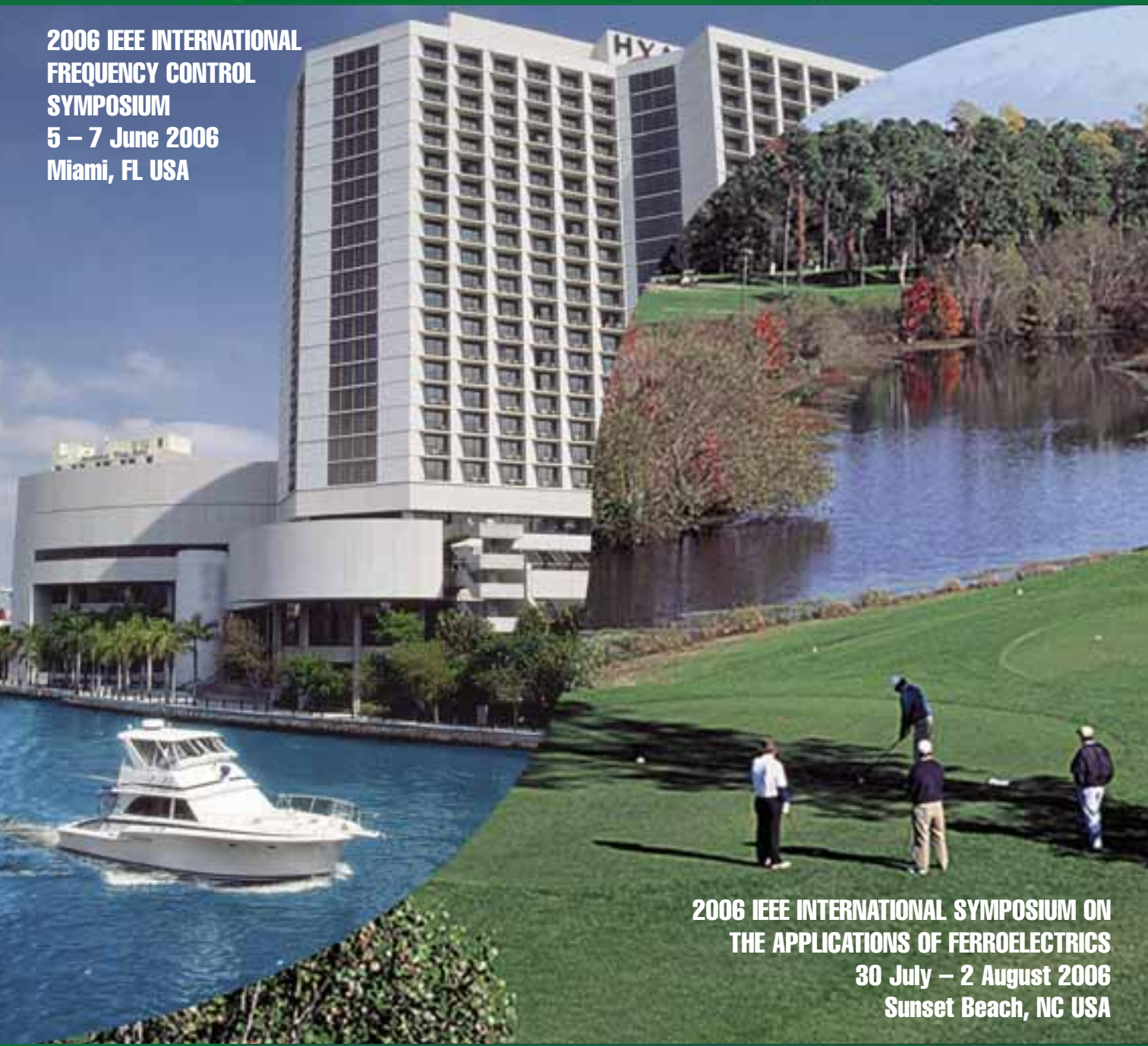
UFFC Newsletter

Ultrasonics, Ferroelectrics, and Frequency Control



2006 IEEE INTERNATIONAL FREQUENCY CONTROL SYMPOSIUM
5 – 7 June 2006
Miami, FL USA

2006 IEEE INTERNATIONAL SYMPOSIUM ON THE APPLICATIONS OF FERROELECTRICS
30 July – 2 August 2006
Sunset Beach, NC USA

NUMBER 40 SPRING 2006 EDITOR: JAN BROWN ISSN 1060-0264

President's Message

Dear UFFC Society Colleagues:

The IEEE is a trans-national society, comprised of over 365,000 members distributed over the whole globe, and organized into approximately 45 Societies and Councils representing various technology areas. Our Ultrasonics, Ferroelectrics and Frequency Control Society is one of the smaller societies, but certainly one of the most vibrant. The range of our technical disciplines is exceeded only by the enthusiasm and hard work of our volunteers.

I wish to take this opportunity to welcome our President-Elect, who will be President during 2008-2009:

- Susan Trolier-McKinstry – The Pennsylvania State University,

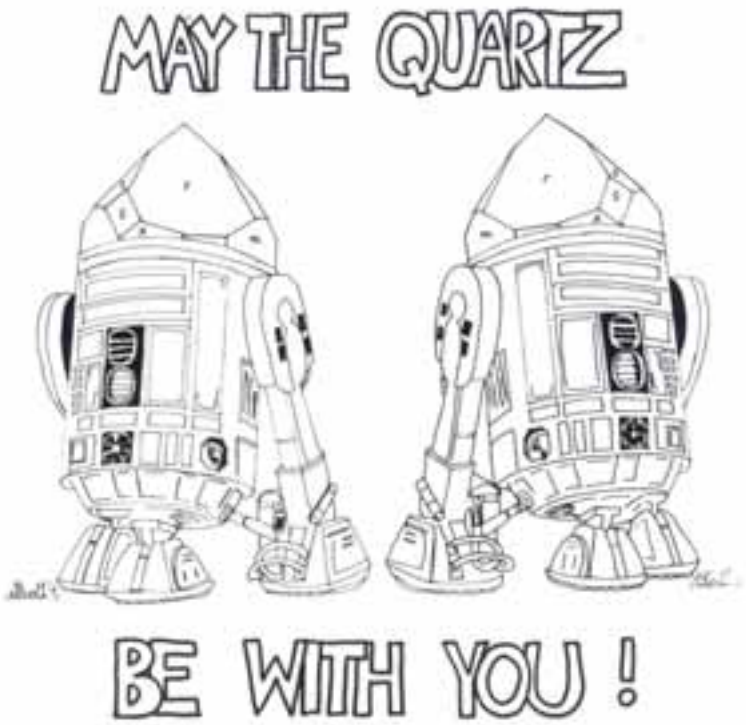
and the newest group of elected members to the UFFC Administrative Committee (AdCom), who will serve a three-year term:

- Manfred Weihnacht – IFW, Dresden
- Sorah Rhee – Meggitt Endevco, San Juan Capistrano
- Tadashi Takenaka – Tokyo University of Science
- Amit Lal – Cornell University/DARPA

I will, in future issues, commend to you other AdCom volunteers who contribute so much to the efficient running of the Society in general, and the three major symposia for which UFFC is responsible.

We are fortunate to have members with an exceptional depth of experience in many seemingly orthogonal subjects, yet a bit of reflection reveals the common thread that originally bound us together: the phenomenon of piezoelectricity. Quartz and other resonators for frequency control utilize the effect; all ferroelectrics are piezoelectric, often substantially so, thereby enabling wide band devices; and ultrasonic transducers for medical, signal processing, and industrial applications usually operate via the piezoelectric effect. From this simple start, our Society's gamut has gradually grown to encompass those varied fields of interest described in the UFFC-S Constitution: http://www.ieee-uffc.org/index2.asp. This affords our members a unique opportunity for technical and social growth by participating in the cross-pollination that takes place at each of our three symposia.

Cordially,
Art Ballato
IEEE UFFC Society President, 2006-2007
a.ballato@IEEE.org



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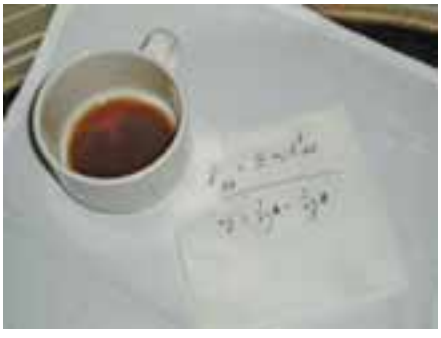


IEEE Ultrasonic, Ferroelectrics, and Frequency Control Society (ISSN 1060-0264) Newsletter is published two times per year by The Institute of Electrical and Electronics Engineers, Inc., 445 Hoes Lane, Piscataway, NJ 08854.

2006 IEEE International Frequency Control Symposium

2006 IEEE INTERNATIONAL FREQUENCY CONTROL SYMPOSIUM
5 – 7 June 2006
Miami, FL USA

Special Notes

Location: The Hyatt Regency Hotel, Miami, FL
Date: 5 – 7 June 2006
Tutorials: 4 June 2006

- Deadline for Hotel Reservation 14 May 2006
- Deadline for early conference Registration 19 May 2006
- http://www.ieee-uffc.org/2006fcs/index.htm

A Welcome from the General Chair

Mike Driscoll, General Chair

It is my great pleasure to announce this meeting, which consists of the leading international technical conferences for research, development, and applications of frequency control. The 2006 IEEE International Frequency Control Symposium (FCS) will afford attendees and exhibitors a unique opportunity to interrelate both technically and socially.

On 4 June, the day prior to the meeting, a number of unique, educational and informative Tutorial Sessions will be offered. These sessions will cover topics of interest to attendees and will be presented by internationally recognized experts in their field.

Meeting highlights will include a plenary talk encompassing an FCS area of interest, presentation of awards, an exhibit area staffed by representatives of leading manufacturers of Frequency Control and Precision Timekeeping Equipment, an Exhibitor-sponsored reception, and of course, the technical and poster sessions themselves. The FCS Technical Program Committee Chair and the Committee members are dedicated to providing a stimulating and educational technical program for all attendees.

The meeting location at the Hyatt Regency Hotel in Miami is just minutes away from downtown Miami's cultural and business center. Guests have direct access to landmarks such as South Beach, Coconut Grove, Bayside Market, and other attractions. The hotel is connected to a MetroMover terminal providing convenient access to all parts of the city. Miami is also the departure city for many Caribbean Cruise Lines for those interested. I strongly recommend attendees plan to spend a few extra days in Miami to allow time to enjoy the many attractions that the city has to offer.

I look forward to seeing all of you at this meeting in our beautiful host city.

Mike Driscoll
General Chair

An Invitation from the Technical Program Chair

Don Malocha, Technical Program Chair

On behalf of the 2006 IEEE International Frequency Control Symposium Technical Program Committee (TPC) and myself, I would like to invite you to this year's conference to be held in beautiful Miami, Fl., 4 – 7 June 2006. On Sunday, 4 June, we have an excellent selection of short courses on various aspects of quartz and MEMS technology, clocks, optical standards, and sensors. The speakers are international experts in their fields, who offer an attendee access to a wealth of information; a CD of the short course (tutorial) presentations is provided to the attendees.

From Monday, 5 June through Wednesday, 7 June, we have compiled an excellent technical program consisting of 12 invited talks and a total of 197 oral and poster presentations. This year's plenary speaker is Professor Frank De Lucia from Ohio State University presenting "Terahertz

Spectroscopy and Applications" which will focus on both the science and technology. There is a special emphasis this year in the area of optical clocks and components with 8 invited talks. In addition, there will be two session's devoted to the contributions and technology related to quartz devices introduced and associated with Raymond D. Mindlin on the 100th anniversary of his birth. These special sessions and areas of emphasis compliment the plethora of presentations which include sensors, materials, filters, resonators, oscillators, synthesizers, noise, time keeping and atomic standards.

There will be a special student poster session to highlight research completed by graduate students at universities throughout the world. The poster session will be judged by a panel of experts who will pick this year's winners who will be recognized, as well as presented with awards.

This year's symposium has a wealth of new and exciting information from abroad range of international contributors. The state of the art results make this symposium a necessity for attendance of all those working in frequency control technology. We look forward to meeting in Miami all our colleagues, new and old, for a stimulating and informative conference.

Don Malocha
TPC Chair

An Invitation from the Exhibit Chair

Jack Kusters

It is my pleasure to announce that the 2006 IEEE International Frequency Control Symposium (FCS) will also include an exhibition area that will allow all of the conference participants and exhibitors the opportunity to explore the science and technology of Frequency Control.

We expect that over 30 different vendors, covering a wide range of current cutting-edge technology, will participate in the exhibit area. The exhibit area will also be the location of the session coffee breaks and an exhibitors' reception.

With an expected attendance of 300 scientists and technologists, 30 international vendors from many parts of the world, and extended hours for viewing the exhibits and interaction between vendors and attendees, we believe that the exhibit area will be a significant part of the overall conference experience. As the 2007 symposium will be a joint meeting in Switzerland with the European Frequency and Time Forum, the Miami meeting will be your major opportunity to exhibit and to contact US customers during the next two years.

The exhibit area will be in the Central Hall of the Hyatt Regency in Miami, Florida.

We look forward to seeing you in Miami

Jack Kusters

Hotel Registration

The Hyatt Regency Miami is located at 400 Southeast 2nd Avenue in Miami, Florida., USA. The special reduced group rate for general attendees is $119(US) for single and/or double occupancy; $145 for triple occupancy and $170 for quadruple occupancy.

There are a limited number of government rate rooms available on a first-come first-served basis and are available to US Government employees only. Government ID and/or government travel orders must be presented at time of check-in to qualify for these rates.

Room rates are quoted exclusive of applicable state and local taxes. The rates established for all attendees will be available for a period of five (5) days prior to and after the symposium.

Reservations can be made by calling 1-800-633-7313 or 1-305-358-1234. You will need to reference "IEEE FCS" when making reservations in order to receive the discounted rate. The reservation cut-off date is 14 May 2004 at 5:00PM EDT. Reservations received after this date shall be accepted by the hotel on a space available basis at the symposium rates.

The hotel's check-in time is 3:00PM and check-out time is 12:00 Noon. Guests are permitted to check in earlier or check out later subject to room availability.

Costs for parking at the hotel are as follows:

- valet service - $21 per day
- self-parking - $12 per day plus $12 in/out fee.

Hotel Transportation

Super Shuttle provides transportation from the airport to the hotel at a fee of $15 US per person each way. Reservations not required. See desk outside of the Baggage Claim Area.

Taxi service is also available from the airport at a cost of approximately $22-$25 US each way.

Symposium Registration Information

Registration Fees

Each Symposium participant must register and receive a badge. The badge must be worn to gain admission to the technical sessions and the exhibit area. You will save time and money by registering in advance.

IEEE Member Fees

The advanced registration fee for IEEE members is $450 US for registrations received NO LATER THAN 19 May 2006. After 19 May, the registration fee for IEEE Members is $525 US.

Non-Member Fees

The advanced registration fee for Non-Members, received prior to 19 May 2006 is $550 US. After 19 May, the registration fee for Non-Members is $625 US.

In order for attendees to receive the reduced rate for advanced registration, payment must be submitted with the advanced registration form. The registration fee entitles the registrant to admission to the technical sessions (but not the Tutorials), the exhibits, the refreshment breaks, two lunches, (Monday and Tuesday, 5 & 6 June) the Welcoming Reception (Monday evening); the Vendor Reception

(Tuesday evening), and a CD containing the Proceedings of the Symposium. Proceedings will be mailed to attendees a few months after the Symposium.

One Day Registration

In addition, those individuals who wish to register for one day only may do so for a fee of $250 US. Lunch is available for $30 US per day. Proceedings are available on CD at $100 US.

Student/Retiree Fees

The registration fee for FULL-TIME students and FULL-TIME retirees is $100 US; this includes admission to the technical sessions (but not the Tutorials), the exhibits, the refreshment breaks, two lunches, (Monday and Tuesday, 5 & 6 June) the Welcoming Reception (Monday evening); the Vendor Reception (Tuesday evening), and a CD containing the Proceedings of the Symposium.

Life Members

IEEE Life Members may register at no charge. Lunch is available for $30 US per day. Proceedings are available on CD for $100 US.

Tutorial Registration

Tutorial registration and cost is separate from the main registration above. Tutorials will be given Sunday, June 4th. Tutorial registration for members and non-members is $225 US and $50 US for students and retirees.

Social Events

Guests are welcome to join attendees at the lunches provided at a cost of $30 US per day and to attend the Welcoming Reception on Monday evening at $35 US each.

Deadline for Advance Registration is 19 May 2006.

NOTE

The registration fee is fully refundable up to five business days before the Symposium/Tutorials. After that date, there will be a service charge of $50 US. Refunds will not, however, be issued once the Symposium and/or Tutorial begins. Attendee substitutions may be made at any time.

Plenary Session Speaker

Terahertz Spectroscopy and Applications

Frank De Lucia

Frank C. De Lucia
Department of Physics
Ohio State University

There has been a long and intimate relationship between frequency measurement and spectroscopy. For a time, wavelength based optical measurements and frequency based microwave measurements provided a measure of the speed of light. While as fundamental references these have been eclipsed by exquisite modern atomic measurements, frequency measurement and control still play a vital role in the terahertz (aka submillimeter) spectral region and are an important part of its rapidly developing technology. This talk will primarily be from a terahertz (aka submillimeter) perspective and focus on the science and technology that has resulted. This will include discussions of the frequency chain that passes through the terahertz, as well as of the astronomy, atmospheric science, remote sensing, analytical chemistry, and imaging that reside there.

Frank C. De Lucia is a Professor of Physics at Ohio State University and previously was Professor of Physics at Duke University. He has served both departments as Chairman. He has been associated with the Microwave Laboratory since 1964 and currently serves as its Director.

He has had extensive experience in a wide variety of millimeter and submillimeter wave projects. Among his research interests are the spectroscopy of small, fundamental molecules, ions and free radicals; collisional processes and mechanisms; the excitation and study of excited states; and molecules of atmospheric and astronomical importance. Along with his students and coworkers he has developed and exploited a number of spectroscopic instruments and techniques that have made these studies possible.

He is a member of the Editorial Board of The Journal of Molecular Spectroscopy; belongs to the American Physical Society, the Optical Society of America, the Institute of Electronic and Electrical Engineers, and Phi Beta Kappa; and was awarded the 1992 Max Planck Research Prize in Physics.

NEWS from the Technical Program Committee

Group 1 Organizes Mindlin Session

Group 1 - Materials and Sensors - TPC members at the paper selection meeting. From left to right: Y. Yong, V. Klipov, G. Johnson (Group 1 Vice-Chair), D. Stevens, E. Hague, A. Kong and R. Filler.

Group 1, Materials and Sensors, will feature an extended session devoted to the pioneering work of Professor Raymond D. Mindlin in honor of the 100th anniversary of his birth. The Mindlin equations are the foundation of modern theoretical analysis of vibrating plates. Upon this work an extensive body of practical work leading to improved design methods and, in recent years, ultra miniature resonators. Among his many awards, he was presented the

C.B. Sawyer Memorial Award in 1967 with the citation, "For fundamental contributions to the theory of vibration in piezoelectric resonators leading directly to advancements in the art." Those directly associated with Professor Mindlin and those responsible for advancing his work will present a series of papers. Additionally, Group 1 will present a series of papers related to the various materials under development and beginning to see commercial application; including: langasite, langatate, and others. Papers related to layered structures, including FBAR and other MEMS approaches will be presented by Group 1.

Gary Johnson
Group 1 Vice-Chair

Group 2 has Strong Participation

Group 2 - Oscillators, Synthesizers and Noise - TPC members at the paper selection meeting. From left to right: Marco Siccardi, Dave Howe, Clark Nguyen, Marvin Frerking, Hugo Fruehauf, Jesse Searls, Mike Driscoll, Warren Walls (Group 2 Vice-Chair) and Michael Tobar

This year Group 2, Oscillators, Synthesizers and Noise, had a strong showing of abstracts in all of its topic areas. There continues to be a broad range of ideas in quartz resonators, including but not limited to dual operating modes. Under the topic of noise, with PM noise now extremely low, several papers have focused on AM noise. In the area of measurement, various groups are interested in pushing the carrier frequencies higher into the 1-10 GHz range (x-band). In all, 60 papers were submitted to Group 2, which is higher than in previous years.

Dave Howe

Group 3 to Focus on Optical Frequency Standards

This year Group 3, Timekeeping and Atomic Standards, has organized 4 sessions devoted to optical frequency standards. TPC member Scott Diddams, assisted by Eric Burt and Kurt Gibble, led the effort to set up these sessions. In addition there will be several other sessions on topics ranging from small clocks, such as CPT, chip-scale and space clocks, to deep space navigation using pulsars as frequency references. [See related article in this newsletter under FREQUENCY CONTROL NEWS.]

Eric Burt

Group 3 - Timekeeping and Atomic Standards - at the paper selection meeting. From left to right: John Prestage, Sam Stein, Kurt Gibble, Tom Parker (Group 3 Vice-Chair), Mike Garvey, Chris Ekstrom, Steve Jefferts, Tom O'Brian (partially obscured), Scott Diddams and Bernardo Jaduszliwer. (Eric Burt not shown).

Group 4 - Sensors and Transducers - TPC members at the 2006 paper selection meeting. From left to right: Ryszard Lec, Leo Reindl (group 4 vice-chair) and Mauricio Pereira da Cunha.

Group 4 to Highlight Biosensors

Biosensors dominate the Group 4 Sensors and Transducers program at the FCS this year. Two biosensor sessions present new research results in TSM and SAW-based systems. Interesting developments in rapid monitoring of kinetics of biological processes and new advancements in cellular biology are presented, followed by one session on new sensing structures (FBAR and EMAT transducers) and one session on industrial applications with a focus on high-volume industrial (automotive) and consumer applications. Overall, Group 4 this year has exhibited a significant increase in sensor paper submission as well as in number of participants, especially students. To meet this increasing interest in sensors, we have developed a new tutorial program consisting of a sequence of four lectures which address the basics, instrumentation and applications of piezoacoustic sensors.

Leo Reindl and Ryszard Lec

Group 5: Manufacturing and Test Technology

This year the group 5 paper selection was carried out by Group 1, Gary Johnson, Vice-Chair.

2006 IFCS Tutorials

Tutorials for the 2006 FCS meeting will be held on Sunday, June 4. They will operate in three parallel sessions each of 90 to 120 minutes duration. The courses are:

- Session I: Noise Measurement and Time Transfer
- Session II: Quartz and Atomic Clocks
- Session III: Resonant Sensors.

Short Courses are presented by leaders in the field and will provide a comprehensive survey of the subject material. Attendees will receive a CD including all presentation materials of the short course session, including those courses not attended. The CD is a valuable reference for everyone whose work involves resonant devices ranging from frequency references to sensors.

Each year's session is unique both in subject matter and the short course presenter so repeated attendance is useful for continued professional development.

John Prestage
Tutorials Chair

Tutorial schedule for the 2006 FCS on Sunday 4 June

	Noise Measurement and Time Transfer	Quartz and Atomic Clocks	Resonant Sensors
8:15-10:15	**Phase Noise Measurements** *Craig Nelson* *NIST, USA*	**Intro Quartz Frequency Standards** *John Vig* *US Army CECOM, USA*	**Acoustic Foundations of Piezoelectric Sensors**-Part 1 *Prof. Gerhard Fischerauer* *Univ. Bayreuth*
10:15-10:30	Break	Break	Break
10:30-12:30	**The Leeson effect - Phase Noise in Feedback Oscillators** *Enrico Rubiola* *FEMTO-ST Institute, Fr*	**MEMS for Frequency and Timing References** *Prof. Clark T.-C. Nguyen* *Univ. Michigan, USA*	**Acoustic Foundations of Piezoelectric Sensors**-Part 2 *Prof. Gerhard Fischerauer* *Univ. Bayreuth*
12:30-1:30	Lunch	Lunch	Lunch
1:30-3:30	**Digital Measurement of Precision Oscillators** *S. R. Stein* *Timing Solutions Corp., USA*	**Passive Atomic Frequency Standards** *Len Cutler* *Agilent Laboratories, USA*	**Physic-chemical foundations of piezo-acoustic sensors** *Prof. Diethelm Johannsmann* *Clausthal University of Technology*
3:30-3:45	Break	Break	Break
3:45-5:45	**Time and Frequency Transfer** *Judah Levine* *NIST, USA*	**Optical Frequency Measurement & Synthesis** *Prof. Jun Ye* *JILA, USA*	**Piezoelectric sensors as electronic/electrical devices** *Prof. Fabien Josse* *Marquette University, USA*

Student Poster Competition

Each year FCS conducts a student paper competition. The Technical Program Committees (TPC) selects student paper finalists in each of the major technical areas of the symposium.

The selection criteria are:

- Student is first author.
- Work is of high quality and done by the student.
- Abstract clearly describes the work and includes results.
- Student has not won the student prize previously.

This year 18 finalists were selected at the TPC meeting from among 46 submissions. The submissions and finalists are distributed across each of the 5 FCS groups. The competition is organized by Awards Chair, Tom Parker, and Academic Chair, Kurt Gibble, with finalists being selected by the members of each group of the TPC.

FCS standing committee academic chair, Kurt Gibble

The following is a list of this year's Student finalists.

Group1: Materials and Resonators

Comparison of High Temperature

Crystal Lattice and Bulk Thermal Expansion Measurements of LGT Single Crystal by Timothy Beaucage, Scott Speakman, Wallace Porter, Andrew Payzant, Eric Beenfeldt, Mauricio Pereira Da Cunha

Development of High Frequency Bulk Acoustic Wave Resonator Based on Thinned Monocrystalline Lithium Niobate by Dorian Gachon, Gwladys Lengaigne, Ludovic Gauthier-Manuel, Sylvain Ballandras, Vincent Laude

Orthogonal Frequency Coding for Use in Ultra Wide Band Communications and Correlators by Daniel Gallagher, Nikolai Kozlovski, Donald Malocha

Conceptual Designs of a High Q, 3.4 GHz Quartz Thin Film Resonator by Mihir Patel, Yook-Kong Yong

Group 2: Oscillators, Synthesizers, and Noise

Study of paramagnetic properties of Fe3+ ions to realizing Whispering Gallery Maser Oscillator by Karim Benmessai, Pierre-Yves Bourgeois, Mark Oxborrow, Nicolas Bazin, Yann Kersale, Vincent Giordano

Development of ultra low pahse noise X-Band oscillators by Rodolphe Boudot, Vincent Giodano, and Olivier Llopis

A Local Oscillator for Chip-Scale Atomic Clocks at NIST by Alan Brannon, Milos Jankovic, Jason Breitbarth, Zoya Popovic, Vladislav Gerginov, Vishal Shah, Svenja Knappe, Leo Hollberg, John Kitching

Miniature Oven Controlled Crystal Oscillator (OCXO) on a CMOS Chip by Jaehyun Lim, Hyunsoo Kim, Kyusun Choi, Thomas Jackson, Dave Kenny

Optimized Optical Links for High Spectral Purity Ku-Band Signal Distribution by Bertrand Onillon, Benoit Benazet, Jacques Rayssac, Olivier Llopis

Group 3: Atomic and Optical Standards and Time Keeping

An Ultraviolet Diode Laser System for Laser Cooling Trapped Ytterbium Ions by Jonathan Cox, Marko Cetina, Franz Kartner, David Kielpinski

Electrolytic Fabrication of Atomic Clock Cells by Fei Gong, Yuan-Yu Jau, Katharine Jensen, William Happe

Continuous Light Shift Correction in Modulated CPT Clocks by Vishal Shah, Svenja Knappe, Vladislav Gerginov, John Kitching

A Time and Frequency Measurement Technique Based on Length Vernier by Hui Zhou and Wei Zhou

Group 4: Sensors and Transducers

Mass Sensitive Thin Film Bulk Acoustic Wave Resonators by Marc Loschonsky, David Eisele, Leonhard Reindl

Remote Electromagnetic Excitation of High-Q Silicon Resonator Sensors by Frieder Lucklum, Bernhard Jakoby, Peter Hauptmann, Nico de Rooij

Characterizing Extracellular Matrix (ecm) Produced by Fibroblasts in Culture Using tsm Resonator by Qing-Ming Wang, Fang Li, James H-C. Wang

ZnO nanotip-Based QCM Biosensors by Zheng Zhang, Hanhong Chen, Jian Zhong, Ying Chen, Yicheng Lu

Group 5: Manufacturing and Test Technology

Design of Mini-Modular Oscillator Using RF and Microwave Design Techniques by Nikolai Koslovski, Daniel Gallagher, Erica Wells, Donald Malocha, Eric Hague

High Overtone Bulk Acoustic Resonators Built Using Aluminum Nitride Thin Films Deposited Onto at-Cut Quartz Plates by Jeremy Masson, Dorian Gachon, Sylvain Ballandras, Jean-Michel Friedt, Laurent Robert, Nicolas Bazin, Gilles Martin, Sebastien Alzuaga, Blandine Guichardaz

These finalists will be judged on the first day of the 2006 IEEE International Frequency Control Symposium 5 June 2006. The judges will select the winning Student Papers based on:

- Clarity of student's presentation.
- Depth of student's knowledge.
- Degree of the student's contribution to the project.
- Relevancy of the work to the field.

2006 FCS Awards

Awards Chair, Tom Parker (right), speaking with 2007 FCS General Chair Bernardo Jaduszliwer

Each year the FCS accepts nominations for three awards. The awards are:

The W. G. Cady Award

The W. G. Cady Award is to recognize outstanding contributions related to the fields of piezoelectric or other classical frequency control, selection and measurement; and resonant sensor devices.

The I. I. Rabi Award

The I. I. Rabi Award is to recognize outstanding contributions related to the fields of atomic and molecular frequency standards, and time transfer and dissemination.

The C. B. Sawyer Memorial Award

The C. B. Sawyer Memorial Award ("Sawyer Award") is to recognize outstanding contributions in the development, production or characterization of piezoelectric materials of interest to the Symposium Technical Program Committee, or to recognize entrepreneurship or leadership within profit or non-profit organizations in the frequency control community (including all parts of the community).

This year an excellent slate of candidates were nominated for each of these awards. The winners will be announced at the 2006 IEEE International Frequency Control Symposium 5 – 7 June in Miami, FL, USA.

Organizing Committee

Mike Driscoll
General Chair

John Prestage
Tutorial Chair

Don Malocha
Technical Program Chair

Mike Garvey
Publicity Chair

Jack Kusters
Exhibits Chair

Kurt Gibble
Academic Chair

Tom Parker
Awards Chair

Debra Coler
TPC Administrator

Ray Filler
Finance Chair

Barbara McGivney
Meeting Management and Registration

Technical Program Committee

TPC Chair:	Don Malocha
Group 1 Vice-Chair:	Gary Johnson
Group 2 Vice-Chair:	Warren Walls
Group 3 Vice-Chair:	Tom Parker
Group 4 Vice-Chair:	Leo Reindl
Group 5 Vice-Chair:	Butch Tysinger

2006 TPC in Action

Don Malocha, 2006 TPC Chair

Robert Lutwak, John Prestage, and Tom Parker

John Vig (standing) conferring with Lute Maleki

(l-r) Lute Maleki, Jackie Hines, and John Vig

Tom O'Brian and Bernardo Jaduszliwer

Bob Tjoelker, Patrizia Tavella, and John Prestage

TPC at work!

TPC at work!

Don Malocha pondering?

Rigoberto Advincula
Group: 4

Ivan Avramov
Institute of Solid State Physics
BULGARIA
Group: 2

Arthur Ballato
U.S. Army CECOM RDEC
Group: 1

Martin Bloch
Frequency Electronics Inc.
Group: 2 or 3

Jean-Simon Boulanger
Inst. of National Meas. Standards
National Research Council of Canada
Group: 3

Eric Burt
Jet Propulsion Laboratory
Group: 3

Shih S. Chuang
Statek Corp.
Group: 1

Leonard Cutler
Agilent Laboratories
Group: 3

Mauricio Pereira da Cunha
Dept. of Electrical and Computer Eng.
University of Maine
Group: 4

Andrea DeMarchi
Politecnico di Torino
ITALY
Group: 3

Scott Diddams
NIST
Group: 3

Michael Driscoll
Northrop Grumman Corp.
Group: General Chair

Errol Eernisse
Quartzdyne, Inc.
Group: 1, 5

Christopher Ekstrom
U.S. Naval Observatory
Group: 3

Jeremy K.A. Everard
Professor of Electronics
UNITED KINGDOM
Group 2

Eva S. Ferre-Pikal
University of Wyoming
Group: 2

Raymond Filler
US Army CERDEC
Group: 1

Marvin Frerking
Innovative Technology Products
Group: 2

Hugo Fruehauf
FEI-Zyfer Inc.
Group: 2

Michael Garvey
Symmetricom, TRC
Group: 3

Kurt Gibble
Penn State University
Group: 3

Electra Gizeli
Group: 4

G. Eric Hague
Mtron PTI, Inc.
Group: 1

William P. Hanson
Hanson Technologies, Inc.
Group: 4

Jackie Hines
Applied Sensor Research & Dev. Corp.
Group: 4

Dave Howe
NIST
Group: 2

Bernardo Jaduszliwer
The Aerospace Corporation, M/S M2-238
Group: 3

Steven Jefferts
NIST
Group: 3

Diethelm Johannsmann
Group: 4

Gary Johnson
Group: 1 Chair

Fabien J. Josse
Marquette University
Group 4

Vladimir A. Klipov
Sawyer Research Products, Inc.
Group 1

Alvin Kong
Northrop Grumman Corp.
Group: 1

Shigeru Kurosawa
National Institute of Advanced Industrial Science and Technology (AIST), Japan
Group: 4

Jack Kusters
Group: 1, 5

Ryszard Lec
Drexel University
Group: 4

Ralf Lucklum
Otto-von-Guericke-Univ. Magdeburg
GERMANY
Group: 4

Robert Lutwak
Symmetricom
Group: 3

Lute Maleki
Jet Propulsion Laboratory/CIT
Group: 3

Donald Malocha
University of Central Florida
Group: TPC Chair

George Mansfeld
Institute of Radioengineering and Electronics RAS
RUSSIA
Group: 1

George Maronich
Q-Tech Corp.
Group 5

Glen McHale
The Nottingham Trent University
Group: 4

Gary Montress
Raytheon Research Division
Group: 2

Bernd Neubig
Germany
Group 2 (and 1B)

Clark Ngyuyen
DARPA/University of Michigan
Group 2

Thomas O'Brian
NIST
Group: 3

Shin-ichi Ohshima
National Metrology Institute of Japan (NMIJ)
Group: 3

Thomas Parker
NIST
Group: 3 Vice Chair

John Prestage
Jet Propulsion Lab
Group: 3

Leo Reindl
Lab. Electrical Measurement Technique
GERMANY
Group: 4 Vice Chair

Victor Reinhardt
Raytheon Space and Airborne Systems
Group: 2

Enrico Rubiola
FEMTO-ST Institute, Dept. LPMO
FRANCE
Group: 2

Clemens Ruppel
EPCOS AG
GERMANY
Group: 4 & 1

Jesse Searls
Poseidon Scientific Instruments
WESTERN AUSTRALIA
Group: 2

Marco Siccardi
SKK Electronics
Group 3

Samuel Stein
Timing Solutions Corp.
Group: 3

Dan Stevens
Vectron International
Group: 1

Patrizia Tavella
IEN Galileo Ferraris
Istituto Elettrotecnico Nazionale
Italy
Group: 3

Robert Tjoelker
Jet Propulsion Laboratory
Group: 3

Michael Tobar
The University of Western Australia
Australia
Group: 2

Dmitry Tsarapkin
MPEI Krasnokazarmennaya str.,
RUSSIA
Group 2

Butch Tysinger
Symmetricom
Group 5 Chair

John Vig
U.S. Army Communications Electronics RDEC
Group: 1,2

Yakov L. Vorokhovsky
RUSSIA
Group 1 & 2

Warren Walls
Lockheed Martin Space Systems
Group: 2 Chair

Ji Wang
Ningbo University
CHINA
Group: 1

Yasuaki Watanabe
Tokyo Metropolitan University
Group 1 or 2

Joseph White
U.S. Naval Research Laboratory
Group: CO-General Chair

Yook-Kong Yong
Rutgers University
Group 1

Wei Zhou
Xidian University
CHINA
Group 3 and 5

Debra Coler
Technical Program Committee Administrator
OEwaves, Inc

15th IEEE International Symposium on the Applications of Ferroelectrics

15th IEEE INTERNATIONAL SYMPOSIUM ON THE APPLICATIONS OF FERROELECTRICS
30 July - 2 August 2006
Sunset Beach, NC USA

Special Notes

Location: The Sea Trail Golf Resort and Conference Center, Sunset Beach, NC USA
Date: 30 July – 2 August 2006

- Deadline for Early Conference Registration: 15 June 2006
- Hotel registration best before: 30 June 2006
- http://www.mse.ncsu.edu/isaf2006/index.html

Welcome from the General Chair

Jon-Paul Maria

The SeaTrail offers a conference location with state of the art facilities set against the beautiful North Carolina Coast. The conference site and rooms are tucked among three award-winning golf courses which border North Carolina's most southern stretch of the intercoastal waterway, lying just a few hundered yards from Sunset Beach, the southern-most stretch of the beautiful Outer banks barrier islands. Our organization committee has worked especially hard to provide an affordable venue that will promote interaction between our international participants, and will encourage student participation. We look

forward to an exciting technical program, superb conference facilities, and a social program enhancing the camaraderie of the ferroelectrics community.

Jon-Paul Maria
General Chair

Hotel Registration

condominium name	# beds	style	location	daily rate (USD)
The Champions - 1 bedroom	2	1 bedroom + living room	short walk to conference center	149
The Champions - mini suite	2	standard hotel room	short walk to conference center	111
River Creek - 1 bedroom	2	1 bedroom + living room	1 km from conference center	134
River Creek II - delux mini	2	standard hotel room	1 km from conference center	105
River Creek - mini suite	2	standard hotel room	1 km from conference center	97
Royal Post - 1 bedroom	1 or 2	1 bedroom + living room	1.5 km from conference center	109
Royal Post - guest room	1	standard hotel room	1.5 km from conference center	83
Club Villa - 2 bedroom	4	2 bedroom condominium with large kitchen and living room	1 km from conference center	212
Club Villa - 3 bedroom	5	3 bedroom condominium with large kitchen and living room	1 km from conference center	309

Note: please contact the sea trail for specific information regarding the Club Villa units to ensure the correct number of rooms and beds.

The sea trail golf and conference resort does not have one large single hotel, rather the sea trail consists of small condominium-style rooms which are reserved in the same manner as a standard hotel room. The condominiums are spread over the Sea Trail property, most being located to overlook one of the many golf holes on the resort. All condominiums include daily hotel-style housekeeping service.

There are a variety of accommodations that can be reserved, ranging from very small guestrooms that resemble a simple standard hotel room to multi-bedroom units that can accommodate small groups.

Please note that the Sea Trail is a large property, and some of the condominiums are roughly 1.5 km from the conference center. There are shuttle services that can transport you to and from your condominium, but if you want to be located within a very short walk to the conference areas, you will want to reserve in the "Champions" area.

To make a reservation, please contact Ms. Rachel Wolfe (+1.919.515.2377) or rmwolfe@ncsu.edu. You may also contact the Sea Trail directly to make your selection (+1.888.229.5747). To ensure the condominium of your choice is available, it is advisable to make your reservation by 30 June 2006

Symposium Registration Information

Registration Fees

	Before 15 June 2006	After 15 June 2006
IEEE member	550	600
IEEE non-member	650	700
IEEE retiree	275	300
IEEE student member	175	200
IEEE student non-member	200	225
spouse/guest	75	100

Please note that the registration fee includes all meals at the conference. This includes a continental breakfast, a morning coffee break, lunch, and an afternoon coffee break Monday through Wednesday of the Symposium. It also includes a Welcoming Reception Sunday evening, an East-Carolina Bar-B-Q Monday evening, a Carolina Shrimp Feast Tuesday evening, and a Farewell Banquet Wednesday evening.

Registration forms may be found on the Symposium website: http://www.mse.ncsu.edu/isaf2006/registration.htm. You may also register by contacting the Conference Coordinator directly:

Rachel Wolfe
Conference Coordinator
Department of Materials Science & Engineering
North Carolina State University
Campus Box 7907
Raleigh, NC 27695-7907
Phone: (919) 515-2377
Fax: (919) 515-7724
rmwolfe@ncsu.edu

Transportation Information

The Sea Trail Golf Resort and Conference Center is located close to the North Carolina / South Carolina border. It is approximately 30 minutes from the Myrtle Beach Airport and about 40 minutes from the Wilmington Airport. It is recommended to fly into the Wilmington Airport (www.fly-ilm.com).

The suggested modes of travel from the Wilmington Airport and the Sea Trail Conference Center are:

1. Cars can be rented from the Wilmington (ILM) airport. The drive from the Wilmington to the Sea Trail is about 40 minutes and the directions are simple. Avis, Hertz, National, and Thrifty rental services are available.

2. Taxi service is available. The taxi fare from Wilmington airport to the Sea Trail should be approximately $65, and the trip should take about 40 minutes.

3. The conference will organize bus service between the Wilmington airport and the Sea Trail. Depending on interest level, several bus trips will be scheduled. The conference organizers will be emailing all authors to determine how many busses will be needed, and what times the busses will be scheduled. Tentatively, we will schedule early afternoon and late afternoon trips.

