



R. Michael Garvey

Welcome to Montréal!

One of my favorite cities, Montréal provides a fitting venue for our 50th Anniversary Conference. Montréal is not quite 500 years old, 10 times the age of UFFC. With its culture, restaurants and entertainment around us, I hope that you will find some time to get to know Montréal.

This Conference joins, for the first time, the three brother entities that make up the UFFC. We have the opportunity to learn from each other the problems, the solutions and the challenges facing us.

We have an excellent technical program with nine parallel oral sessions and three poster sessions; you can attend those that interest you. On the social side, we have a Conference Lunch, a Welcoming Reception and a Banquet. There is an interesting Guest Program as well.

I hope that you enjoy the meeting and find it a rewarding experience.

R. Michael Garvey
General Chair

Registration Desk for the Conference

The registration desk is located in De Bleury Hall. Hours for the Registration Desk are:

Sunday, Aug. 22	6 p.m. to 9 p.m.
Monday, Aug. 23	7 a.m. to 7 p.m.
Tuesday, Aug. 24	7 a.m. to 6 p.m.
Wednesday, Aug. 25	7 a.m. to 5:30 p.m.
Thursday, Aug. 26	7 a.m. to 5:30 p.m.
Friday, Aug. 27	7 a.m. to 1:00 p.m.

Registration and Fees (\$USD)

Advance	After July 23¹	
\$425	\$525	IEEE Member
\$525	\$625	Non-Member
\$75	\$75	Students
\$75	\$75	Retirees
\$300	\$300	One Day (Without Proceedings)

¹On-site registration fees may be paid in US dollars or in Canadian dollars at the prevailing exchange rate.

Refund Policy

There will be a \$25.00 USD service charge to process refunds for those who have pre-registered but who are unable, for whatever reason, to attend the Conference. A letter requesting the refund should state the registrant's name and to whom the refund check should be made payable. No refunds will be given for requests received after August 18, 2004. FAX the letter to 2004 IEEE UFFC Anniversary Conference at 217/398-4119.

IEEE and UFFC-S Enrollment

If you wish to join the IEEE when registering for the Conference, you may register at the member rate and receive one year of free membership in the Ultrasonics, Ferroelectrics and Frequency Control Society (UFFC-S). This offer applies only to on-site registration and is applicable only to memberships above the Student Member level.

IEEE/UFFC-S enrollment forms will be available at the IEEE exhibit booth.

Messages

A bulletin board for posting messages will be located in the registration area. Telephone: 514/871-5825

Proceedings of the Conference

The Conference Proceedings (CD format) will be available November, 2004. A copy will be mailed to qualified registrants.

Printed paper versions of the Conference Proceedings are available at additional cost (see Conference Registration Form).

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

Speaker's Breakfast

A Speaker's Breakfast is available to authors of oral presentations. The primary purpose of this event is to allow authors to load their presentations on the Conference computers.

This event is not open to authors of poster presentations.

UFFC CD Archive

The UFFC Digital Archive that you have been enjoying at <http://www.ieee-uffc.org> is now available in a CD ROM version for the price of \$60 USD. The Archive CDs are available to UFFC members only. Please see the Registration Form for ordering information.

Conference Support

The Conference Organizing Committee gratefully acknowledges the support of the following organizations.

Agilent Technologies
Frequency Electronics
Jet Propulsion Laboratory
National Institute of Standards and Technology
Northrop Grumman Electronic Systems
Quartzdyne
Symmetricom
Timing Solutions
Statek

Student Breakfast

All students attending the Conference are invited to attend a complimentary breakfast on Thursday August 26 from 6:30 am to 8:00 am in Room 710B. This is an opportunity for students to network with other students and with the Administrative Committee members of the UFFC Society. Look forward to seeing you at breakfast.

Gerry Blessing
President UFFC Society

Guest Program

We encourage guests of conference attendees to register. The registration fee of \$35 US permits you to attend our continental breakfast each morning (Tuesday through Friday) as well as the Welcoming Reception Tuesday evening. The breakfast will provide an opportunity to meet fellow guests and coordinate daily excursions and activities.

Guests should register with their accompanying Conference attendees on the Conference Registration Form.

Three guest tours, individually priced, have also been arranged, see below.

The guest breakfast will be from 8:00 a.m.-10:00 a.m. in the Delta Centre-Ville Hotel. The specific location will be listed in the hotel lobby. The Hotel will also be the departing and return points for the guest tours.

PLEASE NOTE: THE GUEST BREAKFAST IS FOR REGISTERED GUESTS ONLY—NOT FOR CONFERENCE ATTENDEES.

GUEST TOURS

(All departing from the Delta Centre-Ville Hotel)

Tour A

Tuesday, August 24, 2004

CITY TOUR AND RIVER CRUISE

[\$45 US]

Tour does not include lunch

9:00 a.m. to 5:00 p.m.

This is a complete bus tour of the City, including a stop at the Notre Dame Basilica, St. Joseph's Oratory (photo stop), residential and financial districts, Old Montreal (photo stop), French Quarter, outside view of Olympic Site (photo stop), McGill University and a panoramic view from an observation point on top of Mt. Royal. This tour will conclude in Old Montreal where participants can get lunch at any of the many small restaurants and cafes. After lunch, we will cruise a delightful two hours on the St. Lawrence River aboard the Cavalier Maxim from whose deck you will get a fabulous view of historical and modern sights of Montreal. The bus will return us to the Delta Centre-Ville Hotel.

Tour B**Wednesday, August 25, 2004****BOTANICAL GARDENS and CHATEAU DUFRESNE**

[\$50 US]

Tour includes lunch

9:30 a.m. to 4:00 p.m.

NOTE: This tour involve extensive walking and use of Montreal's Metro system. Participants should wear comfortable shoes. In case of heavy rain, there will be a tour of the Garden's comprehensive greenhouses. Founded in 1931 by Frere Marie-Victorin, the renowned 180 acre site contains more than 21,000 varieties of plants in 30 gardens, 10 exhibition greenhouses, and a large arboretum. The World Federation of Rose Gardens chose the 10,000 plant Rose Garden as the Best Rose Garden of 2003. The Chinese Friendship Garden is in Ming Dynasty style featuring a miniature tree (penjing) collection, waterfall, ornamental pond and several pavilions. The Japanese garden and pavilion is in traditional style, with koi ponds, streams, bridges, a Zen garden, bonsai courtyard and tea garden. A buffet lunch will be served in the Fuji Pavilion. After lunch we will walk across the street to the Chateau Dufresne. This Gothic-inspired mansion designed by Parisian architect, Jules Renard, is based on the Petit Trianon in Versailles, France, and was constructed from 1915 to 1918. It was decorated with a series of beautiful murals and ceiling paintings by artist Guido Nincheri in the 1920's. Many original furnishings are included. At the conclusion of the tour, we will return to the Delta Centre-Ville Hotel by Metro.

Tour C**Thursday, August 26, 2004****MCCORD MUSEUM EXHIBITS**

[\$45 US]

Tour includes lunch

9:30 a.m. - 3:00 p.m.

NOTE: This tour involves extensive walking and use of Montreal's Metro system. Participants should wear comfortable shoes.

The McCord Museum was founded in 1921 by David Ross McCord as a place to house his extensive collection of historically significant objects from throughout Canada. Today the Museum is a public research and teaching museum dedicated to the preservation, study, diffusion and appreciation of Canadian history.

We will be given a guided tour of two exhibits: "Simply Montreal", a presentation on the rich and varied experience offered by the city; and "Dyed in the Wool", the history of the Scots in the metropolis and the country; that involves more than bagpipes, kilts and whisky. The tour will be followed by a film: "Montreal, An Island in Time". A multi-course lunch will be served in a fine French restaurant next door. After lunch participants will be free to return to the museum to explore "Turning the Tables", the world of the table, including lovely settings, decorations, etiquette, rituals and the enjoyment of good company. At the conclusion of the tour, we will return to the Delta Centre-Ville Hotel by Metro.

Exhibits

The Exhibits will be in Room 220A. Companies will display their products, and representatives will be there to meet Conference attendees. The exhibitors will be in place on the following dates and times:

Tues-Thurs: 10 am to noon & 2 pm to 6 pm Friday: 9 am to noon

Registered exhibitors as of June 2004 include:

Advanced Modular Sputtering	Poseiden Scientific Instruments
Agilent Technologies	Precise Time and Frequency
CCI/USA Inc.	Saunders & Assoc.
EFG International	Sensor Technology Ltd
Ferroperm Piezoceramics	Smart Material Corp
Fotofab	Sound Technology, Inc
Frequency Electronics	Spectra Dynamics, Inc.
Fujitsu	Staveley Sensors, Inc
IEEE-UFFC Society	Symmetricom, Inc
Imasonic	Timing Solutions Corp
Kolinker Industrial Equipment	TRS Technologies
Legacy Technologies Inc.	Twist Semiconductor
Locus, Inc	Unitek Benchmark
LongFang CEC	Valpey Fisher Corp
NoFech Electronics Ltd	VC America
Panametrics-NDT	VNIISIMS
Polaris Electronics Corp	W.L. Gore & Assoc.

Ultrasonics Short Courses August 23, 2004, Locations to be announced

8:15-10:15	U1A: Fundamentals of Ultrasonic Waves Part A <i>Martins Viens</i>	U2A: Medical Ultrasound Transducers Part A <i>L. Scott Smith & Douglas G. Wildes</i>	U3A: Micromachined Ultrasonic Transducers and Actuators Part A <i>Amit Lal</i>
10:15-10:30	Break	Break	Break
10:30-12:30	U1B: Fundamentals of Ultrasonic Waves Part B <i>David Cheeke</i>	U2B: Medical Ultrasound Transducers Part B <i>Douglas G. Wildes & L. Scott Smith</i>	U3B: Micromachined Ultrasonic Transducers and Actuators Part B <i>Richard M. White</i>
12:30-1:30	Lunch - 710A	Lunch - 710A	Lunch - 710A
1:30-3:30	U4A: Finite Element Modeling of Electromechanical Transducers Part A <i>Reinhard Lerch</i>	U5A: Elasticity Imaging Part A <i>Stanislav Emelianov</i>	U6: Ultrasonic Characterization of Properties, Microstructure, and Processing of Metals <i>Andre Moreau</i>
3:30-3:45	Break	Break	Break

3:45-5:45	U4B: Finite Element Modeling of Electromechanical Transducers Part B <i>Manfred Kaltenbacher</i>	U5B: Elasticity Imaging Part B <i>Stanislav Emelianov</i>	U7: Ultrasonic Piezoelectric Transducers and Probes for High Temperature Applications <i>Cheng-Kuei Jen</i>
6:15-7:15	U8: Silence is Golden <i>Fred Hickernell</i>		

Ferroelectrics Short Courses August 23, 2004, Locations to be announced

8:15-10:15	FE1: Fundamentals of Ferroelectric Materials, <i>Susan Trolier-McKinstry</i>
10:15-10:30	Break
10:30-12:30	FE2: Overview of Ferroelectric Thin Film Devices and Materials, <i>Bruce A. Tuttle</i>
12:30-1:30	Lunch - 710A
1:30-3:30	FE3: Structure-Property Relationships for Dielectric Materials, <i>David A. Payne</i>
3:30-3:45	Break
3:45-5:45	FE4: Atomistic Computer Simulations of Ferroelectric and Related Materials, <i>Alastair Cormacki</i>

Frequency Control Short Courses August 23, 2004, Locations to be announced

8:15-10:15	FC1A: Phase Noise I <i>Enrico Rubiola</i>	FC2: Introduction to Quartz Frequency Standards <i>John Vig</i>	FC3: Time and Frequency Transfer <i>Tom Parker</i>
10:15-10:30	Break	Break	Break
10:30-12:30	FC1B: Phase Noise II <i>Craig Nelson</i>	FC4: Passive Atomic Frequency Standards <i>Len Cutler</i>	FC5: Resonant Piezo-devices as Physical and Biochemical Sensors <i>Fabien Josse/ Richard Cernosek</i>
12:30-1:30	Lunch - 710A	Lunch - 710A	Lunch - 710A
1:30-3:30	FC1C: Phase Noise III <i>Enrico Rubiola</i>	FC6: MEMS for Frequency and Timing References <i>Clark T.-C. Nguyen</i>	FC7: SAW Identification Marks and Sensors <i>Clemens Ruppel</i>
3:30-3:45	Break	Break	Break
3:45-5:45	FC8: Optical Measurement & Synthesis <i>Jun Ye</i>	FC9: The Role of Time and Frequency in GPS <i>Joe White</i>	FC10: Digital Measurement of Precision Oscillators <i>S. R. Stein</i>

Message from the Technical Chairs

The brothers have come home.....

