERAL CO-CHAIR — Herman van de Vaart

Herman van de Vaart was born in Arnhem, The Netherlands. He received the Ingenieurs Degree in Applied Physics in 1958 and the Ph.D. Degree in Technical Sciences in 1969, both from the University of Technology, Delft, The Netherlands.

From 1958 to 1960 he served in the Dutch Army Signal Corps as a Radar Officer. He came to the U.S. in 1960 and joined Transatron Electronic Corporation in Wakefield, Massachusetts, where he worked on diffusion processes in silicon. In 1962 he joined the Sperry Research Center in Sudbury, Massachusetts, where he did research on magneto-elastic and magnetostatic waves and non-linear effects in ferrites and more recently on surface acoustic wave devices. In 1973 he became the Manager of the Signal Processing Department, and from 1980 until the Sperry Corporation closed the Research Center at the end of 1983, he was Director of the Applied

Physics Laboratory. During 1984 he was with SAWTEK in Orlando, Florida, as Director of Research. In 1985 he joined AlliedSignal Inc. in Morristown, New Jersey as Manager of the Electronic and Optical Physics Program, now the Optical Devices Program, Corporate Research and Technology.

Dr. van de Vaart has been active in the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society since 1970. He was Chairman of the Awards Committee (1973-1980), Secretary-Treasurer (1980-1983) and President (1984-1985) of the Society, and has served as Chairman of the Finance and Operations Committee since 1986. He has been a member of the Ultrasonics Symposium Technical Program Committee (1976-1989), Chairman of that Committee in 1980 and served as General Chairman of the 1989 Symposium. From 1986 till 1990 he was also a member of the IEEE Technical Activities Board Finance Committee. He is a Fellow of the IEEE and was a recipient of the IEEE Centennial Medal in 1984.

Herman's free time is occupied nursing his investments, working on the house and in the garden. He is married to Tania Skrinnikov, well known to many IEEE volunteers since she is the Director of Business Administration of the IEEE Technical Activities Department. Together, they enjoy traveling and have been adopted by three cats.

TECHNICAL CHAIR — Bernhard Tittmann

Dr. Tittmann is Schell Professor of Engineering, Department of Engineering Science and Mechanics at Penn State University. He received a B.S. in Physics from George Washington University and a Ph.D., Physics, from UCLA in 1965. Dr. Tittmann has a broad background in Physical Acoustics gained during his tenure of nearly 25 years at the Science Center of Rockwell International where he was manager of the material characterization department. He is probably best known for his work in geophysical ultrasonics, NDE and acoustic sensors. He investigated and explained the dramatic reduction of anelastic attenuation of lunar return samples when subjected to the lunar environment. His main interest is in material characterization, using surface acoustic wave dispersion, internal friction, ultrasonic attenuation, and diffraction to characterize polymers, ceramics and metal alloys. He is currently engaged in studies on fiber reinforced composites. He has about 200 publications and is a member of the Acoustical Society of America, the America Physical Society and Fellow of the Institute of Electrical and Electronics Engineers.

FINANCE — Madjid A. Belkerdid

Madjid A. Belkerdid is an Associate Professor in the Department of Electrical and Computer Engineering at the University of Central Florida (UCF). He received his Ph.D., M.S. and B.S. degrees all in electrical engineering from the University of Central Florida in 1984, 1980, and 1978, respectively. Dr. Belkerdid was an Electronic design engineer at QWIP system, a subsidiary of EXXON corporation from 1978 to 1979. His research interests include Communication systems, RF Systems, Spread Spectrum communications, and Surface Acoustic Wave Devices and systems. Dr. Belkerdid has over 60 publications in journal and conference proceedings. He is a consultant to various local, national, and international private

and government agencies. His research funding sources include industry and government in the area of RF systems, Spread Spectrum communications, and SAW devices and systems. Dr. Belkerdid has introduced and taught several undergraduate and graduate courses in fiber optics, digital and analog communication, and RF systems. He is a registered professional engineer in Florida and a Senior member of IEEE. He is an associate editor of the IEEE Transactions on UFFC, systems Applications, as well as an editorial board member of the RF design magazine. Dr. Belkerdid was the finance chairman of the IEEE 1991 Ultrasonics symposium that was held in Orlando, FL, he is the general chairman of the IEEE NTC'95 conference that will be held in May 1995 in Orlando, Florida. He received the Excellence in Undergraduate Teaching Award, ECE Department, in 1988, and 1991. He also received the 1994 IEEE Orlando Section Outstanding Educator Award or his contributions to the communications curriculum in the ECE department at UCF. Dr. Belkerdid is a member of Alpha Pi Mu, Eta Kappa Nu, and Tau Beta Pi.

LOCAL ARRANGEMENTS — Charles Maerfeld

Charles Maerfeld was born in Paris in 1940. He received his Engineer grade at the Ecole Supérieure de Physique et Chimie Industrielles de Paris and his Ph.D. at the University of Nice working on Multistrip Couplers. His early contributions beginning in 1969 were on surface acoustic waves in the studies of propagation of SAW on layered media, Beam Width Compressors and Multistrip Couplers, Monolithic Convolvers, and Memory Correlators.

He was head of the Transducer Department of the Sonar Group of THOMPSON CSF from 1976 to 1981. In this field, the most characteristic works were on hydrophones, HF arrays and especially the demonstration of the finite element method impact on array simulation. He was Managing Director of CGR Ultrasonics from 1982 to 1984. CGR Ultrasonics was a THOMPSON CSF subsidiary responsible for the ultrasound scanner product lines within CGR. He was the Managing Director of the DTAS from 1985 to 1989. DTAS is a THOMPSON Department devoted to the R & D, Manufacturing and Sales of both SAW devices and Transducer Arrays and Probes for Ultrasound Medical Scanners. From 1989 to 1993 Dr. Maerfeld was the Managing Director of the Department of ARCEUIL of THOMPSON SINTRA ASM. Presently he is Chairman and CEO of THOMPSON MICROSONICS, a new Company built from the assets of the former DTAS.

Dr. Maerfeld has published more than 35 papers, most of them in IEEE publications. He has written more than 40 patents. His publication on the finite element method received an award from the IEEE Committee for the best paper published in 1981 in the IEEE Transaction on Sonics and Ultrasonics.

He is father of 3 children and the whole family is very fond of down hill skiing (in the Alps Mountains).

SHORT COURSES — Janpu Hou

Janpu Hou was born in Taipei, Taiwan. He received his B.S. degree from Cheng Kung University, and his M.S. and Ph.D. degree in Applied Mechanics from Princeton University, Princeton, New Jersey. His Ph.D. thesis work involved the development

of a theoretical model to study the interaction between acoustic waves and electric fields in piezoelectric crystals.

Since joining Allied-Signal Inc. in Morristown, New Jersey in 1984 he has been involved in the design, fabrication and testing of acoustic wave devices and other RF/Microwave components. He also has been involved in the evaluation of new piezoelectric materials and their application to frequency control and signal processing devices. He is presently a Senior Research Physicist in the Solid State Devices Program and works in the areas of material research and sensor development. He has authored or co-authored sixteen technical publications, and he is a co-inventor on one U.S. patent. He has been a member of the Ultrasonics Symposium Technical Program Committee since 1987, and is a member of the American Society of Test Engineers.

Janpu, his wife Yumei and their sons Dennis and Raymond reside in Bridgewater, New Jersey. He is active in community programs and has been listed in American Leaders in Achievement for contributions to Asian American Community in U.S. by American Biographical Institute. He is the Vice President of the Chinese Institute of Engineers in USA, Greater New York Chapter.

PROCEEDINGS EDITOR — Moisés Levy

Moisés Levy was born in Concepcion, Cirriqui, Republic of Panama, on April 8, 1930. He received a B.S. in Chemistry and an M.S. in Chemical Engineering from Cal Tech in 1952 and 1955, a Ph.D. in Physics from UCLA in 1963. Following industrial, military and academic positions he joined the Physics Department at the University of Wisconsin-Milwaukee as an Associate Professor in 1971 and became a Professor in 1973. He was elected Chairman of the Physics Department from 1975 to 1978.

Moisés has engaged in the ultrasonic investigation of superconducting materials, most recently T_c superconductors. He has used bulk waves to investigate type I and type II superconductors, reentrant ternary compound superconductors, and heavy Fermion superconductors. He has used surface acoustic waves to study several types of superconducting films, such as beta structure films, rocksalt structure films, amorphous films, granular films, and high T_c superconducting films.

Moisés has been associated with the UFFC and its progenitor the Sonics and Ultrasonics Group since 1969. He was the General Chairman of the IEEE Ultrasonics Symposia in Milwaukee in 1974 and in Atlanta in 1983. He was the General Co-Chairman for the IEEE 1990 Ultrasonics Symposium which was held in Hawaii. He has served on the technical program committee of the IEEE Ultrasonics Symposium and as chairman of the nominations committee of the IEEE Group of Sonics and Ultrasonics. He was Associate Editor of the IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control. He is presently co-editor of the *IEEE Ultrasonics Symposium Proceedings*. He is a member of the Acoustical Society of America, a Fellow of the American Physical Society and a senior member of the IEEE. Recently he was one of the recipients of the UWM Foundation/Graduate School Awards for excellence in research.