Technical Program

We have approximately 300 submitted abstracts, and expect an attendance of 350. The program will consist of approximately 33% piezoelectrics, 33% thin films, and 33% fundamentals and characterization.

The invited and plenary speakers include:

Plenary Speakers

Rammamoorthy Ramesh	Berkeley	Progress in Ferroelectric Thin Films
Dragan Damjanovic	EPFL	Issues in Piezoelectricity
Hirokazu Chazono	Taiyo Yuden Corporation	Trends in Bulk Dielectrics

Bulk Dielectrics

Clive Randall	Penn State	Trends in Dielectrics
Taakaki Tsurumi	Tokyo Institute of Technology	Impedance Spectroscopy

Thin Film Capacitor Materials

Darrell Schlom	Penn State	Epitaxial Ferroelectrics
Robert Heistand	AVX Corporation	Integrated Passives
Alan Doolittle	Georgia Institute of Technology	Ferroelectric-GaN Epitaxy
Bob York	Agile	Tunable Microwave Technology

FeRAM

Yoshihisa Kato	Panasonic Corporation	Progress in FeRAM
Ted Moise	Texas Instruments	Progress in FeRAM

Theory

Stephen Streiffer	Argonne National Laboratory	Domains in PZT Films

Piezoelectrics

Tom Shrout	Penn State	High T Piezoelectrics
Ian Reaney	Sheffield	PZT Investigations
Paul Muralt	EPLF	Ferroelectric MEMS
Ahmad Safari	Rutgers	Piezoelectric Processing
Orlando Aucielle	Argonne National Laboratories	PZT and Diamond Integration

Characterization

Andreas Ruediger	Julich	SPM Techniques
Xiaoqing Pan	University of Michigan	TEM of Ferroelectric Materials
Jeremy Levy	University of Pittsburgh	Optical Characterization
Brian Rodriguez	Oak Ridge National Laboratory	SPM Techniques

Awards

Best Paper Awards

We will be sponsoring three best paper awards, one each in the areas of dielectrics, thin films, and piezoelectrics. An on-site awards committee will select the winners, and the cash prizes will be awarded at our farewell dinner on 2 August 2006.

UFFC Achievement Award

Bob Newnham will be receiving the UFFC Achievement Award. This will be presented to him at the conference banquet on 1 August 2006.

Golf Outing

If there is sufficient interest, we would like to organize a Sunday morning outing on one of the three on-site golf courses. We anticipate initial tee times around 10:00 am to ensure plenty of time to finish the round prior to Sunday afternoon registration and the Sunday evening conference reception.

All attendees will be solicited via email to determine their interest in participating.

Organizing Committee

Jon-Paul Maria
General Chair

David P. Cann
Technical Program Chair

Xiaoli Tan
Program Co-Chair

Hiroshi Funakubo
Program Co-Chair

Glenn Fox
Program Co-Chair

Alexei Gruverman
Proceedings Chair

Angus I. Kingon
Finance Chair

Susan Trolier-McKinstry
Publicity Chair

Nazanin Bassiri Gharb
Webmaster

Corporate sponsorship

- Ramtron International Corporation
- Radiant Technologies
- Tayo-Yuden Corporation

2006 IEEE International Ultrasonic Symposium

2006 IEEE International Ultrasonics Symposium
3 – 6 October 2006
Vancouver, BC Canada

Special Notes

Dates: 3 – 6 October 2006
Location: Vancouver, BC, Canada
Venue: Westin Bayshore Resort and Marina
Abstract Deadline: 1 May 2006

An Invitation from the General Chair

Stuart Foster

Welcome to Vancouver!
The 2006 IEEE International Ultrasonics Symposium will be held in Vancouver, British Columbia, Canada from October 3–6, 2006.

The conference will be held at the Westin Bayshore Resort and Marina, situated in the heart of Coal Harbour, one of Vancouver's most historical areas. It is a modern, very well equipped conference centre that is perfectly suited for conferences like the Ultrasonics Symposium.

Vancouver is a vibrant multicultural city nestled on the slopes of the majestic Coast Mountain range that form the northern edge of the metropolis, and are a major part of its spectacular views. It is a quintessential North American west coast city; beautiful, diverse, irreverent, and teaming with life.

In addition to the natural splendour you'll find many museums, art galleries, sports activities, and oases of tranquility within easy walking distance of the conference centre. Vancouver/Whistler is also the site of the 2010 Winter Olympics. The Ultrasonics Symposium is a great opportunity for a preview of the fun to come.

Hope to meet you in Vancouver, Best regards,

F Stuart Foster
General Chair
stuart.foster@sw.ca

Call for Papers

For this conference papers are solicited describing original work in the field of ultrasonics.

The deadline for submission of abstracts will be May 1, 2006.

Poster and oral presentation formats will be used at the symposium.

Prospective authors should note that poster sessions provide an alternative format which allows for greater flexibility and expanded audience interaction.

The abstracts should be submitted in electronic form according to the specific information posted on the conference web page.

Each abstract will receive careful review and evaluation by the Symposium Technical Program Committee. Evaluation criteria will include originality of the work, contribution to the state-of-the-art, and overall interest to the ultrasonics community. Each abstract should be specific, contain clearly identified new material, and include quantitative information or data.

A good abstract must clearly and concisely explain the background, methods and conclusion of the paper. Results of research should be clearly indicated in the abstracts.

Papers are solicited from the following subject classifications:

Group 1: Medical Ultrasonics

MBB	Medical Beamforming and Beam Steering
MBE	Biological Effects & Dosimetry
MBF	Blood Flow Measurement
MCA	Contrast Agents
MEL	Elastography
MIM	Medical Imaging
MSP	Medical Signal Processing
MTC	Medical Tissue Characterization
MTH	Therapeutics, Hyperthermia, Ultrasound in Surgery

Group 2: Sensors, NDE & Industrial Applications

NAM	Acoustic Microscopy & Imaging
NAS	Acoustic Sensors
NDE	General NDE Methods
NMC	Material & Defect Characterization
NPM	Wave Propagation
NSP	Signal Processing
NTD	Transducers: NDE and Industrial

Group 3: Physical Acoustics

PBW	Bulk Wave Effects & Devices
PGP	General Physical Acoustics
PMI	Magnetic Interactions
POI	Optical Interactions
PUM	Ultrasonic Motors & Actuators

Group 4: Surface Acoustic Waves

SAO	SAW Acoustoelectric Effects & Devices
SDO	SAW Devices & Oscillators
SFT	SAW Filters & Transducers
SMP	SAW Materials & Propagation
SSA	SAW System Applications
SSP	SAW Signal Processing
STD	SAW Thin-Films & Devices

Group 5: Transducers and Transducer Materials

TFA	Transducer Modeling (FEA and Analytical)
TFT	Transducer Fabrication Technology
TMC	Transducer Material Characterization and Modeling
TMM	Materials/Technology for Medical Transducers
TMT	Medical Transducers
TMU	Micromachined Ultrasound Transducers
TPF	Piezoelectric and Ferroelectric Transducer Materials

Organizing Committee

General Chair
F.S. Foster

Technical Chair
Geoff Lockwood

Finance
Michael Kolios

Short Courses
John Hossack

Exhibits
Sorah Rhee

Editorial
Marjorie Passini Yuhas

Awards
Reinhard Lerch

2005 JOINT IEEE IFCS and PTTI Conference Highlights

2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval (PTTI) Systems and Applications Meeting 29-31 August 2005 Vancouver, BC, Canada

A Reflection from the General Chair

In 2005, a suggestion first made several years before finally became a reality. In August, the first-ever Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval (PTTI) Systems and Applications Meeting was held at the Hyatt Regency Hotel in Vancouver, BC, Canada, 29-31 August .

Mike Driscoll, Co-General Chair

Joe White, Co-General Chair

The meeting followed the usual format of three days for technical sessions, plus one day for Tutorial sessions. The General Co-Chairs and TPC Co-Chairs were Mike Driscoll and Joe White, and Chris Ekstrom and Bob Tjoelker, respectively. Sheila Faulkner (Sachs Freeman Associates, Inc.) was the designated meeting manager, Barbara McGivney (Synergistic Management Services) handled registration-related activities, and Debra Coler (OEWaves, Inc.) acted as the TPC Administrator. The web-based site for abstract submission and program preparation worked smoothly and to everyone's satisfaction.

Chris Ekstrom, TPC Co-Chair

Bob Tjoelker, TPC Co-Chair

The Tutorial and Technical Programs, hotel facilities (including meeting rooms, exhibit hall, and food and beverage) were all excellent and offered attendees from both groups a unique opportunity to interact both technically and socially. We had very good exhibit representation consisting of 38 booths. There were

(l-r) Mike Driscoll, Sheila Faulkner, Chris Ekstrom, Barbara McGivney, Bob Tjoelker, and Debra Coler

approximately 190 papers presented by authors from 25 countries on 6 continents.

Corporate, laboratory, and academic institution donations were especially generous, and were able to offer travel support to students and other presenters who would have otherwise been unable to attend the conference.

The Banquet (arranged by Sheila Faulkner) surely "spoiled" the attendees. It was held on the 34th floor with a panoramic view of the city, was "first-class", and featured a chocolate fountain in the desert area.

Norman Ramsey, PTTI Distinguished Service Award recipient

The PTTI awardee, Dr. Norman Ramsey, represented a special treat. Dr. Ramsey, a Nobel Laureate, celebrated his 90th birthday the day before the Conference.

The success of the meeting was due to the hard work of close to 100 people, most of them volunteers. I would like to take this opportunity to acknowledge all of them, including those who served on the Technical Program Committee, and especially the members of the Organizing Committee. Their commitment, expertise, and continual service to our Society have my grateful thanks.

Dr. Michael M. Driscoll
Co-General Chair

Attendance

The total attendance for the 2005 Joint Conference was 396, which included:

IEEE Members	97
Non-Members	161
One Day	5
Students	43
Retirees	4
Life Members	7
Complimentary Invited	15
Exhibit Comp	34
Exhibit Only	30

Attendees represented 28 countries. 62% percent were from the United States. The next largest single country attendance was 7.5 percent from Japan, 5.4 percent from France, 3.9 percent from Germany, 3.6 percent from China, and about 2 percent each from Russia, Canada, and Australia.

The attendance by Regions as designated by IEEE was:

Regions 1 –6 (USA)	62.53%
Region 7 (Canada)	2.06%
Region 8 (Europe, Middle East, Africa)	20.36%
Region 9 (Central and South America)	0.77%
Region 10 (Asia, Australia, New Zealand)	14.69%

The Plenary Session

On Monday morning, 29 August 2005 Mike Driscoll and Bob Tjoelker, Co-General Chairs, officially declared the symposium open followed by an Awards Presentation and a Plenary Session. The awards ceremony may be found under the FREQUENCY CONTROL AWARDS section of this newsletter.

The Plenary Lecture titled "MEMS Technology for Timing and Frequency Control" was presented by Dr. Clark T.-C. Nguyen. The lecture was well received. It was followed by a lively question and answer period.

Clark Nguyen, Plenary Speaker

Plenary Lecturer Clark Nguyen

Ivan Avramov

Leo Holberg with the microphone

Lute Maleki

Peter Handel

Which screen are you watching?

Student Paper Competition

A highlight of the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval (PTTI) Systems and Applications Meeting was the Student Poster Competition. The Technical Program Committees (TPC) selected student paper finalists in each of the major technical areas of the symposium.

The selection criteria are:

- Student is first author.
- Work is of high quality and done by the student.
- Abstract clearly describes the work and includes results.
- Student has not won the student prize previously.

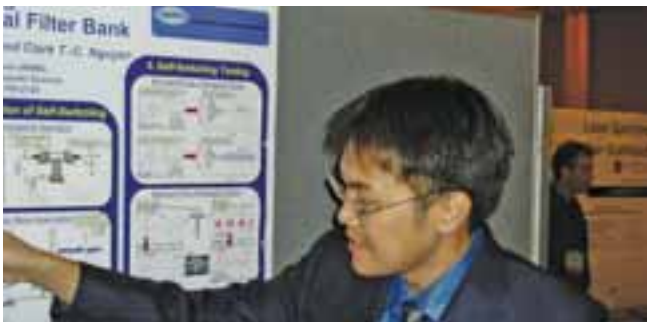
Student Paper Finalists

On the first day of the symposium, August 29, the 13 Student Finalist Posters were presented for judging by a panel of experts from each of the major technical groups of the Symposium. The student paper finalists were:

Group 1; Materials, Filters, and Resonators

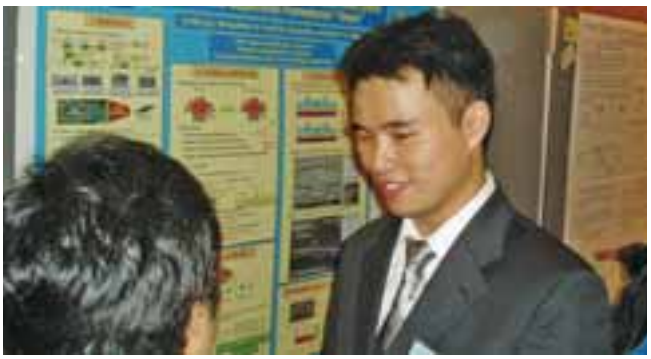
Mihir Patel, Rutgers University, USA

Drive Level Dependency in Piezoelectric Resonators
by Mihir Patel, Yook-Kong Yong, Masako Tanaka, Tsutomu Imai



Sheng-Shian Li, University of Michigan, USA

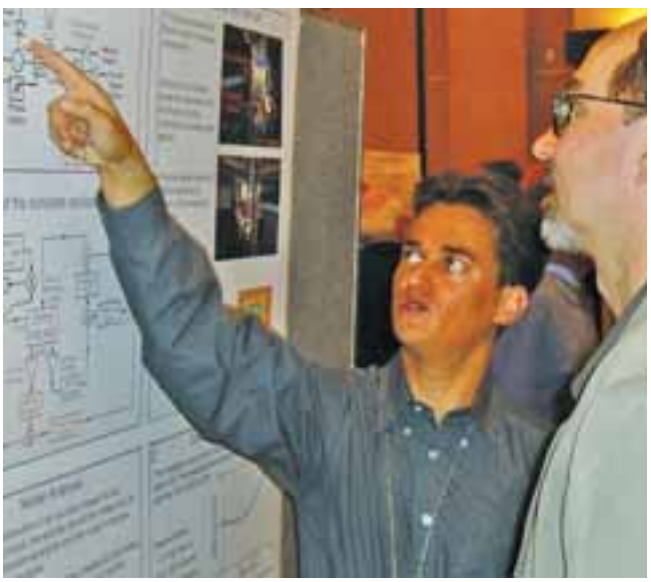
Self-Switching Vibrating Micromechanical Filter Bank
by Sheng-Shian Li, Yu-Wei Lin, Zeying Ren, Clark T.-C. Nguyen



Yu-Wei Lin, University of Michigan, USA

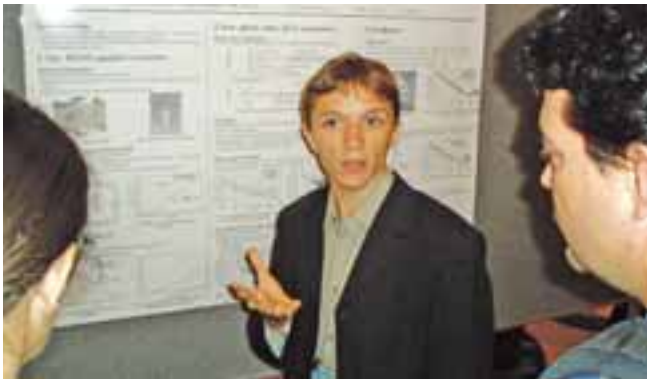
Vibrating Micromechanical Resonators With Solid Dielectric Capacitive-Transducer "Gaps"
by Yu-Wei Lin, Sheng-Shian Li, Zeying Ren, Clark T.-C. Nguyen

Group 2: Oscillators, Synthesizers, and Noise



Ronni Basu, The Technical University of Denmark, Denmark

Novel Design of an All-Cryogenic RF Pound Circuit
by R. Basu, G. J. Dick, R. T. Wang



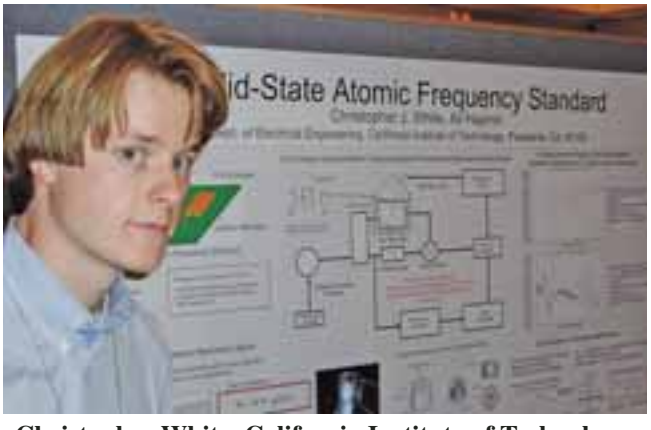
Rodolphe Boudot, FEMTO-ST Institute, Université de Franche-Comté, Besançon, France

Sapphire resonators+SiGe transistors based ultra low phase noise oscillators
by Rodolphe Boudot, Sebastien Gribaldo, Vincent Giordano, Olivier Llopis

Bertrand Onillon, LAAS-CNRS, France

Optical Links for Ultra Low Phase Noise Microwave Oscillator Measurement
by Bertrand Onillon, Stéphanie Constant, Olivier Llopis

Group 3: Time Keeping, Optical and Atomic Standards



Christopher White, California Institute of Technology, USA

A Solid-State Atomic Frequency Standard
by Christopher White, Ali Hajimiri

Amber Post, Princeton University, USA

Optimization of FM and AM Pumping light for CPT Resonances at High Buffer Gas Pressure
by A. Post, Y.Y. Jau, F. Gong, N.N. Kuzma, W. Happer

Daniel Farkas, Harvard University, USA

High Precision Laser Spectroscopy with Femtosecond Frequency Combs
by Daniel Farkas, Gerald Gabrielse

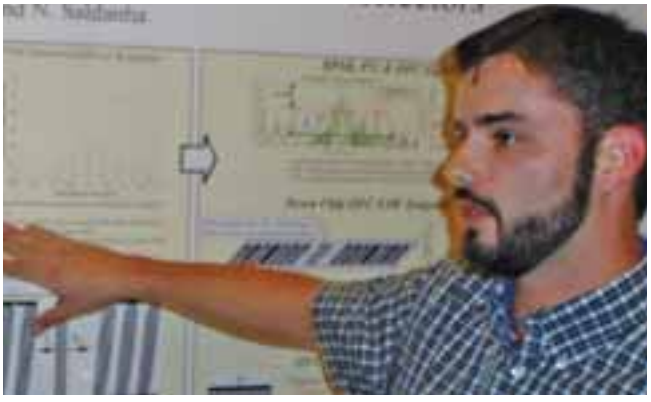
Group 4: Sensors and Transducers

Hao Zhang, University of Southern California, USA

High-frequency Bulk Acoustic Resonant Microbalances in Liquid
by Hao Zhang, Wei Pang, Eun Sok Kim

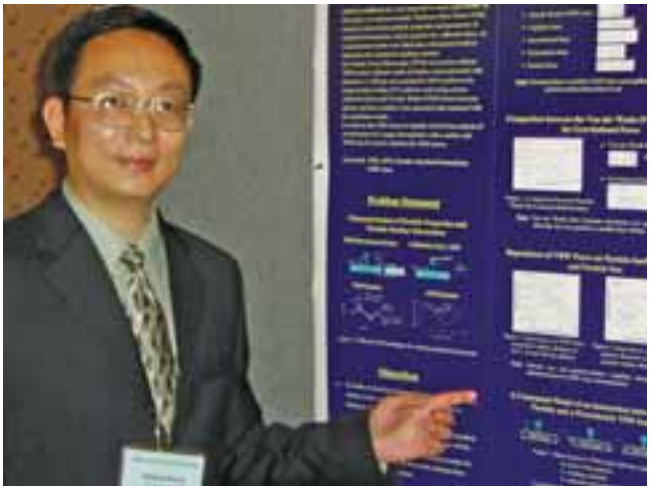
Sun Jong Kwoun, Drexel University, USA

The Study of Interaction of Superhydrophobic Materials with Fluids using TSM Sensors
by Sun Jong Kwoun , C. Jeffrey Brinker, Richard Craincross, , Pratik Shah, Ryszard Lec



Derek Puccio, University of Central Florida, USA

Implementation of Orthogonal Frequency Coded SAW Devices using Apodized Reflectors
by Derek Puccio, Don Malocha, Nancy Saldanha



Qiliang Zhang,

Combination of TSM and AFM for Investigating an Interfacial Interaction of Particles with Surfaces
by Qiliang Zhang, Johann Desa, Ryszard Lec, Guoliang Yang, Kambiz Pourrezaei

Student Paper Winners

The final judging of the Student Papers includes:

- Clarity of student's presentation.
- Depth of student's knowledge.
- Degree of the student's contribution to the project.
- Relevancy of the work to the field.

The Student Paper winners were announced at the Industry Sponsored Reception Monday evening. Gerry Blessing, UFFC Society President presented the winners with a certificate, $100 USD, and commemorative laser etched "crystals". It appeared that they were having a rousing good time. Congratulations to all!

Gerry Blessing announcing the Student Paper Winners

Yu-Wei Lin, Group 1 Winner

Ronni Basu, Group 2 Winner

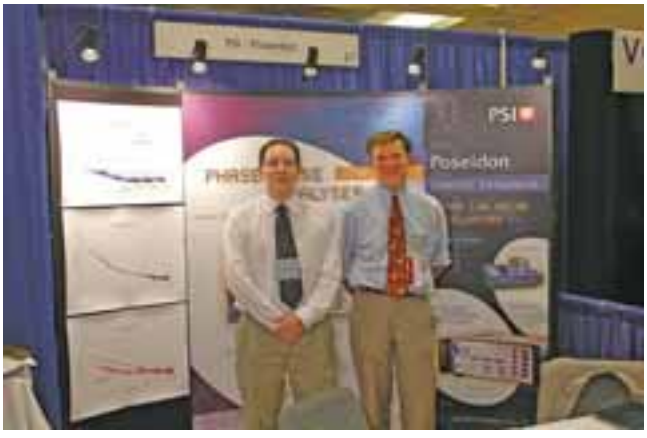
Daniel Farkas, Group 3 Winner

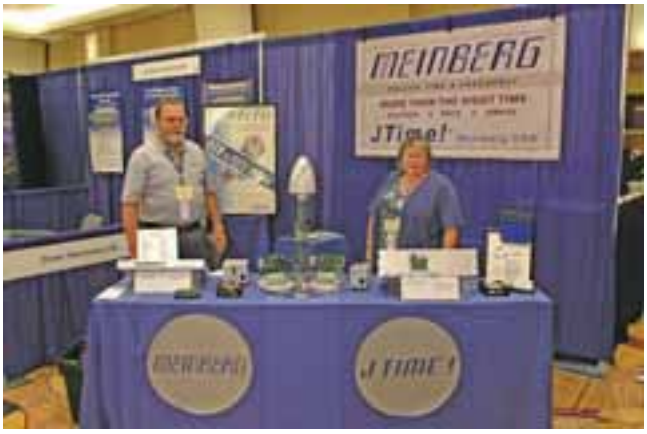
Rick Puccio, Group 4 Winner

A Special thank you to all the judges in this year's contest: Dan Stevens, Jack Kusters, Alvin Kong, Michael Tobar, Stefania Romisch, Enrico Rubiola, Bernardo Jaduszliwer, Lute Maleki, Robert Lutwak, Errol Eernisse, Leo Reindl, and Bill Hanson.

2005 Exhibitors

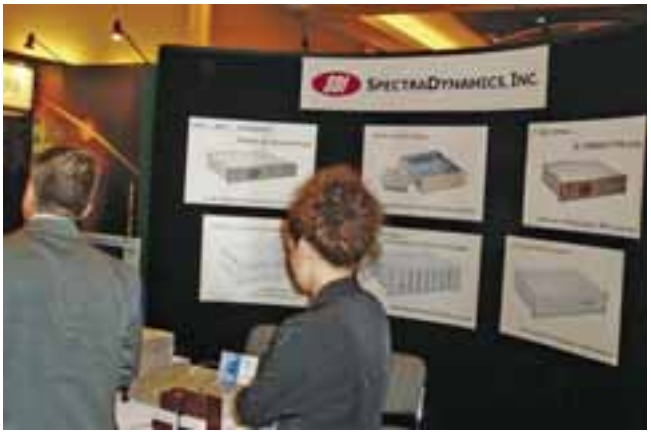
There were 38 exhibitors at this year's symposium. The Monday evening reception was sponsored by the exhibitors and held in the exhibitor area. With the mid-day breaks held just outside the exhibit area there were many opportunities for contact and interaction between attendees and exhibitors.




MEINBERG
JTime!

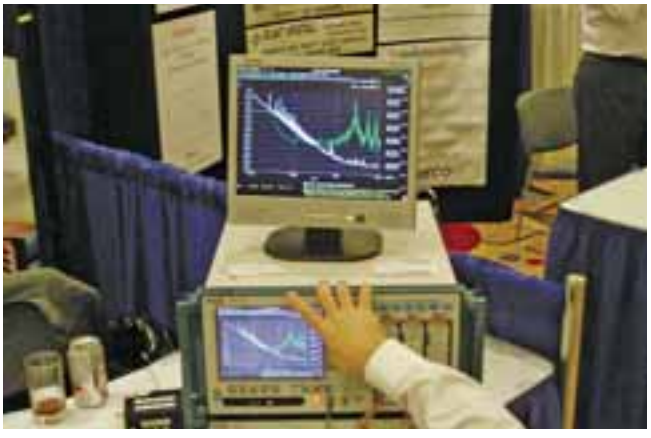

Nofech Electronics
SC-Cut
Crystals

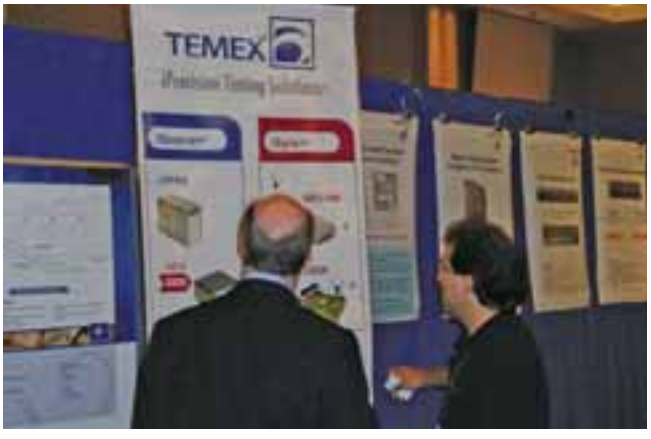

Innovation
TIMING SOLUTIONS


SPECTRADYNAMICS INC


TRAK
TRAK


VCAmerica

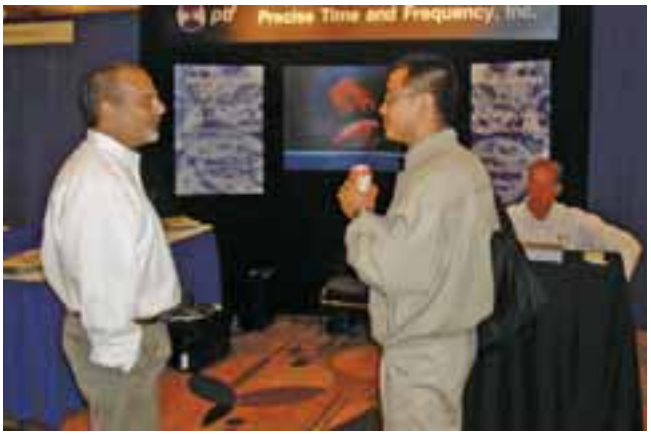



TEMEX

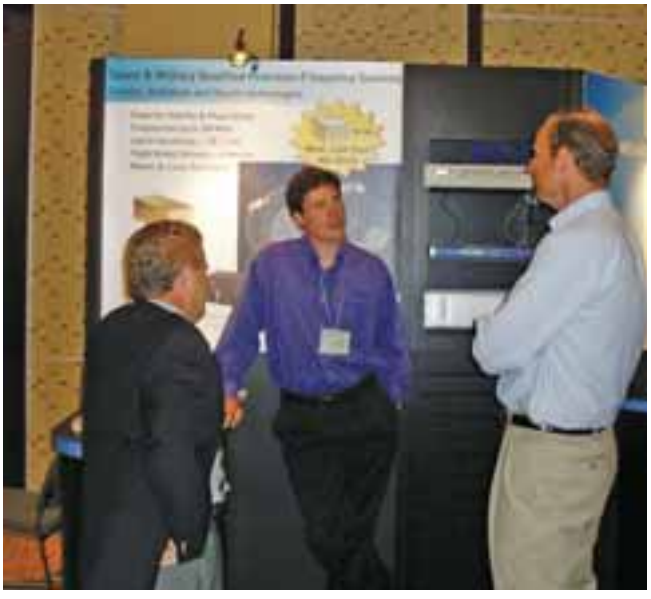

S&A


AdTech Ceramics
STATEK
PRECISION

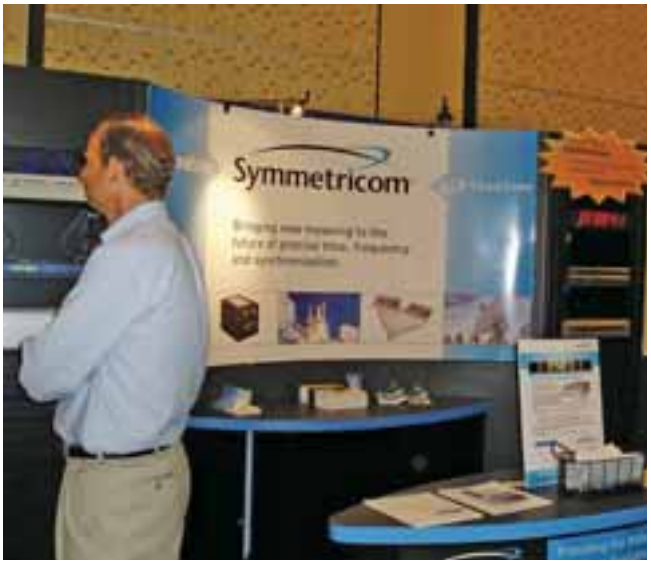

Loran Receivers
LOCUS
LOCUS


Precise Time and Frequency, Inc.


U.S. Naval Observatory
"Sky With Ocean Joined"




GPS WORLD


Symmetricom

President's Reception

UFFC President, Gerry Blessing, held a reception to congratulate the Award winners and to thank the Symposium Organizing Committee and the Technical Program Committee.

Norman Ramsey with Fred Tettelback

Rick Puccio and Don Malocha share a laugh with Debra Coler

Jack Kusters and Joe White

Clark Nguyen and Martin Bloch

Sheila Faulkner and Sam Stein

Gerry Blessing telling a joke

Debra Coler and Clark Nguyen

Ted Hänsch and Ellie Ramsey

Norman Ramsey with Clark and Betty Wardrip

Staffan Johansson, Helmut Imlau and Hartmut Roth

John Prestage, Sam Stein, and Gerry Blessing

Crudité anyone?

At the Industry Sponsored Reception

Jack Kusters and Shrimp galore!

Victor Reinhardt (c) and Norman Ramsey

Butch Tysinger and Chef

David Symonds (r) chats with friend.

(l-r) Zhiheng Jiang, Robert Lutwak, David Briggs, and Fred Zwart

Elizabeth Donley and Mike Lombardi

(l-r) John Dick, Rabi Wang (partially hidden), John Lauf asleep on his feet, Charles Greenhall

Svenja Knappe

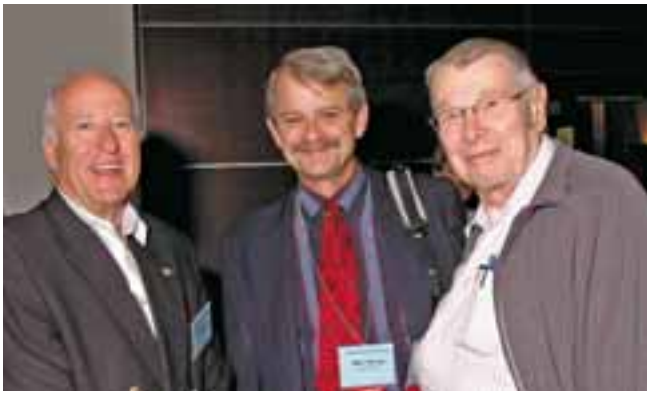
John Kitching and Robert Wynands

Look at the Chocolate Fountain!

I ate it all!

Christine Mancini (l) caught in action with Tatiana Bloch

I'll have more, please.



(l-r) Jacques Vanier, Mike Garvey, and Len Cutler

The perfect drip!

At registration

Judah Levine "The chocolate tower to myself!"

Judah Levine, Demetrios Matakis and Marvin Epstein. I know it is in here!

Around the Symposium

Norimasa Yoshimizu (c), Shankar Radhakrishan (r), and friend

Gerry Blessing

Norman and Ellie Ramsey

Ted Hänsch, Nobel Laureate

(l-r) Bob Tjoelker, Chris Ekstrom, John Vig, and Ted Hänsch

Charles Stone receiving the Cady Award from Martin Bloch

Tom Parker

Tom Parker, Awards Chair: "I just did what?"

Leo Hollberg and Tom Parker presenting the Rabi Award to Theodor Hänsch

Jack Kusters: "Don't worry Tom, I'll fix it!"

Sam Stein, Sawyer Award recipient

Leo Holberg

At the sessions

Sam Stein

At the sessions

Norman Ramsey

Mike Drisoll and Joe White: Who sits in front?

Fred Tettelback

Bernardo Jaduszliwer

John Kitching

Ivan Krivokapic

At the sessions

Shouhua Huang

Jack Kusters (r) congratulating Sam Stein

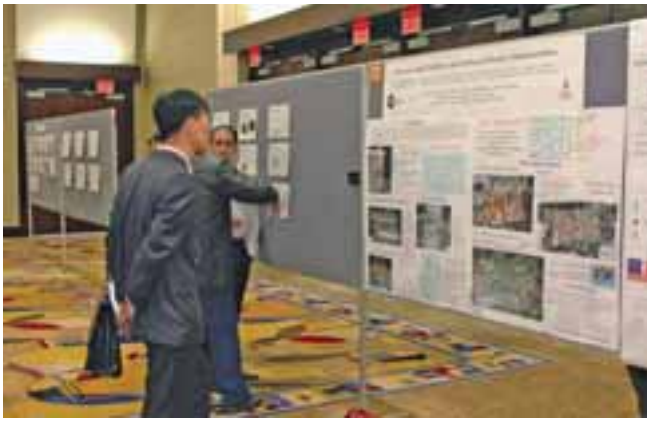
At the sessions

Ellie and Norman Ramsey with Victor Reinhardt

Norman Ramsey with Mike Driscoll

Setting up Posters

Charles Stone with Martin Bloch



Setting up Posters

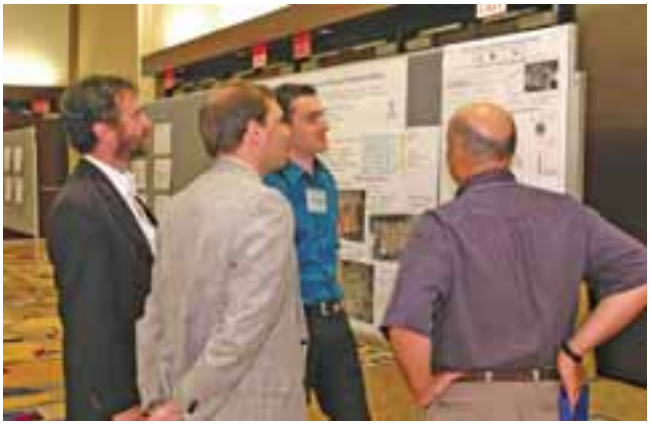
Leo Holberg with Ted Hänsch

Setting up Posters

Frequency Control and PTTI Awardees and presenters (from left to right) Leo Hollberg, Ted Hänsch, Charles Stone, Martin Bloch, Norman Ramsey, Victor Reinhardt, Sam Stein, Jack Kusters, and Tom Parker

Setting up Posters

Setting up Posters



Setting up Posters

Bob Tjoelker and Chris Ekstrom, TPC Co-Chairs

Eager onlookers

Butch Tysinger

All Smiles

Vancouver sites

Vancouver sites

Patrizia Tavella

Patrizia Tavella and James Camparo

Lunch

Tom Van Baak and Peter Lothberg

More Lunch

Eating is a must

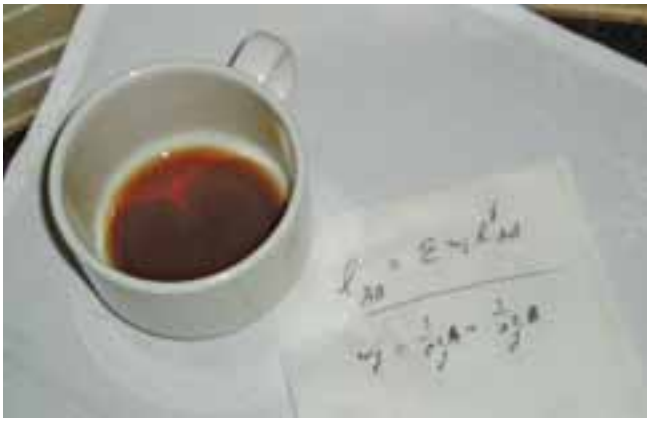
Yet more food

Lunch time again

Oh, Oh Ice Cream!

Steve Jefferts and Leo Hollberg

Patrizia Tavella and Diego Orgiazzi



Patent Pending

The ice cream line is popular!

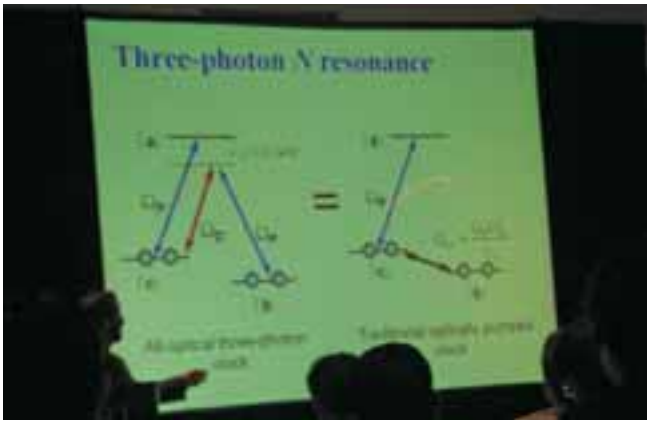
Poster Session

Norman Ramsey and Ben Entezam

Nikki Jardine

At the sessions

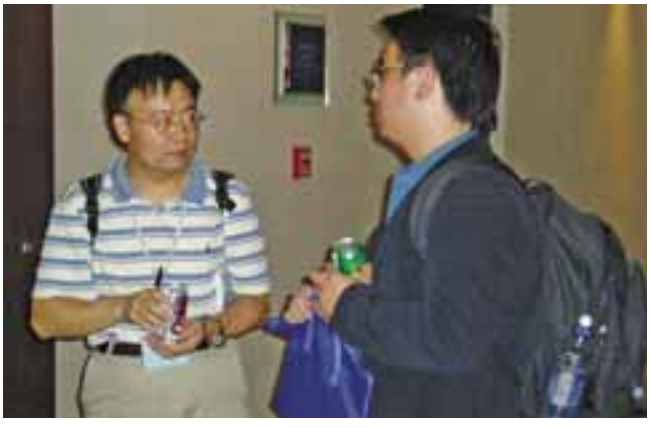
Stephania Romisch and Enrico Rubiola



At the sessions

Bernardo Jaduszliwer (c) and Ben Ong (r) with a friend

Ken Lakin and George Maronich



Catching up

Len Cutler with Jacques Vanier, Note the camera on the camera!

Butch Tysinger and Martin Bloch

Albert Riso (r) and Friend

Even more food!

Time to eat!

Lidmila Burianova and Jaroslav Nosek

So little time to eat.

More food.

Some of us must eat now.

Ellie and Norman Ramsey

Lingering after lunch Jacques Vanier, Norman Ramsey, and Victor Reinhardt

You're invited to lunch!

The "Best Dressed Guys" Gerry Blessing, Mauricio Pereira da Cunha, and Mike Garvey

2006 IEEE International Ultrasonics Sumposium Highlights

2005 IEEE International Ultrasonics Symposium Rotterdam, The Netherlands 18 – 21 September 2005

Reflections from the General Chair

Ton van der Steen

On October 17th 1999 it was decided that the IEEE Ultrasonics symposium conference could come to Rotterdam, the Netherlands in 2005. This was the beginning of a journey that in retrospect has all the hallmarks of the preparation of an Indonesian Rijsttafel. Although it only takes an hour or so to consume, it takes close to a week to prepare. Many shortcuts are possible and many details can be skipped, after all a nasi goreng can also be prepared in 17 minutes, but the real connoisseur will appreciate the care that has been put into it, when it is prepared to its full extent.