A welcome from the technical chairs

The IEEE UFFC has a common administrative committee and a journal. Even so the conferences for Ultrasonics, Ferroelectrics and Frequency Control have been separate for quite a while. These three brothers have many things in common and it was time for a reunion. It has been an interesting experience to guide this family reunion on the occasion of the 50th anniversary of the UFFC society. This year at the joint conference you will find much that is familiar, and many aspects that are the result of fruitful cross-fertilization between our communities.

The Joint Technical Program Committee has boiled down 1126 abstracts into 3 plenary sessions, 99 oral sessions and 3 huge poster sessions. The plenary sessions will contain presentations of broad interest from each community. The rest of the program will allow you to get the latest update in your own field, but also to get acquainted with what the others in our society are doing and, even more interesting, to find out the perspective that the other participants have on your field. We trust that if you are interested in Ultrasonics, Ferroelectrics or Frequency Control you will find this to be an exciting and important conference.

Enjoy,



Walter Shulze

Christopher Ekstrom

General Chair

R. Michael Garvey
Symmetricom, Beverly, MA , USA
rmgarvey@ieee.org

Technical Program Chairs

Ultrasonics
Ton van der Steen
Erasmus University,
Rotterdam, The Netherlands
a.vandersteen@erasmusmc.nl

Ferroelectrics

Steve Pilgrim and Walter Schulze
Alfred University, Alfred NY, USA
pilgrim@alfred.edu and
schulze@alfred.edu

Frequency Control

Christopher Ekstrom
U.S. Naval Observatory, Washington, DC, USA
ekstrom@atom.usno.navy.mil

Short Course/Tutorial Chairs

Ultrasonics

David Cheeke
Microbridge Technologies, Montreal, Canada
dcheeke@mbridgetech.com

Ferroelectrics

Walter Schulze
Alfred University, Alfred NY, USA
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Frequency Control

John D. Prestage
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Publicity Chair

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Marj Yuhas

Industrial Measurement Systems Inc, Aurora, IL USA

myuhas@imsysinc.com

Awards Chair

Reinhard Lerch

Friedrich-Alexander-Universitat, Erlangen, Germany

reinhard.lerch@lse.e-technik.uni-erlangen.de

Exhibit Chair

Jack Kusters

jkusters@ieee.org

Local Arrangements

David Cheeke

Microbridge Technologies, Montreal, Canada

dcheeke@mbridgetech.com

Future UFFC-S Symposia

Ultrasonics 2005

General Chair: Ton van der Steen
a.vandersteen@erasmusmc.nl
Rotterdam, The Netherlands
September 18-21, 2005

Ultrasonics 2006

General Chair: Stuart Foster
s.foster@ieee.org
Vancouver, Canada

Ultrasonics 2007

General Chair: John Kosinski
j.a.kosinski@ieee.org
New York, NY, USA

Ultrasonics 2008

General Chair: Jian-Yu Lu
jilu@eng.utoledo.edu
Beijing, China

Ferroelectrics 2006

General Chair: Jon-Paul Maria
jpmaria@ncsu.edu
North Carolina, USA
July 30-August 2, 2006

Frequency Control 2005

General Chair: Michael Driscoll
michael.driscoll@ngc.com
Vancouver, Canada
August 28-31, 2005

Frequency Control 2006

General Chair: Michael Driscoll
michael.driscoll@ngc.com
Miami, FL USA
June 4-7, 2006

Opening Session

Room 210
8:30 am-10:00 am
24 August, 2004

Welcome

R. Michael Garvey, Conference General Chair
Ton van der Steen, Ultrasonics TPC Chair
Walter Schulze, Ferroelectrics TPC Chair
Chris Ekstrom, Frequency Control TPC Chair

UFFC Awards and Recognitions

Achievement Award
Distinguished Service Award
Distinguished Lecturer Award
Fellows Awards
Best Paper Award from UFFC Proceedings

Recognition of Past Presidents, UFFC

Tuesday Morning Coffee Break

Room 220A
10:00 am - 10:30 am

Ultrasonics Plenary

Room 210
10:30 am to 12:00 noon

Ultrasonics Award

Rayleigh Award

From Hearing to Seeing

The Ultrasound Stethoscope and History of Echocardiography

Nicolaas Bom
Thoraxcenter Erasmus Medical Center
Rotterdam, The Netherlands

The speaker will present an evolutionary history of the development of ultrasound technology for cardiac visual imaging and diagnosis. For a full abstract of this talk, please see the Conference Abstract Book

Conference Lunch

Room 710A
12:00 noon to 1:30 pm

Tuesday Afternoon Technical Session I

1:30 pm to 3:00 pm

Tuesday Afternoon Coffee Break

Room 220A

3:00 pm to 3:30 pm

Tuesday Afternoon Technical Session II

3:30 pm to 5:00 pm

Tuesday Poster Session

Room 220B

5:00 pm to 6:30 pm

Welcoming Reception

Room 220A

6:30 pm - 8:00 pm

Wednesday, August 25, 2004

Plenary (Frequency Control)

Room 210

8:30 am - 10:00 am

Awards and Recognition

Rabi Award

Sawyer Award

In Memoriam: Robert Smythe

Unwinding a Biological Clock

Gene Block

University of Virginia

Charlottesville, VA USA

From primitive algae to man, organisms have acquired the ability to synchronize critical physiological and behavioral processes to important external periodicities. For a full abstract of this talk, please see the Conference Abstract Book.

Wednesday Morning Coffee Break

Room 220A

10:00 am - 10:30 am

Wednesday Morning Technical Sessions

10:30 am - 12:00

Lunch - On Your Own

12:00 noon - 1:30 pm

Wednesday Afternoon Technical Sessions

1:30 pm - 3:00 pm

Wednesday Afternoon Coffee Break

Room 220A

3:00 pm - 3:30 pm

Wednesday Poster Session

Room 220B

3:00 pm - 6:30 pm

Banquet

Room 710

6:30 pm - 10:00 pm

Thursday, August 26, 2004

Plenary (Ferroelectrics)

Room 210

8:30 am - 10:00 am

Awards

Ferroelectrics Recognition Awards

Fifty Years of Ferroelectrics

Robert Newnham

Pennsylvania State University University Park, PA, USA

The speaker will present an historical perspective of the use of ferroelectric materials for non-volatile memories, electro-optic and acousto-optic modulators, holographic data storage and other applications. For a full abstract of this talk, please see the Conference Abstract Book.

Thursday Morning Coffee Break

Room 220A

10:00 am - 10:30 am

Thursday Morning Technical Sessions

10:30 am - 12:00 noon

Lunch - On Your Own

12:00 noon - 1:30 pm

Thursday Afternoon Technical Sessions I

1:30 pm - 3:00 pm

Thursday Afternoon Coffee Break

Room 220A

3:00 pm - 3:30 pm

Thursday Afternoon Technical Session II

3:30 pm - 5:00 pm

Thursday Poster Session

5:00 pm - 6:30 pm

Friday, August 27, 2004

Friday Morning Technical Session I

8:30 am - 10:00 am

Friday Morning Coffee Break

Room 220A

10:00 am - 10:30 am

Friday Morning Technical Session II

10:30 am - 12:00 noon

Lunch - On Your Own

12:00 noon - 1:30 pm

Friday Afternoon Technical Session I

1:30 pm - 3:00 pm

Friday Afternoon Coffee Break

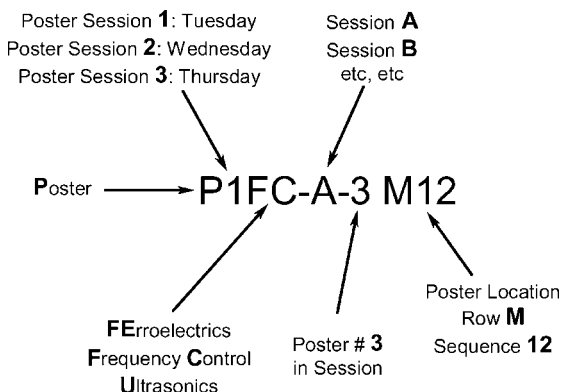
3:00 pm - 3:30 pm

Room 220B

Friday Afternoon Technical Session II

3:30 pm - 5:00 pm

GUIDE TO POSTER CODES



1:30 p.m – 3:00 p.m.

ULTRASONICS, Tuesday, August 24, 2004

Montreal

	<i>Session U1-A</i> CONTRAST AGENTS - PERFUSION Chair: F. Forsberg Thomas Jefferson University	<i>Session U2-A</i> TISSUE ELASTICITY I Chair: S. Emelianov University of Texas	<i>Session U3-A</i> NDE NON-CONTACT MEASUREMENT TECHNIQUES Chair: R. Addison Rockwell Scientific Company	<i>Session U4-A</i> OPTICAL INTERACTIONS Chair: D. Hecht DLH Laboratories	<i>Session U5-A</i> SAW DEVICE MODELING Chair: V. Plessky GVR Trade SA	
	510AC	510BD	511AB	513AB	512C-H	
1:30 p.m.	U1-A-1 Ultrasound-Induced Coalescence of Contrast Agent Micro-bubbles. M. Postema ^{*1,2} , C. T. Lancée ¹ , N. de Jong ^{1,3} , P. Marmottant ³ , and S. Hilgenfeldt ³ , ¹ Dept. of Experimental Echocardiography, Thorax-centre, Erasmus MC, ² Interuniversity Cardiology Institute of The Netherlands, ³ Physics of Fluids, Dept. of Applied Physics, Faculty of Science and Technology, University of Twente	U2-A-1 Transient Radiation Force Elastography: Modeling of the Shear Wave Propagation in Heterogeneous Tissue by a Pseudospectral Method. S. Callé, M. Elkateb, and J.-P. Remenieras*, GIP Ultrasons / LUSSI - FRE 2448 CNRS	U3-A-1 (Invited) Laser-Ultrasonics: From Birth to the Present Day. J. P. Monchalin*, Industrial Materials Institute, Québec, Canada	U4-A-1 Acousto-Optic Properties of Photonic Crystal Fibers. M. W. Haakestad and H. E. Engan*, Norwegian University of Science and Technology	U5-A-1 Prediction of the P-Matrix Parameters Dispersion using Periodic FEM/BEM Analysis. Th. Pastureaud*, TEMEX	
1:45 p.m.	U1-A-2 Perfusion Estimation Using Subharmonic Contrast Microbubble Signals. F. Forsberg ^{*1} , J. B. Liu ¹ , W. T. Shi ^{1,2} , R. Ro ¹ , K. M. James ¹ , X. Deng ¹ , and A. L. Hall ² , ¹ Department of Radiology, Thomas Jefferson University, ² GE Medical Systems	U2-A-2 3D Ultrasound-Based Dynamic Elastography : First in vitro Results. J. Bercoff ^{*1} , R. Sinkus ² , M. Tanter ¹ , and M. Fink ¹ , ¹ Laboratoire Ondes et Acoustique, ² Philips Research Lab		U4-A-2 FDTD Analysis of Wavelength-Selective Switching in Weighted Acoustooptic Switches for WDM Photonic Routers. N. Goto ^{*1} and Y. Miyazaki ² , ¹ Toyohashi University of Technology, ² Aichi University of Technology	U5-A-2 Modified P-Matrix Model and It's Implementation for Design of SAW Resonator Filters. A. N. Rusakov*, RF Monolithics Inc.	

*Author presenting paper.