FREQUENCY CONTROL

Frequency Control Symposium and Tutorials

The 1994 IEEE International Frequency Control Symposium and Tutorial was held from May 31 to June 3, 1994, at the Westin Hotel - Copley Place in Boston, Massachusetts. Approximately one hundred and thirty-five papers were presented. Nearly 50% of the papers were from non-US authors. Sixteen tutorials were presented on Tuesday, May 31. There were 265 attendees from the United States and 90 foreign attendees from 19 different countries.

Approximately eighteen international guests or invited speakers were supported at some level by the Symposium or other sponsors. This level of support was possible due to generous contributions or assistance from NIST, Army Research Laboratory, the International Science Foundation, JPL, HP, Sawyer Research Products, Frequency and Time Systems, Inc., Frequency Electronics, Inc., Piezo Crystal Co., Quartztronic, and Westinghouse. In addition to the supported international guests and invited speakers, seven students also received financial support to attend the symposium.

1994 Award Winners

The following presentations were made at the opening session of the 1994 IEEE International Frequency Control Symposium:

W. G. Cady Award

The W. G. Cady Award was presented to Thomas E. Parker, Raytheon Research Division, "for outstanding contributions to the theory and applications of high-precision SAW oscillators." The award was presented by Arthur Ballato, U. S. Army Research Laboratory.



Dr. Thomas E. Parker accepted W.G. Cady Award from Dr. Arthur Ballato.



Symposium Chairman: John Vig — Publicity/Awards Chair; Raymond Filler — Finance Chair; Gary Johnson — General Chair; Lute Maleki — Technical Program Chair; R. Michael Garvey — Local Arrangements Chair.

I. I. Rabi Award

The I. I. Rabi Award was presented to Jacques Vanier, National Research Council of Canada, "for his contributions to the application of quantum theory to the development of atomic frequency standards, and for his leadership in promoting the whole field and making it widely accessible to students and junior colleagues." The award was presented by Robert Vessot, Harvard-Smithsonian Center for Astrophysics.



Dr. Jacques Vanier accepting I.I. Rabi Award from Dr. Vessot.

C. B. Sawyer Memorial Award

The C. B. Sawyer Memorial Award was presented to Roger W. Ward, Quartz-dyne, Inc., "for technical and industrial contributions to the design and fabrication of quartz crystal resonators." The award was presented by Charles Adams, Hewlett-Packard Company.

In addition an IEEE Fellow award was presented to Tom Parker of Raytheon, by Harry Salvo, the president of the UFFC Society.



Harry Salvo presenting IEEE Fellow Certificate to Tom Parker.



Roger Ward receiving Sawyer Award from Charles Adams.

Frequency Control Standing Committee

The Frequency Control Standing Committee continues to meet three times a year to discuss long-range planning for the Frequency Control Symposium and other issues of interest to the Frequency Control community. A list of committee members is shown below.

- | | |
|----------------|---|
| Harry Salvo | UFFC President |
| Tom Parker | Freq. Cont. Standing Committee Chair
General Chair 1997/1998 |
| John Vig | Proceedings Editor, Gen Chair 1995/1996 |
| Gary Johnson | Present General Chair, 1993/1994 |
| Ray Filler | Past General Chair, 1991/1992
Finance Chair |
| Lute Maleki | Present Technical Program Chair |
| Don Sullivan | General Chair, 1999/2000 |
| Errol EerNisse | Membership Chair |
| Dave Allan | Tutorial Chair |



Jacques Vanier, I.I. Rabi Award Winner; Thomas E. Parker, W.G. Cady Award Winner; and Roger Ward, Sawyer Award Winner.



Dr. and Mrs. Jacques Vanier.

ISAF - 94

Geographic Distribution of Invited and Contributed papers

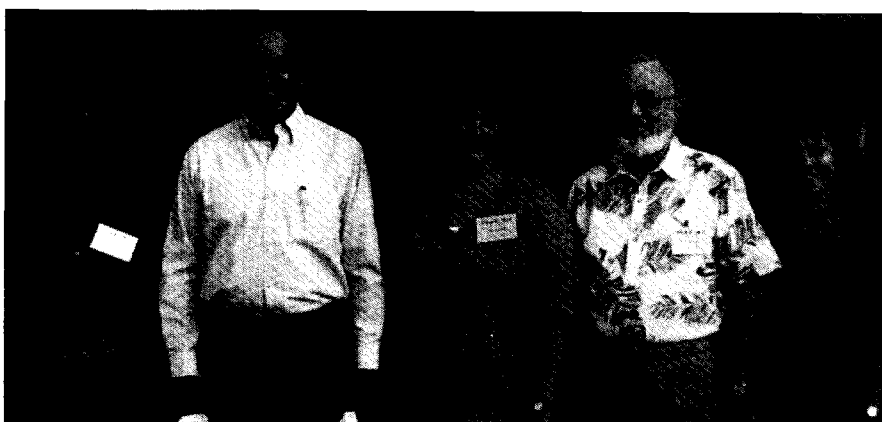
(Counted by Contact Author's Origin)

United States		162
Russia	43	
India	35	
P.R. China	34	
Japan	31	
Korea	12	
Ukraine	12	
France	10	
Germany	8	
Taiwan	6	
Switzerland	5	
Canada	3	
Israel	3	
United Kingdom	3	
Denmark	2	
Hong Kong	2	
Bulgaria	1	
Czech Republic	1	
Mexico	1	
Puerto Rico	1	
Singapore	1	
The Netherlands	1	
Subtotal	(Non-U.S.)	(U.S.)
	215	162
Total		377

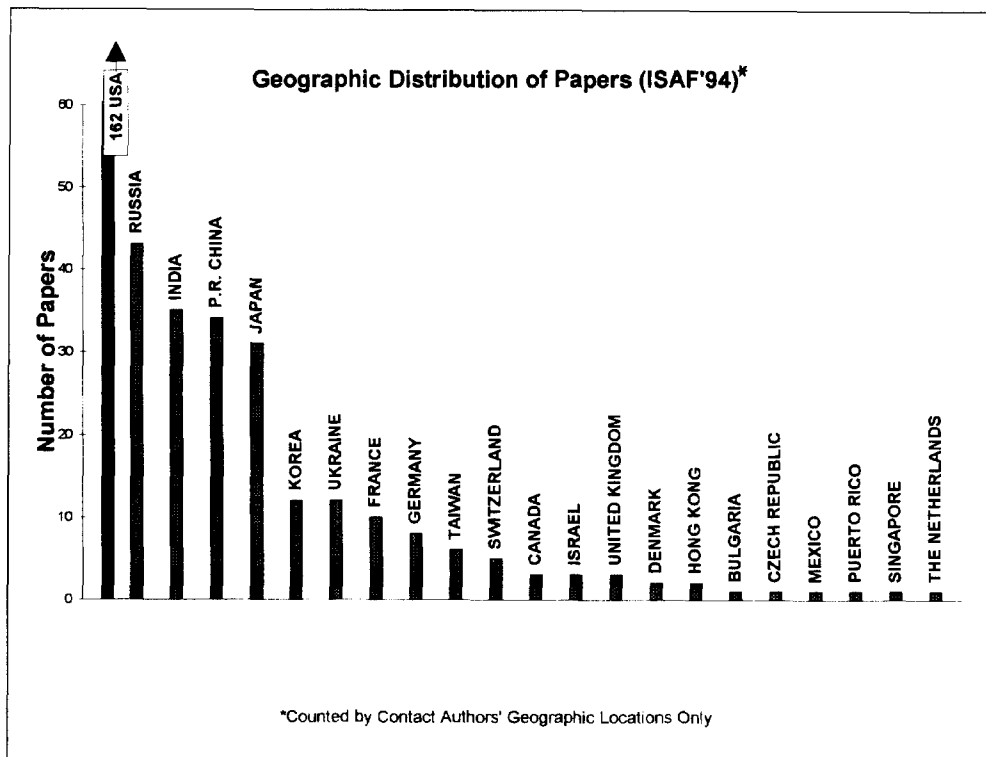
(42 invited presentations);
116 oral presentations;
261 poster presentations;
1281 authors.

The Ninth International Symposium on the Applications of Ferroelectrics (ISAF-94) was held at the Penn State Scanticon Conference Center, the Pennsylvania State University, University Park PA 16802 during August 7-10, 1994. ISAF-94 was chaired by Professor A. S. Bhalla, Materials Research Laboratory, Penn State.

The symposium program contained over 375 high quality scientific papers on various aspects of ferroelectrics and their applications. The program was put together by the program coordinating committee chaired by A. S. Bhalla, R. Guo, and L. E. Cross. There were 116 oral, 42 invited, and 261 poster papers presented in three parallel oral sessions and in the posters sessions each day. The major topics covered at this meeting were related to piezoelectrics, dielectrics, thin film ferroelectrics, actuators, smart materials, pyroelectrics, nonlinear optical ferroelectrics, photorefractive materials, and their applications. The conference was attended by international scientists representing 21 countries. The geographical



The Penn State Symposium Team: Ruyan Guo, Amar Bhalla, Tina Confer, Eric Cross and Debora Shay.



distribution of the papers, international and national, is represented in the accompanying table and graphs.