The conference was held in September, because the weather conditions in The Netherlands are more favorable than later in the year, and indeed the weather was beautiful. Although there was some fear that the level of attendance could be affected by the fact that the conference was in Europe and that international travel nowadays is more complicated than it was before 2001, the number of registrants was just under 1100, an all time high.

Ton opening the Symposium

The Venue

The conference was held in "De Doelen", a conference centre at Rotterdam Central Railway Station, which was a 40-minute train ride from Schiphol, Amsterdam International Airport. It was a modern, very well equipped conference centre that is perfectly suited for conferences around 1000 delegates. The lecture rooms all had their own character but were spread out through the conference centre. This certainly had its charm, but made the logistics within the building sometimes a bit complicated.

On the day the conference was assigned to Rotterdam, the dollar was much stronger with respect to the Euro than in fall 2004, when the outline of the social program was put together. In order to make an attractive social program possible extensive sponsoring was solicited. Philips Medical Systems was the first to put in a significant amount, taking care that not only there was an extensive well catered social program possible, but also that the main event could be offered for marginal registration fee for delegates and only token registration fee for students.

The city of Rotterdam also greatly supported the symposium. Not only did the Development Cooperation City

Ivo W. Opstelten, Mayor of the City of Rotterdam

of Rotterdam and The Port Authority of Rotterdam financially contribute to the symposium, but the Mayor of Rotterdam gave a well prepared welcome speech and assisted in handing out the student poster awards. The fact that the city of Rotterdam takes pride in hosting symposia like the IEEE Ultrasonics Symposium made the General Chair proud to work in this city.

The Symposium Symbol

Ton with the Echoapparatus

In addition to the Erasmus Bridge, a symbol of the Symposium was the yellow Echoapparatus.

The Yellow Echoapparatus is called a Minivisor, aka The Mushroom. It is the first portable echomachine in the world built in 1977 by Kees Ligtvoet, Hans Rijsterborgh and Klaas Bom. It contains a linear array transducer that can indeed make moving B-mode images. It was built for General Practitioners and Midwifes, applications in cardiology and Obstetrics and Gynecology. Organon Tecnica produced a 1000 of them. The apparatus had a market price of 3500 Dollars, which was too much for that era. Portable machines became popular around the turn of the century, 20 to 25 years later.

The dream team

Cooking for 1100 people is a bit much. Ton van der Steen, the GeneraI Chair, had the honor to work with one of the best symposium organizing committees a general chair can desire.

Ton van der Steen and John Hossack

John Hossack took the lead to put the technical program together. The number of submitted abstracts had broken all records, so we were forced to go to 6 oral sessions in parallel and extensive poster sessions.

Herman van de Vaart with his wife Tania

Herman van der Vaart had arranged the finances for many years, and he fortunately accepted the task again for this year. His experience and gut feeling saved many challenging situations.

Gerry Blessing and Nico de Jong

Nico de Jong organized the short courses for this year. His experience as a tutor was of great help. The attendance was an all time high.

Sorah Rhee and Gerry Blessing

Sorah Rhee did the publicity for the conference. In competition with many other conferences this is an important task

Gerry Blessing and Chris de Korte

Chris de Korte did the exhibits and sponsoring. Both exceeded expectations

Marj Yuhas and Gerry Blessing

Marjorie Yuhas did the proceedings. Her work only started when we were all finished.

Gerry Blessing and Reinhard Lerch

Reinhard Lerch was the awards chair. He deserves credits for giving all the awardees the honor they deserved in the limited time the general chair allowed.

And behind the scenes:

FASS, in particular Gayle Gleichman and Ron Keller, responsible for putting together the scientific program and registration

Het congresbureau, in particular Susan Dijkstra who was responsible for all local logistic matters, including venue, guest program and social program

Gerry Blessing with Jean Louie

Jean Louie, who did the webpage and all graphic design

Jan Tuin

Jan Tuin photography

Gerry Blessing and Mieke Pruijsten

Mieke Pruijsten Ton's secretary (need I say more?)

Furthermore, many volunteers who assisted in Audiovisual support, the exhibits, other matters or provided fairy dust to the General Chair.

All of these are highly thanked for their contributions.

Short courses

The symposium opened on Sunday 18 September 2005 with 9 half-day educational short courses set-up in three concurrent streams (8am to noon; 1pm to 5pm, and 6pm to 10pm). The courses were given by Douglas Wildes & Scott Smith,

Stanislav Emelianov, Kai Thomenius, Hans Torp, Victor Humprey, Folkert ten Cate & Juiry W. Wladimiroff, Ville Kaajakari, Amit Lal & Richard White, Paul Reynolds and Nico de Jong & Michel Versluis, respectively. The short courses were well attended; we had in total 392 registrants.

Attendance

At Registration

The queue

The total attendance for the 2005 IEEE International Ultrasonics Symposium was 1041 including:

Members:	327
Non-Members:	246
One-Day Registration:	26
Students:	270
Retirees:	14
Life Members/Complementary:	101
Guests:	57

Attendees represented 44 countries. The country with the largest attendance was the United States with 27% followed by Japan with 12.5%. The next largest single countries attending were France and Germany with just over 8% each, 6.4% from The Netherlands, 4.4 % each from Italy and the United Kingdom, 3.4% each from the Norway and Canada, 2.5% from Korea, 2.3% from Sweden and about 2 percent each from Denmark, Finland, Switzerland and Taiwan.

The attendance by Regions as designated by IEEE was:

Regions 1 –6 (USA)	26.95%
Region 7 (Canada)	3.24%
Region 8 (Europe, Middle East, Africa)	51.08%
Region 9 (Central and South America)	<0.01%
Region 10 (Asia, Australia, New Zealand)	18.72%

Plenary session

Ton van der Steen

John Hossack

Stuart Foster

The symposium started with a visual introduction of Rotterdam and the Erasmus Medical Centre. Thereafter the symposium was opened by Ton van der Steen, the general chair. John Hossack, the technical chair introduced the technical program. Stuart Foster presented a preview of the 2006 Symposium to be held in Vancouver, BC, Canada

Cees Decker, Plenary Lecturer

Cees Decker

Ton and Cees

Cees Dekker gave a plenary lecture entitled: Nanoscience, From Single-Molecule Science to Applications.

Reinhard Lerch presented the 2005 society awards, and the 2005 Rayleigh award was presented. [See the sections UFFC Awards and Ultrasonics Awards in this newsletter for the awards presentations.]

The Technical Program

The most important ingredient of the rijsttafel, the Technical Program Committee (TPC) was led by John Hossack, The program was set up by our five Technical Program Committee groups - (1) Medical Ultrasound; (2) Sensors, NDE & Industrial Applications; (3) Physical Acoustics, (4) Surface Acoustic Waves, and (5) Transducers & Transducer Materials - during its summer TPC meeting in Chicago.

Thanks for their great job are due to all 2005 TPC members and in particular to the five TPC Vice-Chairs representing each TPC area Stanislav Emelianov, Jafar Saniie, Kenneth Lakin, Donald Malocha, and Scott Smith.

We had 18 eminent invited speakers providing a range of talks spanning a historical review of a famous scientist (Lord Rayleigh) to overviews of exciting and new technical growth areas.

This year we had 876 abstract submissions. This is approximately 100 submissions more than submitted in both of the previous two years. In order to accommodate this growth, we had to add a sixth parallel oral session and to extend the poster sessions. The acceptance rate was approximately 75% and was in line with historical levels.

Student Paper Competition

A highlight of the Symposium was the Student Paper Competition. The Ultrasonics Technical Program Committee (TPC) selected student paper finalists in each of the five major technical areas of the symposium during their paper selection meeting in June.

Selection criteria are:

- Student is first author.
- Work is of high quality and done by the student.
- Abstract clearly describes the work and includes results.
- Student has not won the student prize previously.

On the first day of the symposium, Monday 19 September 2005, all Student Finalist Posters were presented for judging by a panel of experts from each of the major technical groups of the Symposium. Many of the papers were also given in oral sessions at the symposium.

Final Judging includes:

- Clarity of student's presentation.
- Depth of student's knowledge.
- Degree of the student's contribution to the project.
- Relevancy of the work to the field.

The winners were announced at the Opening Reception Monday evening. This year in addition to the receiving a certificate and $100 USD, the winners received a UFFC 50th Anniversary "crystal" and the book Diagnostic Ultrasound Imaging: Inside Out written by Thomas Szabo and donated by Elsevier Science. They also had the honor of posing with the Mayor of the City of Rotterdam, Ivo W. Opstelten. Congratulations to all!

Student Paper Finalists

Group 1: Medical Ultrasonics

Rachel Libgot, PS-1

Steven Baldwin, PS-2

Jøger Hansegård, PS-3

Yinbo Li, PS-4

Rebecca Booi, PS-5

Matthew Urban, PS-6

PS-1 R. Libgot , F. Ossant, Y. Gruel, F. Patat. High Frequency Ultrasound Characterization of the Blood Clotting Process: Intra- and Inter-Individual Variations.

PS-2 S. Baldwin, M. Yang, K. Marutyan, K. Wallace, M. Holland, J. Miller. Ultrasonic Detection of the Anisotropy of Protein Cross Linking in Myocardium.

PS-3 J. Hansegard, S. Urheim, E. Steen, H. Torp, B. Olstad, S. Malm, S. Rabben. Detection of the Myocardial Boundary in the Left Ventricle from Simultaneously Acquired Triplane Ultrasound Images Using Multi View Active Appearance Motion Models.

PS-4 Y. Li, Z. Yang, B. A. French, J. A. Hossack. 3D Perfusion Mapping in the Intact Mouse Heart after Myocardial Infarction using Myocardial Contrast Echocardiography.

PS-5 R. Booi, P. Caron, R. Erkamp, H. Xie, A. Kapur, G. Lecarpentier, M. Roubidoux, J. Fowlkes, M. O'Donnell. Applying In Vitro Elasticity Imaging Results to Optimize In vivo Breast Lesion Characterization Using a Combined 3D US/Digital X-Ray System.

PS-6 M. Urban, G. Silva, R. Kinnick, M. Fatemi, J. Greenleaf. Stress Field Formation for Multifrequency Vibro-Acoustography.

Group 2: Sensors, NDE, and Industrial Applications

Wade Pinkham, PS-7

Evgeny Bakulin, PS-8

Jesper Martinsson, PS-9

PS-7 W. Pinkham, L. French, D. Frankel, and J. Vetelino. A Lateral Field Excited Acoustic Wave Pesticide Sensor.

PS-8 L. Denisova, R. Maev, F. Rusanov, A. Denisov, E. Bakulin, D. Gavrilov, F. Severin, G. Grayson. Morpho-Mehcanical Analysis of the Dentin-Cement Interface Strength Using a Scanning Acoustic Microscope.

PS-9 J. Martinsson, J. E. Carlson. Parametric Modeling of Wave Propagation in Gas Mixtures-A System Identification Approach.

Group 3: Physical Acoustics

Alexandre Volatier, PS-10

Muhammet Kursad Araz. PS-11

Olivier Ducloux, PS-12

PS-10 A. Volatier, G. Caruyer, E. Defay, D. Pellissier Tanon, P. Ancey, B. Dubus. Intermediate Frequency Resonators Using Lamb Waves Co-Integrated with Bulk Acoustic Wave Resonators.

PS-11 M. Araz, A. Lal. Calibration of Acoustic Radiation Pressure Field Inside Microchannels Using Microparticle Zeta Potential Measurement.

PS-12 D. Olivier, T. Nicolas, D. Yves, P. Philippe, P. Vladimir, M. Alain. Cantilever Resonance Induced in Situ by Magnetostriction for Active Flow Control.

Group 4: Surface Acoustic Waves

Johanna Meltaus, PS-13

Thomas Kenny, PS-14

Stefan Cular, PS-15

PS-13 J. Meltaus, V. P. Plessky, and S. S. Hong. Double-Resonance SAW Filters.

PS-14 T. Kenny, M. P. da Cunha. Identification of New LTO VPSAW Orientations Considering Finite Thickness Electrodes.

PS-15 S. Cular, V. Bhethanabotla, D. Branch. Hexagonal SAW Devices for Enhanced Sensing.

Group 5: Transducers and Transducer Materials

Marie Nakazawa, PS-16

David Yeh, PS-17

Rasim Guldiken, PS-18

PS-16 M. Nakazawa, T. Kosugi, K. Nakamura, S. Ueha, A. Maezawa, Y. Hirao. A High Frequency Variable Focus Ultrasonic Transducer Using Polyurea Thin Film.

PS-17 D. Yeh, O. Oralkan, I, Wygant, M. O'Donnell, B. Khuri-Yakub. 3-D Ultrasound Imaging Using Forward-Viewing CMUT Ring Arrays for Intravascular and Intracardiac Applications.

PS-18 R. O. Guldiken, F. L. Degertekin. Analysis and Design of Dual-Electrode Capacitative Micromachined Ultrasonic Transducers.

Student Paper Winners

Yinbo Li, Group 1 Winne,r with Mayor Ivo Opstelten

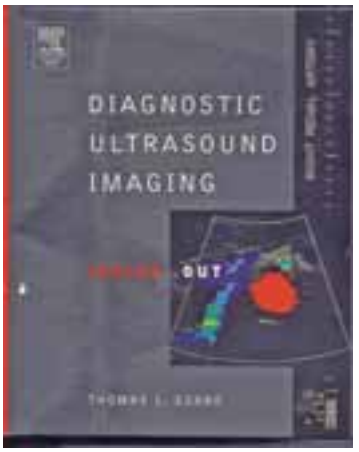
Group 1 Winner, Matthew Urban (c), with Oliver Keitmann-Curdes (l) and Gerry Blessing

Wade Pinkham, Group 2 Winner, with Mayor Ivo Opstelten

Oliver Keitmann-Curdes (l) congratulating Group 3 Student Paper Winner, Alexander Voltier

Johanna Meltaus, Group 4 Winner, with Mayor Ivo Opstelten

Rasim Guldiken, Group 5 Winner, with Mayor Ivo Opstelten



At the Awards Luncheon

Yummy !

UFFC President, Gerry Blessing

Herman van de Vaart, UFFC Finance Chair

Noriyoshi Chubachi, Rayleigh Award Winner

Jun-ichi Kushibiki, presenter

Art Ballato, President-Elect

Bernie Tittmann, Awards Vice-Chair

Jim Greenleaf, Rayleigh Committee Chair

Roger Tancrell, Awards Past Chair

Ken-ya Hashimoto, UFFC Distinguished Lecturer

Reinhard Lerch, Awards Chair

Jan Brown, presenter

Levent Degertekin, Outstanding Paper winner

John Vig, Distinguished Service Award winner

Bernie Tittmann and Ahmad Safari

Herman van de Vaart and Art Ballato

Bernie Tittmann and Ken-ya Hashimoto

Noriyoshi Chubachi and Jun-ichi Kushibiki

Levent Degertekin and Gerry Blessing

John Vig and Reinhard Lerch share a moment

Jan Brown and Art Ballato checking the photos

General Chair – President's Reception

This is where the finishing touch of the Rijsttafel was. The evening before the conference there was a General Chair/President's Reception/Dinner Party in the Shark Room of the Oceanium in Diergaarde Blijdorp, the Rotterdam Zoo. This is where the contributions of all those mentioned in this article were acknowledged by Gerry Blessing, the President of the IEEE UFFC.

The KISS – Ton so happy to be thanked for a job well done

Gerry Blessing, Ahmad Safari, Mary Lou Blessing

Karin de Jong, Minjon van Heijningen, Jean Louie

Kai Thomenius, Jim Miller, David Morgan

Harrie Pruijsten, Jean Louie, Mieke Pruijsten, Ton van der Steen

Kullervo Hynynen, Emad Ebbini

Jan Honkoop, Harrie Pruijsten

John Hossack and Stuart Foster

John Vig and Marj Yuhas

Gerry Blessing and Scott Smith

Gerry Blessing

Michel Versluis, Minjon van Heijningen, Ton van der Steen

Gerry Blessing and Jafar Saniie

David Morgan asking where is the bus to take us home

Gerry Blessing and John Hossack

Ariana and John Vig

Mike Driscoll

Gerry Blessing talking with Susan Trolier-McKinstry

Dessert anyone?

Jackie Hines

Yinbo Li, co-author of five papers in this Symposium

I ate the whole thing!

Kathy Nightingale

Mauricio Pereira da Cunha found the dessert

Svetlana and Don Malocha, Jian-yu Lu, Ton van der Steen and Mauricio Pereira da Cunha

Herman van de Vaart explaining things to Michael Kolios

Ahmad and Lelah Safari

Noriyoshi Chubachi with Jiromaru and Ruriko Tsujino

Peter Smith and Kushal Bhattacharjee

Ahmad Safari, Jian-yu Lu and Jafar Saniie

Akiko and Noriyoshi Chubachi

John Larson talking with Susan Trolier-McKinstry

Jun-ichi Kushibiki

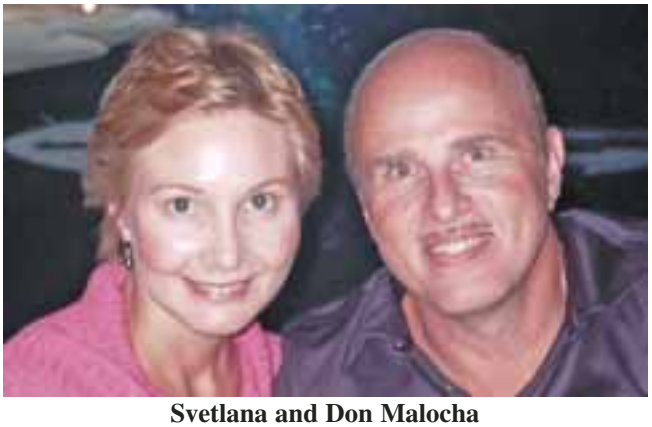
Sorah Rhee and Leo Reindl

Stuart Foster and Ton van der Steen

The other turtle

Fred and Thresa Hickernell with Ariana Vig (c)

I'm back



Svetlana and Don Malocha

Amit Lal and his Children

The turtle

Bernie Tittmann with Akiko Chubachi

Fish - not an appetizer

Yinbo LI with Clemens Ruppel

Helmut Ermert, Leo Reindl, Reinhard Lerch, and John Vig chortling

Opening Reception

The Mayor with the Students

On Monday we had an openings reception in de Doelen, in presence of Ivo Opstelten, the Mayor of Rotterdam. Although his speech was highly appreciated by many, he had some competition from the catering and the fact that 1100 friends who had not seen each other for almost a year were meeting each other during this reception. Gerry Blessing handed out the student poster awards, assisted by Ivo Opstelten and the evening was accompanied by live Gipsy and Latin American music by La Cuata.

Ocean Diva Cruise

On Tuesday we set sail with 675 delegates on the Ocean Diva, Europe largest party boat. The boat was decorated by Heavy Décor.

On deck we were welcomed by Les Deserteurs, a New Orleans style Brass band and there was a meadow with two cows on it, accompanied by a genuine Dutch farmer. The beer and wine could be alternated by real fresh milk.

The lower deck evening started with a couple of songs by Annet Dellegno and a 42 second speech by the General Chair after which the food from all over the world was served and the Night train took over the musical entertainment of the evening.

After the cow plop contest the boat set shore again around 10.30, but at midnight still 250 students had to be scraped off the dance floor.

All Aboard! Tania Skrinikov with the other Ocean Diva

Ton and the 42 second welcome

The Ocean Diva and the Erasmus Bridge

Anna Zyryanova with Les Deserteurs

The Look Out

Fred and Thresa Hickernell and Jan Brown sharing Thresa's Birthday

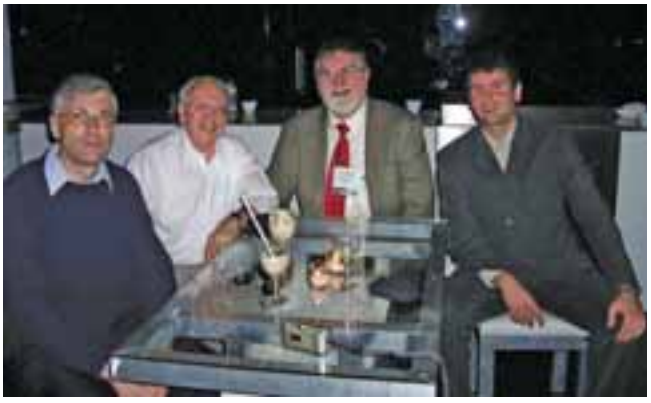
Ho-yong Lee

Ton and Friends

Iren Kuznetsova enjoying the dance

Drinks anyone?

Ariana and John Vig dancing for all



Bob peach, David Morgan, Clint Hartman, and Ventzislav, Yantchev

John Fraser, Jean-Fransçois Gelly, Scott Smith, Peter Wright

The Cow Plop Contest

By Jan Brown

Though not really a contest at all, the Cow Plop Contest provided entertainment throughout the evening on the Ocean Diva.

The Court

The Cows and The Farmer

The Entertainer, Harrie

The contest takes place on a "lawn" or court that is ruled in a grid of five by ten squares. Each square gets a number. Now on this particular court the numbers were not random at all. Oh no, they followed a perfectly sequential order from one to fifty. At an appointed time – the cows let the farmer and the entertainer know exactly when that time is – the cows proceed to certain squares and deposit their "plops", hence, the name of the contest. Fifty contestants, chosen at random, are given the opportunity to draw a number which corresponds to one of the squares. I think you now may be getting the idea of this contest. Yes, if a plop lands in the square with your number, you win. What do you win, you ask? You win some cheese courtesy of the cows and some wooden shoes, which are necessary for you to wear onto the court to receive your winning gifts. But since you do not get the shoes until after you venture on the court, careful stepping is recommended.

just a bit of straw

Jan strategizing with Harrie

The cows seal the deal with a lick

I was one of the random lucky contestants. Thirty Seven was my number. Note that on the court square number 37 has just a bit of straw on it. That was put there as a marker for where a plop was to land. This strategy was discussed with the cows and the entertainer, Harrie, early in the evening and all were in agreement.

Harrie checking strategy

Cows contemplating the conspiracy

The farmer drawing the libation

Harrie and the farmer getting more milk

Guests enjoying the warm fresh milk

Harrie gathering the crowd

Harrie offering Candy

To look official, throughout the evening, the cows wandered the "court" planning their strategy of where to place their plops when the time came. They also provided liquid refreshment (milk) for the guests on board. Harrie, the entertainer, wandered the Ocean Diva chatting with the guests, passing out candy, randomly selecting contestants, and generally building the excitement for the contest. Contestants had to check by the court regularly as only the cows knew the exact time for the plops and they were not sharing that time with the rest of us.

Harry announcing the Contest start

Help starting the Contest

Waiting for the plop

A winner

The cows wander

The number 28 plop

After dark, the cows announced that they were ready. The crowd and contestants gathered. There was a hush; the cows ambled toward the low numbers. Voila! A Plop, followed by whoops of joy as Eric Furgason claimed the first plop prize.

The cows not wanting to end the excitement too soon, wandered around a bit, conferred some, yawned hugely and headed for the low numbers again. By this time the crowd had chosen their favorite numbers and were shouting, waving, and cajoling in an attempt to get the cows to plop appropriately. All this commotion befuddled the poor creatures and in their confusion they forgot our earlier conspiracy to plop on the straw on number 37. Instead, number 28 was the other lucky winner.

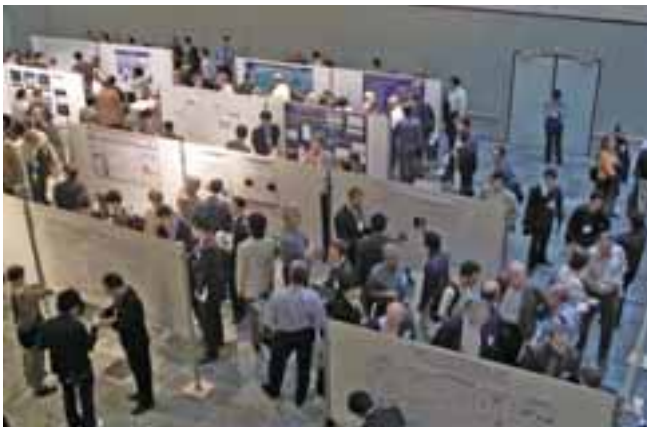
The cows and Number 37 vanish in the dark

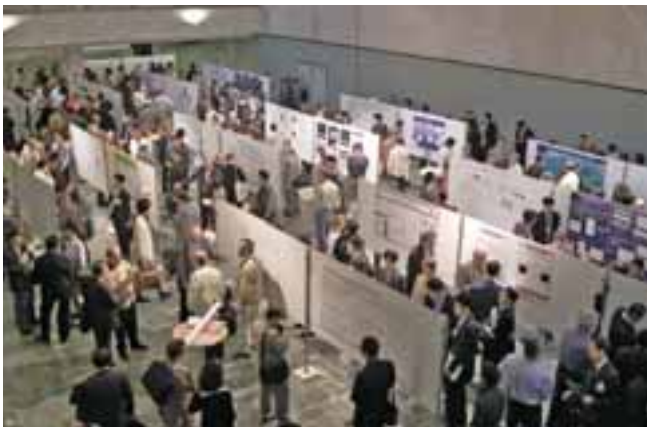
The cows come to apologize

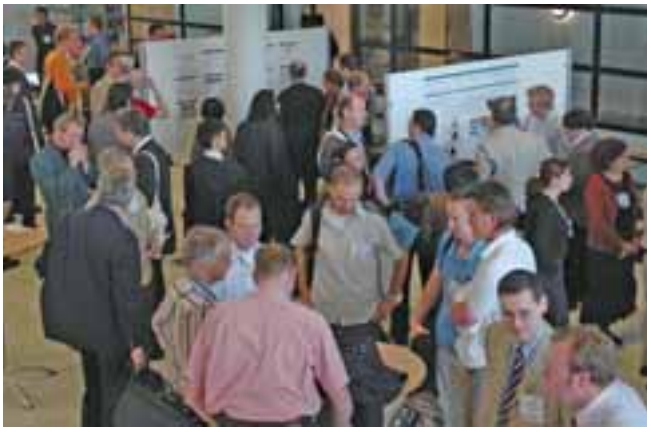
Jan and Harrie part friends

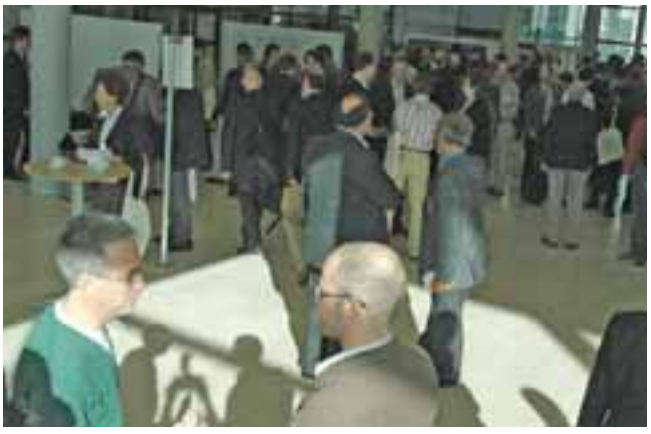
Alas, the straw marked square number 37 was plopless, abandoned in the dark. And this unlucky contestant went home wooden shoeless. However, the cows were most apologetic to have reneged on our original strategy.

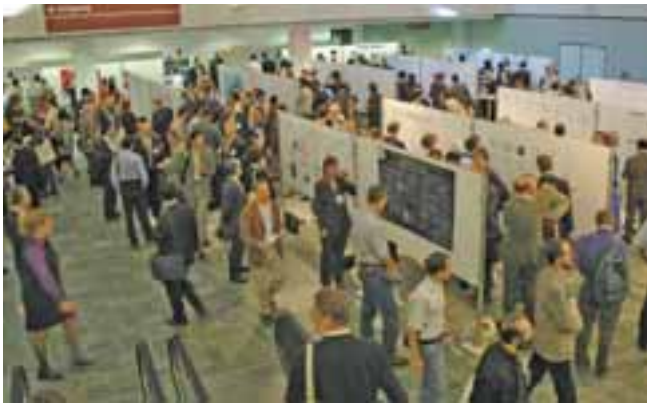
At the Posters

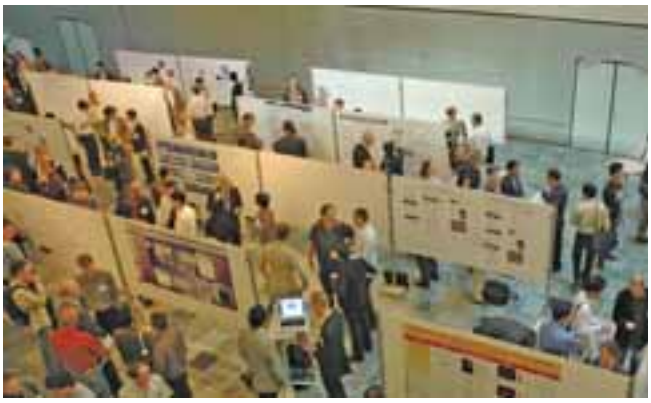


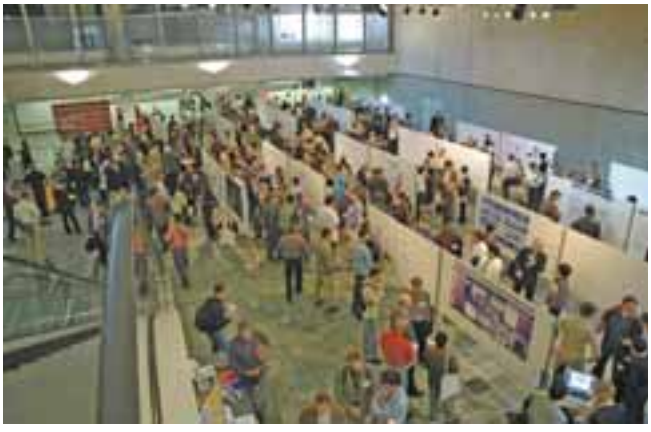












Around the Symposium

Preparing for the opening

Central Hall

This really works says Ton van der Steen (r) to Art Ballato and Gerry Blessing

Guillaume Matte with Klas Bom, Rosemary Thompson in the background

Tania Skrinikov

Fred Hickernell

Gerry Blessing

Susan Trolier-McKinstry

Leo Reindl and Jackie Hines

Jun-ichi Kushibiki, Akiko Chubachi, Ruriko Tsujino, Noriyoshi Chubachi, Jiromaru Tsujino

Mark Schafer

Don Malocha

John Kosinski

Dan Stevens

Yinbo Li

Gerry Blessing

Reinhard Lerch

Kullervo Hynynen

Meirion Lewis and Sergei Zhgoon

The organ at St. Bavo Cathedral, Haarlem

Mark Schafer and Bernie Tittmann

Rotterdam Intersection

Helmut Ermert, Bernie Tittmann, and Clyde Oakley

Reinhard feels relief now that his job is over

Jun-ichi Kushibiki, Noriyoshi Chubachi, and Chen Tsai

Art Ballato, Gerry Blessing and Reinhard Lerch

Art Ballato with camera

Clyde Oakley and Levent Degertekin

Jens Strobel sharing a laugh

Kirk Shung

Ken-ya Hashimoto, Mary Lou and Gerry Blessing, Helmut and Astrid Ermert

Scott Smith

Helmut and Astrid Ermert sharing a joke

Jean-François Gelly

Roger Tancrell

Herman van de Vaart, Jan Brown, Jan Smits, and John Vig

Peter-Christian Eccardt getting an early seat

Klazina Kooiman, Martijn Frijlink, Wenguang Li, and Ton van der Steen

Don Malocha and Peter Smith

Stuart Foster looking over 2007 Symposium literature

Session audience

Schipol Airport

Goodbye drinks

On Wednesday there were goodbye drinks.

Peter Smith and Mauricio Pereira da Cunha

Svetlana Malocha, Ben Abbot and Ken Lakin

Pierre Dufilie

Guenter Martin, Manfred Weinacht, Sergei Biryukov

Meirion Lewis and colleague

Herman van de Vaart and Ton van der Steen

Guest program

Margaret Ballato and Suzanne Greenleaf enjoying Delft

For the guests there was a tour to Delft, including a visit to the New Church, where all the deceased of the Dutch Royal Family over the last couple of centuries were buried and a boat trip through the canals. Furthermore, de Porseleyne fles, the famous Delft Blue Factory was visited.

The other trip went to Kinderdijk by boat. The day started with a walk through the city center along important architectural works. The walk ended at the dock where a boat set off for Kinderdijk. In Kinderdijk there were 19 famous Dutch windmills, which were built in 1740 and are very well preserved. In 1997 the mills of Kinderdijk were put on the world heritage list of UNESCO.

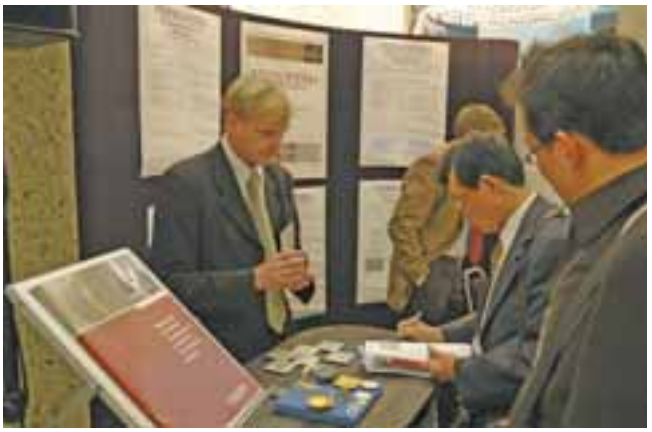
The Exhibits

Central in the conference centre there was an exhibition with 20 booths representing the following companies.

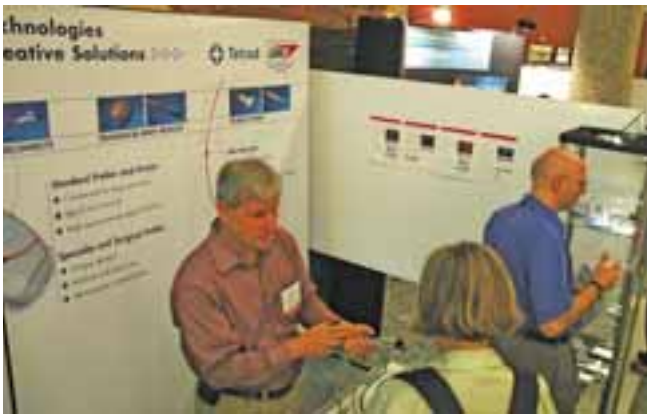
Acqiris SA-Data Conversion Instruments

Advanced Modular Sputtering, Inc. (AMS)

Epion Corporation



Ferroperm Piezoceramics a/s



W.L. Gore & Associates

HITACHI Medical Systems

HONDA Electronics Co. Ltd

Microfine Materials Technologies PTE LTD

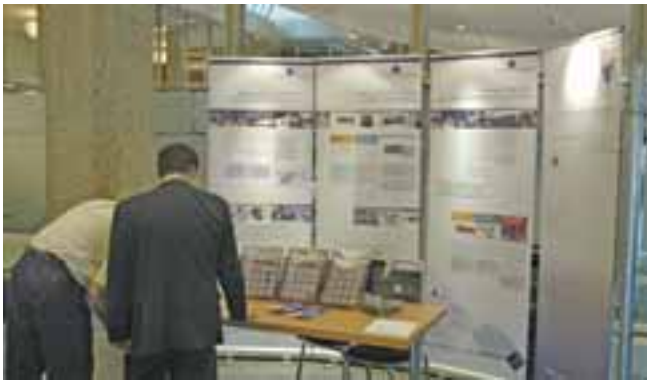
Namrata Dewan staffing the IEEE UFFC Society booth

Onda Corporation

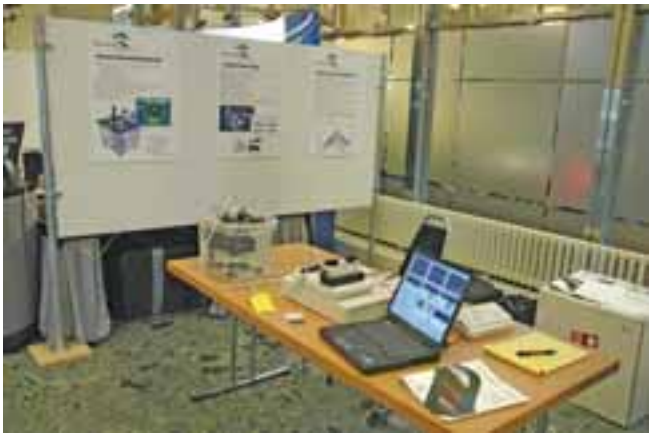
Imasonic

Precision Acoustics Ltd

Lecoeur Electronique



Smart Materials GmbH



Sonora Medical Systems, Inc.

Sound Technology, Inc.

Trikon Technologies

Twist Semiconductor

Ultrasons Technologies

Valpey Fisher Corporation

Financial support

All evening programs were fully catered. There were no drinking tickets, nor cash bars. This could only be realized with the help of the generous financial support of those listed on the next page. We would like to take this opportunity to thank our financial sponsors for helping make this Symposium a delight technically and socially.

Thank you to Our Financial Contributors

Main Sponsor

Philips Medical Systems

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Oldelft Ultrasound

Special Grants

Interuniversity Cardiology the Netherlands (ICIN)

ICIN

The Dutch Foundation for Institute of Ultrasound in Medicine & Biology (SUGB)

SUGB

Ferroelectrics News

IEEE UFFC-S Ferroelectrics Committee Meeting Minutes November 8th and 9th, 2005 Annapolis, MD

Call to Order and Past Minutes

Twelve members of the Ferroelectrics Committee were present for the IEEE UFFC Ferroelectrics Committee Meeting held in Annapolis, MD USA on November 8, 2005. An additional follow up meeting was held on November 9th with fewer attendees. The Ferroelectrics Committee meeting on November 8th was held in conjunction with the 12th US-Japan Seminar on Dielectric and Piezoelectric Ceramics.

Committee members present at the meeting were: Susan Trolier-McKinstry, Ahmad Safari, Jon-Paul Maria, Stephen Streiffer, Dwight Viehland, Relva Buchanan, Tadashi Takenaka, Noboru Ichinose, Walter Schulze, Tom Shrout, Sorah Rhee and Bruce Tuttle. Tadashi Shiosaki was an invited guest for the meeting. Bruce Tuttle noted that the previous minutes from the April 2005 Baltimore Meeting had been distributed and were approved electronically by the Ferroelectrics Committee members.

ISAF 2006 Meeting Summary

Jon-Paul Maria

Jon-Paul Maria provided an update on the plans for the 2006 ISAF meeting to be held in Sunset Beach, NC at the Sea Trail resort. The website for the ISAF 2006 meeting is up and running. The abstract due date is February 20, 2006 and the finishing touches are being put on the Call for Papers at the Website. David Cann has been responsible for the website and an expanded call for papers which will include a strong push for multiferroics, advanced characterization techniques, capacitor and piezoelectric contributions.

Jon-Paul noted that the three plenary speakers for the meeting had been selected. In addition, half of the invited speakers have already been confirmed. A student focus is planned for the ISAF 2006 meeting. The ISAF 2006 meeting will be held in Sunset Beach, NC from July 30th to August 2nd 2006 at the Sea Trail Resort. This site has excellent internet access, world class golf at very low rates, and all meals are included in the registration package.

Jon-Paul Maria, general chair of ISAF 2006 and David Cann, Technical Program Chair ISAF 2006 have finalized their list of chairs for the meeting. Specifically, Glen Fox, Xiaoli Tan and Hiroshi Funakubo are program co-chairs. Alexi Gruverman is the proceedings chair, Angus Kingon the finance chair and Susan Trolier-McKinstry the publicity chair.

ISAF 2007

ISAF 2007 will be held in Nara, Japan following the FMA meeting in Kyoto and will be chaired by T. Shiosaki. This choice was made primarily because the ferroelectrics memory committee requested a meeting in either Japan or Korea in the 2007 time frame. It will be a landmark meeting as it represents the first time in the history of the IEEE – UFFC Ferroelectrics Committee that meetings will be held on an annual rather than a biannual basis. Other meeting locations that had been considered for ISAF 2007 were Hawaii, Tokyo, Tanzania and Nagasaki (for which ISAF 2007 would combine with the US-Japan Dielectrics meeting).

ISAF 2008

Bruce Tuttle presented an overview of the plans for the ISAF 2008 meeting to be held in Santa Fe, NM. The dates for the meeting will be February 23-27, 2008. Tuttle reported that several different dates were considered (February, June, August and September) and feedback from FE committee members throughout the world on this topic was obtained over the last year.

After considerable deliberation, the tough decision was made to hold the ISAF 2008 Meeting in late February. The February meeting date offered the following advantages: (1) the opportunity of limited conflict with other conferences, (2) low hotel rates and (3) was considered acceptable by all groups other than Japanese academics. Bruce expressed his gratitude to Tadashi Takenaka for his efforts on several occasions in providing information for acceptable meeting dates. Another reason for the decision to confirm the February meeting in Santa Fe is that adjacent weeks to the proposed meeting dates in February 2008 in Santa Fe were already taken up by other conferences.