2:00 p.m.	U1-A-3 Assessment of Transient Myocardial Perfusion Defects in Intact Mice using a Microbubble Contrast Destruction / Refill Approach. J. A. Hossack*, Y. Li, and B. A. French, University of Virginia	U2-A-3 Optimizing Multicompression Approaches to Strain Imaging. H. Du* ¹ , J. Liu ¹ , C. Pellot-Barakat ^{1,2} , and M. F. Insana ¹ , ¹ University of California, Davis, ² INSERM	U3-A-2 Inline Measurements of Texture and Recrystallization on Aluminum Alloys. A. Moreau* ¹ , C. Bescond ¹ , S. Bolognini ¹ , M. Lord ¹ , S. E. Kruger ¹ , and C.-S. Man ² , ¹ Industrial Materials Institute, ² University of Kentucky	U4-A-3 New Architecture of Tunable Acoustooptical Add/Drop Multiplexer for Dynamic DWDM with 25 GHz ITU Grid. A. Tsarev* and E. Kolosovsky, Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia	U5-A-3 Wavelets Constructed from Spectral Domain Asymptotic Tails of Green's Functions. A. Baghai-Wadji* ¹ and G. G. Walter ² , ¹ Vienna University of Technology, ² University of Wisconsin-Milwaukee
2:15 p.m.	U1-A-4 Identification of Ultrasound-Contrast-Agent Dilution Systems for Cardiac Quantification. M. Mischi* ¹ , T. A. C. M. Kalker ¹ , and E. H. M. Korsten ^{1,2} , ¹ Technical University Eindhoven, ² Catharina Hospital Eindhoven	U2-A-4 Automated Thermal Coagulation Segmentation of Three-Dimensional Elastographic Imaging using a Coarse-to-Fine Active Contour Model. W. Liu*, J. Zagzebski, T. Varghese, C. Dyer, and U. Techavipoo, University of Wisconsin - Madison	U3-A-3 A Novel Technique for Enhancing the Signal to Noise Ratio of Laser-Based Ultrasonic Systems. O. Balogun*, N. Pratt, and T. W. Murray, Boston University	U4-A-4 High Frequency Ultrasound Detection using Fabry-Perot Optical Etalon. S. Ashkenazi* and M. O'Donnell, University of Michigan	U5-A-4 Quasi-Static Transduction in Mechanically-Reflective Gratings, with Application to STW Transducers. D. P. Morgan*, Impulse Consulting
2:30 p.m.	U1-A-5 Quantitative Laser Doppler Anemometry Measurements of the Shear-Stresses Exerted on Ultrasonic Microbubbles Attached to Surfaces Under Physiological Flow Conditions. M. B. Butler* ¹ , C. M. Moran ¹ , C. Cunningham ² , J. Ross ² , W. Easson ² , and W. N. McDicken ¹ , ¹ Medical Physics, ² Tissue Injury and Repair Group, ³ Mechanical Engineering	U2-A-5 Estimation of Displacement Vectors and Strain Tensors in Elastography using Multiple Angular Insonifications. U. Techavipoo*, Q. Chen, T. Varghese, and J. A. Zagzebski, The University of Wisconsin-Madison	U3-A-4 Optical Measurement of Transient Ultrasonic Shock Waves. C. Barrière, G. Montaldo, X. Jacob*, D. Royer, and M. Fink, Laboratoire Ondes et Acoustique, Université Paris 7-UMR CNRS 7587-ESPCI	U4-A-5 Characteristics of Acoustooptic Devices for Generating Symmetric Diffracted Scanning Beams. D. L. Hecht*, DLH Laboratories	U5-A-5 Fast Calculation of Gradients and Difference Vectors of IDT's P Matrix. G. Martin*, Institute for Solid State and Materials Research Dresden
2:45 p.m.	U1-A-6 Physicochemical Properties of the Microbubble Lipid Shell. M. A. Borden* and K. W. Ferrara, University of California, Davis	U2-A-6 Adaptable Coded Excitation for Elasticity Imaging. J. Liu* and M. F. Insana, University of California, Davis	U3-A-5 Withdrawn	U4-A-6 The Formation of Two-Beam Technological Laser with Use of the High Efficiency Acoustooptic Modulator. S. Antonov ¹ , V. Proklov* ¹ , Y. Rezvov ² , L. Chesnokov ¹ , and V. Chesnokov ¹ , ¹ Institute of Radio Engineering and Electronics RAS, ² Novomoskovskii Institute of Russian Chemistry and Technology University	U5-A-6 On the Polynomial Approximation of the Dispersive COM-Parameters. B. V. Sveshnikov* ¹ , V. I. Cherednick ¹ , and K. K. Bhattacharjee ² , ¹ Nizhny Novgorod State University, ² Clarisay Inc.

1:30 p.m – 3:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Tuesday, August 24, 2004

Montreal

		<i>Session FE1-A THIN FILM I</i> Chair: S. McKinstry The Pennsylvania State University		<i>Session FC1-A HISTORICAL OVERVIEWS</i> Chair: F. Hickernell The University of Arizona		<i>Session FC2-A THIN FILM RESONATORS (FBAR)</i> Chair: A. Kong Northrop Grumman Corporation	
		513CD		511CF		511DE	
20	1:30 p.m.	FE1-A-1 Using the Cantilever Contact Resonance in Voltage-Modulated Force Microscopy to Study the Electromechanical Properties of Thin Films. C. Hamagea ^{*1} , A. Pignolet ¹ , M. Alexe ² , and D. Hesse ² , ¹ Institut National de la Recherche Scientifique - Energie, Matériaux et Télécommunications, ² Max Planck Institute for Microstructure Physics			FC1-A-1 (Invited) Disruptive Technologies and Dead Ends: Time and Frequency Standards in the 1930s. C. E. Stephens [*] , Smithsonian Institution	FC2-A-1 Materials Property Dependence of the Effective Electromechanical Coupling Coefficient of Thin Film Bulk Acoustic Wave Resonators. Q. Chen [*] , F. Li, and Q.-M. Wang, University of Pittsburgh	
	1:45 p.m.	FE1-A-2 Simulation and Measurements of the Piezoelectric Properties Response (d_{33}) of Piezoelectric Layered Thin Film Structures Influenced by the Top-Electrode Size. K. Prume ^{*1} , P. Gerber ² , C. Kügeler ² , A. Roelofs ² , U. Böttger ² , R. Waser ² , T. Schmitz ¹ , and S. Tiedke ¹ , ¹ aixACCT Systems GmbH, ² Institute of Materials in Electrical Engineering and Information Technology 2 (IWE2)				FC2-A-2 Fabrication and Testing of AlN FBARs with a Silicon Electrode. L. A. Callaghan ^{*1} , M. V. Requa ¹ , V. Lughì ² , N. C. MacDonald ^{1,2} , K. L. Turner ¹ , and D. R. Clarke ^{1,2} , ¹ Mechanical & Environmental Engineering Department, University of California - Santa Barbara, ² Materials Department, University of California - Santa Barbara	

2:00 p.m.	FE1-A-3 Application of PZT Films to Large-Stroke, Continuous Membrane Deformable Mirrors. J.-G. Cheng ^{*1} , S. Trolier-Mckinstry ¹ , Y. Hishinuma ² , and E.-H. Yang ² , ¹ Materials Research Institute and Materials Science and Engineering Department, Penn State University, ² Jet Propulsion Laboratory			FC1-A-2 (Invited) Building an Industry from Scratch: The Quartz Crystal Oscillator Industry of World War II. R. Thompson [*] , McMurry University	FC2-A-3 Electrically Tunable and Switchable Film Bulk Acoustic Resonator. W. Pang ^{*1} , H. Zhang ¹ , H. Yu ¹ , and E. S. Kim ² , ¹ University of Southern California, ² University of Southern California	
2:15 p.m.	FE1-A-4 Epitaxial Thick Film Heterostructures of Pb(Mg₁₀Nb₂₀)O₃-PbTiO₃ Relaxor Ferroelectric Films on Silicon for High Performance Electromechanical Systems. D. M. Kim ^{*1} , C. B. Eom ¹ , J. Ouyang ² , V. Nagarajan ² , R. Ramesh ² , V. Vaithyanathan ⁴ , D. G. Schlom ⁴ , W. Tian ² , and X. Q. Pan ² , ¹ University of Wisconsin, ² University of Maryland, ³ University of California, ⁴ The Pennsylvania State University, ⁵ University of Michigan				FC2-A-4 A MEMS-Based Quartz Resonator Technology for GHz Applications. F. Stratton [*] , D. Chang, D. Kirby, R. Joyce, T.-Y. Hsu, and R. Kubena, HRL Laboratories, LLC	
2:30 p.m.	FE1-A-5 (Invited) Structure and Ferroelectric Properties of Sputtered PMNT Thin Films. K. Wasa ^{*1} , I. Kanno ² , T. Suzuki ² , S. H. Seo ³ , D. Y. Noh ³ , H. Okino ⁴ , and T. Yamamoto ⁴ , ¹ Yokohama City University, ² Kyoto University, ³ Kwanju Institute of Science and Technology, ⁴ National Defence Academy			FC1-A-3 (Invited) Historical Highlights in Ultrasonics - 2. K. Graff [*] , Edison Welding Institute		
2:45 p.m.						

3:30 p.m – 5:00 p.m.

ULTRASONICS, Tuesday, August 24, 2004

Montreal

	<i>Session U1-B</i> DIRECTIONS IN ULTRASOUND IMAGING Chair: T. van der Steen Erasmus University	<i>Session U2-B</i> THERAPY: ADVANCED APPLICATIONS Chair: C. Cain University of Michigan	<i>Session U3-B</i> NOVEL TRANSDUCER APPLICATIONS Chair: Y. Takeuchi Kagoshima University	<i>Session U4-B</i> BULK WAVE MATERIALS AND EFFECTS Chair: E. Adler McGill University	<i>Session U5-B</i> FROM SAW TO THIN FILMS Chair: W. Hunt Georgia Tech	
	510AC	510BD	511AB	513AB	512C-H	
3:30 p.m.	U1-B-1 (Invited) My 50 Years of Medical Imaging with Ultrasound. J. Reid*, Drexel University	U2-B-1 Finite Element Analysis of Temperature Rise from an Integrated 3D Intracardiac Echo and Ultrasound Ablation Transducer. K. L. Gentry*, M. L. Palmieri, N. Sachedina, and S. W. Smith, Duke University Department of Biomedical Engineering	U3-B-1 Prototype Dual Frequency Bilaminar Array Transducer Capable of Therapeutic Exposure at 500 kHz and Doppler Monitoring at 2 MHz. T. Azuma ^{*1} , S. Umemura ¹ , M. Ogihara ² , J. Kubota ² , T. Kobayashi ² , M. Izumi ² , A. Sasaki ² , M. Nakano ² , J. Shimizu ² , T. Abe ⁴ , and H. Furuhashi ³ , ¹ Central Research Laboratory, Hitachi Ltd., ² Hitachi Medical Corporation, ³ ME Lab. Jikei Univ. School of Med., ⁴ Dept. of Neurosurgery Jikei Univ. School of Med	U4-B-1 Growth of AlN Film on Mo/SiO₂/Si(111) for 5GHz-Band FBAR using MOCVD. C.-M. Yang*, U. Kensei, Y. Aota, S.-K. Kim, S. Kameda, H. Nakase, Y. Isota, and K. Tsubouchi, Research Institute of Electrical Communication, Tohoku University	U5-B-1 Study of Layered SAW Devices Operating at Different Modes for Gas Sensing Applications. K. Kalantar-zadeh ^{*1,2} , D. A. Powell ^{1,2} , S. Ippolitto ^{1,2} , and W. Wlodarski ^{1,2} , ¹ MIT University, ² CRC for Microtechnology	
3:45 p.m.		U2-B-2 Feasibility of Noninvasive Trans-esophageal Cardiac Thermal Ablation using an Ultrasound Phased Array. X. Yin* and K. Hynynen, Focused Ultrasound Laboratory, Department of Radiology, Brigham and Women's Hospital	U3-B-2 Design of a Multi-Layer Transducer for Acoustic Bladder Volume Assessment. E. J. W. Merks ^{*1,3} , N. Bom ¹ , A. Bouakaz ^{1,2} , N. de Jong ^{1,2} , and A. F. W. van der Steen ^{1,2} , ¹ ErasmusMC, ² CIN, ³ Diagnostic Ultrasound Europe	U4-B-2 Re-Growth of C-Axis Oriented AlN Thin Films: Microstructure and Piezoelectric Properties. F. Martin ¹ , P. Muralt ^{*1} , M. Cantoni ¹ , and M.-A. Dubois ² , ¹ Ceramics Laboratory, Swiss Federal Institute of Technology EPFL, ² RF Microelectronics, CSEM	U5-B-2 High Coupling and High Velocity Surface Acoustic Waves Using a Three-layer structure ZnO/AlN/diamond. M. El Hakiki ^{1,3} , O. Elmazria ^{*1,3} , M. B. Assouar ^{1,3} , V. Mortet ² , A. Talbi ^{1,3} , and F. Sarry ^{1,3} , ¹ LPMIA UMR 7040 Université H. Poincaré - Nancy I, ² IMO Limburgs Universitair Centrum, ³ Laboratoire Européen de Recherche Universitaire: Saarland -lorraine (LERUSL)	