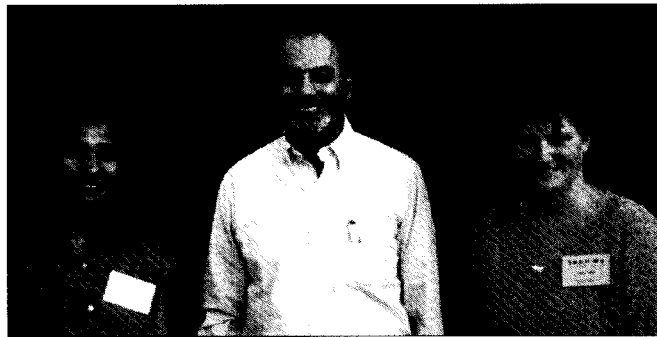
The meeting also commemorated several milestones in the history of ferroelectricity. Two special history sessions were organized to mark these events:

- Centennial of "Observation of the First Dielectric Anomaly with Temperature in Rochelle Salt (1894)"
- 75th Year of the Discovery of Ferroelectricity (1920)
- The Golden Anniversary of the "Discovery of the First Most Widely Used Ferroelectric BaTiO₃"

The conference highlighted and honored the achievements and contributions of several pioneer researchers who worked in the early development of ferroelectrics in the forties, fifties and early sixties.

Akira Murata was presented the Certificate of Recognition by the Ferroelectrics Committee at the conference. The presentation was made during the symposium banquet by Professor Eric L. Cross and received on behalf of Akira Murata by Dr. Kikuo Wakino of Ritsumeikan University and Murata Manufacturing Co. The citation read: "Founder and Chairman of the Board of Murata Manufacturing Company Ltd. as a Pioneer in the Development and Application of Ferroelectric Ceramics."

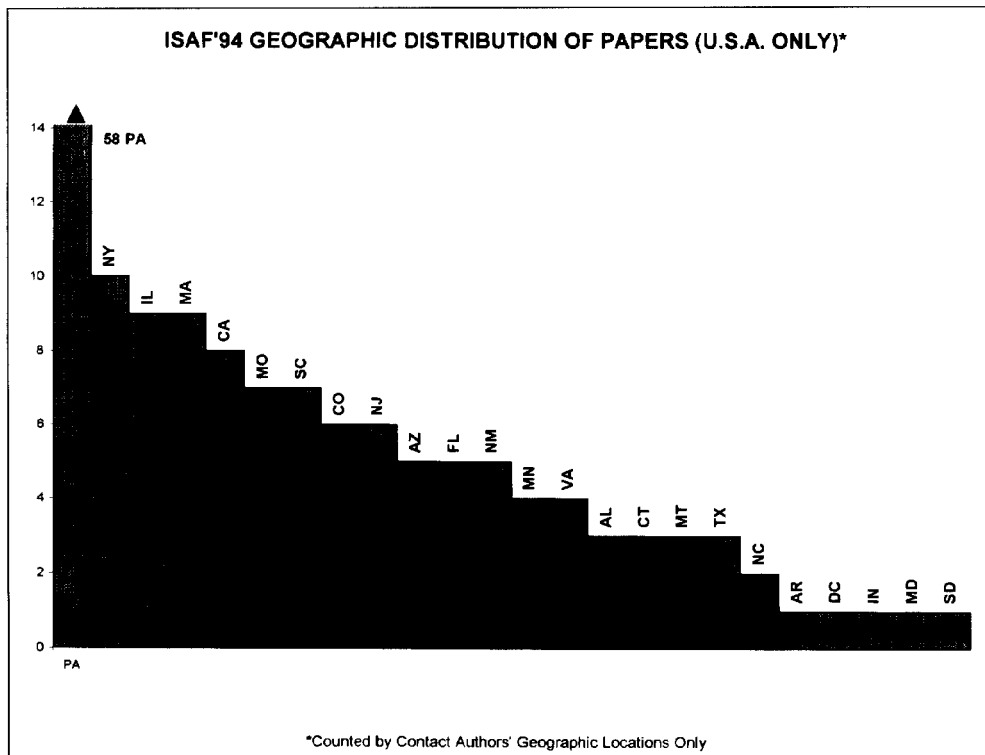
A. S. Bhalla
General Chair, ISAF-94



Ruyan Guo, Technical Program Coordinator; Amar S. Bhalla, Conference General Chair; Tina M. Confer, Organizing Committee.



Conferees at the Post-Conference Outdoor Picnic.



IEEE

Ultrasonics, Ferroelectrics, and Frequency Control Society

Administrative Committee

IEEE HEADQUARTERS

Director, Division IX	J. G. Ackenhusen
Secretary, TAB	R. T. Wangemann

SOCIETY OFFICERS

President	H. L. Salvo, Jr.	<i>Westinghouse Electric Corporation, Electronic Systems Group</i>
Vice-President	D. C. Malocha	<i>University of Central Florida, Orlando</i>
Secretary-Treasurer	G. K. Montress	<i>Raytheon Company, Research Division</i>

ELECTED COMMITTEE MEMBERS

1992-1994	E. L. Adler	<i>McGill University, Montreal</i>
1992-1994	H. E. Engan	<i>Norwegian Institute of Technology, Trondheim</i>
1992-1994	J. G. Miller	<i>Washington University, St. Louis</i>
1992-1994	S. C. Schneider	<i>Marquette University, Milwaukee</i>
1993-1995	G. V. Blessing	<i>National Institute of Standards Technology</i>
1993-1995	F. S. Foster	<i>University of Toronto</i>
1993-1995	T. W. Grudkowski	<i>United Technologies Research Center</i>
1993-1995	T. Shiosaki	<i>Kyoto University</i>
1994-1996	B. T. Khuri-Yakub	<i>Stanford University</i>
1994-1996	G. R. Johnson	<i>Sawyer Research Products Inc.</i>
1994-1996	R. E. Newnham	<i>The Pennsylvania State University</i>
1994-1996	R. Lerch	<i>University of Linz, Linz, Austria</i>

EX-OFFICIO COMMITTEE MEMBERS

Awards	R. H. Tancrell	<i>Raytheon Company, Research Division</i>
Chapters-Membership	K. W. Ferrara	<i>Riverside Research Institute</i>
Fellows	R. M. White	<i>University of California, Berkeley</i>
Ferroelectrics	L. E. Cross	<i>The Pennsylvania State University</i>
Finance	H. van de Vaart	<i>Allied-Signal, Inc.</i>
Frequency Control	T. E. Parker	<i>Raytheon Company, Research Division</i>
Newsletter	F. S. Hickernell	<i>Motorola, Inc., GSTG</i>
Nominations	B. R. Tittmann	<i>The Pennsylvania State University</i>
Standards	A. Ballato	<i>U.S. Army Research Laboratory, Ft. Monmouth</i>
Transactions	W. D. O'Brien, Jr.	<i>University of Illinois, Urbana</i>
Ultrasonics	G. W. Farnell	<i>McGill University, Montreal</i>
Past President (1992-1994)	J. Brown	<i>Consultant</i>
(1994-1996)	J. F. Greenleaf	<i>Mayo Clinic</i>

AdCom Briefs

The Administrative Committee (AdCom) meeting of the *Ultrasonics, Ferroelectrics, and Frequency Control Society (UFFC-S)* was called to order at 1:40 P.M., June 3, 1994, by H. L. Salvo, Jr. at the Westin Hotel, Boston, Massachusetts. Introductions of attending members were conducted.

J. Brown moved that the minutes of the October 31, 1993, *UFFC-S* AdCom meeting be approved. The motion was seconded by D. C. Malocha. The motion passed with one minor change noted and corrected.

H. L. Salvo, Jr. corrected the passing of Dr. Celia E. Yeack-Scranton on March 14, 1994, and asked that AdCom observe a minute of silence in her memory. She was a valued contributor to the *UFFC-S* and will be missed.

H. L. Salvo, Jr. presented the President's report. Three IEEE Societies (Reliability, Aerospace & Electronic Systems, and Microwave Theory & Techniques) have submitted field of interest changes. AdCom reviewed each and found nothing that would conflict with the *UFFC-Society's* field of interest statement.

H. L. Salvo, Jr. reported that the IEEE President has been assigned to coordinate the encouragement of women participating in the engineering profession. IEEE President Martha Sloan has initiated effort in this area, including a newsletter.

There is a proposal by the Electron Devices Society (EDS) to assist libraries in Eastern Europe. Initially, ten libraries would be selected to receive the last twenty years of IEEE journals on microfiche along with a microfiche reader.

It is official IEEE policy that Life Members are admitted free of charge to all IEEE sponsored conferences. This does not include related social functions.

Starting in 1995, the financial statements of all IEEE conferences will be audited. All conference organizers and financial chairs should be aware of this requirement and include sufficient funds in their budgets to cover auditing fees. Typically, auditing fees for our conferences will be in the range of \$1250 to \$1500.

There continues to be concern over title consistency for

conference proceedings. Guidelines will be issued soon which address this problem.

Faxon, distributor for IEEE periodicals, is on the verge of bankruptcy. Faxon is in the process of making monthly payments to IEEE, thereby reducing the \$2.9 million debt. IEEE is also seeking another subscription agency to absorb Faxon's operations.

The proposed *UFFC-S* bylaw changes have been put on hold pending a formal, detailed proposal from the Long Range Planning Committee, which is chaired by J. F. Greenleaf.

J. Brown and B. R. Tittmann reported that the AdCom Member Handbook should be available soon. It is intended to serve primarily as a guide for newly elected *UFFC-S* AdCom members.