Paul Clem has successfully led the effort to get a contract signed between IEEE and the Eldorado Hotel in Santa Fe for ISAF 2008. After numerous iterations, the final details of the contract were negotiated and the contract signed in late summer of 2005. Based on the contract, if ISAF 2008 can cover 688 room-nights over a two week period at the Eldorado Hotel, then there will be no financial penalties. Fifty rooms will be available at $94 government rate and 170 rooms at

$159 conference rate. The meeting space is complimentary.

Bruce described the facilities of the ISAF 2008 Conference Hotel, the Eldorado Hotel, emphasizing the number and size of rooms for technical presentations. He also noted that other hotels and conference facilities were available nearby if needed. Bruce reported on the possible airfares and connections to the Albuquerque Sun Port Airport near Santa Fe. There are direct flights from many US cities into Albuquerque. The preferred method of transportation from Albuquerque to Santa Fe is via shuttle service which costs $25 per person, takes about 1 hour and will drop attendees off directly at the Eldorado Hotel. Attendees can also take flights from Albuquerque to Santa Fe if they prefer.

Paul Clem and Bruce Tuttle will have a list of committee chairs for the ISAF 2008 meeting by the end of February in accordance with IEEE guidelines. Ben Jaramillo of Sandia National Laboratories will have the ISAF 2008 website up and running next month. There was further discussion of joint meetings with other technical groups and societies. Paul Clem previously reported that the Electronics Division of the American Ceramic Society has agreed to have their 2008 meeting in Santa Fe in conjunction with ISAF 2008. Bruce Tuttle noted that there have been no communications with or from the International Symposium on Integrated Ferroelectrics (ISIF) and thus teaming with ISIF for the ISAF 2008 meeting appears unlikely.

Future Meetings

Andy Bell previously provided an outstanding presentation at the Baltimore Ferroelectrics Committee meeting on having a future ISAF meeting in the United Kingdom, specifically in the historic town of Harrogate. Possible ISAF meetings for the United Kingdom venue are ISAF 2009 and 2010. Andy noted that it is relatively easy travel to Harrogate and many tourist destinations are nearby. He also mentioned that it may be possible to join with the European Ceramics and/or the Polar Dielectrics groups to have on the order of 600 delegates in attendance. Leeds-Bradford International Airport is convenient; while London and Manchester, with larger airports are 2.5 hours and 1.5 hours by train from Harrogate, respectively. There is an exceptional conference centre, which can hold 2000 people.

While the time of year for the meeting has not been confirmed, August or September were mentioned as ideal times. The motion for Andy to organize either the ISAF 2009 or 2010 meeting and be the General Chair was unanimously passed by the committee at the April 2005 Baltimore meeting. It is hoped that Andy can be present to provide a formal presentation for either ISAF 2009 or 2010 at the next Ferroelectrics Committee Meeting.

Discussions at the present Annapolis Ferroelectrics Committee meeting then took place concerning other future meetings. It was noted that IMF 2009 was going to be held in China. The possibility of teaming with ISIF in China or Korea in 2009 was also considered. It was proposed that ISAF 2009 be held in China with Yao Xi as host and Tadashi Takenaka as a possible co-chair of the meeting.

Nava Setter had contacted several committee members about the possibility of having a future ISAF meeting in Africa, most likely in Tanzania. The committee would like Nava to consider bringing forward a full proposal for running a future ISAF meeting in Africa. It was strongly recommended that there be a local organizing committee with some technical representatives for such a meeting. It would also be absolutely essential that some sort of MOU be established that would make it clear how the finances of the meeting would be handled - especially as it regards IEEE and the use of the meeting surplus to subsidize local educational activities. This would appear to violate IEEE policy, and something needs to be worked out in order to have an IEEE ISAF meeting.

AdCom Status report

Ahmad noted that Tadashi Takenaka and Sorah Rhee are newly elected members of the AdCom committee. Ahmad reported that the infrastructure fees have dropped for IEEE and now a rigid formula is used to calculate the infrastructure fees. Further, the AdCom Committee passed a motion that each society should go back to a 15% profit margin rather than a 20% margin for their planning for all future technical meetings. Several members of the Ferroelectrics Committee commented that in their opinion a 15% profit margin is quite adequate. Susan previously provided information concerning the reports from the Montreal Meeting that were presented at AdCom. She stated that break even meetings are not acceptable as there is a $150k infrastructure fee to IEEE from the UFFC Society each year. Thus it was good news to hear that the infrastructure fees had decreased.

Ferroelectric Awards

Ahmad announced that we have too few active IEEE Fellows in Ferroelectrics. It was stressed that the FE Committee needs to work to nominate other Fellows. Robert Newnham and Ahmad were elected as fellows last year. Ahmad would like to have 4 candidates for fellow in the January to February 2006 time frame. A nomination for the Fellow position requires six to eight strong recommendations and three reference letters. Please email Ahmad with potential suggestions. Viable candidates need to be a Senior Member of the IEEE-UFFC society.

Ahmad reported that he has five recommendations for the 2005 Ferroelectric Recognition Award. All members of the Ferroelectrics Committee are encouraged to send names of qualified people to Ahmad for both the Ferroelectrics Recognition Award and for Senior Membership. Ahmad has requested that in the future ISAF meeting chairs put $2000 in their budget for the Ferroelectrics Recognition Award. Susan will need to ask AdCom for approval of this proposed action.

Standards

There was very limited discussion on Standards at the Annapolis Meeting. IEEE Standards being considered include the following: (1) a ferroelectric memories standard, (2) a scanning probe microscopy (SPM) standard, and (3) a ferroelectric thin films

standard (Roger Whatmore is a potential candidate to head this standard committee). With regard to the scanning probe microscopy standard, Susan contacted well known expert Serge Kalinin. He stated that his opinion was that it was not possible at present to calibrate this technique for thin films, but it is possible to calibrate SPM for bulk materials. Further he wants to add nanoindentation measurements to the standard since nanoindentation and SPM are intimately related. While nanoindentation on bulk materials can be quantitative, it is currently qualitative for films. One needs accurate qualitative nanoindentation measurements for accurate SPM measurements. Susan will ask for an abstract from Serge Kalinin on this standard for the next meeting.

Publicity/Website

Ruyan Guo had to get back to Penn State to teach class and was not able to attend the Annapolis Ferroelectrics Committee meeting in person. However, she did provide a written report that was distributed to the committee members. Among her recent activities were web additions of the 2005-06 IEEE UFFC Distinguished Lecturer Ken-ya Hashimoto, highlights of the upcoming 15th IEEE Symposium on Applications of Ferroelectrics – providing a link to the ISAF 2006 website, and the committee meeting minutes from the January Cocoa beach and April Baltimore meetings. She also updated the contact person for the Ferroelectric Recognition Award from Steve Pilgrim to Ahmad Safari. Further, the ISAF 2002 and 2004 Proceedings have been added to the new digital archive. Ruyan also felt that the list of FE committee members should be updated to reflect active members.

Discussion of Future Officers

Because Susan Trolier-McKinstry was voted in as President-Elect of IEEE UFFC at the AdCom meeting in the Netherlands in September, she must resign her position as Chair of the Ferroelectrics Committee by January 2006. Thus, new officers for the Ferroelectrics Committee were determined. Tom Shrout of Penn State was unanimously voted in as Chair of the Ferroelectrics Committee. Bruce Tuttle of Sandia National Laboratories was accepted as Vice Chair of the Committee. Stephen Streiffer and Jon-Paul Maria have agreed to share the responsibilities as Secretary of the Ferroelectrics Committee. The committee thanked Susan for the outstanding job she has done as Chair of the Ferroelectrics Committee. The committee also commended Bruce Tuttle for his work as secretary.

Other Business

There has been a request for information for the UFFC newsletter. Recent additions to the UFFC newsletter from Ahmad included a brief article on the awards that Eric Cross and Bob Newnham received. He requested that those in the Ferroelectrics field contact Jan Brown with information that they would like to submit to the UFFC Newsletter. Ahmad noted that for upcoming ISAF Conference General Chairs that they need to include $5000 in their budgets to attend the AdCom meetings.

Next Meeting

There was limited discussion of the next IEEE Ferroelectrics Committee Meeting. There will definitely be a Ferroelectrics Committee Meeting held at the ISAF 2006 meeting in Sunset Beach, North Carolina which will run from July 28th to August 2nd 2006. Tom Shrout, new chair of the Ferroelectrics Committee, notified that an earlier Ferroelectrics Committee Meeting is planned in conjunction with the Piezo 2006 meeting in Norway on March 7, 2006.

Bruce Tuttle,
Secretary of the Ferroelectrics Committee
November 20, 2005

1st circular

The 16th International Symposium on the Application of Ferroelectrics (ISAF2007)

Nara-ken New Public Hall, Nara city, Japan
May 27-30, 2007

We are pleased to inform that The 16th International Symposium on the Application of Ferroelectrics (XVI ISAF 2007) will be held at Nara-ken New Public Hall, Nara city, Japan, May 27- 30, 2007. The meeting is sponsored by the Ultrasonics, Ferroelectrics and Control Society (UFFC-S) of the IEEE. Topic areas will focus on the physics, processing, and applications of ferroelectric materials. The format of the conference will follow previous meeting, with plenary and oral presentations, parallel sessions, and poster presentations. The conference format will be arranged such the participants will be able to enjoy the technical sessions and the sightseeing.

Nara-ken New Public Hall

Nara city is belonging to Nara prefecture and located in the 30 km-east of Osaka. It takes almost 1.5h from Kansai Airport by train or by bus and 45min from Kyoto Station by train. Nara (Nara city and Nara prefecture) occupies an important position in the history of Japan, it is said that the first state was located in Nara. Nara is also a home of various World Heritage sites such as Todaiji Temple, Horyuji Temple, and others including numerous Buddhist art and architecture classified as National Treasures and Important Cultural Asset.

Todaiji Temple (World Heritage)
(within walking distance from Nara-ken New Public Hall)

General Chair, ISAF2007
Prof. Tadashi Shiosaki
Graduate School of Materials Science
Nara Institute of Science and Technology (NAIST)
Takayama-cho 8916-5, Ikoma, Nara 630-0192, JAPAN
E-mail:shiosaki@ms.naist.jp
http://ms.naist.jp/isaf2007

Frequency Control Awards

Three IEEE awards are presented annually at the IEEE International Frequency Control Symposium: the Cady Award, the Rabi Award, and the Sawyer Award.

Any of the three awards is open to any worker in any of the fields traditionally associated with the Frequency Control Symposium. The nominee should be responsible for significant contributions to the field selected. The awards shall be given to one or more specific individuals rather than to laboratories or groups. No posthumous awards will be made. The time span over which the contributions have occurred is not limited. The significance of the contributions may be measured, in part, by: the degree of initiative, ingenuity, and creativity displayed; the quality of the work and degree of success attained; and the overall importance of the work and its impact on frequency control and associated communities.

The selection of the recipient for each award is made by the Frequency Control Symposium Technical Program Committee during its paper selection meeting. The decision of the committee is final. If, in the opinion of the committee, no suitable nominee exists or there are insufficient nominations, no award will be given.

The W. G. Cady Award

The W. G. Cady Award is to recognize outstanding contributions related to the fields of piezoelectric or other classical frequency control, selection and measurement, and resonant sensor devices. The award consists of $1000 USD, a laminated certificate and a quartz crystal ball on a wood base.

2005 W.G. Cady Award Recipient

The UFFC Society offers its congratulations to Charles S. Stone, the 2005 W. G. Cady award recipient. The award was presented at the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval Systems and Applications Meeting in Vancouver, BC, Canada 29 August 2005.

Tom Parker, Chair Frequency Control Awards, and Martin Bloch presented the W.G. Cady Award to Charles Stone

"for outstanding contributions to state-of-the-art low noise quartz oscillators and low noise circuits."

Martin Bloch Presenting Charles S. Stone

Charles S. Stone (c) receiving the W.G. Cady Award from Martin Bloch (l) and Tom Parker

The I. I. Rabi Award

The I. I. Rabi Award is to recognize outstanding contributions related to the fields of atomic and molecular frequency standards, and time transfer and dissemination. This award consists of $1000 USD, an original print, and laminated certificate.

2004 I. I. Rabi Award Recipient

Congratulations on behalf of the IEEE UFFC Society to Theodor W. Hänsch, the 2005 recipient of the I. I. Rabi Award. The award was presented at the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval Systems and Applications Meeting in Vancouver, BC, Canada, 29 August 2005.

Tom Parker and Leo Hollberg presented the 2005 I.I. Rabi award to Theodor Hänsch

"for outstanding contributions to experimental quantum optics, precision spectroscopy, and optical frequency combs."

Leo Hollberg introducing the I.I. Rabi Award

Leo Hollberg presenting Theodor Hänsch the I.I. Rabi Award

Theodor Hänsch, Nobel Laureate, accepting the I.I. Rabi Award

The C.B. Sawyer Memorial Award

The C. B. Sawyer Memorial Award ("Sawyer Award") is to recognize outstanding contributions in the development, production or characterization of piezoelectric materials of interest to the Symposium Technical Program Committee, or to recognize entrepreneurship or leadership within profit or non-profit organizations in the frequency control community (including all parts of the community). The Sawyer Award consists of $1000 USD, a laminated certificate, and an appropriately engraved quartz crystal

2004 C. B. Sawyer Memorial Award Recipient

The UFFC Society is pleased to congratulate Samuel R. Stein as the recipient of the 2005, C. B. Sawyer Memorial Award. The award was presented at the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval Systems and Applications Meeting in Vancouver, BC, Canada 29 August 2005.

Tom Parker introduced the Award and Jack Kusters presented the Sawyer Award to Sam Stein

"for outstanding technical contributions and leadership in the commercialization of highly precise timing standards and instrumentation."

Frequency Control Awards Nomintions

Nominations for the 2006 Frequency Control awards are welcome from anyone. Information about the awards is available at http://www.ieee-uffc.org/fc.

All nominations must be submitted in writing (e-mail preferred) and must contain a proposed citation. Each written nomination must include the following:

- Name of the nominee
- Current contact information (e-mail, if available) of the nominee
- Name of the award for which nominated
- Description of accomplishments (for example initiative, ingenuity, creativity, quality and degree of success, etc.) and their importance to the frequency control community
- Proposed citation (see examples on the first pages of any Proceedings since 1983 or visit http://www.ieee-uffc.org/ulmain.asp?page=awardescript)

The nomination should not exceed two typewritten pages and must contain the name and address of the nominator.

Jack Kusters introducing the Sawyer Award

Sam Stein, receiving the Sawyer Award from Jack Kusters

Sam Stein accepting the C.B. Sawyer Memorial Award

PTTI Distinguished Service Award

The Precise Time and Time Interval (PTTI) Distinguished Service Award was established to recognize outstanding contributions related to the management of PTTI systems.

The criteria for the PTTI Distinguished Service Award are that the award shall recognize an individual for any of the following contributions to the field of PTTI:

- Provided exceptional leadership and demonstrated ability and ingenuity in the development or application of PTTI

Victor Reinhardt lauding Norman F. Ramsey

Victor Reinhardt presenting The PTTI Distinguished Award to Norman F. Ramsy

Norman Ramsey, Nobel Laureate, accepting the PTTI Distinguished Service Award

over a number of years;
- Designed or developed a significant PTTI system

Norman F. Ramsey was awarded the 2005 PTTI Distinguished Service Award at the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval Systems and Applications Meeting in Vancouver, BC, Canada 29 August 2005.

The Laudation for Dr. Norman Ramsey

The 2005 Distinguished PTTI Service Award Presentation Speech to Norman F. Ramsey by Victor S. Reinhardt, August 29, 2005

The Distinguished PTTI Service Award is presented each year to individuals who have made significant contributions to areas of precise time and frequency. Nobel Laureate Professor Norman F. Ramsey is this year's awardee for his invention of the separated oscillatory fields technique, and the hydrogen maser. The separated oscillatory fields technique was a great break through for high-resolution atomic and molecular beam spectroscopy and led to the development of the cesium beam atomic frequency standard. His invention with Daniel Kleppner of the hydrogen maser and later work with Robert Vessot and others led to the development of another well-known atomic frequency standard workhorse. We are very glad Professor Ramsey didn't take I. I. Rabi's advice in the late 1930's not to enter the field of molecular beams because there were no good experiments left to perform.

Professor Ramsey's professional career has been long and distinguished. He was awarded five degrees in physics, including a Ph.D. from Columbia University in 1940 and a D. Sc. from Cambridge in 1964. During World War II, Professor Ramsey joined the M.I.T. Radiation Laboratory, where he headed groups that developed the first three-centimeter wavelength magnetrons and related radar systems. During that period, among other things, he invented the choke flange, which improves waveguide-coupling performance under adverse environmental conditions. Later he became a group leader at the Los Alamos Laboratory. After World War II, Professor Ramsey returned to Columbia University, and in 1966, he joined the Harvard faculty where he became Higgins Professor of Physics. This professorship was a very prestigious chair, because one of its perks was the right to graze a cow on the Cambridge Commons.

Professor Ramsey was also executive secretary of the group that established the Brookhaven National Laboratory and he became the first Chairman of Brookhaven's Physics Department. From 1958-1959, he served as the first Science Adviser to the Secretary General of NATO. He was a founding Trustee of the university association that constructed the 200 Gev accelerator in Batavia, Illinois and he served as president of the Association from 1966 to 1972. In 1978-1979, he also served as President of the American Physical Society. I have it on good authority that he ran for that position, in part, to escape being made Chairman of the Harvard Physics Department. Professor Ramsey has written and published five books and has authored or co-authored more than 300 scientific papers.

Professor Ramsey's contributions have been recognized by many prestigious awards. These include the Nobel Prize in 1989 and the IEEE Medal of Honor in 1984 for his work on separated oscillatory fields, the cesium atomic clock, and the hydrogen maser. He is also a Fellow of the American Physical Society, and a member of the National Academy of Sciences.

Victor Reinhardt with analog computing tool

Not only is Professor Ramsey a great physicist, but he is also a great teacher and mentor. In his career, he

has mentored about 84 graduate students, some of whom went on to make formidable contributions of their own in the time and frequency and related areas. Even though Professor Ramsey was extremely busy with his own work and was constantly traveling between facilities, he always made time available for his students, and he rarely missed his weekly luncheon meetings with them. During these luncheon meetings, we accomplished a great deal of creative work using a powerful analog computing tool for analyzing nuclear spin trajectories. I have here a copy of that tool (presenter shows orange). By also grabbing someone's pen, one can trace out the most complicated nuclear spin trajectories on the orange. I remember fondly how we all thus gladly sacrificed a part of our lunches in the pursuit of science. To all of us, Professor Ramsey is not only our great teacher and mentor, but our beloved intellectual father.

On behalf of the PTT I awards committee, I am honored to present you with this clock. It is not quite the accuracy of a cesium or hydrogen maser, It is but a small token of our appreciation for your outstanding contributions.

Norman Ramsey accepting the PTTI Award Clock from Victor Reinhardt

Piezoelectric Devices Association Awards

The Exhibits at the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval Systems and Applications Meeting in Vancouver, Canada, were sponsored, in part, by the Piezoelectric Devices Association (PDA). The PDA also sponsors two awards: The David P. Larsen Memorial Award and the Juergen H. Staudte Memorial Award, both of which were presented at this year's symposium. Marci Staudte introduced the PDA Awards with Mike Nusbaum, Chair of the Piezoelectric Devices Association.

Marci Staudte

The UFFC Society congratulates this year's award recipients!

2004 David P. Larsen Memorial Award Recipient

The David P. Larsen Memorial Award is presented annually for many years of dedication and engineering contributions to the industry.

Dwane Rose received the 2005 David P. Larsen Award

"For outstanding contributions in the development of manufacturing and test equipment for the unique requirements of the Piezoelectric Device Industry worldwide".

Michael Nusbaum lauded Dwane Rose's achievements and presented him with the David P. Larsen Memorial Award.

Mike Nusbaum (l) presenting the Larsen Award to Dwane Rose

Dwane Rose accepting the Larsen Award

Butch Tysinger lauding Don Malocha

Butch Tysinger presenting the Staudte Award to Don Malocha

Don Malocha accepting the Juergen H. Staudte Memorial Award

2004 Juergen H. Staudte Memorial Award Recipient

The Juergen H. Staudte Memorial Award is bestowed annually for many years of outstanding leadership, dedication, and contribution to the industry.

Donald C. Malocha received the 2005 Juergen H. Staudte Memorial Award

"For theoretical and practical design and manufacture of Surface Acoustic Wave components and for the unique contributions in the education of engineers for careers in the frequency control industry."

Marci Staudte introduced the award named after her late husband. Butch Tysinger presented the highlights of Don's career and lauded his achievements.

Frequency Control News

2005 Nobel Prize in Physics Awarded to Former FCS Rabi Award Recipients John Hall and Theodor Hänsch

John L. Hall

Theodor W. Hänsch

Former recipients of the FCS Rabi award, John Hall jointly of the University of Colorado and the National Institute of Standards and Technology and Theodor Hänsch of the Max Planck Institut für Quantenoptik were awarded the 2005 Nobel Prize in physics together with Roy Glauber from Harvard. Hall and Hänsch were cited "for their contributions to the development of laser-based precision spectroscopy, including the optical frequency comb technique", while Glauber was cited "for his contribution to the quantum theory of optical coherence". See http://nobelprize.org/physics/laureates/2005/index.html for more details.

Hall received the Rabi award at the 2004 IEEE International Ultrasonics, Ferroelectrics, and Frequency Control 50th Anniversary Joint Conference in Montréal, Canada, 25 August 2004 and was cited "for fundamental contributions to the development of ultra-high performance optical frequency standards, and for pioneering novel techniques and methods that enable the realization of optical standards and their applications in metrology". Hänsch received the Rabi award at the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval Systems and Applications Meeting in Vancouver, BC, Canada, 29 August 2005 and was cited "for outstanding contributions to experimental quantum optics, precision spectroscopy, and optical frequency combs".

With the advent of the octave-spanning optical comb technique the optical frequency standard community has seen a burst of new activity. To address this activity, group 3 of the IEEE International Frequency Control Symposium (IFCS) Technical Program Committee (TPC) has organized 4 sessions in the 2006 IEEE International Frequency Control Symposium on the topic of optical frequency standards.

Eric Burt
UFFC Newsletter
Associate Editor

Multiple sessions on optical frequency standards organized for the 2006 IEEE International Frequency Control Symposium

Scott Diddams

Optical Frequency Standards

The field of atomic frequency standards is witnessing an exciting period of accelerated development of atomic clocks that operate at optical frequencies (~500 THz). Indeed, in just the past year optical frequency standards at several laboratories around the world have attained uncertainties at a level approaching, and even comparable to, the best cesium fountain standards.

While optical clocks have been sought after since the invention of the laser, until recently they have not been practical due largely to the problem of counting the extremely fast oscillations of an optical wave. The introduction of femtosecond laser frequency combs has largely solved this problem by providing a robust optical frequency counter. Coupled to recent advances in laser stabilization and the cooling and trapping of atoms and ions these technologies have now enabled the demonstration of optical frequency standards that may be representative of the clocks of the future.

It is not coincidental that the Nobel committee also recognized the importance of the recent developments in this field, awarding half of the 2005 Nobel Prize in physics to John Hall and Theodor Hänsch for their contributions to precision spectroscopy, frequency measurements and the femtosecond comb technique. Beyond improved clocks, these advanced frequency standards are already being used in an ever-broadening range of applications including tests to constrain the possible time-variation of fundamental constants, new approaches to spectroscopy, and the synthesis of low noise signals across the electromagnetic spectrum.

Sessions At 2006 IEEE IFCS

The 2006 IEEE International Frequency Control Symposium has attempted to capture some of this excitement with four sessions spread across two days that contain invited and contributed papers on the topic of optical frequency standards and related technologies. At this point there are complimentary research tracks on neutral atom and ion-based optical frequency standards. Accordingly, talks have been generally divided along these lines and international leaders in both areas have been invited to present their latest results.

Speakers in area of neutral atom optical clocks—including the so-called "lattice clocks"—will include Hidetoshi Katori (Tokyo University), Pierre LeMonde (BNM-SYRTE), Chris Oates (NIST), Fritz Riehle (PTB) and Jun Ye (JILA). The invited speakers covering the latest topics in ion-based optical standards are Jim Bergquist (NIST), Pierre Dube (C-NRC), Patrick Gill (NPL), and Christian Tamm (PTB). This distinguished list of invited speakers will be complimented by contributed talks covering topics in femtosecond frequency combs, laser technology and tests of fundamental physics. Taken as a whole, this part of the FCS program promises to provided an excellent overview of the latest advances in this rapidly-evolving field.

Scott Diddams

Minutes of the UFFC-S Frequency Control Standing Committee
30 August 2005
Vancouver, BC, Cananda

Call to Order

Lute Maleki, Frequency Control Standing Committee Chair

Sam Stein, Frequency Control Standing Committee Vice-Chair

General role was taken as follows:

Lute Maleki, Standing Committee Chair
Sam Stein, Standing Committee Vice-Chair
Tom Parker, Awards Chair
John Prestage, Tutorial Chair
John Vig, IEEE
Ray Filler, Finance Chair
Kurt Gibble, Academic/Education Chair
Jack Kusters, Exhibits Chair
Debra Coler, Editorial Chair
Chris Ekstrom, 2005 Co-TPC Chair
Mike Driscoll, General Chair, 2005/2006 FCS
Don Malocha, TPC Chair, 2006/2007
Bernardo Jaduszliwer, 2007/2208 General Chair
Joe White, Co-General Chair, 2005 Joint PTTI/FCS
Bob Tjoelker, Co-TPC Chair, 2005 Joint PTTI/FCS
Sheila Faulkner, Manager, 2005 Joint PTTI/FCS
Gerry Blessing, UFFC President

The meeting was called to order by the Chair, Lute Maleki.

Approval of Minutes

The Chairman presented the minutes from the 28 April 2005 Standing Committee Meeting. A motion was made by Ray Filler to approve the minutes; the motion was seconded and unanimously approved.

AdCom Report

Lute reported that the AdCom has not met since our last Standing Committee meeting. The election of the new president will be held next month at the AdCom meeting in The Netherlands. Gerry reported that this will be an historic election in that two women will be running for the position.

2005 Conference

Lute acknowledged the great job done by Mike Driscoll and Joe White as General Chairs of this conference. He also acknowledged Bob Tjoelker and Chris Ekstom as Co-Technical Chairs and Sheila Faulkner as the meeting manger. A round of applause was given for a job well done.

Mike Driscoll and Joe White

Sheila Faulkner, Chris Ekstrom, Barbara McGivney, Bob Tjoelker, and Debra Coler

Mike Driscoll passed around a report for this conference. He thought the venue and logistics have been tremendous. He is thinking there might be a small loss or break even for this year. The shortfall is due to attendance being less than budgeted. The exhibit income is more than expected even with higher shipping costs for exhibitors due to shipping out of the country. Paid tutorials are also less than was planned, and he thinks we should continue to try to schedule new, interesting topics and get those posted on the web-

site as early as possible. Don Malocha reiterated the importance of getting the tutorials advertised and published early so people can plan their travel to come to the tutorials. John Vig stressed the importance of hitting the budget mark because it costs the IEEE money even when we make the 20% profit margin. The 20% is not enough to cover the IEEE overhead which is actually 22%. When the individual societies do not meet their budgets then it falls to the publications to cover those expenses. There was also a large number of sensor conferences this year which greatly impacted the number of sensor papers submitted and the number of sensor registrants.

Finances

Ray Filler said all financial issues have been covered.

Tutorials

Robert Lutwak, John Prestage and Tom Parker

John Prestage reported that we had the best collection of speakers we have ever had. All topics were covered that concern this conference. Six of the speakers were new.

Awards

Tom Parker reported that the awards went well, there was some discussion about the logistics of the student poster awards in the future. Kurt said maybe the poster hall would be a better place.

Academic

Bernardo Jaduszliwer, Lute Maleki, Kurt Gibble

Kurt Gibble reported that for our first year of having the student poster contest he thought it went very well and there was good participation.

Publications

Debra Coler acknowledged a problem in the program book of being able to associate a talk in the program to the actual abstract in the back of the book. The abstracts were in order by session and talk but still hard to find. We will fix that next year. John said we need to have a map of floors to say where the talks are.

Exhibits

Sam Stein and Jack Kusters

Jack reported that this year the exhibits have gone well as previously discussed. He will start working on next year in a few weeks. The other issue is the relationship with the Piezoelectric Devices Association (PDA). The agreement that was put in place several years ago calls for $200 per booth for PDA companies and that was not paid last year. We need to pay for last year and this year. Jack said they now wish to withdraw from the relationship with FCS and this is notice that they will be pulling out. (Editor's note: a written notice to this effect from the PDA is on file with the committee). The proceedings for the Kansas City Conference have not been put on the website because of copyright issues. George Maronich has been tasked with resolving this issue.

2006 Conference

Mike Driscoll

Mike Driscoll reported the location is The Hyatt Regency Hotel in Miami, Florida, June 4-7, 2006. The budget has been prepared and indicates a potential 20% surplus. The budget still needs to be approved by AdCom. Synergistic Management will be handling the logistics of this conference. Registration fees have been raised to help balance the budget which includes a planned 316 attendees. He has also cut the Welcome Reception. Ray said you have to balance the registration costs with the amenities you offer. If you drop all amenities you may not have people returning.

Don Malocha

Don Malocha talked about the timing of 2006 and how it will be better for the sensor community. He presented his plan to have the TPC meeting here at this conference, he is changing some of the Group chairs, will be adding some new members to build up some of the technical areas that we want to draw from. He will be working hard with the group chairs to attract invited speakers early so we can publicize them.

2007 Conference

This conference will be a joint conference with EFTF. Lute reported that he just heard from Bernie Schlueter who is the General Chair for EFTF. This conference will be held May 29 – June 1 of 2007 in Geneva in conjunction with the European Navigation Conference at the Geneva International Conference Center. They will advertise it as a joint conference with all three entities. Bernardo Jaduszliwer as the Co-General Chair will be negotiating the logistics of this conference and Don Malocha as the TPC chair will be working on behalf of the technical program. Sam Stein asked about whether the exhibits will be joint as well and Lute said he thought so but we will find out.

2008 Conference

Bernardo talked about different venues he has been working on with Synergistic Management and the venue that has risen to the top is the Hilton Hawaiian Village. This is the same venue where we had IFCS several years ago. The dates will be late May. Gerry said in 2008 Ultrasonics will be in China in October.

2009/2010 Conferences

Lute reported that he has been approached by some of the Australian TPC members who would like to have a conference there in 2009. He has also had a strong, organized lobby from Shanghai to have the conference there in 2010 in conjunction with the World Expo. Lute talked about the growth of our industry in Asia and how we need to think about expanding and make it easy for the Asian community to join this conference. He would like to rotate the location of our conference in Asia and in Europe every few years. Perhaps it could look like North America-Asia-North America-Europe-North America-Asia…etc. Mike Driscoll brought the issue of those with security clearances being able to go to China or some other Asian destinations. It will be difficult if not impossible. Gerry said that Ultrasonics has adopted a similar rotation for their conferences. Sam said that we need to make sure there is coordination between IFCS and Ultrasonics and the two rotations. Lute said there will be at the AdCom level.

BWO and SAW Communities

Lute reported that John Vig has indicated that there is an overlap in sensors (thin film bulk wave and SAW) papers with Ultrasonics. Don asked if we could get some kind of agreement between us and Ultrasonics to differentiate between some of these areas that overlap. Ray said the difference seems to be in the medical vs. non-medical areas. Ultrasonics could be for the medical areas and FCS for non-medical. Lute said this needs to be addressed in depth at the AdCom level.

TPC Membership

There was discussion about TPC membership being made more international. John Vig talked about the IEEE web conferencing venue. It is the next best thing to being there. You can show slides, mark up slides, have audio and visual capabilities. IEEE has the license and then we would just reimburse them for the time used. Don said some of our companies might pay for it themselves because it is saving them the cost of travel. He will look into it further and report back. There was further discussion about TPC membership being limited to one year and then possibly rotating the membership according to the venue for that particular year.

The meeting was adjourned.

Debra Coler
TPC Administrator

ULTRASONICS AWARDS

Rayleigh Award

The Rayleigh Award is presented by the IEEE UFFC Ultrasonics Committee recognizing meritorious service to the UFFC Society in the field of Ultrasonics. The achievement may be in technical innovations, research, education, publications and related professional endeavors. Typically, the recipient will have demonstrated these accomplishments over a sustained period of time. An Awards Committee consisting of the Rayleigh Award Chair, the Technical Program Chair and the Technical Program Vice-Chairs will make selection in the spring of each year.

The award consists of an honorarium of $1,000, a plaque and a certificate.

2003 Rayleigh Award Recipient

The UFFC Society offers its congratulations to the recipient of the 2005 Rayleigh Award, Dr. Noriyoshi Chubachi of Sendai, Japan. The citation on the certificate and plaque reads:

"For his pioneering research in piezoelectric materials, in acoustic microscopy, and in materials evaluation as well as for his many years of service to the IEEE UFFC Society"

Professor Chubachi has donated his honorarium to the IEEE Foundation. He was presented the Rayleigh Award following laudatory remarks by Dr. Jun-ichi Kushibiki at the 2005 IEEE International Ultrasonics Symposium in Rotterdam, The Netherlands 19 September 2005.

Reinhard Lerch Introducing the Ultrasonics Rayleigh Award

Dr. Jun-ichi Kushibiki lauding Dr. Chubachi

Dr. Noriyoshi Chubachi accepting the Rayleigh Award

Dr. Noriyoshi Chubachi (c) receiving the Rayleigh Award from Jun-ichi Kushibiki (l) and Gerry Blessing

Rayleigh Award Nominations

Dr. James F. Greenleaf has succeeded Dr. J. David N. Cheeke as Chair of the Rayleigh Award Committee. Nominations may be submitted at any time. A member may submit a nomination by sending the nominees name, affiliation and that person's main contributions, along with the submitter's own name and affiliation to:

James F. Greenleaf, PhD
Professor of Biophysics
Mayo Clinic College of Medicine
200 First Street SW
Rochester, MN 55905
Tel: 507-284-8696
Fax: 507-266-0361
jfg@mayo.edu

Past Recipients of the Rayleigh Award

The first presentation of the Rayleigh Award was in 2001.

James F. Greenleaf, 2005; For pioneering and continuing contributions to medical diagnostic research and education

Richard M. White, 2003; for pioneering contributions in ultrasonics to the development of SAW interdigital transducers, laser ultrasonics and Lamb wave acoustic sensors and for continuing contributions to the field of education.

Calvin F. Quate, 2002; for pioneering contributions to the development of the scanning acoustic microscope and the atomic force microscope.

Gerald W. Farnell, 2001; for his devoted service and contributions to the IEEE UFFC Society in the field of Ultrasonics and for his original work in the areas of surface wave propagation in anisotropic materials.

ULTRASONICS NEWS

Minutes of the Ultrasonics Standing Committee Meeting 17 September 2005 Rotterdam, Netherlands

Call to Order

The Ultrasonics Committee met on 17 September 2005 in Rotterdam, Netherlands. The committee meeting preceded the 2005 IEEE International Ultrasonics Symposium. Participating were:

Gerry Blessing
Jan Brown
Stuart Foster
Jim Greenleaf
Fred Hickernell
Jackie Hines
Oliver Keitmann-Curdes
Michael Kolios
John Kosinski
Jian-yu Lu
Mauricio Pereira da Cunha
Clemens Ruppel
Ahmad Safari
Ton van der Steen
Herman Van de Vaart

Clemens Ruppel

The meeting was called to order by Vice-President for Ultrasonics Clemens Ruppel.

Ultrasonics Symposia

The committee received progress reports from the Chairs of the upcoming Symposia for 2006, 2007, and 2008 with respect to detailed planning, proposed budgets, finalization of contracts, and selection of venues. The committee also received briefings on candidate venues for 2009 and began discussion of potential sites for 2010.

2006 Symposium

Stuart Foster

Michael Kolios

General Chair: Stuart Foster
s.foster@ieee.org
Vancouver, Canada
3 – 6 October 2006

Stuart Foster gave an update on the 2006 International Ultrasonics Symposium to be held in Vancouver, British Columbia, Canada. The Symposium Committee consists of:

General Chair:	Stuart Foster
Technical Program Chair:	Geoff Lockwood
Short Courses Chair:	John Hassock
Finance Chair:	Michael Kolios
Local Arrangements:	Michael Watkins
Exhibits Chair:	Sorah Rhee
Editorial Chair:	Marj Yuhas
Awards Chair:	Reinhard Lerch

The symposium will be held at the Westin. The entire conference facility was reserved for the symposium. The conference facility has 4 rooms with a capacity of 250 persons and 2 rooms with a capacity of 500 persons which will allow the flexibility of running either 5 or 6 parallel sessions.

There was significant discussion of the pending decision on a support contractor for abstract submission and the related decisions on support contractors for registration and publication of the proceedings. The discussion touched upon various positive aspects of the Oasis proposal with emphasis on what is different about their business process and how it leads to improved product at lower cost. As quoted, the costs of using Oasis would be $10K - $15K per year lower than for using FASS. Stuart Foster noted that since Oasis is located in Chicago, they should have no problem in providing on-site support for the TPC paper selection meeting. However, the ensuing discussion raised questions of potential cost overruns by both Oasis and FASS without any clear resolution of the matter. Stuart Foster agreed to give the matter further consideration. Other discussion touched on the impact of any changes on the planning for subsequent symposia. It was noted that the Oasis proposal is for a three year period and that the quoted pricing includes a sign-up discount that is forfeited if either of the subsequent symposia terminate the contract.

Stuart Foster noted that Oasis is capable of handling all aspects including publication of the proceedings. This led to some discussion regarding IEEE Xplore® compatibility and coordination of such a decision with the Proceedings Chair Marj Yuhas.

Herman van de Vaart

Regarding registration, questions were also raised about the status and ownership of mailing lists and e-mail lists currently being used by FASS. The discussion identified that these are owned by the UFFC Society and will be transferred to Oasis if the change is approved. Further discussion covered issues of in-advance versus on-site registration. Stuart Foster intends to have local volunteers handle on-site registration for the 2006 Symposium rather than using a support contractor. Herman Van de Vaart and Jan Brown both strongly suggested that Oasis should be used for that function in the event that there are any glitches in doing things this new way.

In considering the proposed budget for the 2006 Symposium, there was a discussion regarding support for students and invited speakers. AdCom policy is to match up to $15K of student travel support and up to another $15K of support for invited speakers. As Chair of the Conference Strategy Ad Hoc Committee, Ahmad Safari asked the Ultrasonics Committee whether these amounts are correct or whether these amounts need to be adjusted up or down.

Michael Kolios, Stuart Foster, and Ton van der Steen

Ton van der Steen noted that the current level of student support seemed correct based on his experience as 2005 General Chair. He then provided an opinion that invited speakers should at least get free registration, but should also have travel support. He also provided an opinion that the foreign speaker travel support should be ended due to the number and nature of complaints about how the program works. There was substantial discussion on this point, with a consensus that world economic conditions had changed since the foreign speaker support was instituted and hence could be dropped.

In further discussion, John Kosinski suggested that invited speakers should also receive a banquet ticket as part of their registration. Herman Van de Vaart provided an opinion that he would rather see AdCom eliminate the invited speaker match and restrict any matching funds to student travel support. At the urging of Jan Brown, the Committee agreed by vote to a resolution that recommends for Symposium General Chairs to waive registration and buy a banquet ticket for invited speakers, with any additional support at the discretion of symposium organizing committees.

The impact of invited speaker support was incorporated into the proposed budget for the 2006 Symposium. With this small revision, the Ultrasonics Committee voted to concur with the proposed budget, inclusive of changing from FASS to Oasis for the abstract submission process.

2007 Symposium

John Kosinski

General Chair: John Kosinski
j.a.kosinski@ieee.org
New York City, New York, USA
28 – 31 October 2007

John Kosinski reported on planning for the 2007 Ultrasonics Symposium in New York City. There was some discussion of the contract with the New York Hilton and Towers with respect to room rates and the required room block. UFFC may have an opportunity to use a master account in order to take advantage of IEEE tax-exempt status and thereby be relieved of taxes on rooms at the Hilton. If practical, this would help address concerns on room costs. This possibility will be addressed by the conference Finance Chair.

John Kosinski noted that the meeting space has a great layout for five parallel sessions, not the six parallel sessions as will be used for the 2006 Symposium. The committee agreed that the number of parallel sessions is at the discre-

tion of the General Chair, and that five parallel sessions will be acceptable.
The Symposium Committee consists of:

General Chair:	John Kosinski
Technical Program Chair:	Mauricio Pereira da Cunha
Short Courses Chair:	Stanislav Emelianov
Finance Chair:	Jackie Hines
Local Arrangements:	Koray Akdogan

Mauricio Pereira da Cunha

Additional volunteers are being recruited to fill out the committee. A committee meeting will probably be held on-site at the Hilton before the end of the calendar year.

2008 Symposium

Jian-yu Lu

General Chair: Jian-yu Lu
Jilu@eng.utoledo.edu
Beijing, China
2 – 5 November 2008

Jian-yu Lu reported on planning for the 2008 Ultrasonics Symposium to be held in Beijing, China. Note that the date has been finalized as 2 – 5 November. These dates were selected after considering together such factors as the cost of hotel rooms and conference facilities, and the anticipated weather conditions. The cost of hotel rooms and conference facilities varies dramatically by month for 2008 as a result of the Olympic Games being held in August and the Paralympic Games being held in September. The spike in prices associated with these events subsides by the selected date. At the same time, the weather should remain reasonably warm (mid 50's Fahrenheit) and dry.