4:00 p.m.	U1-B-2 Portable, Low-Cost Medical Ultrasound Device Prototype. M. Fuller ^{*1} , K. Ranganathan ¹ , S. Zhou ¹ , T. Blalock ² , J. Hossack ¹ , and W. Walker ^{1,2} , ¹ Dept. of Biomedical Engineering, University of Virginia, ² Dept. of Electrical and Computer Engineering, University of Virginia	U2-B-3 Generation of a Pseudo Point Source by Nonlinear Beam-Mixing in the Presence of Ultrasound Contrast Agent. J. Seo [*] , J. J. Choi, T. L. Hall, J. B. Brian, M. O'Donnell, and C. A. Cain, University of Michigan	U3-B-3 Real-Time 3D Color Flow Doppler for Guidance of Vibrating Interventional Devices. M. P. Fronheiser ^{*1} , P. D. Wolf ¹ , S. F. Idriss ² , R. C. Nelson ³ , and S. W. Smith ¹ , ¹ Department of Biomedical Engineering, Duke University, ² Department of Pediatrics, Duke University Medical Center, ³ Department of Radiology, Duke University Medical Center	U4-B-3 PZT Material Properties at UHF and Microwave Frequencies Derived from FBAR Resonator Measurements. J. D. Larson III ^{*1} , S. R. Gilbert ¹ , and B. Xu ² , ¹ Agilent Laboratories, ² Palo Alto Research Center (PARC)	U5-B-3 (Invited) Two Bits of History: Thermoelastic Wave Generation and SAW Transduction. R. M. White [*] , University of California at Berkeley
4:15 p.m.	U1-B-3 Real Time 3D Imaging of the Brain. N. M. Ivancevich ^{*1} , K. K. Chu ¹ , E. D. Light ¹ , S. F. Idriss ² , P. D. Wolf ¹ , and S. W. Smith ¹ , ¹ Department of Biomedical Engineering, Duke University, ² Department of Pediatrics, Duke University Medical Center	U2-B-4 A HIFU System using Annular and Strip-Electrode Arrays with a Digital Diagnostic Array System. R. Muratore [*] , F. Lizzi, P. Lee, S. Ramachandran, and A. Kalisz, Riverside Research Institute	U3-B-4 Finite Element Modeling of Ultrasonic Separation at the Microscale. M. K. Araz ^{*1} , C.-H. Lee ² , and A. Lal ¹ , ¹ SonicMEMS Laboratory, ² Veeco Probes	U4-B-4 Frequency Sensitive Reflection, Refraction, and Transmission of Bulk and Shear Waves in Functionally Graded Materials (FGM). J. Vollmann [*] , D. M. Profunser, and J. Dual, ETH Zurich	
4:30 p.m.	U1-B-4 3D Contrast Harmonic Echocardiography. M. M. Voormolen ^{*1,2} , A. Bouakaz ^{1,2} , B. J. Krenning ¹ , C. T. Lancée ¹ , W. B. Vlieter ¹ , F. J. ten Cate ¹ , and N. de Jong ^{1,2} , ¹ Thoraxcenter, Erasmus MC, ² CIN, Interuniversity Cardiology Institute of the Netherlands	U2-B-5 A Novel Multi-Focus Acoustic Lens Transducer System for Ultrasound Thermal Therapy. X. Wu ^{*1} , A. Worthington ¹ , M. Jewett ² , and M. Sherar ^{1,3} , ¹ Dept of Medical Biophysics, ² Dept of Surgery and UroOncology, ³ Dept of Radiation Oncology	U3-B-5 Two-Dimensional Ultrasound Detection with an Optical Multilayer Hydrophone using Serial and Parallel Data Acquisition. C. Koch [*] and M. Klann, Physikalisch-Technische Bundesanstalt	U4-B-5 (Invited) Acoustoelectronics: New Ideas for a New Era. Y. V. Gulyaev ^{*1} and F. S. Hickernell ² , ¹ Institute of Radioengineering and Electronics RAS, ² The University of Arizona	U5-B-4 Diamond-Based SAW Oscillator at 1GHz. U. Prechtel ¹ , V. Ziegler ¹ , S. Kolodzik ¹ , B. Plehn ² , H. Downar ³ , J. Haering ³ , R. Kunze ⁴ , G. Martin ⁴ , H. Schmidt ⁴ , and M. Weihnacht ^{*4} , ¹ EADS Corporate Research Center, ² EADS Deutschland GmbH, ³ Domier GmbH, ⁴ Leibniz Institute for Solid State and Materials Research Dresden
4:45 p.m.	U1-B-5 Increasing Frame-Rate in Ultrasound Imaging by Temporal Morphing using Tissue Doppler. S. Brekke [*] , C. B. Ingul, S. A. Aase, and H. Torp, Dept. of Circulation and Medical Imaging, Norwegian University of Science and Technology	U2-B-6 Non-Invasive Measurement of <i>In Situ</i> Thermal Diffusivity and Local Heat Source using Backscattered Ultrasound for Thermal Therapy Planning and Monitoring. A. Anand [*] and P. J. Kaczowski, University of Washington	U3-B-6 Piezoelectric Transducer Surface Vibration Characterization using Acoustic holography and Laser Vibrometry. O. A. Sapozhnikov ^{*1} , A. V. Morozov ¹ , and D. Cathignol ² , ¹ Faculty of Physics, Moscow State University, ² Unité 556, INSERM	U5-B-5 Fabrication of 5-GHz-Band SAW Filter with Atomically-Flat-Surface AlN on Sapphire. K. Uehara ^{*1} , C.-M. Yang ¹ , T. Shibata ² , S.-K. Kim ¹ , S. Kameda ¹ , H. Nakase ¹ , Y. Isota ¹ , and K. Tsubouchi ¹ , ¹ Research Institute of Electrical Communication, Tohoku University, ² NGK Insulators, Ltd.	

3:30 p.m – 5:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Tuesday, August 24, 2004

Montreal

		Session FE1-B TUNABLE AND RF MATERIALS Chair: M. Lanagan The Pennsylvania State University		Session FC1-B SINGLE CRYSTAL PIEZOELECTRIC MATERIALS Chair: V. Klipov Sawyer Research Products		Session FC2-B COLD ATOM CLOCKS Chair: A. Bauch PTB	
		513CD		511CF		511DE	
24	3:30 p.m.	FE1-B-1 Low-Loss Capacitor Realization and Its Modeling with Cubic Pyrochlore Bismuth Zinc Niobate (BZN) Thin Film. J. Park ^{*1} , J. Lu ² , R. York ¹ , and S. Stemmer ² , ¹ University of California, Santa Barbara, ² University of California, Santa Barbara		FC1-B-1 (Invited) History of the Industrial Production and Technical Development of Single Crystal Cultured Quartz. G. R. Johnson [*] , Sawyer Research Products, Inc.		FC2-B-1 Recent Improvements in NIST-F1 and Resulting Accuracies of < 7x10⁻¹⁶. T. P. Heavner [*] , S. R. Jefferts, E. A. Donley, J. H. Shirley, and T. E. Parker, NIST Time and Frequency Division	
	3:45 p.m.	FE1-B-2 Co-Fired BST Thick Films on Alumina Substrates for rf/Microwave Phase Shifter Applications. M. Kunduraci [*] , K. Akdogan, and A. Safari, Rutgers, The State University of New Jersey				FC2-B-2 Development of Compact Cold Atom Frequency Standards: From Microwave to CPT Interrogations. S. Trémine, T. Zanon, S. Guérandel, E. de Clercq, D. Holleville, A. Clairon, and N. Dimarcq [*] , BNM-SYRTE, CNRS UMR8630	

4:00 p.m.	FE1-B-3 A Highly Tunable Radio Frequency (RF) Filter using Dense Bulk Ferroelectric Materials. M. K. Roy ^{*1} and R. R. Neurgaonkar ² , ¹ Rockwell Collins, ² Rockwell Scientific Company			FC1-B-2 Distribution of Al and OH Impurities in Synthetic Quartz Crown from Cylindrical Seeds. P. L. Guzzo ¹ , A. H. Shinohara ^{*1} , C.V.D. Cabral ¹ , A. E. S. Santos ¹ , A. A. Raslan ² , and T. Kagami ³ , ¹ Federal University of Pernambuco, Department of Mechanical Engineering, ² Federal University of Uberlandia, Faculty of Mechanical Engineering, ³ Nihon Dempa Kogyo Co., Ltd.	FC2-B-3 The Cesium Physics Package Design for the PARCS Project. E. Burt ^{*1} , W. M. Klipstein ¹ , and S. R. Jefferts ² , ¹ Jet Propulsion Laboratory, California Institute of Technology, ² National Institute for Standards and Technology	
4:15 p.m.	FE1-B-4 Design, Fabrication and Characterization of Tunable PZT Film Bulk Acoustic Resonators. C. Zinck ^{*1} , G. Caruyer ² , A. Volatier ² , E. Defaÿ ¹ , D. Pellissier-Tanon ² , L. Figuière ³ , and M. Aid ¹ , ¹ CEA-DRT - LETI/DTS - CEA/GRE, ² STMicroelectronics, CCMC Crolles, ³ STMicroelectronics			FC1-B-3 Phase Transitions in Langasite Family Crystals. B. V. Mill ^{*1} , B. A. Maximov ² , Yu. V. Pisarevsky ² , A. Pavlovska ³ , S. Werner ³ , J. Schneider ³ , and N. P. Danilova ¹ , ¹ Moscow State University, ² Institute of Crystallography RAS, ³ Universitat Muenchen, Institut fuer Kristallographie und Angewandte Mineralogie	FC2-B-4 Progress Towards an Operational Rb Fountain. S. Crane [*] , S. Peil, T. Swanson, and C. Ekstrom, U. S. Naval Observatory	
4:30 p.m.	FE1-B-5 (Invited) Tunability and Loss of the Ferroelectric-Dielectric Composites. V. O. Sherman [*] , A. K. Tagantsev, and N. Setter, Swiss Federal Institute of Technology				FC2-B-5 Microwave Cavities with Small Phase Gradients. R. Li and K. Gibble [*] , Penn State University	
4:45 p.m.					FC2-B-6 An Optical Molasses Loaded from a Low-Velocity Intense Source of Atoms. E. A. Donley [*] , T. P. Heavner, and S. R. Jefferts, NIST Time & Frequency Division	

5:00 p.m – 6:30 p.m.