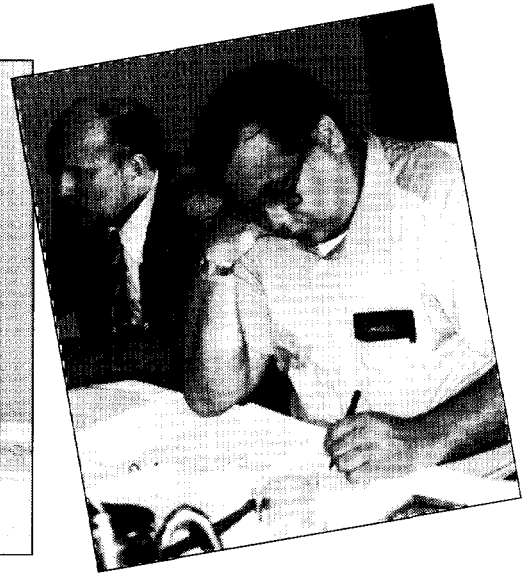
W. D. O'Brien, Jr., Transactions Editor-in-Chief, submitted a Transactions written report. There continues to be no backlog of papers for publication in the *UFFC-S* Transactions.

F. S. Hickernell, Newsletter Editor, provided written and oral reports on the *UFFC-S* Newsletter. The submission of articles for the newsletter by all *UFFC-S* members is encouraged.

H. van de Vaart, Finance Committee Chair, presented oral and written summaries of *UFFC-S* finances. As of December 31, 1994, the surplus was \$506.6k. This level of surplus satisfies IEEE guidelines. H. van de Vaart moved that the proposed 1995 *UFFC-S* budget be approved as submitted. The motion was seconded by J. Brown. The motion passed.

T. E. Parker, Frequency Control Committee Chair, presented oral and written reports. The Final Financial Report for the 1993 IEEE Frequency Control Symposium was submitted. The 1994 IEEE International Frequency Control Symposium, held June 1-3, 1994 in Boston was very successful. J. R. Vig reported that the 1995 IEEE International Frequency Control Symposium will be held at the Fairmont Hotel in San Francisco, on May 30 through 2 June, 1995. He





also reported that the 1996 IEEE International Frequency Control Symposium will be held at the Hilton Hawaiian Village Hotel in Honolulu on June 5-7, 1996. T. E. Parker moved that Orlando, Florida, be approved as the location for the 1997 IEEE International Frequency Control Symposium. The motion was seconded by D. C. Malocha. The motion passed.

T. E. Parker moved to approve up to \$10k in AdCom matching funds to support foreign attendees (those from outside regions 1-7) traveling to the 1995 IEEE International Frequency Control Symposium. The motion was seconded by G. R. Johnson. The motion passed. G. W. Farnell moved to approve up to \$10k per symposium in AdCom matching funds to support students traveling to either the 1995 IEEE International Frequency Control Symposium or the 1995 IEEE International Ultrasonics Symposium. The motion was seconded by J. Brown. The motion passed. G. W. Farnell moved to approve up to \$10k in AdCom matching funds to support foreign attendees (those from outside regions 1-7) traveling to the 1995 IEEE International Ultrasonics Symposium. The motion was seconded by A. Ballato. The motion passed.

H. L. Salvo, Jr. reported that the 1993 IEEE Ultrasonics Symposium's surplus is estimated at about \$41,000.

G. J. Quentin provided oral and written reports for the 1994 IEEE International Ultrasonics Symposium, to be held in Cannes, France. B. R. Tittmann reported that almost 600 abstracts have been received for the conference. B. R. Tittmann moved to approve five parallel oral sessions and two poster sessions for the 1994 symposium. The motion was seconded by J. Brown. The motion passed.

G. V. Blessing reported that the location for the 1995 IEEE International Ultrasonics Symposium is the Westin Hotel in downtown Seattle. Dates for the conference are November 7-10, 1995.

G. W. Farnell, Ultrasonics Committee Chair, moved to approve J. S. Schoenwald as General Chair for the 1996 IEEE International Ultrasonics Symposium, and San Antonio, Texas, as the location for the conference. The motion was seconded by F. S. Hickernell. The motion passed. J. S. Schoenwald reported that the conference will be held at the Hyatt Hotel, which is located on the riverfront. The dates for the symposium are November 3-6, 1996.

G. W. Farnell is seeking suggestions for a General Chair





for the 1997 symposium, as well as suggestions for a location. Forward inputs directly to G. W. Farnell.

R. H. Tancrell, Awards Committee Chair, presented oral and written reports. E. L. Adler, 1993-1994 *UFFC-S* Distinguished Lecturer has presented seventeen talks thus far, with three or four more still to be scheduled. L. E. Cross was approved as 1994-1995 *UFFC-S* Distinguished Lecturer by a FAX ballot in April. His topic will be "Ferroelectric Materials for Electromechanical Transducer Applications". J. Brown moved to approve a Distinguished Lecturer term running from July 1st through December 31st of the following year. The motion was seconded by R. H. Tancrell. The motion passed. R. H. Tancrell reported that G. V. Blessing has agreed to serve as Chair of the *UFFC-Society's* Major IEEE Awards Committee.

K. W. Ferrara, Chapters/Membership Committee Chair, presented oral and written reports. New *UFFC-S* member recruiting at the 1993 IEEE Ultrasonics Symposium was very successful. K. W. Ferrara moved to approve \$10.2k for membership services, to be included in the previously approved 1995 *UFFC-S* budget. The motion was seconded by J. Brown. The motion passed. E. S. Ebbini presented oral and written *UFFC-S* Chapters reports. He is actively trying

to solicit interest in the formation of new *UFFC-S* chapters.

A. Ballato, Standards Committee Chair, presented oral and written reports. The Committee is presently responsible for six standards and five projects. A new subcommittee on Actuators and Transducers is being formed by J. G. Smits.

R. H. Tancrell presented oral and written reports for R. M. White, who is Fellows Committee Chair.

B. R. Tittmann, Nominations Committee Chair, presented oral and written reports. A slate of ten candidates for the upcoming *UFFC-S* AdCom election has been prepared. Four candidates will be elected for three year terms commencing on January 1, 1995. B. R. Tittmann moved that the slate of nominees for the upcoming AdCom election be approved as submitted. The motion was seconded by B. T. Khuri-Yakub. The motion passed.

A motion was made that the next AdCom meeting be held in conjunction with the 1994 IEEE International Ultrasonics Symposium on 1 November 1994 at 8:30 am, in Cannes, France. The motion passed.

The *UFFC-S* AdCom meeting adjourned at 7:45 pm.

Gary K. Montress
UFFC-S Secretary-Treasurer, 1994



CHAPTER ACTIVITIES

A Message from the Chapters' Coordinator

The health and vitality of any IEEE society depends mainly on the continuous infusion of new blood to increase or at least sustain active membership. Our Society is no exception. In fact, this statement is especially true for our Society because of our relatively small size when compared to other IEEE societies. It is therefore necessary for UFFC-S to improve its services to its current members and find ways to increase its membership. Dr. K. Ferrara has been having some commendable success with the latter during the last two years. I have been asked to serve as a Chapters' Coordinator for UFFC-S to try to establish better ties between the Society and its members at large. I have agreed to take this responsibility and started to look into ways to enhance the services our chapters can provide to their members, possibilities for starting new chapters, and (of course) continue to support existing chapters. Chapters are really the central component with which IEEE tries to serve its membership. They form the main link between the regional and technical components of IEEE. This is very clear from the introduction to the IEEE bylaws, which contains the following statement:

“Chapters are units within IEEE Sections formed to serve the specialized technical interests of Society members and to coordinate these with the local activities of the Sections and the broader activities of the parent Society.”

However, sadly, it was only recently recognized that Chapters are not fulfilling their intended role within IEEE. Efforts to correct this have been ongoing since 1989 and culminated in the Section Congress '93 (San Jose, Puerto Rico), which devoted a major part of its agenda to Chapters and chapter activities. The message of the Congress was loud and clear. In order for IEEE to continue to thrive as the largest technical institute in the world, it must continue to improve its ties with the membership and find new ways to serve its members. Chapters have been recognized as the main vehicle with which members are served on a continuous basis on a technical basis in each locality. If this is important for IEEE, it is absolutely essential for UFFC-S. Our Society is strong, but can and will benefit from an increase in its membership and (equally important) from increasing the volunteer basis for its activity. The latter can only be achieved by increasing the services of the Society to its members at the local level (through Chapters).

The current status of our existing chapters is mixed; some

are doing quite well and some are existing but are on hold. However, communications between the Society and a number of the existing Chapters are virtually nonexistent. IEEE maintains a list of active chapters, but it's not up-to-date. I would like, therefore, to use this message to ask the readers who are involved in chapter activity to kindly forward current information on their chapters to me at the following address:

Emad S. Ebbini
UFFC-S Chapters Coordinator
EECS Department
1301 Beal Avenue
Ann Arbor, MI 48109-2122
Phone: (313) 763-5448
Fax: (313) 936-1905

Or if you prefer via e-mail at the following address:

emad@eecs.umich.edu

Of course, this request is also extended to UFFC members who would like to be involved in chapter activities in their locality, especially forming new chapters whether for UFFC-S only or with other IEEE Societies. For those of you who are either involved or would like to be involved in chapter activities, I would like to make two simple statements:

1. It is not difficult to start and sustain the activity of a healthy chapter in accordance with the IEEE Bylaws.
2. The UFFC-S AdComm is very serious about supporting existing chapters and forming new ones.