The conference will be held at the Beijing International Convention Center (BICC), which is within the new Olympic complex. Local arrangements are being handled through the Chinese International Conference Center for Sciences and Technology (CICCST). All prices negotiated with CICCST are in Chinese Yuan. As the exchange rate is expected to change somewhat over the next few years, some cushion will need to be included in the conference budget. CICCST has negotiated excellent room rates at the Continental Grand Hotel of $95/night at current exchange rates. Meeting rooms, A/V services, and other local arrangements have also been negotiated. An exceptional Chinese-style buffet dinner party and Chinese-style sit-down table lunch will be part of the program. The next step is to finalize the contracts through IEEE.

Prof. Ji Wang has been added to the symposium committee as a second Publicity Chair and Roman Maev has been recruited as Short Course Chair. The full committee consists of:

General Co Chairs:	Jian-yu Lu and Hailan Zhang
Technical Program Chair:	Tom Shrout
Finance Chair:	Jan Brown
Short Course Chair:	Roman Maev
Publicity Chairs:	Sorah Rhee and Ji Wang
Exhibit Chair:	Mark Schafer

Jan Brown

Herman Van de Vaart and Jan Brown engaged in some discussion of the large advance payments (80% due 50 days in advance) required by the CICCST contracts. The consensus was that this should be manageable based on typical IEEE policies on loans to Societies, and Jan Brown agreed to pay close attention to this item. Ahmad Safari inquired whether any special measures were being taken to encourage participation by Chinese colleagues. Jian-yu Lu reported that Chinese attendees would be expected to pay the same conference fees as any other attendees.

2009 and Beyond

The Committee discussed Stockholm, Warsaw, and Rome as candidate venues for the 2009.

Oliver Keitmann-Curdes

Oliver Keitmann-Curdes presented information on Stockholm, Sweden. This capital city is located on 14 islands connected by 57 bridges, with more than 5000 hotel rooms available within 5 minutes walk of the central railway station. The city has good international connections via 63 airlines through Stockholm-Arlanda Airport and an express train into downtown. There are at least two options for holding the conference. One would be at the Sheraton hotel in downtown. This would have the advantage of being in the midst of many hotels, but is perhaps just adequately large enough to fit the conference. Other interesting alternatives are to hold the conference at either the Stockholm City Conference Center or at the Stockholm International Fairs. These venues are both large enough to hold the conference, but require respectively a short walk or a short subway ride from the city center.

Victor Plessky was unable to attend the meeting in person to discuss Warsaw, Poland. However, he forwarded to Clemens Ruppel a presentation that had been prepared by Piotr Kielczynski of the Polish Academy of Sciences. Both Clemens Ruppel and John Kosinski spoke on behalf of the proposal. Warsaw also is a capital city with a convenient, modern airport and numerous flights on many airlines. One

advantage of Warsaw is the presence of a large number of acoustics organizations including the Institute of Fundamental Technological Research, Warsaw University of Technology, Institute of Tele and Radio Technology, Military University of Technology, and Institute of Electronic Materials Technology. As such, there is a large cadre of available volunteers for the organizing committee, including Professors A. Nowicki and T. Powalowski of the Polish Academy of Sciences. Piotr Kielczynski has already spoken with the Ministry of Science and Information which has declared its intention to support the event if selected. A number of possible venues exist, all at or close to the center of the city and various cultural attractions. A number of first class hotels are available including the Marriott, Sofitel, and Victoria. Limited details were given regarding the specific layouts of potential conference centers.

Massimo Pappalardo

The Committee had a short discussion of the proposal by Massimo Pappalardo for Rome, Italy. The committee noted that specific details remained missing regarding the floor plan layouts of the hotel and conference center. Unfortunately, these details were not received at the meeting due to a miscommunication. [Authors' Note: The miscommunication was resolved the following day at the AdCom meeting and the required information should be provided by e-mail in the near future.]

The Committee agreed that the key criterion in selecting one of these venues is the layout of the conference facilities in terms of sizes of rooms, ability to accommodate posters, and ease of moving between rooms and sessions. In the absence of sufficient detail on any of these proposals, no decision was taken at this meeting. Clemens Ruppel noted that the decision for the 2009 venue must be placed before the AdCom at their next meeting on June 4, 2006. Therefore the Rome, Stockholm, and Warsaw proposals will require a final discussion and decision by e-mail over the next few months.

Jackie Hines

Jackie Hines and Jan Brown brought up that the Frequency Control Committee is interested in exploring having both Ultrasonics and Frequency Control Symposia consecutively in the same week and at the same venue with possibly a few overlapped sessions on Wednesday. This would allow for attendance at two symposia in a single travel week versus requiring two separate trips. This also might help to grow attendance at the Frequency Control Symposium. The 2009 Symposium to be held in Europe would be the first opportunity to do so if agreed by the committee. John Kosinski noted that the Frequency Control Symposium has other agreements in place for joint symposia with the European Frequency and Time Forum and asked whether this would complicate matters. The sense of the ensuing discussion was that it would not be an issue. John Kosinski also noted that the Frequency Control and Ultrasonics Symposia traditionally occur in late Spring and early Fall respectively, and that the Ultrasonics Committee should arrive at a consensus on the preferred timing of coordinated conferences and any other such issues prior to initiating serious discussions.

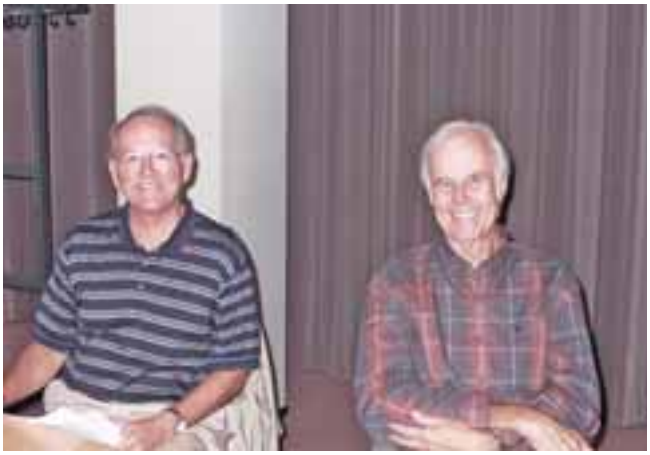
Clemens Ruppel initiated a discussion of potential sites for 2010 by noting that the site should be in the Americas based upon the order in which sites are being rotated between continents. No specific venues are currently on the table, and suggestions are solicited from the UFFC Society membership.

Conference Strategy Ad Hoc Committee

Ahmad Safari

Ahmad Safari made a short presentation on some significant findings by the Conference Strategy AdHoc Committee, pointing out that two had already come up during the course of the meeting. Professor Safari first noted the significant growth in conference attendance and in number of conference proceedings articles. This growth mirrors that seen for the Ultrasonics Symposium. He then noted that UFFC is already involved in the significant trends toward joint involvement with other (non-IEEE) entities and toward holding IEEE conferences outside the United States.

He next provided an analysis of conference fees with illustration of how IEEE events compare to non-IEEE events, and how IEEE Member discounts compare to the cost of IEEE membership. This analysis should be considered in establishing conference budgets. The final point dealt with penalties paid by individual Societies to IEEE Conference Services as a result of not closing out the conference accounting within one year after the conference. This also should be considered in the conference planning process. John Kosinski asked whether the data behind the comparative analysis included specific comparison of the Ultrasonics Symposium and any non-IEEE competitors that would be of direct use to the organizing committees. Professor Safari indicated that the analysis was across IEEE and that such specifics were not available for only the UFFC Society.



Jim Greenleaf and Fred Hickernell

Ton van der Steen

Gerry Blessing

Jim Greenleaf and Jan Brown pointed out issues in the generation of surpluses from conferences with particular note of the danger that IEEE could end up taking a portion of the surpluses. The consensus of the Committee was to assure that conference surpluses provide direct benefits to UFFC Society Members and to support AdCom and IEEE policies that would protect these.

Next Meeting

The next meeting of the Ultrasonics Committee will be held in Chicago, Illinois, USA on Friday, June 16, 2006, just prior to the 2nd TPC meeting for the 2006 Ultrasonics Symposium.

John A. Kosinski
Clemens C.W. Ruppel

HONORS

Mindlin Centennial Birthday Anniversary Symposium Beijing, China

In honoring Professor Raymond D. Mindlin's (1906-1987) centennial birthday anniversary, Mindlin Centennial Birthday Anniversary Symposium was held in conjunction with the 2005 Chinese Conference on Theoretical and Applied Mechanics (CCTAM 2005) on August 25-28, Beijing, China. The symposium was organized by Professors Ji Wang of Ningbo University and Weiqiu Chen of Zhejiang University with full support by Professor Yih-Hsin Pao, a former student of Professor Mindlin and currently serving at Zhejiang University, Hangzhou, China. Members of the IEEE UFFC community with strong academic ties to Mindlin and research work on the applications of Mindlin plate theory and piezoelectricity in piezoelectric devices include Dr. CS Lam, TXC Corporation,

Professor Raymond D. Mindlin's (1906-1987)

Professor Yook-Kong Yong, of Rutgers University, and Professor Jiashi Yang of the University of Nebraska-Lincoln, were invited to present talks on topics related the major fields pioneered by Professor Mindlin. Mr. Dongpei Chen and Ms. Jan Yang of Vectron International also attended the Symposium. The Symposium, as one of dozens of mini-symposia in the CCTAM 2005, received strong endorsement and support from the Mechanics community represented by the Chinese Society of Theoretical and Applied Mechanics (CSTAM, www.cstam.org.cn).

Professor Yih-Hsin Pao prepared a 30-minute talk about the life of Professor Mindlin along with his scientific and engineering contributions with emphasis on Mindlin plate theory and its applications in piezoelectric crystal resonator analysis and design. There were also some personal memories about Professor Mindlin with pictures, memos, and experiences. Due to a sudden health concern, Professor Pao was not able to deliver the talk by himself, asking Dr. CS Lam to deliver the talk on his behalf. Dr. CS Lam also included some personal experiences with Professor Mindlin.

The Mindlin Centennial Birthday Anniversary Symposium was attended by about 40 participants in the CCTAM 2005, with 16 presentations related to piezoelectricity, acoustic waves, and device applications.

Mindlin Centennial Birthday Anniversary Symposia in other conferences like the IEEE International Frequency Control Symposium is under discussion.

Members of the IEEE UFFC community who are interested in organizing events in honoring Professor Mindlin's contribution in piezoelectricity and device modeling are encouraged to contact Professor Yook-Kong Yong of Rutger's (yyong@rci.rutgers.edu).

Ji Wang (wangji@nbu.edu.cn)
Weiqiu Chen (chenwq@zju.edu.cn)

Pierre Tournois Receives the IEEE David Sarnoff Award

Pierre Tournois

Sarnoff Medal

Dr. Pierre Tournois received the 2005 IEEE David Sarnoff Award

"For pioneering contributions to pulse compression devices and the invention of the Acousto-Optic Programmable Dispersive Filter."

IEEE David Sarnoff Award

The IEEE David Sarnoff Award was established in 1959 through agreement between the RCA Corporation and the American Institute of Electrical Engineers, and continued by the Board of Directors of the IEEE. In 1989, sponsorship of the award was assumed by the Sarnoff Corporation.

It may be presented each year to an individual or team up to three in number for exceptional contributions to electronics.

Recipient selection is administered through the Technical Field Awards Council of the IEEE Awards Board.

In the evaluation process, the following criteria are considered: singular outstanding achievement, originality, recent impact within five years and the quality of the nomination.

The award consists of a bronze medal, certificate and honorarium.

About Pierre Tournois

For more than 30 years, Dr. Pierre Tournois, co-founder and scientific director of FASTLITE in Palaiseau, France, has made significant contributions to the development of pulse compression technology for radar, sonar and optical lasers. In 1964, he invented the Gires-Tournois Interferometer (GTI), the first device to compress optical laser pulses and which has had an important impact on the progress of pulsed laser science and technology toward shorter pulses and higher intensities. The GTI is now used in basic and applied research, laser designs and more recently, optical communications.

Dr. Tournois also invented the DAZZLER, an acousto-optic programmable pulse shaper designed to help chemists control photochemical reactions at will and help physicists explore how atoms behave in the one-quintillionth of a second scale. While solid-state laser technology provided a reliable way to boost the energy of ultra-short pulses, the continuing demand for greater peak power required shortening the pulses, a critical factor in biomedical imaging, diagnostics and surgery, as well as industrial inspection and material processing. Dr. Tournois' device allows the manipulation of the spectral amplitude and phase of short optical pulses, all within a centimeter-size crystal and with a simple computer interface.

Dr. Tournois received his degree in optics engineering from the Ecole Superieure d'Optique de Paris in France, and has published more than 100 scientific papers. He is a founding member of the French National Academy of Technologies and a member of the Finnish Academy of Technical Sciences. He is an emeritus member of France's Societé de l'Electricité , de l'Electronique et des Technologies de l'Information et de la Communication, which recognized him with the Blondel and General Ferrie Awards.

2005 and 2006 UFFC Senior Members

Newly Elevated Senior Members

On behalf of the UFFC Society, we would like to congratulate those members who have been elevated to the grade of Senior Member in late 2005 and thus far in 2006.

Senior Member Grade

Benjamin Abbott
Walter Arnold
James Camparo
Changiju Dang
Philippe Delachartre
Eva Ferre-Pikal
Kullervo Hynynen
Michael Insana
Marija Kosec
Mark Moehring
Vittorio Passaro
Kouros Sariri
James Smith
Howard Stern
Robert L. Tjoelker
Max Viergever
Warren F. Walls
Yohachi Yamashita
Paul Zablocky
Yongping Zheng

The grade of Senior Member recognizes those who have achieved professional proficiency, as demonstrated by degrees received and/or work experience. It is a professional recognition of your peers for technical and professional excellence.

The grade of Senior Member is the highest for which application may be made and shall require experience reflecting professional maturity. For admission or transfer to the grade of Senior Member, a candidate shall be an engineer, scientist, educator, technical executive, or originator in IEEE-designated fields.

How to Apply

Individuals may apply for Senior Member grade online at http://www.ieee.org/organizations/rab/md/smforms.htm

The Senior Member application form is available in 3 formats.

- Online version
- Downloadable version
- Electronic version

The application may be submitted online, by snail mail or as an email attachment. Reference letters may also be completed online or sent electronically. To expedite the processing of your application, it is suggested that you submit your application online or send the electronic version to senior-member@ieee.org.

We encourage you to apply for Senior Membership, as soon as you meet the requirements. One cannot become an IEEE Fellow without first becoming a Senior Member.

UFFC AWARDS

Honoring our UFFC Society members is a privilege.

The UFFC Society has a number of awards, which are given at symposia sponsored by our three groups. Each member can get involved in the process by submitting nominations for awards through the respective Award Chairs and committees. Information can be found on the UFFC Society website (www.ieee-uffc.org). The names and citations of past awardees also appear on the website.

UFFC Achievement Award

The Achievement Award is the highest Society-wide award presented to a member in special recognition of outstanding contributions. Selection criteria include significant technical publications in the field of ultrasonics, ferroelectrics, or frequency control, as well as contributions to these technical fields, and service to the Society. The winner is selected by the UFFC Officers and the Awards Committee from nominations submitted by the general membership. The award consists of an honorarium of $2,000, a plaque, and a certificate. Presentation is usually at one of the Society's major symposia. The first award was presented in 1980.

2005 UFFC Achievement Award Recipient

Professor Robert E. Newnham is the recipient of the 2005 UFFC Achievement Award. He will receive this award at the 15th IEEE International Symposium on the Application of Ferroelectrics in Sunset Beach, NC, during the conference banquet 1 August 2006. The citation on the certificate and plaque reads:

"For his pioneering work on piezoelectric composite transducers, and for his distinguished service to the teaching of structure-property relations in electroceramics to the national and international engineering communities"

UFFC Achievement Award Nominations

Nominations may be submitted at any time. Any member may submit a nomination by sending the nominee's name and a description of that person's main contributions, along with the submitter's own name and address to:

Prof. Dr. -Ing. Reinhard Lerch
Chair, UFFC-S Awards Committee
Friedrich-Alexander-University Erlangen-Nuremberg
Department of Sensor Technology
Paul-Gordan-Str. 3/5
91052 Erlangen
Germany
Fon: +49 9131 85 23131
Fax: +49 9131 85 23133
e-Mail: reinhard.lerch@lse.e-technik.uni-erlangen.de

UFFC Distinguished Service Award

The Distinguished Service Award recognizes long-term support of the Society's activities. Recognition is given to those who innovate new Society programs, administer major Committees, manage Society functions, or promote the Society's areas of technical interest to the larger community. The recipient usually has served for many years with sustained participation in the Society's management. Selection is made by the Officers and the Awards Committee from nominations submitted by the general membership. The award consists of an honorarium of $2,000, a plaque and a certificate. Presentation is usually at one of the Society's major symposia. The first award was presented in 1997.

2005 Distinguished Service Award Recipient

Dr. John R. Vig was awarded the 2005 UFFC Achievement Award at the 2005 IEEE International Ultrasonics Symposium in Rotterdam, the Netherlands on 19 September 2005. The citation on the certificate and plaque reads:

"In recognition of his creative leadership in establishing the UFFC website and digital archive, his dedicated service to the UFFC Society as President as well as conference organization, standards and many other committees, and his thoughtful outreach to other technical communities"

Reinhard Lerch introduced the Award. The laudation was given by Jan Brown praising John's active and continuous volunteer service to the Society. John has donated his honorarium to the IEEE Foundation.

Reinhard Lerch introducing Jan Brown

Jan Brown lauding John Vig with John and Lovidub in the background

Gerry Blessing, Jan Brown, John Vig, and Reinhard Lerch

John Vig Laudation

The Faces of John Vig

John Vig was born in Hungary. He immigrated to the USA in 1957, received the B.S. degree from the City College of New York in 1964, and the Ph.D. in Physics from Rutgers in 1969. He is currently a researcher and program manager at the U.S. Army Communications-Electronics Research, Development & Engineering Center, Fort Monmouth, New Jersey, USA.

In addition to his vast technical accomplishments for which he has received numerous awards including from this society the Achievement Award in 2001, the Cady Award in 1990, and served as the Distinguished Lecturer in 1992-93, John's service to the society is equally vast:

- He twice served as an elected member of the UFFC AdCom.
- He served as President of UFFC-S, 1998-99.
- He played a significant role in establishing UFFC-S digital archive
- He negotiated with the UFFC-S and the Army leadership, for the UFFC-S to take over the Frequency Control Symposium (FCS) sponsorship from the US Army.
- He founded the UFFC-S website and was responsible for assembling much of the content and went on to serve as the UFFC-S first Web Editor-in-Chief.
- He has enjoyed many roles within the Frequency Control community of UFFC including being an FCS tutorial pre-

senter for 20+ years, an FCS TPC member, since 1972, an FCS General chair on more than one occasion, an FCS TPC chair and publicity chair, and a member of the Frequency Control Standing Committee since 1983
- He has been a member of the Ultrasonics Symposium Technical Program Committee (TPC) since 1986
- He has been intimately involved in the Standards Coordinating Committee on Time and Frequency including serving as Chair.
- He has made significant contributions to IEEE Standard 1139, "Standard Terminology for Fundamental Frequency and Time Metro-logy" and to IEEE-Std 1193 on environmental effects
- He has served on the UFFC Publications Committee, the Fellow Committee, and the Nominating Committee.
- He has been an Associate Editor of the UFFC Transactions as well as a guest editor on special issues on Sensors and Frequency Control.

John is a Fellow of the IEEE, the Founding President of the IEEE Sensors Council, a past Director of the IEEE, and currently the Vice-President of IEEE Technical Activities.

When I asked John how or why he came to do all these things. His response was "I have no idea! Most of the things I did because someone, like you, asked me. None of it was part of a plan."

John's Colleagues have described him as:
- one of the most active persons of our society
- excellent leadership as president
- A man with visions exhibiting a very broad scope

Indeed, John is an active leader with vision and a history of service to our Society. Please join me in presenting him with the UFFC Distinguished Service Award.

Jan Brown

Comments on Volunteerism

John Vig's Distinguished Service Award acceptance speech.

John Vig Distinguished Service Award Recipient

Thanks, Jan, and thanks also to the UFFC-S Award Committee and the UFFC-S AdCom for electing me to receive this award.

The UFFC-S has several awards for technical achievement. It has only one award, the Distinguished Service Award, for recognizing volunteerism. It is good that there is at least one award for volunteerism because it is the volunteers who are responsible for the success of this Symposium, of the UFFC Society, and of the IEEE.

More than 100 volunteers have contributed to the success of this Ultrasonics Symposium. In fact, the Technical Program Committee alone consists of more than 100 members. Then there is the Organizing Committee, and others. This level of volunteer contribution is typical of IEEE conferences.

The IEEE sponsors/cosponsors ~350 conferences every year, so, more than 30,000 volunteers contribute to IEEE conferences. The IEEE also has more than 100 journals and magazines. Volunteers are responsible for the success of those too – the editors and reviewers. The same is true for standards development, regional activities, educational activities, etc.

If the volunteers' labors are valued at the rate of pay they receive in their day jobs, their contribution is worth hundreds of millions of dollars!

Much has been written about volunteerism. My favorite quotation is as follows: "How wonderful that no one need wait a single moment to improve the world."

This was said here in Holland, during World War II, by a 12 year old - Anne Frank.

Thank you.

John R. Vig

UFFC Distinguished Service Award Nominations

Nominations may be submitted at any time. Any member may submit a nomination by sending the nominee's name and a description of that person's main contributions, along with the submitter's own name and address to:

Prof. Dr. -Ing. Reinhard Lerch
Chair, UFFC-S Awards Committee
Friedrich-Alexander-University Erlangen-Nuremberg
Department of Sensor Technology
Paul-Gordan-Str. 3/5
91052 Erlangen
Germany
Fon: +49 9131 85 23131
Fax: +49 9131 85 23133
e-Mail: reinhard.lerch@lse.e-technik.uni-erlangen.de

UFFC Outstanding Paper Award

The Outstanding Paper Award is presented to the author(s) of a paper published in the IEEE UFFC-S Transactions which exemplifies excellent technical contributions and is clearly written. The winner is selected on the basis of: originality, interest to the membership, contributions to the field, clarity of writing, and timeliness. Selection is made by the Awards Committee. Nominations and comments from the Editor-in-Chief, Associate Editors and Guest Editors of the Transactions are solicited.

Papers are reviewed as a group for each Volume of the UFFC-S Transactions (January through December). In a given year, usually one paper is selected, but the Awards Committee may chose to give no award or multiple awards when circumstances warrant. Presentation is usually at one

of the Society's major symposia.

The award consists of a plaque and a certificate. The Outstanding Paper Award was first presented in 1956.

2004 Outstanding Paper Award Recipients

The UFFC is proud to announce the winners of the 2004 Outstanding Paper Award: Joshua Knight, Jeff McLean and Levent Degertekin from for their paper:

"Low Temperature Fabrication of Immersion Capacitive Micromachined Ultrasonic Transducers on Silicon and Dielectric Substrates"

This work was performed at the the G.W. Woodruff School of Mechanical Engineering at Georgia Institute of Technology. Each author will receive a plaque and certificate. During the opening ceremony of the 2005 IEEE International Ultrasonics Symposium in Rotterdam, The Netherlands, 19 September 2005, Levent Degertekin accepted the award on behalf of himself and fellow authors.

The Awards Committee members selected this paper from among all others that appeared in Vol. 51 of the Transactions on UFFC because the authors demonstrated innovative techniques and an approach for fabrication of high frequency ultrasonic transducers using MEMS technology. They deduced the properties of the deposited films, which is always a difficult task, and provided a clear explanation of the experimental factors affecting performance.

Levent Degertekin (c) receiving the Outstanding Paper Award from Reinhard Lerch (l) and Gerry Blessing

Reinhard Lerch
Chair, UFFC Awards Committee

UFFC Distinguished Lecturer Award

The Distinguished Lecturer represents the UFFC Society by giving lectures worldwide to the larger technical community. The subject of the lecture must be of current interest and the lecturer must be a prominent contributor in the field of the lecture. The speaker is selected for speaking style, prominence in the topic, and willingness to commit significant time and energy to preparation, travel and lectures. The Lecturer is selected by the AdCom from a list of nominees presented by the Distinguished Lecturer Subcommittee of the UFFC-S Awards Committee from nominations received from the general membership. Presentation of the award is usually at one of the Society's major symposia.

The award consists of a certificate, and reimbursement for an international lecture tour, which consists of roughly 30 or more lectures during an 18-month period.

You are encouraged to invite the Distinguished Lecturer to your Chapter or institution.

2005 – 2006 Distinguished Lecturer

During the Opening Ceremony of the 2005 IEEE International Ultrasonics Symposium in Rotterdam, The Netherlands, Bernie Tittmann, the UFFC Distinguished Lecturer Selection Committee Chair, introduced the 2005 – 2006 UFFC Distinguished Lecturer, Dr. Ken-ya Hashimoto.

Dr. Ken-ya Hashimoto
Department of Electronic and Mechanical Engineering
Faculty of Engineering
Chiba University
1-33 Yayoi-cho, Inage-ku
Chiba-shi 263-8522 Japan
k.hashimoto@ieee.org

Bernie Tittmann

Bernie introducing UFFC Distinguished Lecturer Dr. Ken-ya Hashimoto

Bernie Tittmann, Ken-ya Hashimoto, Gerry Blessing

Simulation of Surface Acoustic Wave Devices

Presently, surface acoustic wave (SAW) filters are mass produced and widely used in various consumer products and communication equipment. For their research and development, use of fast and precise simulation and design tools is essential, and much effort has been paid for their enhancement for many years.

Fortunately, recent rapid progress of computer technologies has made it possible to deal with large-scale problems using small personal computers. So as for computers, anyone can set up the latest research environment with small investment. The remaining task is to establish simulation and design software tools.

This lecture reviews simulation technologies used in the research and development of modern SAW devices. Firstly, a simple discussion is presented on the role of the numerical simulation to clarify its applicability and necessity. Although a number of simulation techniques have been developed, none of them are perfect. So we must select appropriate ones for each purpose with the trade-off between computation speed and precision.

The simulation techniques are categorized into two types. The first type is based on the full-wave analysis, and is used for parameter extraction, design verification, theoretical examination, etc. where precision is more important than the calculation speed. In this category, the finite element method (FEM), boundary element method (BEM), spectral domain analysis (SDA) and their combinations are representative. In the second part of the lecture, these techniques are practically applied in the SAW device design.

The second type is based upon phenomenological models, and is used in the optimization process. In this case, the calculation speed is also very crucial because the simulation will be executed for a huge number of iterations to search for the optimal solution. Presently, the coupling-of-modes, p-matrix and equivalent circuit models are widely used. In the third part of the lecture, they are compared and their use in practical device design is detailed. It is demonstrated how precise and speedy this type of simulation can be performed provided that all necessary parameters were determined correctly in advance.

Once simulation tools are ready, it is a starting point of a trial road. This is because minor effects in former days become obvious after evolution, ad further improvement is always necessary. In the final part of the lecture, various hot topics in this direction are presented and hidden problems in current simulation tools are revealed.

Dr. Ken-ya Hashimoto

Ken-ya Hashimoto was born in Fukushima, Japan, on March 2, 1956. He received his B.S. and M.S. degrees in electrical engineering in 1978 and 1980, respectively, from Chiba University, Japan, and Dr. Eng. degree from Tokyo Institute of Technology, Japan, in 1989.

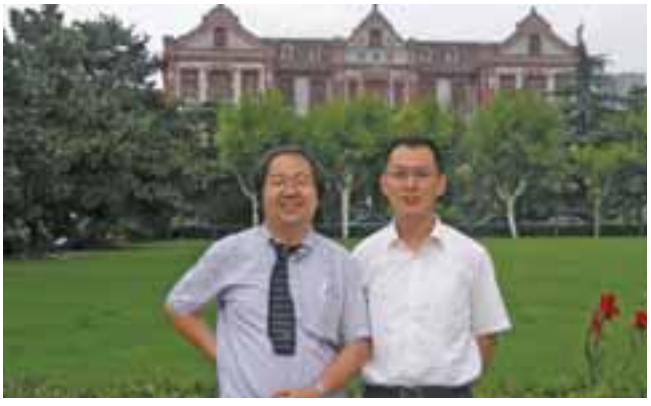
In 1980, he joined Chiba University as a Research Associate, and is now Associate Professor of the University. In 1998, he was a Visiting Professor at Helsinki University of Technology, Finland. In the winter of 1998/1999, he was a Visiting Scientist of the Laboratoire de Physique et Metrologie des Oscillateurs (LPMO), CNRS, France. In 1999 and 2001, he was a Visiting Professor at the Johannes Keppler University of Linz, Austria.

Dr. Hashimoto has authored or co-authored more than 130 papers in refereed journals and conference proceedings. He has contributed to 6 books including a textbook "Surface Acoustic Wave Devices in Telecommunications" published by Springer Verlag in 2000. His current research interests include various types of surface and bulk acoustic wave devices, acoustic wave sensors, piezoelectric thin films, and application of thin-film micro-machining technologies to the acoustic wave devices.

Dr. Hashimoto Reports

DL Tour in China in 2005

Have you ever been China? If not, you must go. You will find many interesting things such as fantastic landscape, nice food, exotic culture and people's life. If yes, you should visit there again. Everything changes very rapidly, and the progress speed might be far beyond your expectation. However, there is one thing unchanged. It is the hospitality of Chinese people, which made this tour very fun as always.



Ken with Prof. Han at Shanghai Jiaotong University

I arrived Shanghai from Tokyo on Sunday, August 18, 2005. Prof. Han of Shanghai Jiaotong University, a specialist on SAW wireless sensors, kindly gave me an invitation. The old and beautiful campus is located downtown. On Monday, August 19, I gave two talks on the following subjects under his request:

1. Getting Started
2. SAW Wireless Sensors

Ken at Zhou Zhuang

As you may know, I am not familiar to the second topic. Fortunately, I could use lecture materials on this topic given by Prof. Leo Reindl of the University of Freiburg, Germany. Thanks Leo!

Next day, Prof. Han's students Mr. Chen and Ms. Zhou kindly took me to an old town Zhou Zhuang. It was established at Yuan dynasty (AD1126~1367) and wealthy through the silk trading. Traditional and historical houses at Ming dynasty (AD1368~1661) are aligned along a river and canal. We could experience time slip toward ancient China for a while.

Ken (center front row) with lecture attendees at Nanjing University with Prof Zhang. Prof. Shui and Prof. Gong (front row third fifth and sixth from left, respectively)

On Wednesday, August 20, I moved to Nanjing by train. Prof. Shui, who invited me, has established a strong research group on ultrasonics in Nanjing University. Following to his request, I gave following lectures in addition to those listed above:

3. Coupling-of-Modes (COM) Analysis
4. Basics of RF Filter Design
5. SAW Resonator Design
6. SH-Type SAW and Leaky SAW
7. SiP/SoC Integration of RF SAW/FBAR Filters

To give these seven topics, I had to keep on speaking more than six hours both for Thursday, August 21 and Friday, August 22! These days were heavy but a lot of fun.

I must express my appreciation not also to Prof. Shui but also to Acoustics Society of Jiangsu Province and Institute of Acoustics, Nanjing University for their co-sponsorship to the lectures. Their sponsorship provided the attendees free wonderful lunches for two days.

Ken at Taiping Tianguo History Museum

On Saturday, August 23, Prof. Gong of Nanjing University kindly took me to look around Nanjing city. In the city, there are many places to see such as Citadel, Nanjing Museum, Filial Tomb of the Ming Dynasty, Dr. Sun Yat-Sen's Mausoleum. Among them, my favorite one is the Taiping Tianguo History Museum. You can enjoy the traditional Chinese music in addition to the very beautiful garden. Prof. Gong, thanks!

On Sunday, August 24, I moved to Wuhan to give lectures in three different places. For this trip, Prof. Zhou of Huanzhong University of Science and Technology, Dr. Wen of Accelink Technologies Inc. and Prof. Gao of Fubei University gave me the invitation.

On Monday, August 25, I gave topics 1, 4 and 7 at the Huanzhong University of Science and Technology. Prof. Zhou is a specialist on the IC design, and interested in cooperative use of RF SAW/FBAR technologies with RF-ICs. Prof. Zhou kindly took me a drive around the Dongfu (east lake) during lunch break.

Ken at Huang-He Lou, Wuhan with Dr. Wen

In the morning of Tuesday, August 26, I visited Accelink Technologies Inc., and gave a talk on topics 2 and 7. Dr. Wen kindly took me to the very famous Huang-He Lou tower during lunch break.

In the afternoon, I gave talks on

8. Surface Acoustic Wave Devices and Film Bulk Acoustic Resonators for Communication Systems -Current Status

Lecture scene at UESTC with Prof. Bao (on Ken's right)

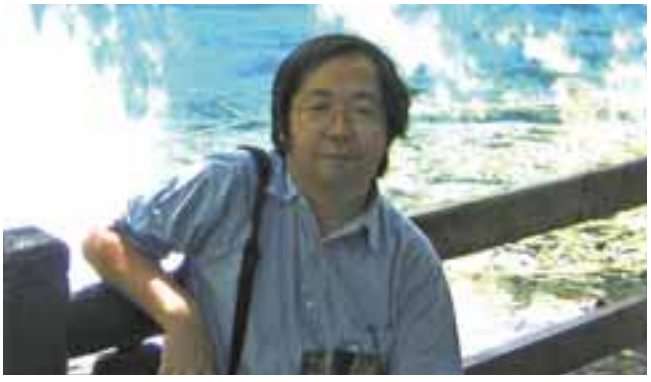
& Future Trends, and

9. Simulation of Surface Acoustic Wave Devices -Current Status and Future Prospects

at Fubei University. Prof. Gao, a material scientist, is interested in piezoelectric thin films for SAW and FBAR devices.

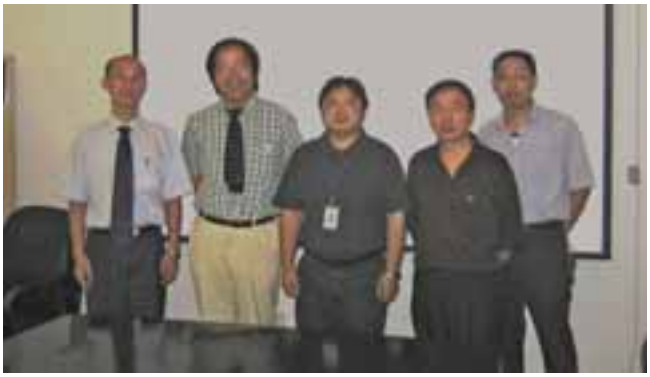
Ken with Prof. Bao at Dufu's Thatched Cottage Museum, Chengdu

On Wednesday, August 27, I moved to Chengdu. Its landscape was totally changed from last visit only two years ago. My former knowledge on this city has become useless. For the visit, Prof. Bao of University of Electronic Science and Technology of China (UESTC) gave me an invitation. He is a specialist on RF modules, and I gave an extended version of the lecture 7 on Thursday, August 28. In the afternoon, Prof. Bao kindly took us to Dufu's Thatched Cottage Museum. Dufu (AD 712-770) is the most famous poet in Tang Dynasty. We look around various ancient buildings and gardens, and could feel Dufu's world.



Ken at Jiuzaigao

On the weekend, I had an excellent excursion to Jiuzaigou (nine gorge) through the invitation of the 26th institute (SIPAT), Chongqing. This is actually my main purpose of this tour. Jiuzaigou is a paradise: wild giant and lesser pandas are living, and there are many colorful lakes (blue, green, yellow, black, white, etc.), silk-like waterfalls, snow-covered mountains, exotic Tibetan villages, etc. All my Chinese friends said that Jiuzaigou is the best sightseeing place in China. It is true. Really fantastic!



From left, Dr. Li, Ken, Director Mr. Wu, Prof. Mu and Mr. Cao

On Sunday evening, I moved to Chongqing to give series of lectures in SIPAT for full two days (Monday, September 5 and Tuesday, September 6). Since my last visit to this city was four years ago, its change surprised me. Following to Mr. Cao's request, the topics 1, 4, 5, 7 and an extended version of the topic 9 were given.

In the evening, Mr. Chen and Mr. Peng kindly took us to a walk around Yangtze river and the other a few scenic points in Chongqing.

By the way, Prof. Shui of Nanjing University asked me why I arranged to come to Nanjing, Wuhan and Chongqing in such a bad season. Usually these cities are extremely hot in the summer and called hot pods in China. However, I was lucky enough. These cities were cooler than Tokyo at the time!

At IOA with Prof. He on the left in the second row.

On Wednesday, September 7, I moved to Beijing, where I visited three years ago. Since I have already been astonished at the progress of the other cities, change of Beijing seemed relatively moderate. Prof. He of Institute of Acoustics (IOA), Chinese Academy of Science, invited me.

I gave lectures on topics 1, 3, 4, 5 and 7 on Thursday, September 8 and the morning of Friday, September 9.

Prof. He's student Mr. Wang kindly took me to the summer palace in the afternoon of Friday, September 9. I think you can guess from the photo how beautiful it is. The 2008 Ultrasonics Symposium will be held in Beijing right after the Olympiad. At the time, do not forget to visit the summer palace in addition to the Great Wall and the Forbidden City.

Ken at the Summer Palace in Beijing.

On Saturday, September 10, we also visited the winter palace and Chinghua University where Mr. Wang was graduated. I have never seen such a beautiful campus in the entire world, and you should not miss seeing it, too. It was a part of Chinese emperor's garden.

In the evening, I took off from Beijing and came back to Japan.

Finally, I must say thanks to all Chinese friends who supported this tour. Thanks a lot!

DL Tour to Freiburg, Germany in 2005

Right after the IEEE Ultrasonics Symposium held in Rotterdam, I had a short tour to Freiburg, Germany.

I arrived there in the evening of Thursday, September 22 by train. Prof. Leo Reindl of the University of Freiburg gave me an invitation, and kindly offered me to stay in his nice wooden home in the black forest. He has been involved in the SAW area for long years in Siemens Central Research and Clausthal University of Technology, and moved to the University of Freiburg in 2003. One of his interests is system and sensor applications of SAW devices.

At the University of Freiburg with Prof. Leo Reindl (second from right) and his lab members

He showed me his very nice collection of historical SAW devices developed in his career. It includes TV-IF filters using the multistrip coupler, SAW ID tags, reflective array compressors, dispersive delay lines using slanted transducers, elastic convolvers, etc., which I have ever seen only in technical papers. If you have a chance to visit his lab, you should ask him to show this collection.

Jan and Anne Kuypers and Ken At Lindau

On the weekend, Mr. Jan Kuypers kindly invited me to his parents' home at Friedrichshafen near Lake Constance. He got his Diploma from Leo's lab and is now in Tohoku University, Japan as a Ph-D candidate. On Sunday, his father Bernd and mother Anne took us to a wonderful excursion around the lake. I must express my deepest appreciation for their hospitality. Herzlichen Dank!

The new campus for the engineering departments is located just outside of this old city. On Monday, September 26, I gave a talk on "Simulation of Surface Acoustic Wave Devices" by the request of Prof. Leo Reindl.

Prof. Jan Korvink, dean of the department, is interested in the simulation of SAW devices. Although he could not attend the lecture due to his administrative work, we had a fruitful discussion later and started a joint research. So now I have a new reason to visit this beautiful city again.

Finally, I would like to thank Prof. Leo Reindl again for his kindness during my stay in Freiburg.

DL Tour to Melbourne, Australia in 2005

I arrived in Melbourne, Australia, in the morning of Monday October 31. It was the best period for me because I had a short time off due to our University fall festival, but not for Aussies because the summer vacation has just started.

Ken in front of London Bridge on the Great Ocean Road

November 1 is the holiday of Victoria State for a horse race called the Melbourne Cup. Ladies and gentlemen formally dressed up with gorgeous hats, and enjoyed not only the race in the daytime but also parties to late evening. Since I am not noble enough to bet the race, I spent the holiday at the great ocean road, one of the most scenic areas in Victoria.

Prof. Friend of Monash University, Australia, kindly gave me an invitation. He was an Assistant Professor at the Tokyo Institute of Technology for three and a half years after leaving the University of Colorado at Colorado Springs in the USA, and moved to Monash University as a Senior Lecturer in 2004. He has been involved in high power application of ultrasonics.

Ken lecturing at Monash University

On November 3, I gave the following three lectures.

1. Introduction to SAW Devices
2. Getting Started
3. Coupling-of-Modes (COM) Simulation

I thank all the attendees for staying on to attend my lectures instead of attending another big horse race called the Oaks.

Most of all attendees are interested in use of the SAW technology for the various sensors and/or actuators. I hope they will promote Melbourne as one of the best technological centers for SAW devices. Then I will have enough reasons to come to this beautiful country frequently.

Finally, I express my deepest appreciation to Department of Mechanical Engineering as well as Prof. Friend for the support to this lecture tour.

DL Tour to Taiwan in 2005-2006

I arrived Taipei, Taiwan ROC in the evening of Sunday December 25, 2005. I have been there quite often in this season. It is the best period for me because the winter break starts from Christmas in our University whereas it starts in February in Taiwan for celebrating the lunar New Year.