Tuesday, August 24, 2004, POSTER SESSIONS

Montreal

<p align="center"><i>Session PS1</i> STUDENT PAPER FINALISTS</p>	<p>PS1-8 A8 Performance Assessment of a New Kalman Filter-Based Method for Ultrasonic Time-of-Flight Estimation. L. Angrisani¹, A. Baccigalupi¹, and R. Schiano Lo Moriello², ¹Università di Napoli Federico II - Dipartimento di Informatica e sistemistica, ²Università di Napoli Federico II - Dipartimento di Ingegneria Elettrica</p>	<p>PS1-16 B5 SAW and BAW Response of C-Axis AlN Thin Films Sputtered on Platinum. M. Clement¹, L. Vergara¹, J. Olivares¹, E. Iborra¹, J. Sangrador¹, A. Sanz-Hervás¹, and C. Zinck², ¹Universidad Politécnica de Madrid, ²CEA-DRT-LET/DIHS-CEA/GRE</p>	<p>PS1-24 C7 Evolution of the UWA Solid Nitrogen Dual-Mode Sapphire Microwave Oscillator. J. Anstie, J. Hartnett[*], M. Tobar, E. Ivanov, and F. Van Kann, University of Western Australia</p>	<p>PS1-32 C5 Complex Lattice Quasicontinuum Theory and Its Application to Ferroelectrics. O. Kowalewsky[*], J. Knap, and M. Ortiz, California Institute of Technology</p>	<p>PS1-40 D6 Direct Mounting of Quartz Crystal on a CMOS PLL Chip. H. Kim¹, J. Lim¹, K. Choi¹, D. Kenny², and T. Jackson¹, ¹The Pennsylvania State University, ²Saronix East Development Center</p>
<p>PS1-1 A1 Bubble-Based Acoustic Radiation Force for Monitoring Intraocular Lens Elasticity. T. N. Erpelding¹, K. W. Hollman¹, T. Juhasz^{1,2}, and M. O'Donnell¹, ¹University of Michigan, Biomedical Engineering Department, ²University of Michigan, Center for Ultrafast Optical Science</p>	<p>PS1-9 A9 Dual Configuration High Temperature Hydrogen Sensor on LGS SAW Devices. J. A. Thiele[*] and M. Pereira da Cunha, Dept. of Electrical and Computer Eng., University of Maine</p>	<p>PS1-17 B6 FEM/BEM Impedance and Power Analysis for Measured LGS SH-SAW Devices. T. D. Kenny[*], T. B. Pollard, E. Berkenpas, and M. Pereira da Cunha, Dept. of Electrical and Computer Engineering, University of Maine</p>	<p>PS1-25 C8 SH-SAW Transducer Analysis on Single Crystal K₂NbO₃ for Liquid Sensors. T. B. Pollard[*], T. D. Kenny, and M. Pereira da Cunha, Dept. of Electrical and Computer Eng., University of Maine</p>	<p>PS1-33 D1 Design, Fabrication and Characterization of Tunable PZT Film Bulk Acoustic Resonators. C. Zinck¹, G. Caruyer², A. Volatier², E. Defay¹, D. Pellissier-Tanon², L. Figuière³, and M. Aid¹, ¹CEA-DRT - LETI/DTS - CEA/ GRE, ²STMicroelectronics, CCMC Crolles, ³STMicroelectronics</p>	<p>PS1-41 D7 Large Enhancement of CPT Signals in Frequency Standards. Y.-Y. Jau¹, E. Miron², A. Post¹, N. Kuzma¹, and W. Happer¹, ¹Princeton University, ²NRCN</p>
<p>PS1-2 A2 Intravascular Ultrasound Tissue Harmonic Imaging in vivo. M. E. Frijlink¹, D. E. Goertz^{1,2}, and A. F. W. van der Steen^{1,2}, ¹Erasmus MC, Biomedical Engineering, ²Interuniversity Cardiology Institute of the Netherlands</p>	<p>PS1-10 A10 A Theoretical Study of Love Wave Sensors Mass Loading and Viscoelasticity Sensitivity in Gas and Liquid Environments. P. Mazein¹, D. Rebière¹, C. Déjous¹, F. Josse², and J. Pistré¹, ¹Université Bordeaux, ²Marquette University</p>	<p>PS1-18 B7 Evaluation of Material Constants and SAW Properties in LaCa₂O(BO₃)₃ Single Crystals. H. Shimizu¹, H. Takeda¹, T. Nishida¹, T. Shikita², S. Okamura¹, and T. Shiosaki¹, ¹Nara Institute of Science and Technology (NAIST), ²Sakai Chemical Industry Co., Ltd.</p>	<p>PS1-26 C9 An Efficient Numerical Method in Calculating the Electrical Impedance Different Modes of AT-Cut Quartz Crystal Resonator. S.-Y. Pao¹, M.-C. Chao², C. S. Lam², and P.-Z. Chang¹, ¹Institute of Applied Mechanics, National Taiwan University, ²TXC Corporation</p>	<p>PS1-34 D2 Conversion of 45° Rotated X-Cut K₂NbO₃ Plates to Y-Cut Plates by Compression. K. Nakamura, N. Chiba, and S. Ito[*], Graduate School of Engineering, Tohoku University</p>	<p>PS1-42 D8 Frequency Transfer of Optical Standards Through a Fiber Network using 1550-nm Mode-Locked Sources. K. Holman[*], D. Jones, and J. Ye, JILA, NIST and University of Colorado</p>
<p>PS1-3 A3 Increasing Binding Efficiency of Ultrasound Targeted Agents with Radiation Force. S. Zhao[*], M. Borden, S. Bloch, D. Kruse, K. W. Ferrara, and P. A. Dayton, University of California, Davis</p>	<p>PS1-11 A11 Dedicated Finite Elements for Electrode Thin Films on Quartz Resonators. S. Srivastava¹, Y.-K. Yong¹, M. Tanaka², and T. Imai², ¹Rutgers University, ²Seiko Epson, Inc</p>	<p>PS1-19 B8 Optimized Membrane Configuration Improves CMUT Performance. Y. Huang[*], E. O. Hægström, X. Zhuang, A. S. Ergun, and B. T. Khuri-Yakub, Edward L. Ginzton Laboratory, Stanford University</p>	<p>PS1-27 C10 Effects of Electric Bias and O₂ Content on Properties of ZnO Films and Characterization of ZnO-based Film Bulk Acoustic Resonator. D.-Y. Kim[*], D.-H. Cho, B.-H. Kim[*], J.-B. Lee, J.-P. Jung, and J.-S. Park, Dept. of Electrical Engineering, Hanyang University</p>	<p>PS1-35 D3 Cooling-Rate-Dependent Domain Structures of PMN-PT Single Crystals Observed by Contact-Resonance Piezoresponse Force Microscopy. J. Sakamoto[*], H. Okino, and T. Yamamoto, National Defense Academy</p>	<p>PS1-43 D9 A Multi-Resonance Acoustic Interfacial Biosensor (MAIB) for Monitoring a Formation Process of Biological Thin Films. S. J. Kwoun[*] and R. M. Lec, School of Biomedical Engineering, Science and Health System, Drexel University</p>

<p>PS1-4 A4 Transcranial MRI-Guided Focused Ultrasound-Induced Blood-Brain Barrier Opening in Rats. L. H. Treat^{*1,2}, N. J. McDannold², N. Vykhodtseva², and K. Hynynen², ¹Harvard-MIT Division of Health Sciences & Technology, ²Brigham and Women's Hospital/Harvard Medical School</p>	<p>PS1-12 B1 Visualization of In- and Out-of-Plane Vibrations in a Micro-mechanical RF-Resonator. O. Holmgren^{*1}, K. Kokkonen¹, T. Mattila², V. Kaajakari², A. Oja², J. Kiihamäki², J. V. Knuutila¹, and M. M. Salomaa¹, ¹Materials Physics Laboratory, Helsinki University of Technology, ²VTT Information Technology</p>	<p>PS1-20 B9 Inverse Calculation Method for Piezocomposite Materials Characterisation. G. Férin^{*1,2}, D. Certon², J. Guyonvach², and N. Félix¹, ¹VERMON, ²GIP Ultrasons / LUSSI</p>	<p>PS1-28 C1 Non-Linear Dielectric Response in {111} and {100} Oriented 0.5Pb(Yb_{1/2}Nb_{1/2})O₃-0.5PbTiO₃ Thin Films. N. Bassiri Gharb[*] and S. Trolier-McKinstry, The Pennsylvania State University</p>	<p>PS1-36 D4 Effects of Li₂CO₃ and Bi₂O₃ Additives on Sintering Temperature and Piezoelectric Properties of PCW-PMN-PZT Ceramics for Multilayer Piezoelectric Transformer. K. Chung^{*1}, J. Yoo², H. Song², Y. Jeong², H. Yoon¹, C. Park², and D. Lee¹, ¹Inha University, ²Semyung University, ³KEPRI, ⁴Kyungmoon College</p>	<p>PS1-44 D10 SAW Sensors using Orthogonal Frequency Coding. D. Puccio^{*1}, D. C. Malocha¹, D. Gallagher¹, and J. H. Hines², ¹ECE Dept., University of Central Florida, ²Microsensor Systems, Inc.</p>
<p>PS1-5 A5 FPGA Based Digital High Frequency Beamformers for Arrays. C.-H. Hu^{*1}, X.-C. Xu¹, J. T. Yen¹, K. K. Shung¹, and P.-J. Cao², ¹Department of Biomedical Engineering and NIH Transducer Resource Center, University of Southern California, ²Boston Scientific</p>	<p>PS1-13 B2 An Ultrasonic Linear Motor using a Ridge Waveguide. M. Tominaga[*], J. R. Friend, R. Kaminaga, K. Nakamura, and S. Ueha, Precision and intelligence Laboratory, Tokyo Institute of Technology</p>	<p>PS1-21 B10 Wide Frequency Band and High Intensity Thickness Vibration of Hydrothermal Lead Zirconate Titanate Polycrystalline Film. M. Ishikawa^{*1}, M. K. Kurosawa¹, and S. Takeuchi², ¹Tokyo Institute of Technology, ²Toin University of Yokohama</p>	<p>PS1-29 C2 Piezoelectric Anisotropy-Phase Transition Relations in Perovskite Single Crystals. M. Budimir[*], D. Damjanovic, and N. Setter, EPFL</p>	<p>PS1-37 D5 Sol-Gel Derived Pb(Zr,Ti)O₃ Thin Films: Residual Stress, Orientation, and Electrical Properties. R. J. Ong[*], T. A. Berfield, N. R. Sottos, and D. A. Payne, University of Illinois at Urbana-Champaign</p>	<p>PS1-45 D11 Techniques to Evaluate the Mass Sensitivity of Love Mode Surface Acoustic Wave Biosensors. L. A. Francis^{*1,2}, J.-M. Friedt³, R. De Palma^{2,4}, C. Zhou^{2,4}, C. Bartic², P. Bertrand¹, and A. Campitelli², ¹Université catholique de Louvain, ²Biosensors Group, IMEC, ³Université de Franche-Comté, ⁴Katholieke Universiteit Leuven</p>
<p>PS1-6 A6 Ultrasound-Guided HIFU Neurolysis of Peripheral Nerves to Treat Spasticity and Pain. J. L. Foley^{*1,2}, J. W. Little³, F. L. Starr III², C. Frantz², and S. Vaezy^{1,2}, ¹Department of Bioengineering, University of Washington, ²Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, ³Department of Rehabilitation Medicine, University of Washington</p>	<p>PS1-14 B3 Combined Radiation Pressure Field in a Dual-Frequency Ultrasound System. J. S. Thierman^{*1}, G. T. Clement², and K. Hynynen², ¹Harvard-MIT HST Program, ²Brigham and Women's Hospital, Harvard Medical School</p>	<p>PS1-22 B11 Real-Time 3D Ultrasound with Multiple Transducer Arrays. M. P. Fronheiser[*], E. D. Light, and S. W. Smith, Department of Biomedical Engineering, Duke University</p>	<p>PS1-30 C3 Grain Orientation of New Lead-Free Piezoelectric Ceramic in the System of (Bi_{1/2}Na_{1/2})TiO₃-(Bi_{1/2}K_{1/2})TiO₃-BaTiO₃. N. Marandian Hagh[*], M. Allahverdi, and A. Safari, Rutgers university</p>	<p>PS1-38 C11 Frequency Tuning of Vibrating Micro-Electro-Mechanical Resonators and Filters Via Laser Trimming. M. Abdelmoneum^{*1} and C. Nguyen², ¹Radiation Laboratory, University of Michigan Ann Arbor, ²DARPA</p>	
<p>PS1-7 A7 Counter-Propagating Lamb Wave Pair for Nondestructive Inspection. T. Hoshimiya and M. Suzuki[*], Tohoku Gakuin University</p>	<p>PS1-15 B4 On Minimizing Bulk Scattering Loss in CRF(DMS) Devices. W. Wang¹, X. Zhang¹, H. Wu¹, Y. Shui^{*1}, and V. P. Plessky², ¹Key Lab. on Modern Acoustics, Nanjing University, ²GVR Trade SA</p>	<p>PS1-23 C6 Ultra-Low Drift Cryogenic Sapphire Microwave Oscillator. P. Y. Bourgeois^{*1}, Y. Kersalé¹, N. Bazin¹, M. Chaubet², and V. Giordano¹, ¹Departement LPOM, Institut FEMTO-ST, UMR 6174, ²Centre National des Etudes Spatiales</p>	<p>PS1-31 C4 Spatial Resitivity Profiling of Multilayer Capacitors as a Function of Furnace Conditions. C. M. Williams, A. E. Hydrick, H. M. Schulze[*], and W. A. Schulze[*], Alfred University</p>	<p>PS1-39 C12 Mechanically-Coupled Micromechanical Resonator Arrays for Improved Phase Noise. S. Lee[*] and C. T.-C. Nguyen, University of Michigan</p>	

5:00 p.m – 6:30 p.m.