Furthermore, we are currently reviewing procedures to recognize outstanding chapters and help less successful chapters to pattern more successful ones. Any ideas from any member related to Chapters and chapter activities is certainly welcome.

Finally, anyone involved in the activities of our Society would agree that it is a healthy and a vibrant one. There is no question that we have a high-quality transactions, a number of successful symposia, and an excellent Distinguished Lecturer program. However, in order to continue this positive trend for our Society, we have to continue to encourage all members (including student members) to participate at the local level. Stronger chapters are the answer to that challenge.

Emad Ebbini
Chapters Coordinator

CHAPTER ACTIVITIES

Boston Chapter

The Boston Chapter of the *UFFC-S* had a full program of monthly meetings for the 1993-1994 season. In fact eight meetings were held, one more than has usually been the case in past years. A variety of speakers and topics was arranged which represented many of the various areas of interest to *UFFC-S* members. Meeting dates and the topic/speaker were as follows:

20 October 1993 — “*Space Experiments with High Frequency Stability Atomic Clocks*,” Robert C. Vessot, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA

15 December 1993 — “*Low-Loss IF and RF Surface Acoustic Wave (SAW) Filters for Mobile Communications*,” C. S. Lam, AT&T, Bell Laboratories, North Andover, MA

26 January 1994 — “*An Acoustic Sidewall Sensor for Noninvasive Measurement of Discrete Liquid Levels in Large Storage Tanks*,” Y. Liu and L. C. Lynnworth, Panametrics Inc., Waltham, MA

9 February 1994 — “*Fabrication and Properties of Fine-Scale Piezoelectric Composite Transducers*,” Leslie J. Bowen, Materials Systems Inc., Littleton, MA

9 March 1994 — “*Intravascular Ultrasound Imaging*,” John Scampini, Hewlett-Packard Company, Imaging Systems Division, Andover, MA

13 April 1994 — “*Applications of Ultrasonic Imaging in High Resolution Flaw Detection and the Characterization of Industrial Materials*,” Philip P. Mooney, Panametrics Inc., Waltham, MA

11 May 1994 — “*Ultrasonic Devices and Methods for Biomedical Studies*,” Armen Sarvazyan, Rutgers University, Department of Chemistry, Piscataway, NJ

6 June 1994 — “*Surface-Acoustic-Wave Devices: Fundamentals, Current Status, and Future Trends*,” - Eric L. Adler,

McGill University, Montreal, Quebec, Canada, and *Ultrasonics, Ferroelectrics, and Frequency Control Society Distinguished Lecturer*, 1993-1994

Attendance at the eight meetings ranged from eighteen to thirty-nine.

Chapter officers for 1993-1994 were:

Chairman: Gary K Montress, Raytheon Company, Research Division, Lexington, MA 02173

Vice-Chairman: Jan G. Smits, Boston University, Department of Electrical & Computer Engineering, Boston, MA 02215

Secretary-Treasurer: William J. Ossmann, Hewlett-Packard Company, Andover Division, Andover, MA 01810-1099

Elections for 1994-1995 officers were held at the 6 June 1994 meeting. Elected officers for the upcoming year are:

Chairman: Jan G. Smits, Boston University, Department of Electrical & Computer Engineering, Boston, MA 02215

Vice-Chairman: William J. Ossmann, Hewlett-Packard Company, Andover Division, Andover, MA 01810-1099

Secretary-Treasurer: Gerald F. Jennings, Analogic Corporation, Peabody, MA 01460

While details of next year's speakers and their topics are incomplete at this time, the first meeting is planned for 22 September 1994. Boston area *UFFC-S* members should check the September issue of the *Reflector* for full details. A November 1994 meeting is not likely since this conflicts with the 1994 IEEE International Ultrasonics Symposium scheduled for 1-4 November 1994, in Cannes, France.

Gary K Montress
Boston Chapter Chairman, 1993-1994

Tokyo Chapter

The Tokyo Chapter held five technical meetings during the first half of 1994, in conjunction with the Technical Group on Ultrasonics of the Institute of Electronics, Information, and Communication Engineers of Japan:

<u>Date</u>	<u>Place</u>	<u>Number of Papers</u>
January 27	Kyoto	9
February 28	Tokyo	7
April 27	Coufu	9
May 26	Tokyo	6
June 22	Tokyo	4

The 15th Symposium on Ultrasonic Electronics (USE94) will be held under the sponsorship of the *UFFC-S* Tokyo Chapter on November 28-30, 1994, at the Doshisha Nijima

Kaikan in Kyoto. Most of the papers presented at the last year's Symposium (USE93) have recently been published in the special issue of *Jpn.J.Appl.Phys.*, Vol.33, No.5B (1994).

In May, the Tokyo Chapter published a newsletter in Japanese to inform the *UFFC-S* members in Japan about the chapter activities. One of congratulatory news was that Prof. Yasutaka Shimizu, the Chairman of the Tokyo Chapter, was recently elected to the grade of IEEE Fellow.

We plan to invite Prof. L. Eric Cross, the *UFFC-S* 1994-1995 Distinguished Lecturer, to Japan. The Tokyo Chapter will soon contact him to arrange the schedule of his lectures.

Kiyoshi Nakamura
Vice Chairman, UFFC-S Tokyo Chapter

ISWASS and RAE 1994

The third International Symposium on Surface Waves in Solid and Layered Structures and the Russian National Conference on Acoustoelectronics was held 17 - 23 May, 1994, on the Russian cruise ship the Leonid Krasin navigating the waterways between Moscow and St. Petersburg. There were one hundred fifty participating, one hundred twenty-three from the former USSR, and twenty-seven foreign guests. Foreign countries represented were Belgium, Bulgaria, Canada, China, France,

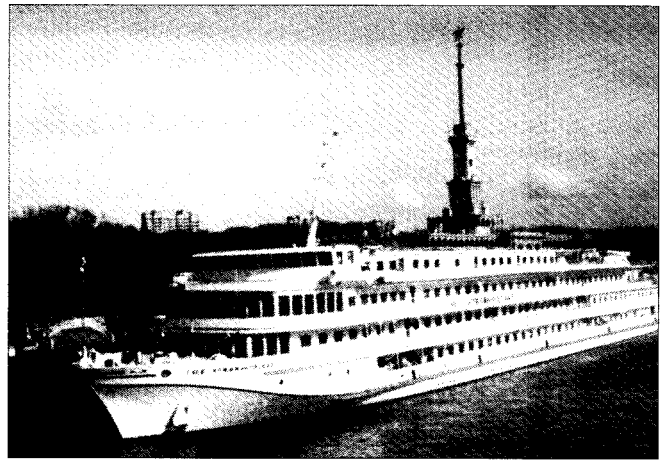
Germany, Great Britain, Italy, Japan, Poland, Switzerland, and the United States. There were seventy-four oral presentations and twenty-one poster presentations over the five conference days. Russian and English were the conference languages with most of the papers being given in English. The conference proceedings will be published in English.

The conference was skillfully organized by Professor Sergei Kulakov of the St. Petersburg State Academy of Aero-

space Instrumentation. He was ably assisted by the Chairmen of the Technical Program Committee - Professor Georgi Mansfeld of the Institute of Radioengineering and Electronics (IRE) and Professor Igor B. Yakovkin, Institute of Semiconductor Physics, Novosibirsk, Siberia. These three together with Academician Yuri Gulaev, the official chairman of the symposium and Director of IRE, are members of the UFFC Society. Mrs. Ludmila Konovalova, conference secretary, assisted Professor



Opening session of ISWASS '94, Vladislav I. Pustovoit (l) (Chairman, International Program Committee) and Sergei Kulakov (r) (Vice Symposium and Conference Chairman).



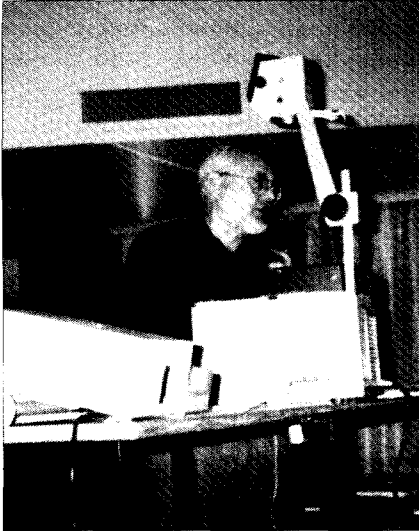
Russian cruise ship at dock in Moscow.



Professor Eric Adler with Valeri Luzanov (l), Vladimir Anisimkin and Joseph Kotelyanski (r) in front of the IRE Laboratories in Moscow.



The Newsletter Editor with graduate students Dennis Orlov (l) and Sergei Maximow (r) in front of a culinary laboratory in Moscow.