My old friend Dr. C.S. Lam picked up me at the airport. We had a short excursion to Wulai near Taipei, where we had relaxed discussions in Japanese style hot spa.

On Monday December 26, I visited TXC Corp., the largest quartz company in Taiwan. Mr. Paul Lin, the founder and the president of the company, also serves as the chair of the Quartz Industries Association of Taiwan (QIAT), which gave me this invitation. I have seen Mr. Lin often, and am always impressed how active he is. In the company, I gave a talk on "SiP/SoC Integration of RF SAW/FBAR Filters", and discussed various topics on SAW/BAW technologies with R&D researchers.

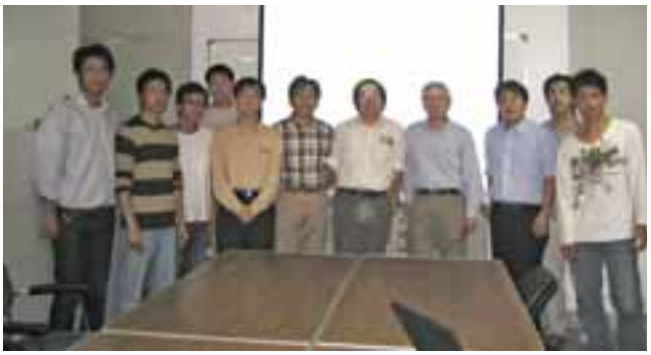
On Tuesday December 27, the QIAT meeting was held at the Institute of Applied Mechanics, National Taiwan University, and I gave four lectures:

1. SiP/SoC Integration of RF SAW/FBAR Filters
2. Simulation of Surface Acoustic Wave Devices, Review
3. Basics of RF Filter Design
4. SAW Resonator Design

After the QIAT meeting with VIPs. (first row from left) Mr. Francis Chen, Mr. Paul Lin, Ken, Dr. Y.T. Huang and Prof. T.T. Wu

On Wednesday December 28, I visited TAISAW Technology Co. Ltd. The company is the newest vendor of SAW and BAW devices established in 1998. Dr. Huang, Chairman of the company, also serves as a Chair of the Academic Affairs Committee of QIAT. The company was so small when I visited there in 2001. But its growth in four years is remarkable! The number of R&D engineers is increased dramatically, and the production area is widened surprisingly.

On Thursday December 29, I visited Prof. I.N. Lin of Tamkung University in Tamsui, north of Taipei. He was a professor of National Tsing Hua University, and moved to this university a few years ago. He is a material scientist, and we have been cooperating for a while on use of nano-diamond films for acoustic wave devices.



At National Taiwan University with Prof. T.T. Wu on Ken's Left

On Friday December 30, I visited Prof. T.T. Wu of National Taiwan University. I gave a short presentation on design and characterization of wireless SAW sensors at his lab, and had a fruitful discussion with his lab members as always. In the evening, my wife Kaoru and daughter Hirono also arrived Taipei, and we had a wonderful Chinese dinner with Prof. Wu and his wife Dr. Yeong-Jian Jan (not engineering but medical doctor). Thanks Prof. Wu and Dr. Jan.

At Elder Sister Pond Alishan Forest Receation Area

On the weekend, our family had an excellent excursion to Alishan national scenic area through the invitation of TXC and TAISAW. We were happy enough. We could see clearly (1) twinkle stars from the roof of the hotel and (2) New Year sunrise from the top of Yushan, Taiwan's highest peak (3952m). In the morning, we had nice hiking trails at Alishan forest recreation area in fresh air.

At Fenchi Fu

We also stopped at Fenchi Fu, old small town among mountains. We enjoyed rambling not only in forests but Chinese traditional shopping arcade. We were surprised with natural fireflies in winter and bamboo with a rectangular cross section!

We have visited various beautiful and famous places in Taiwan. Among them, Alishan area is the best in our opinion. It is a paradise for us, and we are very keen to visit and stay there much longer.

It should be noted that Mr. Paul Lin, president of TXC is a Taiwanese but he has never been to Alishan area. He is too much a workholic!

We returned to Tamsui in the evening of January 2. The next morning, we had a working breakfast with Prof. Lin, and then went back to cold Japan.

Finally, I express my deepest appreciation to all my friends in Taiwan again.

Dr. Ken-ya Hashimoto
Chiba University

In the next Newsletter, look for Ken's tour of the USA including Dallas, TX, Phoenix, AZ, Orlando, FL, Greensboro, NC and Hudson, NH, followed by tours of Korea and Europe.

2006 – 2007 Distinguished Lecturer

Dr. Andreas Bauch

Physikalisch-Technische Bundesanstalt
Fachbereich Zeit und Frequenz, AG 4.42
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Dr. Andreas Bauch

The Galileo Timing System

The future European satellite navigation system Galileo will use an independent timescale - Galileo system time (GST) - as a reference for the determination of satellite orbit and clock parameters. In Europe, several smaller and larger research institutes are dealing with time and frequency measurement. The equipment as well as the human expertise are spread. The European Community has thus supported studies organized by the Galileo Joint Undertaking (GJU), Bruxelles, to define the Galileo Time Service Provider (GTSP), an entity that will act as the interface between Galileo core operations and the European timing institutes. A so-called Precise Time Facility (PTF) will be developed as part of the Galileo Ground Mission Segment and GST shall be physically realized there. This development is directed by the European Space Agency and performed by European industries.

Inevitably, the PTF will have to be accurately and reliably linked to the participating timing institutes, and one major task of the GTSP is the organization and management of such time links. I will explain the techniques foreseen in the Galileo operations and demonstrate which performance level of such systems has been achieved. The number-one technique is two-way satellite time transfer over commercial telecommunication satellites. Time transfer using signals of the Global Positioning System as well as of Galileo itself – once a sufficient number of satellites will have been launched – will be used as well.

I will probably address also the timing aspect of interoperability of Galileo and GPS as far as it is still a matter of concern at the time the talk shall be given.

Whenever time actually matters (not only frequency) the calibration of the time transfer equipment is a major issue. PTB has been and will be actively involved in several cali-

bration campaigns. I will present the techniques employed and the results obtained. This issue, of course, has wider importance than GNSS operations since the realization of International Atomic Time bears on accurate time comparisons among the contributing institutes world-wide.

Explicitly talking about Galileo is rather timely chosen since at the end of 2007 the so-called In-Orbit Validation of Galileo is scheduled. So the ground infrastructure has to be established by then. Also the GTSP has to be operational at that time, and the three-year contract covering this activity is to be signed by GJU in these days. PTB is very probably included in the team made up by industrial and scientific partners which will be entrusted with the activity.

Please contact Andreas Bauch to schedule a visit to your area during the period from July 2006 – December 2007.

Dr. Andreas Bauch

Andreas Bauch was born in Wiesbaden, Germany, on January 17, 1957. He received his Diploma degree in Physics and his Dr. rer. nat. degree in 1982 and 1986, respectively, both from Johannes-Gutenberg Universität, Mainz, Germany.

He joined the Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany, as a PhD student in 1983, studying frequency shifting effects in caesium atomic clocks. Since then he has been always involved in time and frequency metrology, focussed at first on the development and operation of atomic clocks, later more and more on time comparison techniques (GPS CV, TWSTFT). He became Head of PTB' s Time Unit Laboratory in 1991.Today he is Head of PTB's Time Dissemination Services responsible for the management and operation. He serves as delegate to the Comité Consultatif du Temps et Fréquences (CCTF), to Study Group 7 of the International Telecommunication Union and to EUROMET.

Dr. Bauch has authored and co-authored more than 90 papers in refereed journals and conference proceedings. He is currently strongly involved in the development of the timing system of the future European satellite navigation system Galileo.

Nominations for Distinguished Lecturer Award

Bernie Tittmann

Nominations may be submitted at any time. Any member may submit a nomination by sending the nominee's name and a description of that person's main contributions, along with the submitter's own name and address. Members are also encouraged to suggest topics, which they feel, would be of interest. Send nominations and topics to:

Bernhard R. Tittmann – Awards Vice-Chair
Chair, UFFC-S Distinguished Lecturer Subcommittee
Schell Professor
Engineering Science & Engineering
212 Earth & Engineering Science Bldg.
The Pennsylvania State University
University Park PA 16802 USA
brt4@psu.edu
Bernhard.tittmann@ieee.org

UFFC Fellows

UFFC IEEE Fellow Class Of 2006

IEEE Fellow Program

IEEE Grade of Fellow is conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. A brief citation is issued to new Fellows describing their accomplishments and the total number selected in any one year does not exceed one-tenth percent of the total voting Institute membership.

2005 IEEE Fellow Recipient

Effective, 1 January 2005 the member grade of IEEE Fellow was conferred upon John Arnold Kusters

"For contributions to precision frequency control, quartz resonators and atomic frequency standards."

Dr. Kusters elected to receive the Fellow Award at the 2005 Joint IEEE International Frequency Control Symposium and Precise Time and Time Interval Systems and Applications Meeting in Vancouver, BC, Canada 29 August 2005.

Tom Parker, Chair of Frequency Control Awards, presented the Fellow Award to Jack.

Jack Kusters (l) receiving the IEEE Fellow award from Tom Parker

2006 IEEE Fellow Recipients

The UFFC Society is pleased to announce that, effective 1 January 2006, we have three new Fellows: Dr. John P. Larsen, Dr. Seshu Desu, and Dr. Joseph Rose. Congratulations to all!

Dr. John Larson
Agilent Technologies
Palo Alto, CA 94301-1011 USA

"for contributions to bulk acoustic resonators and medical acoustical imaging systems."

John Larson

Prof. Seshu Desu
University of Massachusetts-Amherst
Amherst, MA 1003 USA

"for contributions to development of ferroelectric thin film devices."

Seshu Desu

Dr. Joseph Rose
The Pennsylvania State University
University Park, PA 16802 USA

"for contributions to guided wave models, instrumentation, sensors, and measurement techniques."

Joseph Rose

Fellow Nomination Process

The Fellow Nominations are due at IEEE Headquarters by 1 March each year. Nominations are sent to each Society's Fellow Committee for evaluation in mid-May. The Fellow Committee comments on and scores each nomination and returns the nominations to IEEE Headquarters by mid-June. The IEEE Fellow Committee evaluates and scores the nominations from all societies, completing this work by September.

There is a total of 80 points possible in five categories with each Society evaluation representing a possible total of 20 points. The Fellow Committee makes the final decision on the nominees in October. These recommendations are made to the IEEE Board of Directors who make the definitive selection at their final meeting of the year, usually in November or early December.

Fellow Nominations

The deadline for Fellow nominations for the class of 2007 has passed. Remember that Fellow nominations for 2008 are due at IEEE headquarters before 1 March 2007. This year there will be some changes to the Fellows nomination form which will be available by July 2006. Information on submitting nominations and nomination kits are on the IEEE website - www.ieee.org. (Use "Fellow" in the search box.) Nominations and references may be submitted on-line.

Fred S. Hickernell
UFFC-S Fellows Chair

Students

Student Welcome

Dear fellow UFFC students,

Emanuel Gottlieb

Jennifer Ruglovsky

We are very excited to serve as your UFFC Student Representatives this year. Foremost we would like to introduce ourselves to you. Jennifer Ruglovsky is a Ph.D. student in the Applied Physics department at the California Institute of Technology. She is working on correlating the microstructural properties of ferroelectric thin films with the macroscpic performance of ferroelectric MEMS devices. She received her B.S. in Materials Science and Engineering from Cornell University in 2002. Jen is originally from Pittsburgh, PA. Emanuel Gottlieb has just completed his Ph.D. at the University of Southern California (Department of Biomedical Engineering), concentrating on high frequency ultrasonic imaging and transducer design. Emanuel will continue to serve as one of your representatives till the end of this year.

How can we serve you as UFFC Student Representatives? Let us present you with some of our duties and achievements.

First of all, we are your voice within the administrative committee of the UFFC society. Thus, we are always trying to secure benefits for student members of the UFFC like reduced conference rates. Apart from this, we are advertising UFFC and its activities among universities around the world by contacting IEEE student branches of UFFC related departments directly. This year we would like to increase our student membership by forming student chapters of UFFC at universities throughout the world. If you are interested in becoming a UFFC student chapter leader at your university please contact us. We are also petitioning the UFFC Adcom for more sponsorship of student events at our symposiums. In the past Adcom has sponsored student breakfasts and reduced rates at symposium banquets. Finally, we are initiating the start of a student scholarship fund to be given annually to students pursuing research in area of UFFC.

We look forward to serving you this year and anticipate meeting you at UFFC symposiums.

Best regards,

Jennifer Ruglovsky, Jr. Student Representative,
jenrug@caltech.edu
Emanuel Gottlieb, Sr. Student Representative,
uffc@usc.edu

Publications

Historic Ultrasonics Publications Added To IEEE Digital Archive

Continuing the IEEE commitment to digitize all of its journals back to their first issues, more than 7,000 historic documents from the IEEE UFFC Digital Archive in the fields of ultrasonics, ferroelectrics and frequency control have been added to the IEEE Xplore digital library. This release covers conference proceedings and journal articles from the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society (UFFC) and its predecessor societies dating as far back as 1954. Titles include Transactions of the IRE Professional Group on Ultrasonic Engineering (1954-1959), IRE Transactions on Ultrasonic Engineering (1960-1962), IEEE Transactions on Ultrasonics Engineering (1963) and IEEE Transactions on Sonics and Ultrasonics (1964-1985). Conference proceedings titles cover the IEEE International Ultrasonics Symposium, IRE International Convention Record, IEEE International Symposium on Applications of Ferroelectrics, and IEEE International Symposium on Frequency Control. Visit: http://ieeexplore.ieee.org.

UFFC Transactions

Manuscript Submitted in Different Areas

- **Distribution of submitted manuscripts in the seven technical areas of the UFFC Society (Technical Interest Profiling System or TIPS) (Including withdrawn manuscripts):**
  - I. Medical Ultrasound; II. Sensors, NDE, and Industrial Applications; III. Physical Acoustics; IV. Surface Acoustic Waves; V. Transducers and Transducers Materials; VI. Ferroelectrics; VII. Frequency Control:

History	I	II	III	IV	V	VI	VII
Current:	371 (29%)	192 (15%)	201 (16%)	140 (11%)	188 (15%)	99 (8%)	103 (8%)
3.5 Months:	51 (33%)	15 (10%)	17 (11%)	11 (7%)	22 (14%)	29 (19%)	7 (5%)
June 1, 2005:	320 (28%)	177 (15%)	184 (16%)	129 (11%)	166 (15%)	70 (6%)	96 (8%)
Per Year:	122 (28%)	65 (15%)	68 (16%)	41 (10%)	63 (15%)	28 (7%)	43 (10%)
June 1, 2004:	198 (28%)	112 (16%)	116 (16%)	88 (12%)	103 (14%)	42 (6%)	53 (7%)
Per Year:	106 (26%)	66 (16%)	68 (17%)	55 (14%)	59 (15%)	19 (5%)	30 (7%)
June 1, 2003:	92 (30%)	46 (15%)	48 (16%)	33 (11%)	44 (14%)	23 (7%)	23 (7%)
Per Year:	92 (30%)	46 (15%)	48 (16%)	33 (11%)	44 (14%)	23 (7%)	23 (7%)

09/2005/JYL

Quality of TUFFC

- **Impact Factor:** # of cites to articles in the most recent two years / # of articles published during the same period
- **Acoustic Ranking:** Ranking among acoustic journals
- **EE Ranking:** Ranking among Engineering, Electrical, & Electronic
- **Acoustic Range:** Acoustic journal impact factor range
- **EE Range:** Engineering, Electrical, & Electronic impact factor range

History	Impact Factor	Acoustic Range	EE Range	Acoustic Ranking	EE Ranking
2004:	1.545	0.128-2.167	0.006-4.352	#4 among 26 (Top 85%)	#35 among 209 (Top 83%)
2003:	1.421	0.154-2.033	0.004-4.241	#6 among 28 (Top 79%)	#46 among 205 (Top 82%)
2002:	1.595	0.025-1.806	0.004-3.400	#3 among 28 (Top 89%)	#29 among 203 (Top 86%)
2001:	1.372	0.025-1.862	0.007-5.000	#5 among 27 (Top 81%)	#31 among 200 (Top 85%)
2000:	1.640	0.050-1.822	0.007-4.909	#4 among 27 (Top 85%)	#17 among 202 (Top 92%)
1999:	1.713	0.035-2.196	0.003-5.357	#5 among 27 (Top 81%)	#17 among 205 (Top 92%)
1998:	1.051	0.026-2.182	0.016-2.230	#5 among 25 (Top 80%)	#36 among 208 (Top 83%)
1997:	1.058	0.084-1.853	0.008-4.000	#6 among 20 (Top 70%)	#28 among 193 (Top 85%)

09/2005/JYL

UFFC Chapter News

Japan Chapter

Distinguished Lectures

The Japan Chapter of the IEEE UFFC Society invited Professor Ken-ya Hashimoto of Chiba University, the 2004 - 2005 UFFC Distinguished Lecturer, to present lectures at five venues in Japan.

Prof. Hashimoto gave a lecture on "Simulation of Surface Acoustic Wave Devices" to scientists, engineers, and students who are working in the field of ultrasonics, ferroelectrics, and frequency control. The second lecture was held on mid-day of the 26th Symposium on Ultrasonic Electronics (USE 2005), 17 November 2005 at Tokyo Institute of Technology.

Prof. Hashimoto lecturing during the USE 2005 on 17 November in Yokohama

An audience of more than 200 people gathered in the hall to listen to the lecture. The lecture captured the audience's attention owing to the up-to-date material and the focus on important technologies of the future.

The third lecture was held on 25 November 2005 at Tohoku University. After the lecture, Prof. Hashimoto enjoyed a Japanese traditional style dinner with the Japan Chapter committee members.

In addition to these lectures, Prof. Hashimoto visited

Front row (l-r) Prof.K.Yamanouchi, Prof.K.Hashimoto, Prof.N.Chubachi, Prof.T.Takenaka back row (l-r) Dr.H.Hasegawa, Prof.H.Kanai, Prof.J.Kushibiki, Prof.K.Yamada, Prof.K.Nakamura

Chiba, Tokyo, and Kyoto. He gave especially interesting lecture at Tokyo University of Science in Chiba and Doshisha University in Kyoto, focusing on the introduction of surface acoustic waves to university students.

It is a yearly event that the Japan Chapter of the IEEE UFFC Society organizes the Distinguished Lecture (DL) meeting during the Symposium on Ultrasonic Electronics (USE). The schedule of the next DL meeting at USE will be on 16 November 2006. The Symposium on Ultrasonic Electronics 2006 will be held at Nagoya Congress Center in Nagoya.

Mami Matsukawa
Secretary, IEEE UFFC-S Japan Chapter

UFFC AdCom

UFFC AdCom Class of 2008

AdCom Class of 2008

Each year our Society-wide membership elects four of its members to serve three year terms on its Administrative Committee (AdCom). AdCom's principal responsibility is to guide the technical affairs of the Society - dominated by its symposia and publications.

The newly elected members and their technical affiliations, serving 2006 through 2008 are:

Amit Lal – Frequency Control
Sorah Rhee – Ferroelectrics
Tadashi Takenaka – Regions 8 – 10
Manfred Weihnacht – Ultrasonics

Amit Lal

AMIT LAL (S'87-M'95) is currently an associate professor in the electrical and computer engineering department at the Cornell University. Previously he was an assistant professor at the University of Wisconsin – Madison. He received his B.S. (1990) in electrical engineering from California Institute of Technology. He received his Ph.D. (1996) in electrical engineering from University of California – Berkeley, in the field of microelectromechanical systems (MEMS).

He directs the SonicMEMS Laboratory that works on integrated microsystem applications, such as microsurgical tools utilizing high-intensity ultrasonic silicon-based actuators, and the use of nonlinear ultrasonic effects in fluids and remote actuation. The group has won several best-paper awards at the IEEE Ultrasonics Symposium. The group also works on autonomous systems powered by radioactive thin films, such as chip-scale atomic clocks, and wireless-sensor nodes.

He is a recipient of the NSF CAREER award in MEMS. He holds nine patents in the area of ultrasonic and radioactive MEMS. He has been a member of the IEEE UFFC Society for eight years and has served on the technical program committee since 1998.

Sorah Rhee

SORAH RHEE (M'01) is currently holding the position of Senior Scientist at Meggitt Endevco. She is engaged in the development of high performance piezoelectric materials for advanced dynamic pressure and shock sensors at elevated temperatures.

As the director of the Fraunhofer IBMT Technology Center, Miami, Florida, 2003-2004, she focused on the technology transfer of ultrasonic imaging technologies, ultrasonic non-destructive testing, and biomedical applications such as cell-sorting for medical assays from Germany to the US market. In 2002 she took the position as research associate at the Materials Research Institute, establishing a new laboratory for ultra-high frequency transducers for biomedical imaging and non-destructive testing of medical products and teaching graduate level classes in transducer engineering. In her academic career she has served as principal and co-investigator in government and industrial funded research on materials for biomedical applications.

After completion of her PhD (2000, National Research Laboratory Karlsruhe, Germany) on high frequency microwave processing of ceramics she worked as a Postdoctoral Fellow at the NIH Resource Center for Biomedical Ultrasound Technology, The Pennsylvania State University, Bioengineering Department, with a research focus on evaluation of new ferroelectric single crystal materials and high frequency matching layers for high frequency ultrasound transducers.

She serves as the chairman of the Navy ONR Piezoelectric Single Crystals Standards Committee. She is a member of American Ceramics Society (AcerS), American Association for the Advancement of Science (AAAS), American Institute of Ultrasound in Medicine (AIUM), member of IEEE-UFFC since 2001 and Web Editor-in-Chief

for the IEEE-UFFC since 2002. She has served as the publicity chair of the 50th Joint Anniversary Conference in 2004, and will serve again as publicity and exhibitions chair at US 2007 and US 2008.

She has authored and/or co-authored more than 30 papers in the fields of microwave ceramics processing, transducer materials, and ferroelectric single crystals.

Tadashi Takenaka

TADASHI TAKENAKA (M'83-SM'04) is full Professor in Electrical Engineering, Faculty of Science and Technology at Tokyo University of Science (former name: Science University of Tokyo) from 1996. He is teaching "Electrical Circuit", "Numerical Analysis for Electronics" and "Electronic Functional Materials" for undergraduate students.

His major field is ferroelectric, piezoelectric and pyroelectric properties, materials and applications in lead-free materials and grain-oriented bismuth layer-structured ferroelectric (BLSF) ceramics. He received the Ph.D. degree (Dr. of Engineering) in Electrical Engineering from Kyoto University in 1985 for thesis entitled: "Grain Orientation and Their Piezoelectric and Pyroelectric Applications of Bismuth Layer-Structured Ferroelectric Ceramics". Dr. Takenaka was Visiting Researcher of Material Research Laboratory (MRL) of the Pennsylvania State University from August, 1986 to August, 1987 (1 year). He is the recipient of the 1993 Edward C. Henry Award of the Electronics Division of the American Ceramic Society for the superior paper on Electronic Ceramics published in the Journal of the American Ceramic Society during the year 1989. He also received the 55th Ceramic Society of Japan Awards for Academic Achievements in May, 2001.

Tadashi Takenaka was born in Japan on July 31, 1946. He received the B.S. degree in Electrical Engineering from Shibaura Institute of Technology in 1970 and the M.S. degree in materials science from University of Electro-Communications in 1973, respectively. He joined Department of Electrical Engineering, Faculty of Science and Technology, Science University of Tokyo as Research Associate in 1973. He was Assistant Professor in 1988 and Associate Professor in 1991.

He has authored or co-authored over 170 papers and has 10 patents. He is an active member of the UFFC, serving on the International Advisory Committee of the IEEE International Symposium on the Applications of Ferroelectrics (ISAF) since 1994 and designated the Co-Chairman in 2002 (Nara, Japan). He is also a member of the Ferroelectric Committee Meeting of IEEE UFFC since 1998. He was the General Chair of the Ninth US-Japan Seminar on Dielectric and Piezoelectric Ceramics held in Okinawa. He is now the Chair of Asian Ferroelectric Association (AFA) from December, 2003. He is a member of 10 Japanese Societies or Institutes, the American Ceramic Society and the Materials Research Society.

Manfred Weihnacht

MANFRED WEIHNACHT (M'93) was born in Leipzig, Germany in 1940. He received the diploma, the doctoral, and the Dr. habil. degree in Physics in 1963, 1971, and in 1989, respectively, from the Dresden University of Technology. From 1963 to 1975 he worked on superconducting thin films and tunneling structures for applications in low temperature electronics in industry and at the University in Jena, Germany. In 1975 he joined the Institute of Solid State and Materials Research in Dresden starting his work on surface acoustic waves and related materials. He was a section chief on magnetic and acoustic resonances until his retirement in February 2005. At present he continues his scientific work as a consultant. His research interests include the theoretical and experimental study of surface and bulk acoustic wave propagation, materials and electrode structures for SAW devices, ultrasonic materials characterization, and dielectric and piezoelectric thin films. Since 1995 he has published 55 journal papers and 75 conference contributions. He holds 20 patents. Dr. Weihnacht is a member of the German Physical Society and of the IEEE UFFC Society.

2006 UFFC Society Officers

Art Ballato presenting Gerry Blessing (c) with a Plaque commemorating his Presidency with Reinhard Lerch looking on

Reinhard Lerch presenting Gerry Blessing with a Past President's Pin

Effective 1 January 2006, Art Ballato succeeded Gerry Blessing as President of the IEEE UFFC Society. During the opening plenary session at the 2005 IEEE Ultrasonics Symposium in Rotterdam, The Netherlands, Art Ballato and Reinhard Lerch presented Gerry with a pin and plaque commemorating his presidency.

Susan Trolier-McKinstry was elected President-Elect at the UFFC Society AdCom meeting 18 September 2005, in Rotterdam, The Netherlands. The elected members of AdCom ratified the appointments of the Vice-Presidents of the Society 15 January 2006. The Secretary-Treasurer, Dan Stevens, was appointed by President Ballato.

PRESIDENT	Arthur Ballato
PRESIDENT_ELECT	Susan Trolier-McKinstry
VP, FERROELECTRICS	Thomas R. Shrout
VP, FREQUENCY CONTROL	Lute Maleki
VP, ULTRASONICS	Jacqueline H. Hines
VP, PUBLICATIONS	Donald Yuhas
SECRETARY-TREASURER	Daniel S. Stevens

Susan Trolier-McKinstry

Tom Shrout

Lute Maleki

Jackie Hines

Don Yuhas

Dan Stevens

Meet Art Ballato

A personal Biography

I've written stilted, third-person, professional biographies many times, but never a truly personal version of what lay behind the gussied-up scenery. And I really don't know how to do it, but at the behest of our redoubtable Newsletter Editor, I'll take a stab at it. Inasmuch as what we come to be is greatly influenced by those with whom we come in contact, and by the often accidental events that surround us, I think it easiest, and least boring, simply to cite incidents and impressions in a somewhat stream-of-consciousness fashion (nothing to be afreud of, I've left out the sad parts, and mention only those departed).

I. Growing up on Long Island, 1936-1950

Astoria, Queens ("NYC's bedroom"), near the East River. Not too far from the Steinway factory, where the piano-making art was turned to making plywood gliders during WWII.

Good thing being eldest kid – no hand-me-downs, except maybe from uncles; bad thing – all the messy chores; four noisy sisters, and finally a kid brother; long-suffering mother who had to referee this rambunctious tribe; father squash pro (well before sports became the big lucrative business it is today) in private club in Manhattan; during summers, tennis pro at New Jersey shore.

Father read Sunday comics to us; ardent desire to know what those balloons said led to reading at early age. World's Fair 1939-1940, Trylon and Perisphere. Parochial grammar school, bored to tears; didn't appreciate value of rote learning at the time: arithmetic can be done on fingers, but one can't intuit a poem. Oh, well, "learn the notes and the melody will come." It did. Loved to stand in the front car and "drive" the subway through the labyrinth of tunnels between the NYC boroughs (5¢ fare). Banner newspaper headlines, January 1946: radar contact with moon; little did I know then that I would someday co-author papers with WS McAfee, the man who largely made it possible. Learned some New York wisdom, e.g., – look both ways crossing a one-way street, but did my share of foolhardy things, like hitching up-hill skate and sled rides on back of 10-ton trucks, and playing stickball amid the traffic.

Fascinated with technical things from youngest age, chemistry set, building sets. The joke's on me: broken arm during blizzard of 1947; concentrating intently, trying to replicate the Coney Island Parachute Jump with my new 9_ Erector set, I built the tower around my plaster cast, and couldn't extricate my arm without disassembling the thing. I got a lot of kidding about that, and similar, episodes.

II. Floral Park, 1950-1954

Family moved out of NYC to Floral Park, Nassau County; Sewanhaka, a vocational-technical high school; "Technical Electricity" curriculum, which was electrician training: wired up AC-DC motor-generator sets, delta-wye transformations, and got plenty of cuts on BX cable. Radio technician at student-operated WSHS-FM. Begun to appreciate value of grammar school training: knowing all about infinitives, participles, gerunds, and other stuff like that, allowed a certain amount of coasting, so I could double up on college-entrance courses taken at my mother's insistence. Her guidance paid off, as I was the first in the extended family to

go to college. Discovered classical music and WQXR, became intrigued by Artzybasheff's anthropomorphisms, and was hooked on literature by hearing Charles Laughton's readings.

III. Monmouth Beach – the New Jersey Shore, 1940-1958

My father became tennis pro at Monmouth Beach Club in the late 1930s, with a hiatus during WWII, when he worked in a periscope factory in Brooklyn. Spending the summers in MB was always associated in my mind with glorious school-free vacation days. The family rented small cottages behind the estates. Mom took us to the public beach, where we kids always managed to suffuse the tomato sandwiches with sand, no matter how tightly the wax paper was wrapped (we deserved what we got). Surfcasting for striped bass in the evenings; Asbury Park boardwalk rides, salt water taffy machines; crabbing in the Shrewsbury River.

During high school and college years, dawn-to-dusk tennis teaching and racquet stringing. Chess when the clay courts were too sodden to play. Square dances, beach parties. Wonderful memories of predawn swimming in the Atlantic – watching the sunrise, and cool dips in the quiet evening when work was done.

IV. MIT 1954-1958

Initial loneliness mitigated by excitement of the place: so many clones! Happy years; squash, tennis teams; carrier current station WMIT/WTBS; taped shows for WGBH, tic-tac-toe against Whirlwind computer, Toynbee lecture, Boston Symphony Orchestra rehearsals, Munch/Berlioz. I didn't know it at the time, but Hans Muller's impressive physics lecture style derived from that of his mentor, Arnold Sommerfeld; nor did I realize that he was one of the early gurus of ferroelectricity. E&M with MS Livingston and LJ Chu; signal processing with J Wiesner, who was to become JFK's science advisor; AR von Hippel, H Edgerton; E Land, I Kaplan, N Wiener, V Weisskopf, analog circuit theory with E Guillemin (another student of Sommerfeld, with the same lecture style), and M39 with John Nash, which was an interesting experience. Joined the IRE in 1955 because of a professor's encouragement.

V. Fort Monmouth, 1958-present

Well, if the Jersey shore was represented in my mind as vacationland, then what better could I do but prolong the association? Of course, it was no accident that this perception coincided with the facts that Margaret lived in nearby Long Branch, and that Fort Monmouth was hiring.

At that time, Fort Monmouth was the home of the Signal Corps, and, since 1939, had been responsible for all frequency control activities of the US Army. It was home to many expatriates, including many of Sommerfeld's students, among whom I discerned the commonalities of enormous enthusiasm coupled with vast talent.

I was assigned by Dr. Ed Gerber to work for Dr. Rudolf Bechmann, who initially had used Sommerfeld's methods to calculate antenna radiation resistance, but eventually was won over to the wonderful world of quartz, and frequency control, becoming one of the discoverers of the AT-BT family of cuts. Many Bechmann stories could be told, but I'll simply recall the uncanny talent he had for extracting important relationships and coherent information from seemingly confusing data. The complete frequency control facilities at FM extended from quartz growth, to X-raying, cutting, lapping, polishing, etc., and furnished ample opportunity for me to learn the technology, which I also employed to make an 8" Cassegrainian reflecting telescope.

Our Chief Scientist, H Zahl (of microwave tube fame) commissioned me to write some reviews of the Frequency Control Symposia for Physics Today, which led to accidental associations of the big and little (e.g., Dec 1963 and Aug 1966 issues). Graduate school occupied many evenings at Rutgers University and Brooklyn Poly.

I was in Brooklyn when the electrical blackout of the Northeast US occurred in 1965. Walking across the Brooklyn Bridge on a clear and mild November evening with a full moon, and no city lights, was an experience never to be forgotten. Cars provided the only lights, strung like necklace beads along the avenues. Down Canal Street I wended to the railroad ferry terminal at Liberty Street, where I crossed to lighted Jersey City and a train home. What a way to cut class!

VI. Frequency Control, Ferroelectrics, and Ultrasonics

My first contacts with what eventually was to become the IEEE UFFC Society came about from assisting Bechmann with IRE Standards, and in particular, the standards on Piezoelectricity and on Piezoelectric Ceramics. In this work I came in contact with committee members, such as R Sykes, WP Mason, H Jaffe, A Warner, HG Baerwald, CF Pulvari, and many others in the community, among whom I regard RD Mindlin most highly. With colleagues such as these to look up to, it is no wonder that I was inspired to write many papers distributed over our three UFFC symposia.

Piezoelectricity is the common phenomenon that initially united our three main disciplines: quartz resonators are driven by the effect; all ferroelectrics are piezoelectric, and often have high coupling values, and ultrasonic transducers and filters usually are piezoelectric in nature.

VII. Personal

The last paragraph of my write-up in the IEEE Sonics and Ultrasonics Newsletter, April 1981, p.4, states: "His wife Margaret, and two sons, Thomas, 12, and John, 10, contend that Pop's biggest hobby is sitting around and reading. They're probably right. When he's in training, though, Pop's been known to splash around at the Y, hit a few tennis balls with the kids, listen to his wife's piano playing, watch football games, and feed the tropical fish. Beats cutting the grass, he says."

Update, 2006:

Our boys have grown up, and each has a son, Connor and Elijah. Literature, crossword puzzles, and music fill scarce

free time. Music runs from the classics (Handel, Bach, Telemann, Mozart) to the romantics (Tchaikovsky, Delibes, Grieg) to more recent masters of light melody (Kern and Herbert). And, by the way, I still feel the same about the grass.

Inasmuch as our younger colleagues seem seldom to read the older literature, a recent hobby has become recycling of papers (under the guise of continuing pedagogy). Seriously, though, I've never been able entirely to forgo the lighter side of our subject, and one may find, embedded here and there in these papers, my attestations that the pun is indeed mightier than the (s)word.

This is not to say that there isn't a great deal to ponder thoughtfully. I am still struck that an Avogadro of quartz molecules can be described by a few numbers, and cooperate to produce stable frequencies; and that frequency, the most ephemeral of quantities, can be, by far, the most accurate entity we know. It brings to mind GK Chesterton's quote: The world will never starve for want of wonders, but for want of wonder. Quantum potes, tantum aude.

Art Ballato
March 2006

Meet Susan Trolier-McKinstry

Susan Trolier-McKinstry is a professor of ceramic science and engineering and director of the W. M. Keck Smart Materials Integration Laboratory at the Pennsylvania State University. Her main research interests include dielectric and piezoelectric thin films, the development of texture in bulk ceramic piezoelectrics, and spectroscopic ellipsometry.

She obtained B.S., M.S., and Ph.D. degrees in Ceramic Science at the Pennsylvania State University. On graduation, she joined the faculty at Penn State. She has held visiting appointments at the Hitachi Central Research Laboratory, the Army Research Laboratory, and the Ecole Polytechnique Federale de Lausanne.

She is a fellow of the American Ceramic Society, a senior member of IEEE, and a member of the Materials Research Society. She is past-president of both Keramos and the Ceramics Education Council, and is co-chair of the committee revising the IEEE Standard on Ferroelectricity. She has served as vice-president for ferroelectrics of the IEEE UFFC, and was an elected member of AdCom.

She is the recipient of the Robert Coble Award of the American Ceramic Society, the Wilson Award for Outstanding Teaching in the College of Earth and Mineral Sciences, the Materials Research Laboratory Outstanding Faculty Award, and a National Science Foundation Career grant.

UFFC-Society AdCom Meeting Minutes of 18 September 2005 [Subject to AdCom Approval]

Gerry Blessing

Call to Order

The Administrative Committee (AdCom) meeting of the Ultrasonics, Ferroelectrics, and Frequency Control Society (UFFC-S) was called to order at 8:10 am, 18 September 2005, by Society President Gerry Blessing. The meeting was held in Rotterdam, The Netherlands, in conjunction with the 2005 IEEE International Ultrasonics Symposium.

Attendees

Art Ballato*
Gerald Blessing*
Jan Brown
Mike Driscoll
Matthias Fink*
Manny Gottlieb
Ruyan Guo*
David Hecht
Fred Hickernell*
Jacqueline Hines*
Kullervo Hynynen*
Bill Hunt*
Oliver Keitmann-Curdes
John Kosinski
Jian-yu Lu
Reinhard Lerch*
Rajesh Panda*
Massimo Pappalardo*
Bob Potter*
Leonhard Reindl*
Sorah Rhee
Clemens Ruppel*
Ahmad Safari*
Mark Schafer*
Tom Shrout*
Nava Setter*
Peter Smith*
Dan Stevens*
Bernie Tittmann
John Vig
Susan Trolier-McKinstry*
Herman van de Vaart*
Marjorie P. Yuhas
Don Yuhas*

(Note: 23 voting members* were present for most of the meeting's business. Gerry Blessing did not vote.)

President's Report

Society President Gerry Blessing welcomed everyone, especially the newly elected members, who will begin their terms in January 2006. These are Amit Lal, Sorah Rhee, Tadashi Takenaka, and Manfred Weihnacht. Gerry asked people to consider taking on various volunteer positions, and passed around a list of volunteer opportunities.

TAB

Gerry provided AdCom with some information from the TAB meeting held in Chantilly VA, pointing out that IEEE is considering creating and maintaining a library of equipment we could rent at lower costs, such as A/V equipment for meetings. As always there was significant discussion regarding IEEE overhead and how 'infrastructure' taxes are assigned to the 40+ societies.

President-Elect

Gerry introduced Art Ballato, the UFFC-Society President Elect. Art begins his term as Society President on January 1, 2006, and is already attending TAB meetings. Gerry stated that Ahmad Safari would discuss conferences later in the meeting, but that there are lot of big things going on with conferences at the IEEE level (because there is a large amount of money there), and we will all probably want to be involved in these changes.

GEOS

Another interesting endeavor is GEOS (Global Earth Observation Systems), a sensors-based effort to monitor the health of the earth. This is a global effort, and IEEE wants to be part of it. Some society presidents are looking at forming a council within IEEE to address this opportunity. Anyone who is interested in participating in any of these activities, please contact Gerry.

John Vig

John Vig receiving certificate from Gerry Blessing

Finally, Gerry congratulated John Vig, past Society President and 2005 Chair of the IEEE Technical Activities Board, on being selected to receive the Society's Distinguished Service Award for his work on innovating new society programs. He also presented John with a Certificate of Appreciation "for his service as our Society's first Web Editor-in-Chief from 1996 to 2002."

Ahmad Safari made and Herman van de Vaart seconded a motion that passed (20 in favor, 0 opposed): To approve the January 2005 (Los Angeles) AdCom minutes.

Secretary's Report

Jackie Hines

Society Secretary/Treasurer Jackie Hines requested that everyone update contact information on the AdCom roster.

Finance Report

Herman van de Vaart

Finance Chair Herman van de Vaart provided a written report, containing the 2004 operating statement (budget and actual), the 2005 budget and forecast, and the 2006 budget. Some highlights from 2004: We had some income from long term investments for the first time in several years, and a higher than expected income from the all transactions package, but AdCom expenses were also higher, partly due to higher speaker expenses for the conference. We still had a surplus of about $200k, leaving the Society with a net worth of about $626k at the end of 2004.

Conference Accounting

Now, at the end of 2004 there were some big changes in how IEEE requires societies to account for conference income and expenses. In the past, we had budgeted income from conferences in the year the conference closed and the income was realized by the Society, which was usually the year after the conference was held. IEEE decided we now need to report income from conferences in the year the conference was held. Even if we do not have the final amount, we can estimate it now and correct it later. The original budget for '05 had income from '04 in it, but then we had to change it to have only '05 income instead. Somehow IEEE used the wrong numbers, and the 2005 budget ended up being incorrect. But ignoring the budget (which is not that useful for 2005 due to incorrect conference numbers), we can make some observations of how 2005 is proceeding. The expenses for the Transactions are somewhat less than expected, which is good. We expect to end the 2005 year with about a $176k surplus, so our year end reserves would grow to about $800k, which is about 50% of annual expenses.

Reserves Rules


John Vig

John Vig commented on having a goal of a 50% reserves to expenses ratio. IEEE has a group of prominent financial advisors who recommend this as a minimum level of reserves. These are needed to offset potential disasters, like when the Power Engineering Society's main symposium in New Orleans was wiped out due to a hurricane. Overall IEEE revenues were $270M last year, and IEEE reserves were about half of this amount. IEEE has a spending rule for reserves. We can spend about 6% of our reserves (3% is inflation and 3% is real spending) through a new initiatives process. Anyone is able to suggest new initiatives, and can ask for more than our society reserves are if it is an initiative that would benefit IEEE as a whole (such as a new office for IEEE in Beijing, etc.). Anyone interested in suggesting a new initiative should submit a summary, which will be reviewed to see if a full proposal should be prepared.