Tuesday, August 24, 2004, POSTER SESSIONS

Montreal

<p>Session P1FC-A OSCILLATORS AND RESONATORS</p> <p>Chair: M. Driscoll Northrop Grumman, USA</p>	<p>P1FC-A-8 N10 High Factor Frequency Multiplication in 2.4 GHz VCXO. D. V. Bogomolov*, Valpey Fisher Corporation</p>	<p>P1FC-A-16 M8 Further Enhancements to the Analysis of Spectral Purity in the Application of Practical Direct Digital Synthesis. J. R. Jensen*, S. Cheng, and R. E. Wallis, Johns Hopkins University Applied Physics Laboratory</p>	<p>P1U-B-4 E10 Optical Observations of Microbubble Behavior at High Ultrasound Frequencies. D. E. Goertz^{1,2}, C. T. Chin¹, M. E. Frijlink¹, M. Versluis³, N. De Jong^{1,3}, and A. F. W. van der Steen^{1,2}, ¹Erasmus MC, ²Interuniversity Cardiac Inst. Netherlands, ³Physics of Fluids, Univ. Twente</p>	<p>P1U-C-4 F4 High Volume Rate 3-D Ultrasound Imaging Using Cross Array Based On Synthetic Transmit Focusing. K.-S. Kim* and T.-K. Song, Center for Medical Solutions Research, Dept. of EE, Sogang University</p>	<p>P1U-D-3 F11 A Study of Morphological Edge Enhancement by Double Structuring Element for Ultrasound B-Mode Images. M. Tsubai¹, T. Nishimura¹, A. Sasaki^{1,2}, T. Mitake³, and S.-I. Umemura³, ¹Graduate School of Information, Production and Systems, Waseda University, ²Hitachi Medical Corporation, ³Hitachi Central Research Laboratory</p>
<p>P1FC-A-1 M1 Thermo-Acoustic Excitation of MEMS. J. M. Parpia*, M. Zalalutdinov, K. L. Aubin, R. Reichenbach, and H. G. Craighead, Cornell University</p>	<p>P1FC-A-9 N9 An Analytic Approach Used to Design a Low Power and Low Phase Noise CMOS LC Oscillator. R. Dehghani*, Sharif University of Technology</p>	<p>P1FC-A-17 M9 Low Flicker-Noise Amplifier for 50 O Sources. E. Rubiola*¹ and F. Lardet-Vieudrin², ¹Université Henri Poincaré - ESSTIN -LPMIA, ²LPMO Dept, FEMTO-ST</p>	<p>P1U-B-5 E11 An Acoustic Study of Disruption of Polymer Shelled Bubbles. P. D. Bevan^{1,2}, R. Karshafian^{1,2}, M. Matsumura², G. Tickner³, and P.N. Burns^{1,2}, ¹University of Toronto, Department of Medical Biophysics, ²Sunnybrook & Women's College Health Sciences Centre, ³Point Biomedical</p>	<p>P1U-C-5 F5 Development of a Linear Power Amplifier for High Frame Rate Imaging System. J.-Y. Lu* and J. L. Waugaman, The University of Toledo</p>	<p>P1U-D-4 F12 Real-Time Respiration Phase Monitoring System using Ultrasonic Bi-Plane Image Data for Proton Beam Therapy. T. Mochizuki¹, M. Kunita¹, Y. Toyama², S. Murayama³, and A. Maruhashi⁴, ¹Aloka Co., Ltd., ²JRC Engineering Co., Ltd., ³Shizuoka Cancer Center Hospital, ⁴Kyoto University Research Reactor Institute</p>
<p>P1FC-A-2 M11 The Microcomputer Compensated Crystal Oscillator—Practical Application of Dual-Harmonic Mode Quartz Thermometry. E. Jackson*, Q-Tech Corporation</p>	<p>P1FC-A-10 M2 Dual Mode SC-cut Crystal Oscillator. T. Oita*, M. Fukuda, A. Nakamura, T. Ishikawa, and K. Ono, Nihon Dempa Kogyo Co., Ltd.</p>	<p>P1FC-A-18 M10 Recent Results on Quartz Crystal LD-Cuts Operating in Oscillators. S. Galliou*, F. Sthal, J. J. Boy, R. Bourquin, and M. Mourey, LCEP, FEMTO-ST, UMR CNRS 6174</p>	<p>P1U-B-6 E12 Controlled Gas Release from Rigid-Shelled microbubbles. M. Postema^{1,2}, A. Bouakaz^{1,2}, and N. de Jong^{1,3}, ¹Thoraxcentre, Erasmus MC, Rotterdam, The Netherlands, ²Interuniversity Cardiology Institute of The Netherlands, Utrecht, The Netherlands, ³University of Twente, Enschede, The Netherlands</p>	<p>P1U-C-6 F6 High Frame Rate Imaging using Parallel Transmission of Coded Focused Fields. T. Misaridis*¹ and P. Munk², ¹National Technical University of Athens, ²SACLANT Undersea Research Centre</p>	<p>P1U-D-5 F13 Development of a Dual-Gate Automatic Embolus Detection System. L. Fan¹, E. Boni², P. Tortoli², and D. H. Evans*¹, ¹University of Leicester, ²University of Florence</p>
<p>P1FC-A-3 M12 New Analysis on Push-Push FET Oscillators for Output Power Improvement. J. Kwon* and I. S. Kim, KyungHee University</p>	<p>P1FC-A-11 M0 Miniaturised OCXO: Professional Component for Space Applications. P. Guillemot*¹, A. Morin², and G. Richard², ¹CNES (French Space Agency), ²THALES Microelectronics</p>		<p>P1U-B-7 E13 In Vitro 40MHz Ultrasonic Characterisation of In-House Liposomal Microbubble Dispersions Developed for Targeting Atherosclerotic Plaque. C. M. Moran*¹, J. Ross², C. Oliver², M. Butler¹, and W. N. McDicken¹, ¹Medical Physics, ²Tissue Injury and Repair Group</p>	<p>P1U-C-7 F7 An Efficient 3D Beamformer Implementation for Real-Time 4D Ultrasound Systems Deploying Planar Array Probes. A. Dhanantwari*¹, S. Stergiopoulos¹, C. Parodi^{2,3}, F. Bertora³, P. Pellegritti³, and A. Questa³, ¹CANAMET Inc., ²Department of Biophysical and Electronic Engineering, University of Genoa, ³Esate S.p.A</p>	<p>P1U-D-6 G13 Emboli Sizing in Blood Flow Circulation using Parametric Modeling. M. Biard*, J.-M. Girault, D. Kouame, and F. Patat, LUSI CNRS FRE 2448</p>

<p>P1FC-A-4 M13 Low-Voltage Surface Transverse Wave Oscillators for the Next Generation CMOS Technology. I. D. Avramov*, Institute of Solid State Physics</p>	<p>P1FC-A-12 M4 A New Low Profile DOXCXO. Y. Vorokhovskiy*, S. Anastasyev, and A. Volkov, Morion, Inc.</p>	<p><i>Session P1U-B</i> CONTRAST AGENTS I Chair: K. Ferrara University of California</p>	<p><i>Session P1U-C</i> BEAMFORMING I Chair: W. Walker University of Virginia</p>	<p>P1U-C-8 F8 Synthetic Aperture Technique for Echographic Focusing Based on Pulse Compression. E. Biagi, L. Masotti, I. Rossi, and M. Scabia*, Ultra-sound and Non Destructive Lab, University of Florence</p>	<p>P1U-D-7 G12 Adaptive Noise Reduction Process based on Gray-Level Concentrative Filter for CW Doppler Spectrometer. A. Sasaki¹*, T. Azuma², H. Kamada¹, T. Hayashi¹, T. Nishimura³, and S.-I. Umemura², ¹Hitachi Medical Corporation, ²Hitachi Central Research Laboratory, ³Graduate School of Information, Wasada University</p>
<p>P1FC-A-5 N13 Small Packaged VCISO for 10[Gbit] Ethernet Application. N. Nomura*, M. Itagaki, and Y. Aoyagi, Toyo Communication Equipment Co., Ltd.</p>	<p>P1FC-A-13 M5 Phase Noise Reduction in Microwave Bipolar Transistor Amplifiers through Active Feedback. M. J. Luce* and E. S. Ferre-Pikal, University of Wyoming</p>	<p>P1U-B-1 E7 The Short-Pulse Subharmonic Response of Microbubbles Based on a Two-Frequency Approximation. C.-Y. Wu^{1,2}, M.-T. Lo^{1,2}, J. Tsao¹*, D.-H. Tsai², Y.-C. Chang², and D.-R. Su², ¹Graduate Institute of Communication Engineering, National Taiwan University, ²Medical Group, Research Center, Micro-Star Int'l Co., Ltd.</p>	<p>P1U-C-1 F1 A High Voltage Pulser ASIC for Driving High Frequency Ultrasonic Arrays. G. I. Athanasopoulos*, S. J. Carey, and J. V. Hatfield, UMIST</p>	<p><i>Session P1U-D</i> MEDICAL SIGNAL PROCESSING Chair: R. Chiao Siemens Med Sols</p>	<p>P1U-D-8 G11 Detection and Analysis of Fetal Movements by Multi-Sensor Doppler (The ACTIFOETUS System). A. Kribéche*, S. Benderbous¹, F. Tranquart¹, D. Kouamé², Ph. Vince³, and L. Pourcelot¹, ¹INSERM U619, ²LUSSI-GIP Ultrasons, ³Ultrasons Technologies</p>
<p>P1FC-A-6 N12 New Sub One Inch Ultra Stable Oscillator. L. Couteleau*, TEMEX</p>	<p>P1FC-A-14 M6 1/f Noise in Crystal Resonators. V. F. Kroupa*, Institute of Radio Engineering and aelectronics Academy of Sciences of the Czech Republic</p>	<p>P1U-B-2 E8 Using the Correlation Property of Subharmonic Response as an Index of Cavitation of Microbubbles. M.-T. Lo^{1,2}, J. Tsao¹*, and S. Lin², ¹Graduate Institute of Communication Engineering, National Taiwan University, ²Medical Group, Research Center, Micro-Star Int'l Co., Ltd.</p>	<p>P1U-C-2 F2 Parallel Beamforming using Synthetic Transmit Beams. T. Hergum*, T. Bjåstad, and H. Torp, Norwegian University of Science and Technology</p>	<p>P1U-D-1 F9 ICA Based Source Separation in Tissue Strain Waves. L. Huang^{1,2}, J. Kuczewicz^{1,2}, and K. Beach^{1,3}, ¹Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, ²Department of Bioengineering, University of Washington, ³Department of Surgery, University of Washington</p>	
<p>P1FC-A-7 N11 A New Small-Dimensions Full PLL System. Y. Vorokhovskiy*, G. Gidon, and A. Dobrovolsky, Morion, Inc.</p>	<p>P1FC-A-15 M7 Near-Carrier Phase-Noise Characteristics of Narrow Band Colpitts Oscillators. Y. Watanabe¹*, S. Komine¹, S. Goka¹, T. Sato¹, H. Sekimoto¹, and T. Uchida², ¹Graduate School of Engineering, Tokyo Metropolitan University, ²NDK Co., Ltd.</p>	<p>P1U-B-3 E9 Acoustical Characterization of Submicron Particles of Perfluorocarbon in Solution. O. Couture*, E. Cherin, and S. Foster, University of Toronto, Department of Medical Biophysics (Sunnybrook)</p>	<p>P1U-C-3 F3 Algorithms of 3-Dimensional Beam Forming for Synthetic Aperture Imaging System using Pulses Coded with Walsh Functions. K. Satoh¹*, Y. Tamura¹, M. Miura¹, C. Ishihara², N. Okada³, and T. Yamasaki¹, ¹Yamagata University, ²Akushima Laboratories (Mitsui Zosen) Inc., ³Honda Electronics Co., Ltd.</p>	<p>P1U-D-2 F10 Estimation of Time of Flight for Ultrasonic Reflex-Transmission Tomography with Active Contour Models. M. Ashfaq*, M. Mienkina, and H. Ermert, Institute of High Frequency Engineering</p>	

5:00 p.m – 6:30 p.m.