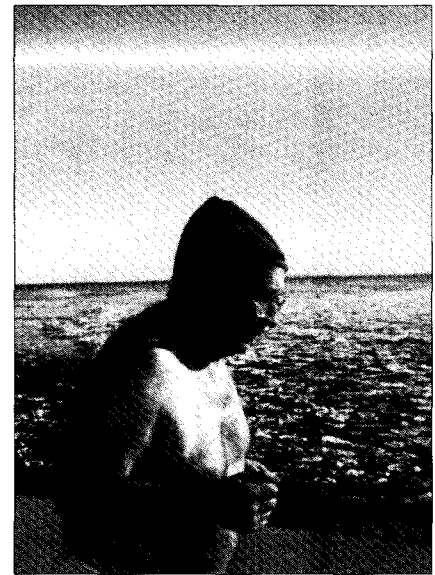
Professor Adrian Korpel (U. of Iowa) presenting an invited lecture on *Imaging of Ultrasonic Fields for Signal Processing*.



Enjoying some sunshine on shipboard are left to right: Thresa Hickernell, Mrs. Ludmila P. Konovalova (Secretary of the Organizing Committee) and Professor Sergei V. Kulakov (Chairman of the Organizing Committee).



Between session discussions on the upper deck of the Leonid Krasin.



Early morning exerciser aboard the Leonid Krasin on Lake Onega (that's ice in the background).

Kulakov and was a great help to the attendees. Our UFFC Society participated as a co-sponsor of the symposium with John Vig and Dennis Pape assisting as members of the organizing committee.

One half of each conference day was devoted to paper presentations, and the other half for a stop at some scenic attraction along the waterways. The first stop out of Moscow was at the ancient town of Uglich on the banks of the Volga River. This town was founded in 937 AD and is a living museum of historic ancient buildings featuring the architectural treasure, Church of

Prince-Dimitri-on-the-Blood, where Ivan the Terrible's son Dimitri was killed. On the second day the stop was at Goritsky, a beautiful rural farm town with the Kirill-Belosersk Monastery, former refuge for Russian Tsarinas. As we walked through this beautiful countryside at midday, we saw the people preparing their summer gardens and the trees budding out as the first sign of spring. The third stop was at Khizi Island in the middle of Lake Onega, second largest lake in Europe. The island is famous for its eighteenth century Russian buildings including all-wooden

farm houses, barns, windmills, chapels, and churches. The Church of the Transfiguration with its twenty-two gray domes shimmering in the sunlight dominates the island and is the ultimate in Russian fairy-tale church architecture. The weather was kind to us except for the one stormy morning that we spent walking the streets of Petrozavodsk on the shores of Lake Onega and visited the shops of this large industrial city with its beautiful buildings and statuary. Along the Svirj River connecting Lake Onega and Lake Ladoga we again stopped at a small quiet rural vil-

IEEE FELLOW NOMINATIONS

lage and visited with the people. We were invited into a home and had a wonderful glimpse of village life.

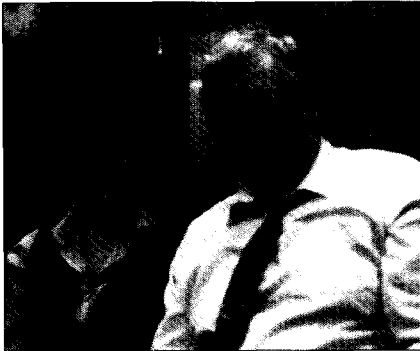
The symposium concluded with a lovely banquet on ship-board as we proceeded out across Lake Ladoga (the largest lake in Europe) and onto the Neva River into St. Petersburg where we docked on the morning of the 23rd. It was a beautiful sunny day spent viewing the sights of the architecturally dazzling city of St. Petersburg. In the evening we were treated to a performance of "Swan Lake" by the Kirov Ballet in the gilded Miranski Theater.

The most important aspect of the symposium took place between the sightseeing and conference papers when people gathered to talk and share their ideas and concerns. By being together on the ship we became like family with

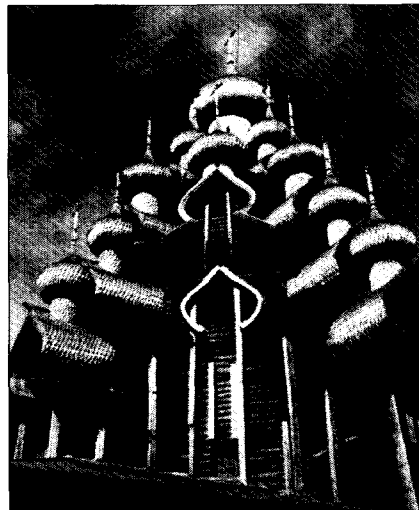
cultural differences and past political animosities forgotten. It was a wonderful experience.

Despite the many problems that face the scientists and the people of the former Soviet Union there remains a wonderful spirit of hope for a brighter future. They expressed their deep appreciation for the support given by our society both financially and by attendance at the conference. The UFFC societies Ambassadors Program for IEEE membership and the support given for scientists to attend our symposia continues to be gratefully appreciated.

Fred Hickernell
Newsletter Editor



Academician Yuri V. Gulyaev (r)
(Symposium and Conference
Chairman) and wife Irina (l).



Church of the Transfiguration, Khizi,
Island.



Eighteenth century multiple family farm house on Khizi Island.

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 April of 1994 and forms will be ready by the end of 1993. 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 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 judgements 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 Dolores Wright, IEEE Fellow Committee, 445 Hoes Lane, Piscataway, NJ 08854, (908) 562-3844.

The following is a list of members of the UFFC-S who are Fellows of the IEEE.

IEEE Fellows in the UFFC Society

John D. Adam	J-A-M Lyon
E. L. Adler	R. S. Mackay
Robert Adler	Albert Macovski
Akihiro Aketani	Charles Maerfeld
John Andrews	T. Makimoto
Bert Auld	Donald C. Malocha
A. Ballato	Bruce McAvoy
L. L. Beranek	A. H. Meitzler
D. A. Berlincourt	Nobuo Mikoshiba
Henry L. Bertoni	Shota Miyairi
Lief Bjorno	R. A. Moore
J. V. Bouyoucos	Arye Nehorai
Mack A. Breazeale	V. L. Newhouse
C. B. Burckhardt	Tatsuji Nomura
Charles A. Cain	William C. O'Brien, Jr.
C. K. Cambell	Matthew O'Donnell
Paul H. Carr	A. A. Oliner
S. D. Chatterjee	John M. Owens
N. Chodorow	Emmanuel P. Papadakis
H. W. Cooper	Thomas E. Parker
James A. Cronvich	Bernard Picinbono
Leslie E. Cross	John M. Reid
C. C. Cutler	Paul Rosenberg
Louis J. Cutrona	Peter H. Russer
Eugene J. Dieulesaint	W. J. Sarjeant
Michael M. Driscoll	O. P. Schmitt
Floyd Dunn	G. M. Sessler
Lawrence N. Dworsky	Gustave Shapiro
E. P. Eernisse	Yasutaka Shimizu
Irving Engelson	K. Kirk Shung
G. W. Farnell	Bikash K. Sinha
Francis J. Fry	Leland P. Solie
Fred E. Gardiol	Ikuo Tanaka
R. Gerhard-Multhaupt	Roger Tancrill
James F. Greenleaf	William J. Tanski
Thomas W. Grudkowski	S. W. Tehon
Gene H. Haertling	R. E. Thompson
E. Hafner	Donald O. Thompson
Gerald R. Harris	Bernhard R. Tittmann
Helmut W. Hellwig	Chen S. Tsai
Eric Herz	A. Uhler, Jr.
F. S. Hickernell	Herman van de Vaart
Bill J. Hunsinger	Jacques Vanier
Masaru Ieuka	Sotirics J. Varaviolos
F. H. Ingerslev	John R. Vig
Robert A. Johnson	Robert C. Waag
Yukio Kagawa	G. Wade
Reynold S. Kagiwada	Robert S. Wagers
Peter Kartaschoff	Kikuo Wakino
Irving Kaufman	Stephen Wanuga
R. La Rosa	Kiyotaka Wasa
C. E. Land	W. Welkowitz
Pua Lee	R. M. White
Peter A. Lewin	H. K. Wickramasinghe
H. C. Lin	Werner Wiesbeck
M. S. F. Lucas	R. C. Williamson
L. C. Lynnworth	L. T. Zitelli

FUTURE ULTRASONICS SYMPOSIA

1994 IEEE Ultrasonics Symposium
 Cannes, FRANCE — 1-4 November 1994
For information contact:

Gerard J. Quentin, *General Co-Chair*
 G.P.S. Tour 23
 Universite Paris 7
 2 Place Jussieu
 75251 Paris CEDEX 05
 FRANCE
 (33) 1-43-29-51-22 (Phone)
 (33) 1-48-54-28-78 (FAX)

or

Herman van de Vaart, *General Co-Chair*
 Allied-Signal, Inc.
 Research & Technology
 101 Columbia Road
 Morristown, New Jersey 07962-1021
 (201) 455-2482 (Phone)
 (201) 455-3008 (FAX)

Bernhard R. Tittmann, *Technical Program Chair*
 The Pennsylvania State University
 Department of Engineering Science & Mechanics
 228C Hammond Building
 University Park, Pennsylvania 16802-1484
 (814) 865-7827 (Phone)
 (814) 863-7967 (FAX)

1995 IEEE Ultrasonics Symposium
 Seattle, WA — 7 - 10 November 1995
For information contact:

Gerald V. Blessing, *General Chair*
 National Institute of Standards & Technology
 Building 233, Room A-147
 Gaithersburg, Maryland 20899
 (301) 975-6627 (Phone)
 (301) 417-0514 (FAX)