ASPP Income Distribution

On another issue, the All Societies Periodical Package 'ASPP' income will undergo some drastic changes next year. Our income will now be partially based on the number of downloads by institutional subscribers. The income will be 50% based on a new algorithm in 2006 and 100% based on that algorithm in 2007. To be fair, every society gets between 30% and 55% based on usage. The IEL still has subscriptions based on a fixed price, and so the income to IEEE is not changing. The change only affects what money that comes to the societies. These usage levels only consider institutional usage, and do not include proceedings. People should download from their institution if possible, so that we (the society) get reimbursed. Home businesses and small company downloads do not count. Herman noted that these changes should be taken into account in the budget.

2006 Budget Approval

Herman presented the proposed 2006 budget, which shows an expected surplus of about $80k. Herman van de Vaart made and Ahmad Safari seconded a motion that passed (17 in favor, 0 opposed): To approve the 2006 UFFC-Society budget as presented.

Publications

IEEE Publications Strategy


Don Yuhas

Publications Vice President Don Yuhas presented an oral and written report. The IEEE has formulated a new publications strategy, which includes high growth in publications and content, and an electronic information-based income formula for the societies. What this means is that the more often institutional users access our society publications electronically, the more income will come to the society. Each publication's portion will be proportional to its share of the total institutional periodical package usage. Thus, we need to prioritize getting our transactions on Xplore to get more income. In a given year, the budget for this income will have been based on the actual activity 2 years earlier. The actual distribution in that year will be based on usage data from the previous year (just ended) and revenue forecasts for the current year.

Jan Brown explained that the surplus from IEL is distributed as follows: approximately 50% is divided up between the societies based on content, usage, etc. The other 50% goes through the book broker program, so indirectly we do get some income from conference publications (but it is not on a per title basis). Eventually, the conference publications will also have a formula that is the same as it is for the periodicals, but the problem of getting all conference material onto Xplore needs to be solved before this change in income distribution will be implemented. Marj Yuhas asked if this would mean less income in the short term due to not having hardcopy sales of our proceedings, but Jan assured us that is not the case.

Publishing Status

Don summarized the Transactions status, indicating that while Manuscript Central is operating fine and there is not a reviewing backlog, a backlog in articles has ballooned at the editorial/printing stage. The jump in the number of papers submitted and reviewed has overwhelmed editorial resources, particularly at FASS (Federation of Animal Science Societies – the group that does the UFFC Transactions production). As of July 05, there are 141 accepted papers that have finished the review process and are at FASS waiting to be published. Additional editorial help is being obtained to help correct this problem.

Special interest issues may have driven more interest in the journal and led to more submissions than normal. A discussion ensued about the severity of this problem, with one AdCom member pointing out that this may not be a long term change. If we continue with a 17 paper per month acceptance rate and publish 25 papers per month, we would reduce this surplus and reach a two month backlog in about June/July 06. Marj Yuhas indicated that, up until the last few months, we had been pushing to get overdue papers through the review process. Now we are not pushing as hard due to the publishing delay. If we go back to 12 papers/month accepted, and publish 25/month, the backlog will disappear sooner.


Marj Yuhas

Marj Yuhas brought up a question for the Associate Editors: Do we want to eliminate the review category "accept with major revisions"? She pointed out that it can be over a year from the time a paper is accepted with this category to the time when it is resubmitted. This impacts both our timeliness of publication and our rejection rate. Marj suggested that we should modify the current review process so we have "accept with no change or minor change", "reject", and "reject with recommendation to

resubmit with major revisions". This would help both the workload of the AE's, and the statistics of the journal. Susan Trolier-McKinstry suggested the category "major revision with limit on time", whereby a paper placed in this category would become an automatic rejection if it was not resubmitted with revisions within 2 months (or some appropriate period of time).

What are the financial consequences of the required additional editorial work if we publish 2500 pages this year? At 2500 pages, we would incur an additional expense of about $20k for additional FASS editorial work, and about $21.9k in additional printing costs (for the extra 500 pages).

Xplore Issues

Don Yuhas then summarized issues related to Xplore. In 2005, the Transactions were uploaded to Xplore electronically (in contrast to scanning). This has led to editorial issues associated with front matter and Web presentation, producing problems that impact the "browse ability" of articles on Xplore. The current Xplore is not yet able to include all the elements of TUFFC correctly (the difference can be seen by comparing Xplore with T-UFFC's website http://www.ieee-uffc.org/tr/ as well as the T-UFFC print version).

As a Society, we would like the TUFFC publication in Xplore to not only serve as a publication outlet, but also to naturally provide an historical archive of our society. We would like the Transactions as displayed in Xplore to have the same look as when viewed through our web site. But how important is this? If we delay getting articles into Xplore, it negatively impacts our income due to the new distribution formula described previously. The problems mentioned relate to front matter only. Plus, institutional subscribers can access this content, and UFFC members can access it – so it's only others that lack this capability in Xplore. Is this significant? It is taking a lot of Jian-Yu and Don's time – so we need to ask the group - is it worth it?

A discussion ensued regarding this issue, and the possibility of maintaining dual sites over time, with front matter on our site and papers in Xplore. The general consensus was that this is an important issue that needs to be addressed. Jan Brown mentioned that there are workarounds where other societies have used their own websites as interfaces that link the user to Xplore when downloading papers. This arrangement has been set up so the society will recognize income if it is an institutional user. Setting up such a solution may cost something, but not a huge amount, so we can do this as soon as the content is there. Plus, there is a lot of historical information in the front and back matter of our publications (AE's, when they served, etc.). We should keep this information somewhere, and our website might be the best place, even if it would require significant development. Don Yuhas stated that he is disappointed with the lack of responsiveness of the IEEE staff regarding getting additional information into Xplore.

Digital Archive

Don next addressed the issue of the digital archive, and the need for a strategy for periodic upgrades. Currently, the digital archive, which is a set of 24 CD-ROMs in a nice package, sells for $60. Should we increase cost? How often should we release upgrades? A discussion ensued, with Don recommending that we release upgrades every three years, and Rajesh Panda reminding the group we previously decided to give members yearly updates. John Vig asked about using DVDs (to use fewer), but Jan Brown noted that we provided partial funding for the CD replicating machine purchased by FASS, and if we want to do DVDs, we would need to get a system for DVD replication.

It was concluded that we should charge $100 from now on for the whole Archive, and charge $10 per year for upgrades, which would cover postage. Don will look into this with Ron Keller. Also, we need to check prior meetings, where we had decided to give all members a CD each year. We may need to revise this if it is a Society policy. Another issue that was brought up is the UFFC Archive on the Society web site. Currently, as long as you have been a UFFC member for one year, you get a password, and you can keep accessing website. Even if you leave society membership, you can still access the site. We need to cut off people who have left society membership.

Mailing Lists

Don also looked into the mailing list status. Currently, contact information is collected but not managed from multiple sources, with no procedure or focus, and no use rules established. Sorah Rhee explained that Ultrasonics and Frequency Control e-mailing goes through FASS. FASS is not doing this for Ferroelectrics, IMS (Industrial Measurement Systems, Inc) is. The list is just a list at this point. This is an opportunity to centralize the list, and give it more direction. The same place that stores and manages the database has to have the capability to send out messages using the list(s). We need to establish some rules on use and distribution of the list. IMS has a DSL line, and cannot send out the mass e-mails. IEEE has listserv, whereby we can send mailings to various member groups – this may be a way to handle it. Using listserv, we can send out messages individually addressed to thousands of people. Tom Weiner is set up to do this, and charges a small fee for this service. Don will evaluate the options and determine how best to do this.

Transactions

Jian-yu Lu

Transactions Editor-In-Chief Jian-yu Lu gave a detailed presentation updating issues for the Transactions publication process. The page budget was insufficient this year, but we were allowed to go over budget (for 2005) without a penalty. He highlighted our eight special issues, some of which have been published already, and some of which will come out later this year and next year. Occurrence of multimedia papers is on the rise, with 46 submitted, 17 of which have been published. We are also working with IEEE to establish a new multimedia standard for IEEE journals.

As Don discussed previously, FASS has a backlog of 126 papers that are accepted and waiting for publication. We currently have 47 AE's. We are working with IEEE on Xplore issues, and are working to port back issues into the archive. We are also working to replace digital archive content in Xplore where it is missing or incomplete. However, with changes that are underway, we are not going to replace more content until IEEE gets the new Xplore in place in 2006.

Newsletter:

Jan Brown

Newsletter Editor Jan Brown asked "who liked the new historical section", and when several people responded positively, she said she will continue with this feature. Gerry thanked Jan for producing a very good, inclusive newsletter. Jan asked for an associate editor for the newsletter from each of the three areas. She has someone from FC, but needs someone from Ultrasonics and from Ferroelectrics. Jan asked the VPs of these areas to please appoint someone. The job is mainly taking pictures, identifying people in pictures, and providing current news for the groups. This position could merge with the technical area web editor positions.

Web:

Jian-yu Lu, Sorah Rhee, and Tom Shrout

Ruyan Guo

Leo Reindl

Sorah Rhee, the Society Web Chair, announced that web editors for all three areas are getting off to a good start. The web editor for Ultrasonics is Kendall Waters, for Ferroelectrics is Ruyan Guo, and for Frequency Control is Leo Reindl. Sorah has been web EIC for several years, and she would like to retire. We are currently looking for someone to take this position.

Sorah put together an ad-hoc committee to study the issue of conference advertisement, and submitted a draft policy on this issue to be considered for inclusion in the bylaws. Please review this draft policy and give Sorah your comments. A brief discussion ensued, and it was mentioned that we need to make sure we follow all the privacy policies IEEE requires.

Also, the mailing lists for conference attendees were sold to exhibitors from the last conference, and exhibitors were offered the attendee list for FC year before last. Several AdCom members expressed opposition to selling lists to vendors/exhibitors. We should evaluate this policy, and if we are going to do this, attendees should at least be informed (and possibly be able to "opt-out"). A discussion of the issue ensued, with the conclusion that while having a list of attendees available to vendors is a big plus for companies. We need to clarify what our ethical approach is for the Society. Sorah suggested a policy, whereby conference attendees would be able to check a yes/no box on their symposium registration indicating their approval to release their personal information to exhibitors, and discussion ensued. It was determined that Sorah should work with the committee to establish a policy.

Ferroelectrics Committee

Susan Trolier-McKinstry

Susan Trolier-McKinstry, Ferroelectrics Vice President, gave an oral report. The last Ferroelectrics Committee meeting was in April of this year. A primary decision made was to move ISAF to an annual meeting, and to actively pursue the ferroelectric memory community as a part of ISAF. This group is largely industrial, and wanted a meeting every year. This subset has provided a commitment to provide leadership every other year. Also, the meeting may be smaller every other year. There is also a second reason to go to an annual meeting – the American Ceramics Society is moving away from a ceramics only meeting, and there is a fear that this will dilute the ferroelectrics portion. Perhaps IEEE can take on some of this content. The UFFC Society has wanted Ferroelectrics to go to annual meetings for some time.

On another note, the Daniel E. Noble award for 2006 was won by Carlos A. Paz de Aravjo "For fundamental contributions and commercialization in the field of FE RAM".

2006 Meeting

Paul Clem

Paul Clem, General Chair for '08 ISAF, gave a presentation for '06 and '08. The '06 conference is scheduled for July 30 through August 02, 2006, at the Sea Trail resort in North Carolina with Jon-Paul Maria as General Chair. The Ferroelectrics Committee has reviewed and approved the proposed budget, and Herman van de Vaart has also reviewed and approved the proposed budget.

David Cann and Jon-Paul Maria

Susan Trolier-McKinstry made a motion from the Ferroelectrics Committee that passed (20 in favor, 0 opposed): That AdCom approve the 2006 ISAF budget as presented.

Susan discussed the abundant amount of space available at the conference center, and the inclusive nature of the package price (cost includes all meals, etc.). Jon-Paul is focusing on how to bring in the right group of people to this meeting, and the need to make the meeting very appealing. We will be issuing strategic invitations for plenary and invited talks, and so far we have three invited people. Capacitors are one area of relative weakness historically, and should be the next new area of growth. We want to reinstate ISAF as the primary venue for ferroelectrics research.

2007 Meeting

Planning for this new meeting is just getting underway. The Ferroelectrics Committee has approved it being held in Kyoto, Japan. Tadashi Takenaka is proposed as general chair, with Susan as co-chair. These proposals will be taken to the Ferroelectrics Committee for approval. We want to run this meeting in conjunction with another conference being held in Japan, and will arrange the schedule to allow this. AdCom is not voting on this conference at this time.

2008 Meeting

Bruce Tuttle and Paul Clem were approved at the last AdCom meeting as General Co-Chairs for ISAF 2008, to be held Feb 23-37 2008 in Santa Fe New Mexico. The contract with hotel has just been signed, and everything is progressing as planned.

Future Symposia

Andrew Bell suggested that the 2009 or 2010 meeting be held in Harrogate, UK, and Susan will recommend approving him as general chair. The UK has a thriving ferroelectrics community, and it may be possible to run a joint conference with another European conference (in dielectrics). Nava Setter will look into this possibility.

Susan also discussed four other brief things related to Ferroelectrics. First, the meeting on standards on ferroelectric materials and terms associated with them resulted in a lot of changes, and there will be at least one more meeting. Second, Steve Pilgrim has stepped down as vice-chair for Ferroelectrics, and Bruce Tuttle is taking over this position. Third, the Ferroelectrics community recognized three new senior members. And Fourth, Susan asked if it is acceptable for Ferroelectrics to put $2k into its meeting budgets for the Ferroelectrics Recognition award.

Susan Trolier-McKinstry made and Herman van de Vaart seconded a motion that passed (21 in favor, 0 opposed): That AdCom fund the Ferroelectrics Recognition Award in the amount of $2,000 per year starting in 2006.

Awards chair Reinhard Lerch pointed out that, even though AdCom has approved this, it will need TAB awards committee approval as well.

Herman van de Vaart commented that we should review the monetary award amounts, since currently the policies allow travel support of speakers to be as much as is given as an award to someone with 15-20 years experience and service.

Frequency Control Committee

Mike Driscoll

Mike Driscoll gave a report on the Frequency Control Committee meeting. One of the main topics was expanding the TPC representation to include more Asian representatives. TPC membership would be left up to the TPC chair, but the Frequency Control Committee could make recommendations for more TPC members. Also, we might look into having virtual meetings. We currently have a joint meeting with European Frequency and Time Forum (EFTF) every two years, and there is some discussion of having a meeting in Asia every four years. China was discussed. PDA has notified us of their intent to sever their relationship with FC.

2005 Symposium

Mike Driscoll submitted a written report summarizing the meeting results. The 2005 meeting was held in Vancouver. It went very well technically and financially. Dr. Norman Ramsey, a Nobel laureate, celebrated his 90th birthday the day before the conference, and was recognized at the meeting. We were 70 paid registrations short of plans, but the estimated surplus will be about as expected. The light showing may have been due to timing (European vacation time, several other sensor conferences within a few months).

2006 Symposium

Mike Driscoll submitted a written report summarizing the meeting plans. For 2006 the location chosen is the Hyatt Regency hotel in Miami, FL. It is a very nice venue, with reasonable hotel rates, and is easily accessible. Mike Driscoll is Chair. Dates are June 4-7 2006. Room rates $119/day. The call for papers is on the web site. Mike has

recently tweaked the budget, and needs to have this approved by the standing committee.

Mike Driscoll made and Susan Trolier-McKinstry seconded a motion that passed (21 in favor, 0 opposed): That AdCom approve the 2006 FCS budget as proposed pending approval by the Frequency Control Committee.

2007 Symposium

The 2007 Frequency Control Symposium will be joint with EFTF in Switzerland, with all the work handled by our Europeans colleagues. Details will be decided in March (location and exact date, chairs, etc). The role of the US co-chair will be primarily ceremonial, and the responsibility for the technical program is shared about equally between FC and EFTF personnel.

Ultrasonics Committee

Clemens Ruppel

Clemens Ruppel, Ultrasonics VP, gave a brief oral report. An Ultrasonics Committee meeting was held 17 September 2005, and updates on the '06-'08 meetings will be discussed.

2004 Symposium

Herman van de Vaart

Herman van de Vaart presented a one page financial report for the joint meeting, showing a surplus of about $75k (11%). The short courses were run like tutorials at this conference. Tutorial attendance was about 20% of conference attendees. In the past, Ultrasonics short course attendance has averaged 33% (it is over 40% in Rotterdam), which raises the question: Is the format that Ultrasonics uses much more popular than the format used by FC? A discussion ensued, during which it was pointed out that content may be as important as format in generating interest, and that we may be counting attendance in the wrong way, since at FC people may spend all day in tutorials and only get counted once, whereas in Ultrasonics they are counted for each course they attend. Management support for the conference (FASS charges) was way over budget. The budget was $51,700, and actual charges for labor only (not direct costs) ended up at slightly over $83,000.

Ahmad Safari

Ahmad Safari stressed that each technical area in the society needs to review their conferences critically every few years. The new ad hoc committee on conferences, which will be led by Ahmad, will become more important and can look at these things.

2005 Symposium

Ton van der Steen

Ton van der Steen presented a summary of where things stand for the current Ultrasonics symposium. Everything is going well. We have 100,000 euro contributed by sponsors, which helped defray the costs of some of the functions. Registration is now 929, but we will probably go over 1000.

2006 Symposium

Stuart Foster

Clemens reported that all hotel contracts are signed, and the meeting is set for Oct 3-6 2006 in Vancouver. The General Chair is Stuart Foster. The budget reviewed, a need for corrections was noted, and a revised budget was approved in the Ultrasonics Committee meeting. A new company (Oasis) will manage the conference, including all aspects.

Clemens Ruppel made a motion from the Ultrasonics Committee: That AdCom approve the budget for the 2006 Ultrasonics Symposium with corrections as discussed at the Ultrasonics Committee meeting.

Susan Trolier-McKinstry asked that the motion be tabled until we have copies of the first page including these corrections. Clemens withdrew the motion for budget approval, and indicated that we will vote later at this meeting or conduct an e-mail vote.

2007 Symposium

John Kosinski

For 2007 we plan for the conference to be in New York City. John Kosinski, General Chair, reported that hotel contracts are signed. He stated that we had used IEEE conference services to negotiate the contract, and that he thought they had not been as helpful as hoped. John Kosinski stated that using IEEE conference services delayed negotiations, which affected the room rates negatively. John surmised that roughly $20 per night of rate is due to IEEE negotiations, possibly due to the "kickback" they get from the hotel, and that using them was not a plus. He recommended not using IEEE Conference Services in the future for contract negotiation. John Vig objected strenuously to the characterization of the commission IEEE Conference Services receives as a "kickback" and pointed out that the rate negotiated by Conference Services is an excellent rate, considering the delay in negotiations. John Vig advised other conference organizers to evaluate the services provided by IEEE Conference Services themselves. [Note from the

Secretary: Research subsequent to the September AdCom meeting revealed that IEEE Conference Services waived their normal commission for this conference in order to keep the room rate for attendees as low as possible.] Even though the rates have increased from when we selected the venue, they are still very good rates. The hotel has room for five parallel sessions, and there are more facilities available for posters. Gerry suggested the idea of hiring a professional contract negotiator as an option to consider for future conferences.

2008 Symposium

Jian-yu Lu

Jian-yu Lu, General Chair, is in contact with several sites and is negotiating prices and details from the potential promising venues. Contracts should be submitted within the next few weeks for review by IEEE. The contracts must be in the local currency, and there is pressure from the US on China to adjust the official exchange rate which may result in a change for the worse. But this happened in Munich, and we still were able to organize a financially successful conference. Jan Brown, the finance chair for the conference, indicated that only portions of the contract are floating with the currency. Some areas are capped, which limits the overall exposure.

Future Symposia

Massimo Pappalardo

For 2009 three sites are being considered. Massimo Pappalardo presented Rome (Italy), Oliver Keitmann-Curdes presented Stockholm (Sweden), and Victor Plessky is going to look into Warsaw, Poland. Since we do not have enough information to make a decision right now, we will continue the discussion by e-mail and make a decision. At the next AdCom meeting we will present a decision for AdCom approval. For 2010, we have no input so far. Jackie suggested the Americas, but has not submitted a proposal yet. We need more input and suggestions.

A discussion ensued regarding the idea of co-locating Frequency Control and Ultrasonics symposia, with overlapping dates, to promote synergy between the two groups and encourage people to come to both conferences. It was decided that the Ultrasonics Committee and the Frequency Control Committee should discuss this issue and bring a recommendation to AdCom. Gerry Blessing brought up the idea of structuring the conferences along medical, materials, and devices lines instead of the three traditional technical areas. Gerry decided to refer this issue to an ad hoc committee on conference coordination for consideration and formulation of a recommendation.

Awards

Reinhard Reindl

Jim Greenleaf

Awards Chair Reinhard Lerch submitted oral and written awards committee reports. Highlights include the fact that Jim Greenleaf is now the Rayleigh Award committee chair (since Aug 2005), there are several new fellows, and the new distinguished lecturer Ken-ya Hashimoto will be presented tomorrow in the plenary session. Following Ken - ya Hashimoto, the distinguished lecturer will be Andreas Bauch. Bernie will bring candidates for a new distinguished lecturer, to follow Andreas Bauch, to the floor at the next AdCom meeting. The candidate we proposed for a major award was not selected. We are considering other possible candidates for major IEEE awards.

A discussion ensued regarding the appropriateness of giving monetary honoraria with IEEE awards. The questions raised were: IEEE is a volunteer organization. Why should we give monetary grants with awards? Also, is it allowable to reimburse travel expenses when an award recipient comes to a conference? Also, is the amount we are giving appropriate, seeing as we give just about as much to visiting speakers as we do to recipients of major awards? Reinhard has looked at this practice within IEEE, and most societies say travel reimbursement is included as part of the award. Also, in some countries, scientific award income is tax free. John Vig pointed out that the awards for technical achievement have nothing to do with being a volunteer, while the service awards are for volunteering, and it is likely that people receiving these awards do not want to get paid. Mike Driscoll noted that the recognition of your peers and the memento you receive mean a whole lot more than the small monetary awards, and recommend eliminating the monetary aspect of awards. Herman van de Vaart suggested that we should not pay as much as we have been paying in travel support for speakers, so that the monetary aspect of the awards would be more significant. Also, it was noted that some award recipients might not come to a conference to receive an award unless their travel was subsidized. Following this discussion, Gerry asked the Awards committee to consider this issue and come back with a recommendation on awards and travel support.

Membership Services

Chair Rajesh Panda gave an oral and written report, indicating that we now have 2131 members. Rajesh attended the April IEEE membership development retreat, which focused


Rajesh Panda

on how to serve the growing membership, particularly outside the US. He mentioned the new "myIEEE" webpage portal, which is user friendly, and recommended that we all try using it. Rajesh said that for new Associate Editors, he can give access to a password-protected online membership list for both the society and IEEE on an as-needed basis.

Standards


Bill Hunt

Chair Bill Hunt gave a report. According to an IEEE database, every standard developed by UFFC has been withdrawn, most because they have lapsed administratively. When you ask IEEE for PAR (project authorization request) for a standard, this starts the clock ticking. You have a certain amount of time to produce a document and send it in for approval. Once approved, a standard has five years of active life, at which time it should be reaffirmed by the committee that submitted it, or it will lapse administratively.

Should we revisit these that have lapsed and consider updating them, or issuing them in another form? Various AdCom members stated that the standard on piezoelectricity should be reaffirmed, and that the Medical standard that has been withdrawn is a useful compendium on recommended practices and should be reissued in some other format. Copyright may be an issue, as ANSI now has copyright and maintenance responsibilities. ANSI is the approved mechanism whereby US standards can interface with ISO, IEC, and other standardizing bodies. Bill will look into these issues.

Fellows


Fred Hickernell

Chair Fred Hickernell reported that there are currently five Fellows Committee members, and that anyone submitting nominees should be aware of the March 1 deadline. Reinhard Lerch read the list of members elevated to Fellow in 2005. [See the UFFC FELLOWS section of this newsletter.]

Nominations

Chair Bob Potter informed AdCom that the Nominations Committee consists of the three technical VPs, the Nominations Committee Chair (Bob) and Vice-Chair (Dan Stevens). Four new AdCom members were elected in the last


Bob Potter


Dan Stevens

election. Some of the nominees who did not get elected this year will have the opportunity to run again. The election process is fairly unsophisticated, but runs well. Gerry pointed out that everyone is welcome to give Bob nominations, and he will pass them by the VPs for review.

Historical Committee


Fred Hickernell

Chair Fred Hickernell noted that there are several historical papers at the current conference (Rotterdam). There was also a special issue of Transactions in May with historical papers, and a special history supplement and information in the newsletter.

Long Range Planning


John Vig

Chair Fred Hickernell commended John Vig for writing the long range plan, noting that some items have been implemented, but the plan has not been amended since it was written. John Vig suggested that we change it to a "strategic" plan, rather than "long range" plan.

Conference Coordination Committee


Ahmad Safari

Chair Ahmad Safari introduced the Ad-Hoc committee for coordinating handover of conference information, and summarized the role this committee should play in ensuring continuity between years. John Vig pointed out that IEEE conference budgets do not include an overhead. As a society, we are charged a certain amount per year by IEEE, but we never attribute it to our line items. It might be more responsible to attribute this cost to conferences, and other activities in our budget. Herman van de Vaart said that doing this would create problems in the IEEE budget process.

Ahmad noted that the international nature of conferences is improving as we move towards globalization, with about 42% being from regions 7-10. We have about 44% interna-

tional members both in IEEE and in our society. John pointed out that our conference business is now about twice as big as our publications business, speaking financially. The Conference Coordination Committee will focus on conference strategic goals. The next IEEE meeting on conferences will be October 6 & 7, 2005. In surveying the rest of IEEE, Ahmad found that almost every society has a VP of conferences. We currently have an ad-hoc committee. Changing this would require a change in our bylaws, and would require further discussion.

Constitution and Bylaws Review Committee

Jackie Hines, Gerry Blessing, and Art Ballato

Chair Art Ballato stated that we are in the process of rewriting the constitution and bylaws, with much progress being made. More e-mail discussion will be required, and we plan to bring versions to AdCom for approval in six months to a year. Eliminating inconsistencies, and making the constitution an enabling document and the bylaws an operational document are priorities.

Students

Fred Hickernell, Oliver Keitmann-Curdes, Kullervo Hynynen

Manny Gottlieb

Sr. Student Representative Oliver Keitmann-Curdes spoke about the student website that has been set up. They have also been working on improved communications with students via the student e-mail listserv and the student corner in the newsletter.

Oliver reported on the founding of a new student chapter at USC, which the Jr. Student Representative, Manny Gottlieb, has initiated. Oliver stated that we should try to have special benefits for students at all of our conferences. In Rotterdam, for example, the Society offers deep discounts for the social function. By comparison, in the upcoming conference in Vancouver there seems to be no significant student offer.

At the Rotterdam conference, we have some students at the UFFC booth, but staffing the booth is an issue. Unfortunately, even students getting travel support are not willing to give several hours. Only 16 of 44 students getting travel support are volunteering here. Maybe conference chairs should insist students work at a conference if they receive support. This was the third time we have had this discussion at AdCom. While some AdCom members supported AdCom dictating a service requirement for students receiving financial aid to conference chairs, Gerry Blessing said that he was not advocating doing that at this time. However, raising expectation of service to the society is good, and this issue should be handled by Ahmad and the Conference Coordination Committee.

UFFC-S Representatives

Journal of Lightwave Technology

JLT Representative David Hecht reported that the Journal is doing fine. The publication is sharing profits, and since UFFC is one of 8 sponsoring organizations, it is getting a $1,806 rebate now. This is small since UFFC-S members comprise only about 1% of the Journal's subscribers. The JLT is asking for input on ideas for generating new algorithms for distributing their surplus. One idea suggested is apportioning by page count of societies of contributing authors. But the long term sponsorship such as that provided by the UFFC Society should also get some benefit. Perhaps a portion of the surplus can be reserved and equally distributed between societies as an administrative return. Another option would be to consider how many reviewers for JLT are UFFC members. These issues will be relevant for TMI as well, and AdCom should consider what recommendations to make.

Old Business

Clemens Ruppel

Marj Yuhas

Ultrasonics Vice President Clemens Ruppel presented a corrected budget for the 2006 IUS, and made a motion from the Ultrasonics Committee that passed (21 in favor, 0 opposed): That AdCom approve the budget for Ultrasonics 2006 in Vancouver as presented.

Marj Yuhas pointed out that the proposed budget does not include any expense for editorial work on the Proceedings, which is unrealistic for that committee which has a signifi-

cant responsibility here. Herman van de Vaart noted that the conference Proceedings are currently a huge source of income for the conference, and are critical to our success. Stuart Foster said that he would look into the editorial aspect, which may have been left out inadvertently.

New Business

Jan Brown

Jan Brown brought up supporting the IEEE History Center, which is charged with preserving the IEEE corporate history, and all the technical history. Support for the Center comes from: IEEE dues (a portion); 25% from an endowment; 25% from Rutgers University; and 25% has to be obtained annually from IEEE organizational units, companies, etc. The Center's strategic plan includes generating a $20M endowment, and they currently have $6M+. The IEEE foundation has set up a matching fund up to $1M for societies that want to contribute to the history center. IEEE did an analysis of what each society's "fair share" would be, and UFFC's "fair share" was $10k. If we would like to help support this, the IEEE Foundation will match it. Jan proposed that we make a contribution in such a fashion that we get the matching, either $10k in one year or spread out over up to 5 years.

She also discussed what our Society can get back from the History Center in return for our support. We can suggest projects, people for oral interviews, and so on (which are generally done in the order requested and can take some time), or we can pay to have oral histories done with some of the more senior people in our areas. These are generally about $1k per interview, and funded projects take priority over non-funded ones. Jan would like to see us do these for some of the more senior people. Bill Hunt mentioned that a student at Georgia Tech had gotten an IEEE history fellowship, and conducted such a project. We should seek out additional students, since these projects benefit the students as well as the Society.

Mike Driscoll and Don Yuhas

The History Center does have a physical location, but access for most people would be through the web. You do not have to be an IEEE member to access it. Mike Driscoll asked if the people who run the Center are knowledgeable enough about the technical history to speak on the areas. Jan said that some are undergraduate engineers, with graduate degrees in history, and that we definitely could have potential speakers.

Fred Hickernell made and Herman van de Vaart seconded a motion: That the UFFC Society contribute $10k ($2,000 per year over the next 5 year period) to the IEEE History Center to take advantage of the IEEE foundation match.

John Vig asked whether we should ask for something from them in return, such as an annual review of their financial and operating reports. Fred amended the motion (and Herman seconded the amendment) to read: That the UFFC Society pledge to contribute $10k ($2,000 per year over the next 5 year period) to the IEEE History Center to take advantage of the IEEE foundation match, subject to annual review by AdCom.

Mark Schafer

Following this amendment, a lively discussion ensued. Sorah Rhee gave a recap of statements made by Lute Maleki when this issue was discussed at the last meeting. Lute had stressed the idea that if we are going to spend to preserve our history, we need to be spending at least as much on our future, which means students and generating new membership. Also, since there are many historical documents already available on the web site, do we really need a history center to capture our own history? John Vig pointed out that we have the best history section of any society on our web site. Herman van de Vaart stated that we have up to $90k per year available for student and speaker support to go to conferences – is this not supporting students and membership growth? John Kosinski raised the procedural issue of whether AdCom should consider funding requests that come in out of cycle with the budgeting process. Where do new initiatives fit relative to the other priorities of the society? Should our bylaws require that these new initiatives be put into a queue and considered as a group at one time during the budget cycle?

Art Ballato called the question, and Clemens Ruppel seconded A vote was held to end discussion, with 22 in favor of ending the discussion and 0 opposed, so discussion was concluded. A vote on the amended motion resulted in 13 vote in favor and 6 opposed, with 4 voting members abstaining. The motion passed.

Thank Outgoing AdCom Members

Mathias Fink receiving a service certificate from Gerry Blessing

Gerry Blessing and Tom Shrout

Gerry Blessing and Kullvero Hynynen

Gerry Blessing thanked the elected AdCom members that are finishing their tenure this year, Matthias Fink, Tom Shrout, and Kullervo Hynenen. He also thanked Mike Garvey, who is finishing up his elected term this year, but was unable to attend the meeting.

President-Elect Election

Jackie Hines

Susan Trolier-McKinstry

Gerry Blessing next conducted the election process for the Society's next president-elect. He noted that it is interesting and unique in our Society's history that the two candidates, Susan Trolier-McKinstry and Jackie Hines, are both women, as the IEEE currently has no women presidents representing it. Susan Trolier-McKinstry was elected to the position of UFFC-Society President Elect for 2006-2007.

There was no motion for adjournment. The meeting was adjourned at 5:15 pm, 18 September 2005.

THE NEXT UFFC-S AdCom MEETING will be held on Sunday June 4th 2006 in Miami FL in conjunction with the Frequency Control Symposium.

Jacqueline H. Hines
UFFC-S Secretary/Treasurer

UFFC Financial Report 2005

As can be seen from the accompanying summary statement, UFFC's financial operations continue to be in good shape. While the Societies, and IEEE as a whole, had some bad years, they seem to be behind us now.

As in 2004, we are credited with a substantial long term investment income. The UFFC Transactions had a larger net than budgeted, primarily due to lower printing and mailing costs as more and more members opt for the electronic version. Income from our co-sponsored publications Transactions on Medical Imaging and the Journal of Lightwave Technology was up as well.

Conferences also added to the surplus. However, IEEE recently changed its accounting in that the conference income and expense are now accounted for in the year the conference is being held, not when the financial report is finalized and the surplus, if any, is returned to the sponsoring society. Consequently those numbers are estimates, not actuals.

The bottom line for 2005 is a surplus of $286.2K, more than double the budgeted surplus. With this surplus, UFFC reserves are now just over $900K, about 50% of the expense.

2005 Financial Summary

	INCOME		EXPENSE		NET	
	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL
Membership Fees	36.5	34.8	---	---	36.5	34.8
Long Term Investment	0.0	46.6	---	---	0.0	46.6
TMI & JLT	22.8	44.7	---	---	22.8	44.7
Conference Proceedings	285.9	211.0	---	---	285.9	211.0
UFFC Transactions	440.3	462.1	392.9	329.5	47.4	132.6
Publications related	0.3	0.9	23.0	1.8	-22.7	-0.9
Conferences	929.6	1364.7	835.6	1213.1	94.0	151.6
Newsletters	---	---	28.9	40.5	-28.9	-40.5
IEEE Administration	---	---	209.1	186.1	-209.1	-186.1
UFFC Administration	---	---	100.0	107.6	-100.0	-107.6
Total	1,715.4	2,164.8	1,589.5	1,878.6	125.9	286.2

Herman van de Vaart
Chair UFFC
Finance and
Operations Committee
March 9, 2006

Appointments

Newsletter Associate Editor – Frequency Control

Eric Burt

Eric Burt has been appointed Newsletter Associate Editor for Frequency Control.

Eric Burt received his B.S. degree in Mathematics from the University of Michigan and his Ph.D. in Physics from the University of Washington. His Ph.D. thesis was on the topic of trapped laser-cooled single indium ions with the goal of creating an optical frequency standard.

After a post-doctoral position at the University of Colorado working in Carl Wieman's group on Bose-Einstein condensation he joined the U.S. Naval Observatory where he and colleagues built the observatory's first cesium fountain atomic clock. He currently works at the Jet Propulsion Laboratory with primary interests in trapped atom and trapped ion clocks.

IEEE USA PACE Representative

Kirk Wallace

Kirk Wallace has been appointed the UFFC representative to IEEE USA's Professional Activities Committees for Engineers (PACE). See the article in the Around IEEE Section of this newsletter for Kirk's article on the PACE Leadership Workshop.

Kirk D. Wallace was born in 1970 and grew-up in upstate New York. He received a B.A. degree in physics and mathematics from Ithaca College in 1992 and the M.A. and Ph.D. degrees in physics from Washington University in St. Louis in 1994 and 2001, respectively. From 2002 to 2005, Kirk held an appointment as research scientist within the Laboratory for Ultrasonics at Washington University in St. Louis.

Kirk is currently a Senior Scientist within the Cardiovascular Division of the Washington University School of Medicine, where his research interests include nano-scale physics applications of ultra-high frequency ultrasonics, site-targeted contrast agents, the physics associated with the propagation of finite amplitude acoustic waves, and their application to quantitative nondestructive evaluation and ultrasonic tissue characterization.

Kirk is a member of the Acoustical Society of America and the IEEE-UFFC Society, where he serves currently as the Ultrasonics Web Editor and the Representative to PACE.

IEEE WIE Liaison

(front row) Sarah Rajala, Jan Brown, Asha Hall; (middle) Jyothi Ramaswamy, Mary Ellen Randall, Margaretha Eriksson, Nury Cely; (back) Connie Kelly, Jasmina Bujaroska, Candy Robinson, Clementina Saduwa, Tamara Seeley, Keyana Tennant

Asha Hall has been appointed the UFFC Liaison to the IEEE Women in Engineering (WIE) Committee. She attended the October 2005 meeting of the committee which met in conjunction with IEEE Sections Congress in Tampa Florida.