Tuesday, August 24, 2004, POSTER SESSIONS

Montreal

<p>Session P1U-E CAVITATION IN THERAPY Chair: K. Hynynen Harvard University</p>	<p>Session P1U-F TISSUE ELASTOGRAPHY Chair: P. Delachartre Creatis</p>	<p>P1U-F-8 H8 Assessment of Bone Fracture and Bone Healing by Ultrasound Assisted Vibrational Method. A. Alizad*, M. Walch, J. F. Greenleaf, and M. Fatemi, Mayo Clinic College of Medicine</p>	<p>P1U-G-6 K6 A Statistical Model of Passive Remote SAW Sensing Employing Differential Phase Measurement. Y. S. Shmaliy*, O. Ibarra-Manzano, and R. Rojas-Laguna, Guanajuato University</p>	<p>P1U-H-6 I12 SAW Propagation in the Two Domain States of Ferroelectric LiNbO3 Crystal. J. Nosek*, Technical University of Liberec</p>	<p>P1FC-I-6 N6 Adaptive OCXO Drift Correction Algorithm. C. W. T. Nicholls* and G. C. Carleton, Nortel Networks</p>
<p>P1U-E-1 G10 Correlation of Enhanced Acoustic Backscatter to Tissue Damage Produced by Cavitation Ultrasound Therapy. B. C. Tran*, J. B. Fowlkes, and C. A. Cain, University of Michigan</p>	<p>P1U-F-1 H1 Diagnostic Results for Breast Disease by Real-time Elasticity Imaging System. T. Matsumura¹, S. Tamano¹, R. Shinomura¹, T. Mitake¹, M. Yamakawa², T. Shiina², A. Itoh³, and E. Ueno⁴, ¹Research & Development Center, Hitachi Medical Corporation, ²Institute of Information Sciences & Electronics, University of Tsukuba, ³Tsukuba University Hospital, University of Tsukuba, ⁴Institute of Clinical Medicine, University of Tsukuba</p>	<p>P1U-F-9 H9 Computational Aspects of Young's Modulus Reconstruction from Ultrasonic Freehand Scanning. J. Jingfeng*, T. J. Hall, and E. L. Madsen, University of Wisconsin-Madison</p>	<p>P1U-G-7 K7 Simulation of Wireless Passive SAW ID-Tags/Sensors using VHDL-AMS. Q. Fu*, H. Stab, and W.-J. Fischer, Semiconductor and Microsystems Technology Laboratory</p>	<p>P1U-H-7 I13 Influence of Thin Conducting Layer on Leaky SH-SAW in Piezoelectric Crystal. B. Zaitsev*, A. Teplykh, and I. Kuznetsova, Institute of Radio Engineering and Electronics of RAS, Saratov Department</p>	<p>P1FC-I-7 N7 A New Realization Strategy for the Time Scale UTC (PTB). A. Bauch*, D. Piester, and E. Staliuniene, Physikalisch Technische Bundesanstalt, Germany</p>
<p>P1U-E-2 G9 Resonance Frequency of Microbubbles in Small Blood Vessel. E. Sassaroli^{1,2} and K. Hynynen^{1,2}, ¹Brigham's and Women Hospital, ²Harvard Medical School</p>	<p>P1U-F-2 H2 Hardware Implementation for Receive Beamforming and Transverse Elasticity Imaging. P. Delachartre*, H. Liebgott, S. Michelet, M. Pernot, and D. Vray, Creatis</p>	<p>Session P1U-G SAW WIRELESS Chair: R. Weigel Erlangen University</p>	<p>Session P1U-H HIGH COUPLING SAW MATERIALS Chair: J. Kosinski US Army RCECOM</p>	<p>Session P1FC-I TIME TRANSFER AND CHARACTERIZATION Chair: R. Wang JPL</p>	<p>P1FC-I-8 N8 The Establishment of a SADC Time Network. E. L. Marais*, CSIR - National Metrology Laboratory</p>
<p>P1U-E-3 G8 Involvement of Cavitation in the Appearance of Hyperechoic Regions in Ultrasound Image Visualization of high Intensity Focused Ultrasound Therapy: In-Vivo Results. B. A. Rabkin^{1,2}, V. Zderic^{1,2}, and S. Vaezy^{1,2}, ¹Department of Bioengineering, University of Washington, ²Center for Industrial and Medical Ultrasound, Applied Physics Lab., University of Washington</p>	<p>P1U-F-3 H3 Signal Processing for Ultrasound-based Arterial Pulse Wave Velocity Estimation. R. T. Hocter*, A. M. Dentinger, and K. E. Thomenius, GE Global Research</p>	<p>P1U-G-1 K1 SAW Antenna Duplexer for Trunking Communication. J. Liu* and S. He, Institute of Acoustics, The Chinese Academy of Sciences</p>	<p>P1U-H-1 I7 The Characteristics of Leaky Surface Acoustic Wave of Proton-Exchanged Lithium Tantalite. C.-J. Chung¹, Y.-C. Chen¹, K.-S. Kao¹, C.-L. Wei¹, and C.-C. Cheng², ¹National Sun Yat-Sen University, ²De Lin Institute of Technology</p>	<p>P1FC-I-1 N1 A Phase Locked Mechanism for Time Scaling Frequency control System. S.-Y. Lin*, Telecommunication Laboratories</p>	<p>P1FC-I-9 O1 Highly-Accurate Real-Time Syntonization using A GPS Single-Frequency Receiver with an Intelligent Atmosphere Forecasting Model. C.-L. Cheng¹, F.-R. Chang¹, L.-S. Wang², and K.-Y. Tu³, ¹National Taiwan University, ²Inst. of Applied Mechanics, National Taiwan University, ³NSTF Lab., TL, Chunghwa Telecom. Co., Ltd., Taiwan</p>

<p>P1U-E-4 G7 Micro-Capsule Destruction using Ultrasound for Drug Delivery System. D. Koyama*, K. Wataru, and Y. Watanabe, Faculty of Engineering, Doshisha University</p>	<p>P1U-F-4 H4 Noninvasive Vascular Elastography Based on a New 2D Strain Estimator: Simulations Results. C. Schmitt*, R. L. Maurice, J.-L. Gennisson, and G. Cloutier, Laboratory of Biorheology and Medical Ultrasonics</p>	<p>P1U-G-2 K2 On the Design of an FBAR PCS Duplexer in LTCC Chip-Sized Package. F. M. Pitschi*, J. E. Kiwitt, B. Bader, and K. Ch. Wagner, EPCOS AG</p>	<p>P1U-H-2 I8 Quasi-Longitudinal Pseudo-Surface Acoustic Waves on Lithium Tantalate. V. I. Cherednick*, M. Yu. Dvoesherstov¹, and K. Bhattacharjee², ¹State University, ²Clarisay</p>	<p>P1FC-I-2 N2 The Three Cornered Hat Method: An Attempt to Identify Some Clock Correlations. F. Vernotte*, J. Delporte², and M. Brunet², ¹Observatoire de Besançon, ²Centre National d'Études Spatiales</p>	<p><i>Session P1FC-J</i> CHEMICAL SENSORS Chair: R. Lucklum Otto-Von-Guericke University</p>
<p>P1U-E-5 G6 Testing the Role of Shear and Longitudinal Waves in Kidney Stone Communion by a Lithotripter Shock Pulse. O. A. Sapozhnikov*, R. O. Cleveland², M. R. Bailey³, and L. A. Crum³, ¹Faculty of Physics, Moscow State University, ²Department of Aerospace and Mechanical Engineering, Boston University, ³Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington</p>	<p>P1U-F-5 H5 Tissue Mimicking Phantom for Ultrasonic Elastography with Finely Adjustable Elastic and Echographic Properties. K.-I. Kawabata*, K. Waki², T. Matsumura³, and S.-I. Umemura¹, ¹Central Research Laboratory, Hitachi, Ltd., ²Development Design Department Ultrasound System Division, Hitachi Medical Corporation, ³Research & Development Center, Hitachi Medical Corporation</p>	<p>P1U-G-3 K3 Optimized Test PCBs for SAW / FBAR RF Filters. H. Bilzer², F. M. Pitschi¹, J. E. Kiwitt¹, K. Ch. Wagner¹, and W. Menzel², ¹EPCOS AG, ²Micro-wave Techniques, University of Ulm</p>	<p>P1U-H-3 I9 Plate and Gap Acoustic Waves for Highly Sensitive Gas and Liquid Sensors. M. Yu. Dvoesherstov¹, V. I. Cherednick*, and K. Bhattacharjee², ¹State University, ²Clarisay</p>	<p>P1FC-I-3 N3 A Study on GPS Common-View Observation Data with Multiscale Kalman Filter Algorithm. X. Ou, X. Han, H. Wang*, H. Zhou, and W. Zhou, Xidian University</p>	<p>P1FC-J-1 Q1 SAW Sensor for Liquid Chromatography using SH-SAW resonator. T. Nomura*, A. Saitoh¹, and S. Furukawa², ¹Shibaura Institute of Technology, ²Kyushu Institute of Technology</p>
<p>P1U-E-6 G5 Ex-Vivo Study of Cavitation-Enhanced Ultrasound Heating by Combining Low (40kHz) and High (566kHz) Frequency Ultrasound. H.-L. Liu*, T.-C. Shi², B.-Y. Lu¹, W.-S. Chen³, and W.-L. Lin², ¹Department of Electronic Engineering, Tung-Nan Institute of Technology, Taipei, Taiwan, ²Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan, ³Department of Rehabilitation, National Taiwan University Hospital, Taipei, Taiwan</p>	<p>P1U-F-6 H6 Cross-Sectional Elasticity Imaging of Arterial Wall in Short-Axis Plane with Ultrasound. N. Nakagawa¹, H. Hasegawa¹, H. Kanai*, M. Ichiki², and F. Tezuka³, ¹Graduate School of Engineering, Tohoku University, ²Sendai Hospital of East Railway Company, ³National Sendai Hospital</p>	<p>P1U-G-4 K4 Analysis of Parasitic Effects of GHz-range SAW Matched Filters for Wireless Pulse Communication Systems. T. Sato*, T. Sugiura, and H. Nagasaka, Samsung Yokohama Research Institute</p>	<p>P1U-H-4 I10 Roundtrips of SAW Along Multiple Routes on a Single Crystal LiNbO₃ Ball. S. Akao*, N. Nakaso¹, T. Ohgi¹, and K. Yamanaka², ¹Toppan printing Co., Ltd., ²Department of Materials Processing, Tohoku University</p>	<p>P1FC-I-4 N4 Some Problems and Their Solutions in Quasi-Parallel MTIE Assessment. A. Dobrogowski* and M. Kasznia, Poznan University of Technology, Institute of Electronics and Telecommunications</p>	<p>P1FC-J-2 Q2 Zero TCF ZnO/Quartz SAW Structure for CO₂ Sensing Applications. A. Talbi, F. Sarry*, M. El Hakiki, O. Elmazria, F. Moreira, and L. Le Brizoual, LPMIA-UMR7040 CNRS-Universite Henri Poincare</p>
<p>P1U-E-7 G4 A Gel Phantom for MR Calibration of Thermal Therapies. S. Lochhead*, M. McDonald, R. Chopra, and M. J. Bronskill, Sunnybrook & Women's College Health Sciences Centre</p>	<p>P1U-F-7 H7 Nonlinearity Studies in Soft Tissues with the Supersonic Shear Imaging System. S. Catheline*, J.-L. Gennisson, J. Bercoff, C. Barrière, and M. Fink, Laboratoire Ondes et Acoustique</p>	<p>P1U-G-5 K5 Withdrawn</p>	<p>P1U-H-5 I11 Transverse Acoustic Anisotropy of Obliquely Propagating LSAW in Resonator Structures on LiTaO₃ and LiNbO₃ Substrates. N. Naumenko*¹ and B. Abbott², ¹Moscow Steel and Alloys Institute, ²Sawtek Inc</p>	<p>P1FC-I-5 N5 Instantaneous Frequency Estimation Through the Application of Warblet Transform and Optimal Sampling Strategies. L. Angrisani¹, M. D'Arco², R. Schiano Lo Moriello², and M. Vadursi¹, ¹Università di Napoli Federico II, Dipartimento di Informatica e Sistemistica, ²Università di Napoli Federico II, Dipartimento di Ingegneria Elettrica</p>	<p>P1FC-J-3 Q3 Ammonia Sensing Probe using Shear Horizontal Surface Acoustic Wave Technique. C.-Y. Shen*, C.-P. Huang, Y.-T. Shen*, K.-C. Hsu, and J.-S. Jeng, Department of Electrical Engineering, I-Shou University</p>

5:00 p.m. – 6:30 p.m.