George A. Alers, *Technical Program Chair*
 National Institute of Standards & Technology
 Building 223, Room A-167
 Gaithersburg, Maryland 20899
 (301) 975-6140 (Phone)
 (301) 926-7975 (FAX)

1996 IEEE Ultrasonics Symposium
 San Antonio, TX — 3 - 6 November 1996
For information contact:

Jeffrey S. Schoenwald, *General Chair*
 Rockwell International Science Center
 Mail Code A9
 1049 Camino dos Rios
 Thousand Oaks, California 91358
 (805) 373-4236 (Phone)
 (805) 373-4810 (FAX)

Future IEEE Frequency Control Symposia

Year & No.	Dates	City & Hotel	General Chairman	Technical Program Chairman	Tutorial Chairman	Local Arrangements	Comments
1995 49th	May 31 to June 2	San Francisco Fairmont Hotel	John Vig	Lute Maleki	TBD	Jack Kusters	
1996 50th	June 5-7	Hilton Hawaiian Village Hotel, Honolulu, Hawaii	Prof. Kazuhiko Yamanouchi & John Vig	Fred Walls	TBD	Dean Okayama, NIST WWVH	50th Anniversary Bash
1997 51st	TBD	Orlando, Florida	Tom Parker	Fred Walls	TBD	TBD	
1998 52nd	TBD	TBD	Tom Parker	TBD	TBD	TBD	
1999 53rd	TBD	TBD	Don Sullivan	TBD	TBD	TBD	
2000 54th	TBD	TBD	Don Sullivan	TBD	TBD	TBD	

OTHER UFFC-S SPONSORED SYMPOSIA

1995 IEEE Frequency Control Symposium

San Francisco, CA — 30 May - 2 June 1995

For information contact:

John R. Vig, *General Chair*

U.S. Army Research Laboratory

AMSRL-EP-ME

Fort Monmouth, New Jersey 07703-5601

(908) 544-4275 (Phone)

(908) 544-4223 (FAX)

Lute Maleki, *Technical Program Chair*

Jet Propulsion Laboratory/CIT

Time & Frequency Systems Research Group

4800 Oak Grove Drive

MS-298- 100

Pasadena, California 91109

(818) 354-3688 (Phone)

(818) 393-6773 (FAX)

1996 IEEE Frequency Control Symposium

Honolulu, HI — 5 - 7 June 1996

For information contact:

John R. Vig, *General Co-Chair*

U.S. Army Research Laboratory

AMSRL-EP-ME

Fort Monmouth, New Jersey 07703-5601

(908) 544-4275 (Phone)

(908) 544-4223 (FAX)

or

Kazuhiko Yamanouchi, *General Co-Chair*

Research Institute of Electrical Communication

Tohoku University

Katahira, Aoba-ku

Sendai 980

JAPAN

(81) 22-266-5528 (Phone)

(81) 22-266-5528 (FAX)

Frederick L. Walls, *Technical Program Chair*

National Institute of Standards & Technology

Time & Frequency Division

325 Broadway

Boulder, Colorado 80303

(303) 497-3207 (Phone)

(303) 497-6461 (FAX)

Standards Activities Report

Our society is currently responsible for eleven items, six standards, and five projects.

Piezoelectric Crystals – T. R. Meeker (176-1987)
(177-1978)

Standard 176 will be published in the Transactions, probably by the end of the year, followed by revision based on comments received. Comments and contributions have been received on the measurement standard (177); the revisions are scheduled for the end of the year.

Ultrasonics in Medicine – P. D. Edmonds (790-1989)

No progress since last report. This standard is up for revision by December 1995.

Time and Frequency – J. R. Vig (1139-1988 and P1193)

The IEEE Guide for Measurements of Environmental Sensitivities of Standard Frequency Generators has been submitted to the IEEE Standards Committee. Standard 1139 is due for revision by December 1995.

Sensors – J. Schoenwald (P1182)

The draft version of "Guide to terms and definitions of ferroelectric, frequency control and Ultrasonic sensors" is being revised for submission, possibly by the end of summer.

Ferroelectrics – A. H. Meitzler (180-1986)
G. H. Haertling (P1211)

Work on P1221 – "Standard Definitions, Symbols and Characterization of Ferroelectric Thin Films, Memory Cells and Device Structures," is continuing systematically. The subcommittee met in March at ISIF and will meet again at ISAF.

Regarding Standard 180-1986, the Ferroelectrics Committee has been granted an extension until March 1995, and is about six months away from a revised version for submission to the subcommittee members.

Surface Acoustic Wave Devices – E. A. Mariani
(P10371992)

No activity this reporting period.

Piezomagnetic Technology – S. L. Ehrlich (319-1990)

The subcommittee is conducting the five-year review of the standard to determine if it is to be reaffirmed or revised.

Acousto-Optics – D. L. Hecht (P1022)

Presently inactive.

Actuators and Transducers – J. G. Smits

Subcommittee is in process of formation.

**Arthur Ballato, Chairman
Standards Activities**

Request For Nominations

UFFCS ACHIEVEMENT AWARD

You are invited to nominate a member of the UFFC Society for special recognition through the ACHIEVEMENT AWARD. The award is given in recognition of significant technical publications in Ultrasonics, Ferroelectrics, or Frequency Control, for presentation of lectures, and/or service to the Society. The award covers the entire society and includes all technical specialties. Selection is made by the Officers and Awards Committee.

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

Here is my nomination for **Achievement Award**:

Nominee's Name & Main Contributions: _____

Your Name/Address: _____

Send by December 1 to: Roger H. Tancrell
Chair, UFFC-S Awards Committee
225 Walden Street
Suite 5C
Cambridge, MA 02140
Tel/FAX: (617) 547-6639
e-mail: roger@world.std.com

Call For Nominations

FOR THE NEXT DISTINGUISHED LECTURER AND/OR TOPIC

Every year the UFFC-S selects a Distinguished Lecturer to represent the Society at Colloquia around the world. Recent lecturers have spoken to local IEEE chapters, universities and companies throughout North America, Japan, Europe, China and South America. The Distinguished Lecturer represents our Society to the larger technical community, and stimulates interest in the Society's professional areas.

What topics would you like to hear, and who are speakers whom you think can represent our Society? Here's your chance to influence the next lecturer!

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 by December 1 to: Prof. Mack A. Breazeale
Chair, UFFCS Distinguished Lecturer
Subcommittee
The National Center for Physical Acoustics
University of Mississippi
University, MS 38677
Tel: (601) 232-7490
FAX: (601) 232-7494

Awards To Be Presented at the 1994 Ultrasonics Symposium

Several awards will be presented at the 1994 Ultrasonics Symposium in Cannes, France:

1994 Achievement Award:

Professor Nobuo Mikoshiba
*Professor Emeritus of Tohoku University
 Director, Hewlett Packard Laboratories Japan
 Kawasaki-shi, Kanagawa JAPAN*

Outstanding Paper Award for the 1993 UFFC-S Transactions:

Raymond J. Besson, Jean Jacques Boy
*École Nationale Supérieure de Mécanique des
 Microtechniques, Besançon, FRANCE*
 Bernard Glotin
*Études et Productions Schlumberger, Clamart,
 FRANCE*
 Yoshinobu Jinzaki
Schlumberger K.K., Kanagawa-ken, JAPAN
 Bikash K. Sinha
Schlumberger-Doll Research, Ridgefield, CT
 Michel Valdois
*Schlumberger Industries, Velizy-Villacoublay,
 FRANCE*

**"A Dual-Mode Thickness-Shear
 Quartz Pressure Sensor"**
 September Issue, 1993

UFFC-S Distinguished Lecturer, 1994-95

Professor L. Eric Cross
*Materials Research Laboratory
 The Pennsylvania State University
 University Park, PA*
**"Ferroelectric Materials for Electromechanical
 Transducer Applications"**

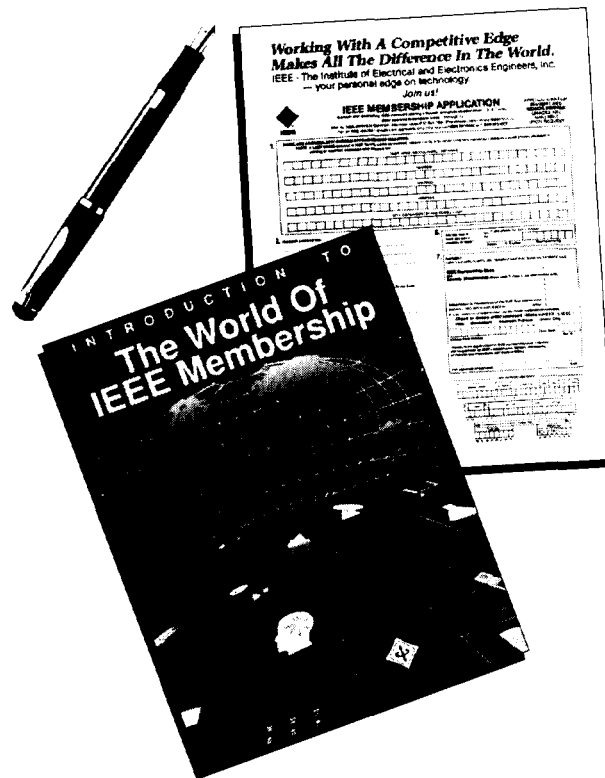
Fellow Awards:

Thomas W. Grudkowski
*United Technologies Research Center
 East Hartford, CT*
 Gerald R. Harris
*U.S. Public Health Service
 Food and Drug Administration
 Rockville, MD*

Six additional members of the UFFC Society became new Fellows in 1994 and accepted their awards at other IEEE events during the year.