UFFC AdCom - 2006

Ultrasonics, Ferroelectrics, and Frequency Control Society Administrative Committee & Associates

SOCIETY OFFICERS

PRESIDENT	Arthur Ballato	US Army CERDEC, Fort Monmouth, NJ
PRESIDENT-ELECT	Susan Trolier-McKinstry	The Pennsylvania State University
VP, FERROELECTRICS	Thomas R. Shrout	The Pennsylvania State University
VP, FREQUENCY CONTROL	Lute Maleki	Jet Propulsion Laboratory, Pasadena, CA
VP, ULTRASONICS	Jacqueline H. Hines	Applied Sensor R&D Corp., Annapolis, MD

VP, PUBLICATIONS	Donald Yuhas	Industrial Measurement Systems Inc., IL
SECRETARY-TREASURER	Daniel S. Stevens	Vectron International – Hudson, NH

ELECTED ADMINISTRATIVE COMMITTEE MEMBERS

2004 – 2006 Victor P. Plessky	GVR Trade SA, Bevaix, Switzerland
2004 – 2006 Nava Setter	Swiss Federal Institute of Technology, Lausanne
2004 – 2006 Peter M. Smith	McMaster University, Hamilton, Ontario, Canada
2004 – 2006 Daniel S. Stevens	Vectron International – Hudson, NH
2005 – 2007 Ruyan Guo	The Pennsylvania State University, University Park
2005 – 2007 Massimo Pappalardo	Università degli Studi de Roma Tre, Italia
2005 – 2007 Leonhard M. Reindl	Albert-Ludwigs-Universität, Freiburg, Germany
2005 – 2007 Mark E. Schafer	Sonic Tech, Inc, Ambler, PA.
2006 – 2008 Manfred Weihnacht	IFW Dresden (retired), Dresden, Germany
2006 – 2008 Sorah Rhee	Meggitt Endevco, San Juan Capistrano, CA
2006 – 2008 Amit Lal	Cornell University/DARPA, Arlington, VA
2006 – 2008 Tadashi Takenaka	Tokyo University of Science, Japan

STANDING COMMITTEE CHAIRS & VICE-CHAIRS

AWARDS	Reinhard Lerch	Universität Erlangen-Nürnberg
	Helmut Ermert	Ruhr-Universität Bochum, Germany
Awards Vice-Chair*	Bernhard R.Tittmann	The Pennsylvania State University, PA
FELLOWS*	Fred S. Hickernell	Motorola (retired), Phoenix, AZ
FINANCE	Herman van de Vaart	Honeywell (retired), Plymouth, MA
Finance Vice-Chair*	Jan Brown	JB Consulting, West Whatley, MA
ULTRASONICS	Jacqueline H. Hines	Applied Sensor R&D Corp., Arnold, MD
Ultrasonics Vice-Chair*	Mauricio Pereira da Cunha	University of Maine, Orono, ME
FERROELECTRICS	Thomas R. Shrout	The Pennsylvania State University, PA
Ferroelectrics Vice-Chair*	Bruce A. Tuttle	Sandia National Laboratories, NM
FREQUENCY CONTROL	Lute Maleki	Jet Propulsion Lab., Pasadena, CA
Frequency Control Vice-Chair*	Samuel Stein	Timing Solutions, Corp., Boulder, CO
MEMBERSHIP SERVICES	Rajesh K. Panda	Philips Medical Systems, Andover, MA
Chapters Vice-Chair*	Elizabeth H. Schenk	STERIS Corporation, Mentor, OH
NOMINATIONS	Bob Potter	Vectron International – Hudson, NH
Vice-Chair Nominations*	Ray Filler	US Army CERDEC, Fort Monmouth, NJ
PUBLICATIONS	Donald Yuhas	Industrial Measurement Systems Inc. IL
Vice-Chair Publications*	TBD	
TRANSACTIONS EIC*	Jian-Yu Lu	University of Toledo, OH
Trans. Associate EIC*	Marjorie P. Yuhas	Industrial Measurement Systems Inc., IL
NEWSLETTER EDITOR*	Jan Brown	JB Consulting, West Whatley, MA
WEB EDITOR-in-CHIEF*	Kendall Waters	Volcano Corp., Cleveland, OH
STANDARDS	William Hunt	Georgia Institute of Technology, Atlanta
Standards Vice-Chair*	Robert W. Schwartz	University of Missouri – Rolla, MO
Sr. Past President	Ahmad Safari	Rutgers University, New Brunswick, NJ
Jr. Past President	Gerald V. Blessing	NIST (retired), Gaithersburg, MD
Sr. Student Member*	Emanuel Gottlieb	University of Southern California
Jr. Student Member*	Jennifer Ruglovsky	California Institute of Technology

*Non-voting position

AD HOC COMMITTEES

CONFERENCES	R. Michael Garvey	Symmetricom, Beverly, MA
PUBLICITY	John R. Vig	US Army CERDEC, Fort Monmouth, NJ
EDUCATION	E. Koray Akdogan	Rutgers University, New Brunswick, NJ
HISTORIAN	Fred S. Hickernell	Motorola (retired), Phoenix, AZ

LONG RANGE PLANNING	Gerald V. Blessing	NIST(retired), Gaithersburg, MD
CONSTITUTION/BYLAWS REVIEW	Gerald V. Blessing	NIST(retired), Gaithersburg, MD

SUB-COMMITTEE MEMBERS

Standards

Ferroelectrics	Susan Trolier-McKinstry	The Pennsylvania State University, PA
Ultrasonic ID Tags	Clinton S. Hartmann	RF SAW, Inc., Dallas, TX
	Lewis T. Claiborne	RF SAW, Inc., Dallas, TX
Piezoelectric Crystals	Bikash K. Sinha	Schlumberger-Doll Research, CT
Piezomagnetic Technology	Robert W. Schwartz	University of Missouri – Rolla, MO
Sensors, Actuators & Trans.	Fabien J. Josse	Marquette University, Milwaukee, WI
Surface Acoustic Wave Devices	Pierre Dufilie	Thales Components, Vernon, CT
Time & Frequency	Eva Ferrè-Pikal	University of Wyoming, Laramie, WY
UFFC Stds. Liaison to SCC-27	John R. Vig	US Army CERDEC, Fort Monmouth, NJ

Newsletter

Associate Editor for Freq. Control	Eric Burt	Jet Propulsion Laboratory, Pasadena, CA
Associate Editor for Ferroelectrics	Dwight Viehland	Virginia Polytechnic Inst., Blacksburg, VA
Associate Editor for Ultrasonics	Jan Brown	JB Consulting, West Whatley, MA

Awards

Associate for Frequency Control	Thomas Parker	NIST, Boulder, CO
Associate for Ferroelectrics	David Cann	Oregon State University, Corvallis, OR
Associate for Ultrasonics	John A. Hossack	University of Virginia, Charlottesville, VA

Web

Web Editor for Ferroelectrics	Ruyan Guo	The Pennsylvania State University, PA
Web Editor for Freq. Control	Leonhard M. Reindl	Albert-Ludwigs Universität, Freiburg
Web Editor for Ultrasonics	Kirk Wallace	Washington University, St. Louis, MO

SYMPOSIA LEADERSHIP

Ultrasonics Symposia

2006 Vancouver, Canada	Jacqueline H. Hines – Chair	Applied Sensor R&D Corp., Arnold, MD
2007 New York City, New York	Stuart Foster	University of Toronto, Ontario, Canada
2008 Beijing, China	John A. Kosinski	US Army CERDEC, Fort Monmouth, NJ
	Jian-yu Lu	University of Toledo, OH

Ferroelectrics Symposia

2006 Sea Trail, North Carolina	Thomas R. Shrout – Chair	The Pennsylvania State University, PA
2007 Nara City, Japan	Jon-Paul Maria	North Carolina State University, Raleigh
2008 Santa Fe, New Mexico	Tadashi Shiosaki	Nara Institute of Science and Technology
	Paul Clem / Bruce Tuttle	Sandia National Laboratories, NM

Frequency Control Symposia

2005 Vancouver, Canada	Lute Maleki – Chair	Jet Propulsion Lab., Pasadena, CA
2006 Miami, Florida USA (joint PTTI)	Michael M. Driscoll	Northrup Grumman Corp., Baltimore, MD
2007 Switzerland (joint EFTF)	Michael M. Driscoll	Northrup Grumman Corp., Baltimore, MD
2008 TBD	Bernardo Jaduszliwer	The Aerospace Corp., Los Angeles, CA
	Bernardo Jaduszliwer	The Aerospace Corp., Los Angeles, CA

UFFC Society Representatives

TAB NewTech - Biotech Council	Kathy Nightingale	Duke University, Durham, NC
Educational Activities Board Liaison	E. Koray Akdogan	Rutgers University, New Brunswick, NJ
Journal of Lightwave Technology	David L. Hecht	Xerox PARC (retired), Palo Alto, CA
	John N. Lee	US Naval Research Laboratory, DC
Nanotechnolgy Council	Tadashi Takenaka	Tokyo University of Science, Japan
Sensors Council	John R. Vig	US Army CERDEC, Fort Monmouth, NJ
Superconductivity Council	Moises Levy	Univ. Wisconsin – Milwaukee (retired),WI

Transactions on Medical Imaging	Ahmed Amin	US Naval UWC, Newport, RI
IEEE Prof. Activities Com. (PACE)	Kirk Wallace	Washington University, St. Louis, MO
TAB Finance	Jan Brown	JB Consulting, West Whatley, MA
TAB New Technology Directions	Dennis R. Pape	Alphalaunch, Orlando, FL
IEEE WIE Liaison	Asha Hall	Rutgers University, New Brunswick, NJ

UFFC SOCIETY CHAPTERS

Connecticut Joint Chapter	Charlotte Blair / Ray Zeitler	Cheshire, CT / Phonon, Simsbury, CT
Germany Section Chapter	Helmut Ermert	Ruhr-Universität, Bochum, Germany
Japan Council Chapter	Tadashi Takenaka	Tokyo University of Science, Japan
Oregon Joint Chapter	Pradeep Kumar	Schnitzer Steel Industries, Portland, OR
Phoenix Joint Chapter	David Penunuri	Rockwell Collins, Scottsdale, AZ
Russia NW Section Joint Chapter	Yuri V. Filatov	St. Petersburg Electrotechnical Univ.
Russia Section Chapter	Georgy D. Mansfeld	Inst. Radioengrg. & Elx. RAS, Moscow
Toronto Joint Chapter	Bruno N. Di Stefano	Nuptek Systems Ltd., Toronto, Ontario

DISTINGUISHED LECTURERS

July 2005 – December 2006	Ken Ya Hashimoto	Chiba University, Japan
July 2006 – December 2007	Andreas Bauch	PTB, Braunschweig, Germany
July 2007 – December 2008		

DIVISION II DIRECTOR

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IEEE Executive Director and COO	Jeffry W. Raynes	j.raynes@ieee.org
TAB Managing Director	Mary Ward-Callan	m.ward-callan@ieee.org

OTHER CONFERENCES

The 27th Symposium on Ultrasonic Electronics

Special Notes

Organizing Committee Chair: Prof. Yoshiaki Watanabe

- Location: Nagoya Congress Center, Nagoya, JAPAN
- Dates: 15 - 17 November 2006
- International session: 16 November 2006 (whole day)
- http://www.use-jp.org/

Welcome From the General Chair

We cordially invite you to participate in the English Session of the 27th Symposium on Ultrasonic Electronics in Nagoya, Japan, on 15 - 17 November 2006.

The Symposium on Ultrasonic Electronics (USE) is the most important meeting on ultrasonic technology in Japan. Since the first symposium in 1980, innovations in ultrasound have been presented covering all the research fields of ultrasonics from basic theories to industrial applications.

Since USE 2004, the meeting has featured an international day where papers from all over the world are presented in English. The International sessions this year are scheduled for 16 November 2006. In addition, at USE 2006 all poster sessions on the three meeting days will be presented in English. Over 150 papers and 300 participants are expected at USE 2006, including an invited talk by the IEEE UFFC Society Distinguished Lecturer, Andreas Bauch.

This year the Symposium is being held at Nagoya Congress Center in Nagoya, one of the main cities of Japan. A new international airport Centrair is located within the vicinity of Nagoya.

I eagerly await your participation in this year's symposium.

Prof. Yoshiaki Watanebe
Organizing Committee Chair

VIII International Conference for Young Researchers Wave Electronics and Its Applications in Information and Telecommunication Systems 4-9 September 2005 St. Petersburg, Russia

2004 WECONF

The Wave Electronics and its Application in the Information and Telecommunication Systems for young researchers and specialists is held annually in St. Petersburg, Russia. This is the eighth such conference. Our IEEE UFFC Society is one of the seven contributors to offset costs for young researchers to attend. This year there were 60 young researchers and approximately 40 additional attendees and support workers. The young researchers were from throughout Europe with a concentration from universities in the Moscow and St. Petersburg area. The papers were given in English.

The conference started at the St. Petersburg State University for Aerospace Instrumentation for the opening session and then moved to shipboard cruising the lakes and rivers of the Russian North. The oral and poster sessions occurred on shipboard. The cruise ship visited Valaam archipelago in the Northern Part of Ladoga Lake, the greatest lake of Europe with its ancient monasteries and chapels amidst thickly wooded forests. Another stop was Mandroga on the River Svir, where a Russian village was recreated. The village possesses some fine structures built according to the ancient Russian tradition of wooden architecture. There was an afternoon barbeque held there.

Conference Opening

The conference was opened Saturday morning the fourth by Sergei Kulakov, a professor at the university and the conference organizer. In the opening remarks Professor Kulakov paid tribute to Ivan Anisimkin, a young researcher at the IRE in Moscow who was killed in a terrorist bombing and condolences to the American people on the devastation wrought by hurricane Katrina.

Ivan Anisimkin

The opening plenary session talks were followed by lunch and a tour. The tour of Saint Petersburg, the cultural capital of Russia, was to religious centers in the city. Besides the beautiful and ornate Russian orthodox churches, there were visits to a large Jewish Synagogue (second in size in Europe) and a Buddhist Temple. There were presentations and a question and answer period with the Rabbi at the synagogue and the Worship Leader at the Buddhist Temple. As usual, there were round the clock weekend weddings at the Russian cathedrals with the brides in beautiful white dresses, men in formal attire, and long black limousines. Then the bridal party was out to the park on the river banks of the River Neva for photographs around the statue of Peter the Great.

Thresa and Fred Hickernell at the Young Researchers Conference Opening Session in St. Petersburg

Conference cruise ship

The ship departed that evening and sailing overnight arrived at the Valaam Archipelago. An English speaking guide accompanied the "foreigners" up the hill to the monastery whose main sanctuary had just been finished with beautiful frescoes. The sanctuary had been opened to the public and dedicated by the Patriarch of the Russian Orthodox Church just the past month. It was a rich experience, especially the beautiful chants sung by the male quartet.

Thresa, my wife, visited with workers on their lunch hour. They were naturally curious and asked lots of questions. Thresa was given a bracelet with 10 prayer knots and a promise of prayer for her each day of his life by one of the workers. She was also given a bouquet of daisies, freshly picked from the monastery grounds.

Monastery on Valaam Archipelago

Fred Hickernell at the poster session on shipboard

The ship returned to St. Petersburg the morning of the ninth of September. This was a unique opportunity for the young researchers to experience a conference afloat and absorb the rich cultural heritage of Russia. There were ample opportunities for the students to share their work, meet students from different geographical areas, and interact with senior researchers. The interactions took place while living, eating, and hiking together. There were parallel sessions on the ship in the major areas of acoustooptics, acoustoelectronics, information systems, and wave processes. The poster sessions were especially interactive between the student presenters, other students and senior researchers.

Past, Present and Future

The heritage of the Russian culture with its magnificent architecture speaks of the past. The friendliness and care shown us by the people of Russia is simply overwhelming and speaks of the present. The excitement and enthusiasm of the young researchers is a most heartwarming experience and speaks of the future. May we of the scientific and engineering community continue to support and encourage our young scientists the world over.

Fred Hickernell

International Conference on "Problems of Modern Wave Electronics" 23-25 September, 2005 Zvenigorod, Russia

Yuri Gulyaev Honored

Zvenigorod is an ancient 14th century town about forty-five kilometers to the west of Moscow. The Russian Academy of Sciences (RAS) has a lovely modern retreat and conference center near Zvenigorod in a forested area. The leaves were crimson and the fresh air and quietness of the place made it perfect for a conference which was organized by the Institute of Radioengineering and Electronics (IRE RAS) to honor Yuri Gulyaev on his 70th birthday. His leadership of the IRE since 1988 through turbulent times of change in Russia, has been outstanding. This was the culmination of a week of celebration for Yuri by scientists, engineers, and dignitaries in Moscow. The conference of distinguished scientists from the IRE and abroad was over a two day period with lectures and historical field trips.

The conference started on a Saturday the 24th of September with an all-day session of presentations. Leading foreign and IRE scientists presented recent and historical works. As an invited representative of the IEEE Ultrasonics, Ferroelectrics, and Frequency Control (UFFC) Society, I presented Academician Gulyaev with a bright red 50th

Fred Hickernell presenting an IEEE UFFC 50th Anniversary shirt to Yuri Gulyaev on the occasion of his 70th birthday celebration in Zvenigorod, Russia.

UFFC Anniversary shirt. This was preceded by the reading of a greetings prepared by our UFFC President, Gerry Blessing. In the afternoon Yuri Gulyaev gave a special lecture on areas of his research over the past 40 years. The

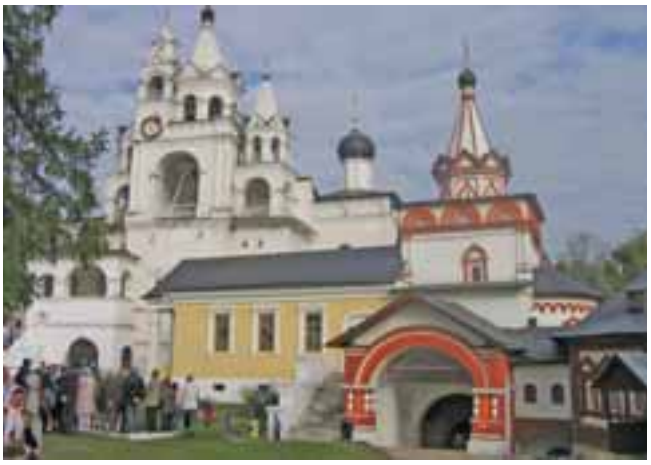
Gulyaev name is associated with the shear horizontal surface acoustic wave which he published at the same time as Bleustein. It became known as the Gulyaev-Bleustein, GB or BG wave. A lesser known paper published in 1964, predicted the amplification of surface acoustic waves with a system of a thin semiconductor in proximity to a semi-infinite piezoelectric, years in advance of its experimental verification. Yuri has received many awards and recognitions for his work in Russia, the European community, and the rest of the world.

Zveningorod

Zvenigorod has several Russian cathedrals and a large monastery overlooking the Moscow River. Trips were taken to two Russian cathedrals. The first, "Church of the Saviour" or "Saviour Cathedral," was built between 1396 and 1399 and contained fragments of frescoes of Andrei Rublev, the famous Russian artist. It was Sunday and the small sanctuary was filled to capacity. The second visit was to the Savvin-Storozhevsky monastery, the suburban residence of Tzar Alexi, the father of Peter the Great. The weather was beautiful and the domed cathedrals and bell towers glistened in the sun of this monastery started in 1398 and added to over the years.

Saviour Cathedral built in 1396-1399

It is always special to visit Moscow and its environs with its impressive architecture, its domed churches and its long cultural history. I am reminded by my Russian friends that



Savvin-Storozhevsky Monastery started in 1398

long before Columbus discovered America there were artisans, cathedrals, and culture already in place in Russia. But all of this is dwarfed by the spirit of the Russian people, their kindness and generosity. It is being with them that was the

Terrorist bombing monument near IRE building in Moscow. The second name on the list is that of Ivan Anisimkin.

real blessing. We had the opportunity to laugh with them and cry with them.

There is a small monument near the main IRE building in Moscow dedicated to five people on the site where they were killed in a terrorist suicide bombing on December 9, 2003. One of those killed was Ivan Anisimkin, a 27 year old promising young scientist of the IRE on his way to the lab. Academician Gulyaev was instrumental in having the monument placed there. It was a reminder that among grand architecture and culture, we are still dealing in this world with people who commit such acts to bring attention to their cause. It is not the way the world should be, and though we do not understand it, we need in our own way to understand, support, and love others.

Fred S. Hickernell

2005 International Conference on Precision Oscillations in Electronics and Optics (POEO): Theory and Applications September 15-17 Yalta, Crimea, Ukraine

Joint Conference

This year, the meeting was held on the coast of the Black Sea in Yalta, Crimea, Ukraine jointly with the 2nd International Conference on Advanced Optoelectronics and Lasers (CAOL) and 7th International Conference on Laser and Fiber-optical Networks Modeling (LFNM). All presentations were published in the Proceedings of the POEO and LFNM. The most interesting topics were selected for the special issue of the Proceedings of SPIE. During the conference, the attendees had an opportunity to take part in excursions to a number of historical sites in Crimea. In particular, Yalta has attracted many visitors to the Livadia Palace, in which Roosevelt, Stalin, and Churchill had a conference in 1945.

Participants of CAOL, LFNM, and POEO

The event was organized jointly by the IEEE LEOS Ukraine Chapter, Kharkiv National University of Radio Electronics of Ukraine, University of Guanajuato of Mexico, LCEP and LPMO of France, NIST of USA, National Academy of Sciences of Ukraine, and University of Missouri, St. Louis, of USA.

The Conference was chaired by Academician Yaroslav Yatskiv and Prof. Yuriy Shmaliy. Members of the Program Committee were Prof. Roger Bourquin (France), Prof. Remi Brendel (France), Prof. Bernard Dulmet (France), Dr. Charles Greenhall (USA), Prof. Peter Handel (USA), Dr. John Kosinski (USA), Prof. Venceslav Kroupa (Czech Republic), Prof. Stanislav Nedorezov (Ukraine), Dr. Thomas Parker (USA), Prof. Leonard Reindl (Germany), Prof. Yakov Shifrin (Ukraine), Prof. Volodymyr Shokalo (Ukraine), Prof. Dmitry Tsarapkin (Russia), Dr. John Vig (USA), and Dr. Krzysztof Weiss (Poland).

Leo Reindl talks about wireless SAW sensing

Purpose

The purpose of the event was to discuss new theoretical problems associated with vibrations and oscillations, signal generation, and statistical methods in time and frequency. The Calls for Papers were placed on the WEB-Site of the IEEE UFFC Frequency Control community. Based on the submissions, the conference was organized into four sections.

Plenary Session

Opening Ceremony

The plenary session was chaired by Yuriy Shmaliy. Here, Bernard Dulmet discussed design of frequency-output resonant piezoelectric sensors. Leo Reindl observed the unwired SAW sensors systems. Remi Brendel presented low noise parametric quartz crystal oscillators.

Bernard Dulmet at the plenary session

Theory and design of Crystal Oscillators

Remi Brendel chairs a session

Nicolas Ratier presents new results

The first section "Theory and design of Crystal Oscillators" was chaired by Remi Brendel. The most interesting presentations covered a symbolic-numerical method for high-Q crystal oscillators in the frequency domain (N. Ratier, et al.), principles of dual-mode crystal oscillators design (A. Kosykh), and probabilistic explanation of sleeping sickness in crystal oscillators (Shmaliy, et al.).

Resonators Theory

Problems on the "Resonators Theory" were discussed in the second section that was chaired by Bernard Dulmet. The newest results were reported on frequency shifts in LFE

Remi Brendel, Yuriy Shmaliy, Anatoly Kosykh, and Bernard Dulmet (from left to right)

piezoelectric resonators of thickness-shear vibrations caused by changes in the electrode edge potential (O. Shmaliy, et al.), new concept of design of resonators for dual-mode excitation (Kosykh, et al.), and whispering gallery modes in axisymmetric dielectric bodies (M. Gorodetsky, et al.).

Oscillators, Vibrations, and Techniques

The third section "Oscillators, Vibrations, and Techniques" was chaired by Leo Reindl. The principle problems were in the fields of general characteristics of coupled-mode equations (V. Poznar, et al.), bifurcation intramolecular dynamics (V. Morozov, et al.), optical rigidity in signal-recycling configurations of laser gravitational-wave detectors (V. Lazebny, et al.), and diffractional losses in corner reflectors (S. Tarabrin).

Statistical problems, modeling and simulation

After a Session

The "Statistical problems, modeling and simulation" were discussed at the fourth session that was chaired by Oleksandr Savchuk. The topics were on the error estimation in passive SAW sensing with differential phase measurement (Yu. Shmaliy), sampling-reconstruction procedure of Gaussian processes with the dependent jitter (V. Kasakov, et al.), frequency characteristics of a semiconductor laser with optical fiber ring cavity (V. Shanoylo, et al.), focusing properties of mushroom microlenses (A. Boriskin, et al.), and spectroscopic multiple-vibrational-modeling of Raman gain.

Application of Precision Oscillators, Units and Devices

The fifth section "Application of Precision Oscillators" was united with the sixth session on "Precision Units and Devices." The joint session was chaired by Anatoly Kosykh and Nikolas Ratier. The most interesting topics were on distributed timescales for Galileo (J. Furthner, et al.) and GPS-based measurements and estimation of the TIE of a crystal clock using an unbiased FIR filtering algorithm (O. Ibarra-Manzano, et al.).

Traditional Banquet

Yuriy Shmaliy and Vladimir Kazakov are still discussing the problem

Other topics were discussed at the Poster session and around the tables at the traditional banquet.

The Crimea

View of Yalta from the meeting hotel

Bernard Dulmet's daughter posing in aristocratic clothes for pictures on the coast of Yalta

In addition, I would like to mention that, like two years ago, the sea was also warm, the weather in Crimea was nice, and the mountain surroundings were very comfortable.

Prof. Yuriy Shmaliy
Co-Chair

History

This Day in History

2 March 1824
Gustav Robert Kirchhoff was born in Koenigsberg, Prussia (now Kaliningrad, Russia). A key contributor to electrical science, he formulated a set of eponymous laws on how electric circuits behave. He died on 17 October 1887 in Berlin, Germany.

14 March 1692
Petrus Van Musschenbroek was born in Leyden, the Netherlands. He invented the Leyden jar (it was invented almost simultaneously by Ewald Georg von Kleist in Germany, but von Kleist never published—hence the invention's name), a capacitor that allowed early electrical scientists to collect electrical charge. Van Musschenbroek died in his native city on 19 September 1761.

16 March 1859
Aleksandr Stepanovich Popov (sometimes transliterated

Alexander Popoff) was born on 16 March (4 March o.s.) 1859 in Turinskje Rudniki, Russia. A pioneer of wireless telegraphy, he is credited in Russia as the inventor of radio, although in most places Marconi is given priority. In the Soviet Union, 7 May was celebrated as Popov Day, commemorating the date of his first transmission in 1896. He died on 13 January 1906 (31 December 1905 o.s.) in St. Petersburg.

21 March 1768
Jean Baptiste Joseph Fourier was born in Auxerre, France. The mathematical operation invented by Fourier, and known today as the Fourier transform, became vital in many areas of science and engineering, including communication theory. He died in Paris, France on 16 May 1830.

22 March 1895
Auguste and Louis Lumière made the first public demonstration of their cinématographe (or motion picture projector).

24 March 1870
Kotaro Honda was born in Aichi Prefecture, Japan. A metallurgist, he did pioneering studies of the magnetic properties of steels. He died in Tokyo, Japan on 12 February 1954.

27 March 1845
Wilhelm Conrad Röntgen, discoverer of x-rays, was born in Lennep in the Lower Rhine Province of Germany. For his feat he was awarded the first Nobel Prize in Physics. He died in Munich, Germany on 10 February 1923.

29 March 1853
Elihu Thompson was born in Philadelphia, Pennsylvania, USA. A pioneer of electrical engineering, inventor, and entrepreneur who founded General Electric, he served as the fifth president of the AIEE (1889-1890). He died on 13 May 1937 in Swampscott, Massachusetts, USA.

30 March 1857
Léon Charles Thévénin was born. Originally a telegraph engineer, he contributed greatly to early electrical circuit theory, including his eponymous theorem. He died on 21 September 1926.

3 April 1973
Inventor Martin Cooper placed the first portable handheld phone call in New York City, New York, U.S.A. Cooper was, at that time, a project manager at Motorola and leader of the corporation's cellular research.

4 April 1823
Carl Wilhelm Siemens (brother of Werner von Siemens) was born in Lenthe, near Hanover, Germany. A contributor to telegraphy and director of an electrical manufacturing company, he is also considered a pioneering mechanical engineer because of his work on his regenerative open-hearth furnace, which became a major competitor to the established Bessemer furnace in the production of steel. He died on 19 November 1883 in London, England, where he had become a naturalized British citizen.

10 April 1989
Intel introduced the "486" microprocessor chip. This powerful microprocessor contained 1.2 million transistors and was widely used in personal computers, until it was eclipsed by the Pentium in the mid-1990s

12 April 1950
Morgan Sparks and Gordon Teal tested the first n-p-n junction transistor on this day, and William Shockley arranged for a demonstration within Bell Labs on 20 April. While not the first transistor, the junction type was easier to manufacture than the earlier point-contact transistors.

14 April 1898
Harold S. Black, an AIEE and IRE fellow, was born in Leominster, Massachusetts, USA. The electrical engineer who invented the negative feedback amplifier, he famously sketched his invention on his copy of the 2 August 1927 New York Times while taking the ferry from New Jersey to his office at Bell Labs in New York City. He died on 11 December 1983 in New York City, New York, U.S.A.

21 April 1774
Jean-Baptiste Biot was born in Paris. A mathematician and physicist who studied the Earth's magnetic field, together with Félix Savart he formulated a law concerning the magnetic field around a current-carrying conductor. He died on 3 February 1862 in his native city.

22 April 1592
Wilhelm Schickhard was born in Herrenberg, Germany. Designer of an early mechanical adding machine, he died on 24 October 1635 in Tübingen.

27 April 1791
Samuel Finley Breese Morse was born in Charlestown, Massachusetts, USA. An important American artist, he was also an inventor, developer and promoter of the electrical telegraph. He died on 2 April 1872 in New York, New York, USA.

28 April 1854
Hertha Ayrton (born Phoebe Sarah Marks) was born in Portsea, England. A pioneering woman scientist, she researched electric arcs and ripple effects. Among her many accomplishments, on 25 May 1899 she became the first woman elected to the IEEE's sister organization in the UK, the Institution of Electrical Engineers (IEE). She died on 26 August 1923 in New Cottage, England.

8 May 1893
Alexander Graham Bell and his 13-year-old prodigy, Helen Keller, broke ground on the new Volta Bureau Building in Washington, District of Columbia, U.S.A. Bell's invention of the telephone had won him France's prestigious Volta

Prize. The Bureau continues to be an international information center for the deaf and hard of hearing.

11 May 1686
Otto von Guericke, pioneering electrical scientist who invented an electrostatic generator and discovered electroluminescence, died in Hamburg, Germany at the age of 83. He was born in Magdeburg, Germany on 20 November 1602.

13 May 1884
The AIEE, one of the predecessor societies of the IEEE, held its inaugural meeting.

18 May 1850
Oliver Heaviside, one of the greatest theoreticians in the history of electrical science, was born in London, England. He died in Torquay, England on 3 February 1925.

21 May 1860
Willem Einthoven, the developer of electrocardiography, was born in Semarang, Dutch East Indies (now Indonesia). A winner of the Nobel Prize in Physiology for this work, he died in Leiden, the Netherlands on 29 September 1927.

24 May 1544
William Gilbert, one of the pioneers of electrical science and an expert on magnets, was born in Colchester, England. He died 10 December 1603 in London, England.

31 May 1875
Thomas Edison's electric pen was first mentioned in the prolific inventor's notebooks on 31 May 1875. This innovation was later incorporated into the mimeograph, and the tattoo pen is also based on its principle.

1 June 1890
On this date, some 45,000 census enumerators began collecting the census schedules from the 13 million households in the United States. The processing of the information relied on Herman Hollerith's punched-card machines.

4 June 1991
Sony introduced the Data Discman, a handheld computer that allowed users to search digital dictionaries and encyclopedias stored on three-inch compact discs. The compact machine was about nine centimeters long, weighed about 600 grams, and had a flip screen and miniature keyboard. The Data Discman was a commercial success in Japan, but failed to catch on in the United States.

6 June 1933
A number of electrical technologies—including electrical film projection, sound synchronization, telephony, and the electric automobile starter—came together on this day when Richard M. Hollingshead, Jr., opened the first drive-in movie in Camden, New Jersey, U.S.A.

13 June 1831
175 years ago, James Clerk Maxwell was born in Edinburgh, Scotland. Maxwell's famous equations unified the field of electrical science, and the application of Maxwell's theory is at the heart of some of the most exciting new technologies, including lasers, fiber-optics, and induction motors. He died on 5 November 1879 in Cambridge, England.

18 June 1964
The first transpacific telephone cable opened, running from Oahu to Japan and linking to several existing cables to the United States and Canada. The 8480-kilometer (5,300-mile) cable could carry 138 voice channels and cost $80 million.

19 June 1623
Blaise Pascal, the famous mathematician and philosopher, was born in Clermont, France. Among his other accomplishments, he invented a calculating machine known as the "Pascaline," today regarded as a milestone of computer history. He died on 19 August 1662 in Paris, France.

Around IEEE

IEEE-USA Leadership Workshop
Saint Louis, MO
March 3-5, 2006

Annual Leadership Workshop

The annual IEEE-USA Leadership Workshop was held this year at historic Union Station in St Louis, Missouri. I was pleased be able to attend this weekend workshop as the representative of the IEEE-UFFC society.

The specific theme of this workshop was "Why is the World Getting Flatter?", a question popularized by New York Times columnist Thomas Friedman's 2004 book, "The World is Flat: A Brief History of the Twenty-first Century." This focus on the evolution of global markets was reflected in sessions on career development, government relations, education, and the IEEE member's role in society.

Keynote Speech

The keynote speech, Round, Flat, or Spiky: The World Turns on an Axis, was delivered by Joseph Bordogna, the Alfred

View of the St. Louis Gateway Arch located within the Jefferson National Expansion Memorial park.

Joe Bordogna

Fitler Moore Professor of Engineering at the University of Pennsylvania in Philadelphia, former president of the IEEE (1998), and the longest serving Deputy Director in the history of the National Science Foundation (1996-2005). In his speech, he conveyed a sense of the challenges and exciting opportunities for our societies in the 21st century as "the borders between discovery, learning, and innovation are blurring." A transcript of the speech is available on the web, at http://www.ieeeusa.org/calendar/conferences/2006workshop/Presentations/Bordogna-keynote.pdf.

IEEE USA

IEEE-USA is an organizational unit of the Institute of Electrical and Electronics Engineers, Inc. created in 1973 to support both career and public policy interests of IEEE's U.S. members. The organization recommends policies and implements programs in professional areas of economic, ethical, legislative, social and technology policy concern. Specific sessions at the workshop addressed recent position statements formulated in areas of U.S. Competitiveness and Innovation, Retirement Security, H1-B / L-1 Visas, and Inventor's Rights.

Sessions of Interest

Interesting sessions were also organized to discuss ideas related to entrepreneurship and the growth of membership in the IEEE-USA Alliance of Consultants Networks, future generations of engineers and K-12 math/science education, opportunities for patent reform, and recent U.S. Supreme

IEEE-USA president, Ralph W. Wyndrum, Jr., introduced IEEE president-elect candidates Lewis M. Terman and John R. Vig at the reception dinner.

Current IEEE-USA president-elect John Meredith introduced IEEE-USA president-elect candidates Joseph V. Lillie and Russell J. Leferve over lunch on the second day of the workshop.

Court rulings on intellectual property.

The workshop was attended by a diverse cross-section of representatives from the many Sections, Chapters, Regions, Divisions, and volunteer PACE (Professional Activities Committees for Engineers) organizations within the IEEE.

The workshop provided a useful forum to gain a better understanding of IEEE and IEEE-USA missions and goals, along with information on the IEEE-USA's current legislative priorities. For additional information, including slides, written transcripts and audio Podcasts from many of the presentations please visit the IEEE-USA conference website (http://www.ieeeusa.org/calendar/conferences/2006workshop/program.asp), and look for PACE organized activities at future UFFC symposia and within your regional IEEE organizations.

Kirk Wallace
UFFC PACE Representative

[Editor's Note: Kirk Wallace is the newly appointed UFFC representative to IEEE USA's PACE.]

New Division Structure

The 39 Technical Societies and 5 Technical Councils that constitute the Technical Activities of IEEE have traditionally been divided somewhat arbitrarily into 10 Divisions. Each Division should contain roughly an equal number of members. Each Division is represented by a Director on the IEEE Board of Directors. The members of each division elect their Division Director.

Over time, these Divisions have become skewed with respect to the number of members in each one due to varying Society growth and the addition of new societies and councils. In June of 2005, the Technical Activities Board approved some changes to the placement of the Societies and Technical Councils into Divisions in order to realign the number of members in each Division.

This resulted in UFFC being moved from Division IX to Division II. At one time the names associated with each Division had some resemblance to the fields of interest of the Societies in that Division. This is no longer true for most Divisions, although some Divisions have chosen to keep their name.

The following is the 2006 Division listing of all IEEE Societies and Technical Councils. These placements will be used during the 2006 IEEE Annual Election for selection of the candidates and election of directors for 2007 Division Directors-Elect. Note that, as approved by TAB in 2005,

Divisions are identified by Roman numeral and have the option of including a name.

Division I
Circuits and Systems Society
Council on Electronic Design Automation
Electron Devices Society
Nanotechnology Council
Solid-State Circuits Society

Division II
Components, Packaging, and Manufacturing Technology Society
Dielectrics and Electrical Insulation Society
Industry Applications Society
Instrumentation and Measurement Society
Power Electronics Society
Ultrasonics, Ferroelectrics, and Frequency Control Society

Division III – Communications Technology
Communications Society

Division IV – Electromagnetics and Radiation
Antennas and Propagation Society
Broadcast Technology Society
Consumer Electronics Society
Electromagnetic Compatibility Society
Magnetics Society
Microwave Theory and Techniques Society
Nuclear and Plasma Sciences Society
Superconductivity Council

Division V – Computer
Computer Society

Division VI
Education Society
Engineering Management Society
Industrial Electronics Society
Product Safety Engineering Society
Professional Communication Society
Reliability Society
Society on Social Implications of Technology

Division VII – Energy and Power Engineering
Power Engineering Society

Division VIII - Computer
Computer Society

Division IX – Signals and Applications
Aerospace and Electronic Systems Society
Geoscience and Remote Sensing Society
Information Theory Society
Intelligent Transportation Systems Society
Oceanic Engineering Society
Signal Processing Society
Vehicular Technology Society

Division X
Computational Intelligence Society
Control Systems Society
Engineering in Medicine and Biology Society
Lasers and Electro-Optics Society
Robotics and Automation Society
Sensors Council
Systems, Man, and Cybernetics Society
Systems Council

Editor's Comments

Jan Brown

In This Issue

In this issue we welcome our new President, Art Ballato, and President-Elect, Susan Trolier-McKinstry. Gerry Blessing, who has ably served the UFFC Society for the past two years, will remain on the AdCom as the Jr. Past President. We thank Gerry for his continuing service to our society. He will be chairing the Constitution and Bylaw review committee. If any of you are interested please go to the UFFC website, www.ieee-uffc.org, peruse the documents, and let Gerry know of changes or your ideas for the future at g.blessing@ieee.org.

IEEE Senior Membership

While I am encouraging action, if you have not applied for Senior membership and you are qualified please refer to the end of the HONORS section of this Newsletter to find the qualifications and procedures for nominating yourself or others for Senior Membership. You cannot become an IEEE Fellow without first becoming a Senior Member. Self nomination for Senior membership is allowed and encouraged.

Photo Contributions

If you do not see yourself in the photos in this issue, you do have the opportunity to be seen in future issues. Photos are a way to get to know each other in the UFFC community. Your photo contributions to the Newsletter are always welcome. It is helpful if the photos are sent as separate .jpg or .tif files. The quality in print is degraded if we have to extract the photo file from a word document.

Newsletter Copies

Many of you have expressed an interest in receiving extra copies of the UFFC Newsletter. You may request extra copies by contacting Loretta Oleksak, UFFC Publications Assistant, at loleksak@imsysinc.com.

Thank You

Thank all of you who sent articles and photos for this issue of the newsletter. The photos capture what words cannot and provide a way for us to see each other. Thanks to the photographers and photo contributors of this issue: Oliver Keitmann-Curdes, Emanuel Gottlieb, David Morgan, Ken-ya Hashimoto, Mike Garvey, Jan Tuin, Vinal Enn, Sea Trail Resort, Miami Hyatt, Tom Szabo, Reinhard Lerch, Fred Hickernell, Roger Tancrell, John Vig, Yuriy Shmaliy, Eric Burt, Kirk Wallace, Jon-Paul Maria, Debra Coler, Art Ballato, Susan Trolier-McKinstry, Ton van der Steen, Herman van de Vaart, Mami Matsukawa, Jennifer Ruglovsky, Stuart Foster, Frank De Lucia, Leslie Russel, Joseph Rose, John Larson, Seshu Desu, Bob Potter, Ji Wang, and Jan Brown. Extra thanks to Mike Garvey for supplying the photos of the Frequency Control Symposium and Technical Program Committee meeting and to Debra Coler for supplying the captions for the 239 photos she sent me. We extend special appreciation to Paul Doto at IEEE Headquarters for the design and production work.

Please continue to send me information and photos as events occur so that we may post them on the web and include them in the next newsletter.

Jan Brown
UFFC-S Newsletter Editor
Jan.brown@ieee.org

Future UFFC Symposia

IEEE International Ultrasonics Symposia

2006 IEEE Ultrasonics Symposium
General Chair: Stuart Foster
s.foster@ieee.org
Vancouver, Canada
3 – 6 October 2006

2007 IEEE Ultrasonics Symposium
General Chair: John Kosinski
j.a.kosinski@ieee.org
New York City, New York, USA
28 – 31 October 2007

2008 IEEE Ultrasonics Symposium
General Chair: Jian-yu Lu
Jilu@eng.utoledo.edu
Bejing, China
1 – 5 November 2008

2009 IEEE Ultrasonics Symposium
The Ultrasonics Committee is accepting ideas and proposals. You may submit proposals to Jacqueline Hines, UFFC Vice President for Ultrasonics, jhines@asrdcorp.com

2006 IEEE Frequency Control Symposium
General Chair: Michael Driscoll
Michael.driscoll@ngc.com
Miami, Florida USA
4 - 7 June 2006

IEEE International Frequency Control Symposia

2007 IEEE Frequency Control Ssymposium
2007 will be the joint conference with EFTF
Co-General Chair: Bernardo Jaduszliwer
Jaduszliwer@aero.org
Geneva International Conference Center
Geneva, Switzerland
29 May – 1 June

2008 IEEE Frequency Control Ssymposium
General Chair: Bernardo Jaduszliwer
Jaduszliwer@aero.org
Location: TBD

IEEE International Symposia on Applications for Ferroelectrics

2006 IEEE ISAF
General Chair: Jon-Paul Maria
Jpmaria@ncsu.edu
Sunset Beach, North Carolina, USA
30 July – 2 August 2006
http://www.mse.ncsu.edu/isaf2006/index.html

2007 IEEE ISAF
General Chair: Tadashi Shiosaki
shiosaki@ms.naist.jp
Nara City, JAPAN
27 – 30 May 2007
http://fma.naist.jp/isaf2007

2008 IEEE ISAF
Co-Chairs: Paul Clem and Bruce Tuttle
pgclem@sandia.gov
Sante Fe, New Mexico, USA
23 – 27 February 2008

1st circular

The 16th International Symposium on the Application of Ferroelectrics (ISAF2007)

Nara-ken New Public Hall, Nara city, Japan
May 27-30, 2007

We are pleased to inform that The 16th International Symposium on the Application of Ferroelectrics (XVI ISAF 2007) will be held at Nara-ken New Public Hall, Nara city, Japan, May 27- 30, 2007. The meeting is sponsored by the Ultrasonics, Ferroelectrics and Control Society (UFFC-S) of the IEEE. Topic areas will focus on the physics, processing, and applications of ferroelectric materials. The format of the conference will follow previous meeting, with plenary and oral presentations, parallel sessions, and poster presentations. The conference format will be arranged such the participants will be able to enjoy the technical sessions and the sightseeing.

Nara-ken New Public Hall

Nara city is belonging to Nara prefecture and located in the 30 km-east of Osaka. It takes almost 1.5h from Kansai Airport by train or by bus and 45min from Kyoto Station by train. Nara (Nara city and Nara prefecture) occupies an important position in the history of Japan, it is said that the first state was located in Nara. Nara is also a home of various World Heritage sites such as Todaiji Temple, Horyuji Temple, and others including numerous Buddhist art and architecture classified as National Treasures and Important Cultural Asset.

Todaiji Temple (World Heritage)
(within walking distance from Nara-ken New Public Hall)

General Chair, ISAF2007
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http://fma.naist.jp/isaf2007

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