Roger H. Tancrell
UFFC-S Awards Chair

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CALL FOR PAPERS

1995 IEEE International Frequency Control Symposium

MAY 31-JUNE 2, 1994

The Fairmont Hotel – San Francisco, California

GENERAL CHAIRMAN:

Dr. John R. Vig
U.S. Army Research Laboratory

TECHNICAL PROGRAM CHAIRMAN:

Dr. Lute Maleki
Jet Propulsion Laboratory

FINANCE CHAIRMAN:

Dr. Raymond L. Filler
U.S. Army Research Laboratory

Symposium Topics

The IEEE International Frequency Control Symposia has served as the leading technical conference addressing all aspects of frequency control and precision timekeeping. Authors are invited to submit papers dealing with recent progress in research, development and applications in areas represented by the following topics:

- Fundamental Properties of Piezoelectric Crystals
- Theory and Design of Piezoelectric Resonators
- Resonator Processing Techniques
- Filters
- Surface Acoustic Wave Devices
- Quartz Crystal Oscillators
- Microwave and Millimeter Wave Oscillators
- Synthesizers and Other Frequency Control Circuitry
- Atomic and Molecular Frequency Standards
- Noise Phenomena and Aging
- Frequency and Time Coordination and Distribution
- Sensors and Transducers
- Applications of Frequency Control
- Measurements and Specifications
- Optical Frequency Standards

Instructions for Authors

One copy of a summary in sufficient detail for evaluation of the proposed paper (at least 500 words) should be sent to:

Dr. Lute Maleki — MS 298-100
Time & Frequency Systems Research Group
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91109
Tel: 818-354-3688
Fax: 818-393-6773
E-Mail: lmaleki@fridge.jpl.nasa.gov

Each summary **MUST** include the author's name, address, telephone and fax numbers, and E-Mail address, if available.

On the first page of the summary, in the upper right hand corner, please indicate the topic from the list of "Symposium Topics" that best characterizes the paper and whether you prefer to present your paper at an oral or poster session.

Deadline for submission of summaries is 13 January 1995. Authors will be notified of acceptance of papers by 17 March 1995. Accepted papers will be published in the Proceedings of the 1995 IEEE International Frequency Control Symposium. Complete manuscripts are required by 23 June 1995.

Awards

Nominations for the Cady, Rabi and Sawyer Awards should be sent to Dr. Lute Maleki at the address in the Instructions for Authors section by 13 January 1995. Information about these awards and about the nominating procedure can be found on page 2 of the 1992 Proceedings and on the Index disk.

Exhibits

A centralized products, equipment and information exhibit area will be featured at the Symposium. For information on how to arrange for your exhibit please contact:

Michael R. Mirarchi
Synergistic Management Inc.
3100 Route 138
Wall Township, NJ 07719
Tel: 908-280-2024

The deadline for exhibit arrangements is 3 March 1995.

Travel Support

Presenters from Outside of the U.S.

Limited funds are available to support travel of presenters from outside of the USA. Requests for support must be included with the paper summary. It should identify the presenter, and the degree of support required, i.e., all expenses, expenses in the USA only, or a specific dollar amount for partial support. (All else being equal the smaller the request, the higher the probability of support.)

Student Authors/Coauthors

Limited funds are available to support the travel of student authors (from anywhere). Requests must be included with the summary.



*Sponsored by The Institute of Electrical and Electronics Engineers, Inc.
Ultrasonics, Ferroelectrics, and Frequency Control Society
With the technical participation of personnel of the U.S. Army Research Laboratory, Fort Monmouth, NJ.*



NTC 95
The Microwave Systems
Conference
Orlando, Florida

NTC 95 'The Microwave Systems Conference'
Orange County Convention Center
Orlando, Florida
May 17-19, 1995

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Microwave Systems Conference

Call for Papers

The 1995 IEEE Microwave System Conference (MSC'95), (formerly the National Telesystems Conference) will be held on May 17-19, 1995, in Orlando, Florida. MSC '95 will be held concurrently with the 1995 Microwave Theory and Techniques Society (MTT-S) International Microwave Symposium and Exhibition at the Orange County Convention Center. The purpose of this symposium is to present the latest design, simulation, performance and applications of systems in the 0.1-1000 GHz range. System level advantages, understanding, and/or performance may be supplemented with key component or subsystem discussions.

Authors are given the opportunity to submit original papers on recent developments in all aspects of microwave related systems. Areas of interest include, but are not limited to, the following topics:

- Mobile Systems
- Satellite Communications Systems
- Space Navigation Systems
- Applications in Robotics
- Active Array Radar Systems
- Radar Systems
- Wireless Communications
- Aircraft Navigation/Landing Systems
- Communications Systems & Networks
- Intelligent Transportation Systems
- Simulation & Systems Modeling
- Transportation Systems

Papers emphasizing applications of advanced RF, MMIC, Microwave, Photonic and Acoustic technologies are encouraged. However, all papers concerned with systems applications will be considered.

Full papers for an 18-20 minute presentation and inclusion in the Conference Proceedings will be selected on the basis of a 500-1000 word summary. Paper submission requirements are as follows:

1. Ten (10) copies of a 30-50 word abstract on a single separate sheet. This sheet should include the title and author(s) of the paper.
2. Fifteen (15) copies of a 500-1000 word summary with supporting illustrations. The title and author(s) of the paper should be included on the front page of the summary.
3. A separate sheet listing the title and author(s) of the paper along with a complete mailing address, telephone number (and FAX number, as appropriate) for each author. Indicate which of the above area(s) of interest are addressed by the paper.

ALL PAPER SUBMISSIONS MUST BE RECEIVED BY NOVEMBER 11, 1994

Mail submissions to: IEEE Microwave System Conference
c/o LRW Associates
1218 Balfour Drive
Arnold, MD 21012
(410) 647-1591 Fax (410) 647-5136

Authors will be notified of the status of their submissions by December 22, 1994. Authors of accepted papers will receive copyright release forms and instructions for publications and presentation. Print-ready copies of accepted papers are due by February 3, 1995.

For additional information about the technical program/papers submission, please contact Donald C. Malocha. For additional information about MSC '95, please contact George McClure or Madjid Belkerdid.

Co-sponsored by
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IEEE Orlando Section

Editor's Note

Summer in the Northern Hemisphere is drawing to a close. I trust that it has been a good season for all of our society members. I continue to be impressed with the number of new members from outside the United States. We are truly international, and we need to look at new ways of communicating with our world-wide membership. Through the newsletter I try to foster a spirit of unity by bringing reports and pictures which really only represent a delayed sampling of our activities and upcoming major conferences. If you are fortunate enough to be in an area where there is an active local chapter, you certainly can communicate and relate to the membership there. Emad Ebbini's article in the newsletter challenges those of us in areas where we have a group of society members to form a local chapter and meet on a regular basis. Sometimes likeminded IEEE members from different societies will band together as a local chapter. The three Society symposia have been the best gatherings for promoting our mutual technical interests. I have been so pleased to see the way that all three symposia have supported student and speaker travel for those who find it difficult to get to these major conferences.

All this is fine, but can we do more? What about some of our members whose only society contact is the transactions and newsletter? How do they begin to feel a part of, and experience the spirit within, our ultrasonic technical community? I was challenged by one of our AdCom members to come up with ways of getting news and announcements out quicker and promoting inner communication among society members. When one member has a technical question, who can he turn to for some advice, reference, or direct help? In our age of electronic communication and information there should be a solution. What about a listing of members, their specialties, and email addresses? Could we set up an information bulletin board where members can list upcoming events or other

information? For those who don't have email, what about FAX? Is it time to publish a membership directory with specialty and communication listings? We need some of your ideas on this. Please let me know or direct your ideas to any of your AdCom representatives.

This newsletter is filled with symposia information. The Frequency Control Symposium in Boston and the International Symposium on the Applications of Ferroelectrics at Penn State were the best ever. I had the privilege of attending both of these symposia and also a wonderful symposium in Russia in May. The upcoming Ultrasonics Symposium will certainly be a landmark one, because of its location in France. The organizing committee has worked very hard and surmounted some different challenges to bring the symposium to Europe. Be sure and express your appreciation if you have the opportunity to go to Cannes. I have a special place in my heart for the people who create these wonderful symposia experiences.

Our Distinguished Lecturer, Eric Cross, is filling his schedule. Be sure and book him for a talk in your area. Do you know someone who should be nominated as a Fellow of the IEEE? It is not too early to consider getting a kit sent to you for that purpose. Note the requirements for Fellow nomination and where to get the forms as given in this newsletter.

I thank those who sent articles and photos for this issue. Especially to Jan Brown, Mike Mirarchi, and Sergei Kulakov who supplied photos. I also thank my wife Thresa for putting on disk several of the articles in this issue. I await your articles and photos for the next issue in the spring. Could you get them to me by March 15th? My address is Motorola GSTG, 8201 E. McDowell, Scottsdale, AZ 85252, USA, Phone (602) 441-2923, FAX: (602) 441-7714, and Email: p04564@email.mot.com.

Fred S. Hickernell
UFFC-S Newsletter Editor



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