Tuesday, August 24, 2004, POSTER SESSIONS

Montreal

<p>P1FC-J-4 Q4 3-D Finite-Element Simulation Model of SAW Palladium Thin Film Hydrogen Sensor. M. Atashbar¹, B. Bazuin, M. Simpeh, D. Banerji, and S. Krishnamurthy, Department of Electrical and Computer Engineering, Western Michigan University</p>	<p>P1U-K-6 J6 Measurement of Draught using Ultrasonic Air Transducers. G. P. P. Gunarathne[*], The Robert Gordon University</p>	<p>P1U-L-4 K13 Non Periodic Acoustic Devices Radiating in Semi-Infinite Solids Simulated by a Combination of Finite Element Analysis and a Boundary Element Method. M. Wilm[*], S. Ballandras, and V. Laude, Institut FEMTO-ST, Dept LPMO</p>	<p><i>Session P1U-M</i> UNDERWATER TRANSDUCERS Chair: V. Varadan The Pennsylvania State University</p>	<p>P1U-N-3 I3 Cross-Coupling in a 1-3 Piezoelectric Composite: Simulation and Experiment. M. Wilm^{*1}, O. Burat², J.-F. Gelly³, F. Lanteri³, and S. Ballandras¹, ¹Institut FEMTO-ST, Département LPMO, CNRS UMR 6174, ²Framatome-ANP, Technical Center, ³GE Parallel Design SAS</p>	<p>P1U-O-4 L4 Net Shape Ceramic Processing as a Route to Ultrafine Scale 1-3 Connectivity Piezoelectric Ceramic-Polymer Composite Transducers. S. Cochran^{*1}, D. Zhang², N. Porch³, B. Su², A. Abrar¹, and K. Kirk¹, ¹Microscale Sensors, ²Functional Materials Group, ³Applied Functional Materials Ltd.</p>
<p>P1FC-J-5 Q5 Computational Simulation of Vibration Displacement on Piezoelectric Quartz Crystal using Finite Element Method. C. Kurosawa^{*1,2}, S. Kurosawa^{*1}, H. Aizawa^{1,3}, and T. Horibe², ¹National Institute of Advanced Industrial Science and Technology (AIST), ²Ibaraki University, ³New Energy and Industrial Technology Development Organization (NEDO)</p>	<p>P1U-K-7 J7 Reciprocity Calibration of Hydrophones at Various Temperatures in the MHz Frequency Range. C. Labuda, J. L. Raymond[*], and C. C. Church, National Center for Physical Acoustics, University of Mississippi</p>	<p>P1U-L-5 K12 Transient Cavitation Induced by Periodic Sequence of Tone Bursts. V. Andreev[*] and V. Aleynikov, Acoustics Dept., Faculty of Physics Moscow State University</p>	<p>P1U-M-1 E1 Miniature Flexensional Piezoelectric Transducers with Rectangular Geometry for Improved In-Water Acoustic Bandwidth and Power. D. C. Markley^{*1,2}, R. J. Meyer, Jr.¹, R. E. Newnham², and A.-C. Hladky-Hennion², ¹Applied Research Laboratory, ²Materials Research Laboratory, ³EMN, ISEN</p>	<p>P1U-N-4 I4 Medical Transducer Arrays using Composite Materials for Acoustic Matching Layers—Fabrication and Experiment—. T. Kondo^{*1}, T. Kitatuji¹, and M. Izumi², ¹Tokushima Bunri University, ²Hitachi Medical Corporation</p>	<p>P1U-O-5 L5 3-3 Connectivity Multi-layered Piezoelectric Composites. R. L. O'Leary[*], M. Kijowski, and G. Hayward, Centre for Ultrasonic Engineering</p>
<p><i>Session P1U-K</i> SENSORS Chair: J. Vetelino University of Maine</p>	<p>P1U-K-8 J8 A Localized Acoustic Field Formed in the Vicinity of a Bending-Vibrator End and Its Application to Piezoelectric Sensors. K. Yamada[*], D. Yamazaki, and K. Nakamura, Graduate School of Engineering, Tohoku University</p>	<p>P1U-L-6 K11 2D Numerical Simulation of Supercritical Phase Conjugation of Ultrasound in Active Solid Media. O. Bou Matar^{*1}, V. Preobrazhensky^{1,2}, and P. Pernod¹, ¹Institut d'Electronique, de Micro-electronique et de Nanotechnologie (IEMN-DOAE UMR CNRS 8520), ²Wave Research Center of General Physics Institute (RAS)</p>	<p>P1U-M-2 E2 Comparison of Theoretical Prediction and Experimental Performance using FEM for Marine Transducers. J. Lan[*], R. H. Tancrell, and S. G. Boucher, Airmar Technology Corporation</p>	<p>P1U-N-5 I5 Optimum Choice of Acoustic Properties of Filling Materials by Optical Measurement. F. P. Branca¹, F. Bini¹, F. Marinozzi¹, and A. Grandoni^{*2}, ¹University of Rome La Sapienza[*], ²Transducer Manufacturing Engineer, Industrial Engineering Group ESAOTE S.p.A</p>	<p><i>Session P1U-P</i> BULK ACOUSTIC WAVES Chair: J. Larson Agilent</p>
<p>P1U-K-1 J1 Layered Cylindrical Viscosity Sensors. P. Kielczynski[*], W. Pajewski, and M. Szalewski, Institute of Fundamental Technological Research</p>	<p>P1U-K-9 J9 Clamp-On Shear Transducers Simplify Guided Torsional and/or Extensional Investigations. L. C. Lynnworth[*], Lynnworth Engineering</p>	<p>P1U-L-7 K10 Effect of Combined Stacks as a Heat Pump on the Thermoacoustic Cooling System. S. Sakamoto[*], T. Tsujimoto, and Y. Watanabe, Faculty of Engineering, Doshisha University</p>	<p>P1U-M-3 E3 Piezocomposite Transducers for Operation in 15–25 kHz Range. A. Abrar^{*1}, A. Skea¹, S. Cochran¹, K. J. Kirk¹, D. Choi², and M. P. Walsh², ¹Microscale Sensors Group, University of Paisley, ²Piezo Composite Transducers Ltd.</p>	<p>P1U-N-6 I6 3D Finite Element Modeling of Obliquely Oriented Piezocomposite Materials and Transducer Arrays. W. Li[*], J. M. Gilmore, and F. J. Bennett, SonoSite, Inc</p>	<p>P1U-P-1 L7 Comparison of Ultrasound and γ-Radiation Influence on Electrophysical Properties of MnHgTe. J. M. Oliikh^{*1}, M. D. Tymochko¹, and V. I. Khivrych², ¹Lashkarov's Institute of Semiconductor Physics NAS Ukraine, ²Institute of Nuclear Researches NASU</p>

<p>P1U-K-2 J2 Apodization and Asymmetry of the Active Area of Acoustic Hydrophone and Its Implications on Ultrasound Exposure. V. Devaraju*, Drexel</p>	<p>Session P1U-L PHYSICAL ACOUSTICS IV Chair: K. Liang Schlumberger-Doll Research</p>	<p>P1U-L-8 K9 Basic Study on Effects of Acoustic Intensity and Sound Pressure on Surface Modification and Dispersion of Diamond Particles. T. Uchida*, A. Hamano, N. Kawashima, and S. Takeuchi, Toin University of Yokohama</p>	<p>P1U-M-4 E4 Monolithic Multimode Transducers Prototyped using Extrusion and Fused Deposition of Ceramics (FDC) techniques. D. C. Markley^{1,4}, R. E. Newnham¹, A.-C. Hladky-Hennion², J. K. Cochran, Jr.³, R. J. Meyer, Jr.⁴, A. Safari², and M. Allahverdi¹, ¹Materials Research Institute, ²IEMN, ISEN, ³Materials Science and Engineering Department, ⁴Applied Research Laboratory, ⁵Department of Ceramic and Materials Engineering</p>	<p>Session P1U-O COMPOSITE TRANSDUCERS Chair: H. Kunkel Philips Ultrasound</p>	<p>P1U-P-2 L8 A 3.8 mm x 3.8 mm x 1.37 mm Hermetic Cell-Band FBAR Duplexer for Handsets. P. Bradley¹, K. Grannen¹, D. Clark¹, B. Yu¹, and R. Ruby¹, ¹Wireless Semiconductor Division/Agilent Technologies, ²Personal Systems Division</p>
<p>P1U-K-3 J3 Pulsed Interrogation of the SAW Torque Sensor for Electrical Power Assisted Steering. V. Kalinin¹, G. Bown, J. Beckley, and R. Lohr, Transense Technologies plc</p>	<p>P1U-L-1 J10 Second-Harmonic Generation of Lamb Waves in a Solid Layer on a Half Space. M. Deng¹, P. Wang², and X. Lv², ¹Department of Physics, Logistics Engineering University, China, ²College of Automation, Chongqing University of Posts and Telecommunications</p>	<p>P1U-L-9 K8 Acoustoelectric Transient Spectroscopy of Microwave Treated GaAs-based Structures. O. Y. Olikh*, Kyiv Taras Shevchenko National University</p>	<p>Session P1U-N TRANSDUCER ARRAY MODELING Chair: H. Kunkel Philips Ultrasound</p>	<p>P1U-O-1 L1 A New Low Frequency Piezoelectric Composite Transducer. D. Robertson*, G. Hayward, and A. Gachagan, Centre for Ultrasonic Engineering, Department of Electronic and Electrical Engineering</p>	<p>P1U-P-3 L9 Investigation of Spurious Resonances in Thin Film Bulk Acoustic Wave Resonators. A. Reinhardt^{1,2}, V. Laude¹, M. Solal², S. Ballandras¹, and W. Steichen², ¹FEMTO-ST, LPMO Department, ²TEMEX Microsonics</p>
<p>P1U-K-4 J4 Thin Film Bulk Acoustic Wave Resonator (TFBAR) Gas Sensor. M. Benetti¹, D. Cannata¹, A. D'Amico², F. Di Pietrantonio¹, V. Foglietti³, and E. Verona⁴, ¹Istituto di Acustica O.M. Corbino, CNR, ²Dipartimento di Elettronica, Università di Roma Tor Vergata, ³Istituto di Fotonica e Nanotecnologie, CNR</p>	<p>P1U-L-2 J12 Principles of Ultrasonic Velocimetry by Means of Nonlinear Interaction of Phase Conjugate Waves. Y. Pylnov^{1,2}, O. Bou Matar¹, V. Preobrazhensky^{1,3}, and P. Pernod¹, ¹Institut d'Electronique, de Microelectronique et de Nanotechnologie (IEMN DOAE UMR CNRS 8520) Ecole Centrale de Lille, ²Moscow Institute of Radioengineering, Electronics and Automation, ³Wave Research Center of General Physics Institute BAS</p>	<p>P1U-L-10 J11 Investigating Ultra-Thin Lubricant Layers using Resonant Friction Force Microscopy. W. Arnold¹, M. Reinstaedtler¹, U. Rabe¹, A. Goldade², and B. Bhushan², ¹Fraunhofer Institute for Non-Destructive Testing (IZFP), ²Nanotribology Laboratory for Information Storage and MEMS/NEMS</p>	<p>P1U-N-1 I1 Effect of a Curved Dome on the Effective Focus of an Annular Array — Numerical Simulations and Experimental Measurements. S. P. Näsholm*, T. F. Johansen, and B. A. J. Angelsen, Inst. comp: Department of Circulation and Imaging, Norwegian University of Science and Technology</p>	<p>P1U-O-2 L2 Fabrication and Modeling of Broadband Graded Transducers using Piezoelectric Partial Composites. H. K. Guo*, J. Cannata, Q. F. Zhou, and K. K. Shung, Department of Biomedical Engineering, University of Southern California</p>	<p>P1U-P-4 L10 Properties of AlN Films Grown by Two-Step Deposition and Characteristics of AlN-FBAR Devices. D.-H. Cho*, D.-Y. Kim, B.-H. Kim, J.-B. Lee, J.-P. Jung, and J.-S. Park, Dept. of Electrical Engineering, Hanyang University</p>
<p>P1U-K-5 J5 Ultrasonic Attenuation in Acoustic Touch Panels. M. Takeuchi¹, T. Gotsu¹, and J. Kent², ¹Faculty of Engineering, Tamagawa University, ²Elo TouchSystems, Inc.</p>	<p>P1U-L-3 J13 Numerical Analysis of Nonlinear Axisymmetrical Acoustic Resonators. C. Vanhille¹ and C. Campos-Pozuelo², ¹ESCET, ²Instituto de Acústica</p>		<p>P1U-N-2 I2 Effect of Acoustical Properties of a Lens on the Pulse Electroacoustic Response of a Single Element Transducer at Different Locations in the Radiated Field. P. Marechal¹, F. Levassort¹, L.-P. Tran-Huu-Hue¹, N. Felix², and M. Lethiecq¹, ¹GIP ULTRASONS/LUSSI, ²VERMON SA</p>	<p>P1U-O-3 L3 Finite Element Analysis of the Thickness Mode Resonance of Piezoelectric 1-3 Fibre Composites. R. Steinhäuser, C. Pientschke, W. Seifert, and H. Beige*, Martin-Luther-University Halle-Wittenberg</p>	

<p>Session P1FE-Q THIN FILMS Chair: J. P. Maria North Carolina State University</p>	<p>P1FE-Q-8 Z12 Influence of Ca Content on Dielectric Properties of (Ba_{1-x}Y_{Srx}Cay)TiO₃ Thin Films. D. Peng, W. Wu, and Z. Meng*, School of Materials Science and Engineering, Shanghai University</p>	<p>P1FE-Q-16 Y12 Thickness Effect of LaNiO₃ Interlayer on Electric Properties of Pb(Zr,Ti)O₃ with Metal Substrates. L. He, P. Zheng, J. Cheng, and Z. Meng*, School of Material Science and Engineering, Shanghai University</p>			
<p>P1FE-Q-1 Y5 Thermodynamics of Phase Stability and Elasto-dielectric Properties of Paraelectric BST Thin Films under 3D State of Strain. E. K. Akdogan*, W. K. Simon, and A. Safari, Dept. of Ceramic and Materials Eng'g, Rutgers University</p>	<p>P1FE-Q-9 Z13 The Simulation of Ferroelectric Thin Film Growth by Kinetic Monte Carlo Method. G. Yu, J. Zhu*, W. Lu, P. Yu, and D. Xiao, Department of Materials Science, Sichuan University, Chengdu 610064, China</p>	<p>P1FE-Q-17 Y13 180° Domain Structure in Epitaxial PbTiO₃ Ferroelectric Films. S.K. Streiffer^{*1}, G.B. Stephenson¹, D.D. Fong¹, J.A. Eastman¹, C. Thompson^{1,2}, O. Auciello¹, and P.H. Fuoss¹, ¹Materials Science Division, Argonne National Laboratory, Argonne, IL, ²Dept. of Physics, Northern Illinois University, DeKalb, IL</p>			
<p>P1FE-Q-2 Z6 Optical Micro-Scanner Fabricated on Stainless Steel by Aerosol Deposition Method. M. Lebedev* and J. Akedo, National Institute of Advanced Industrial Science and Technology</p>	<p>P1FE-Q-10 Y6 Preparation and Characterization of PZT(80/20)/PT Ferroelectric Multilayer Thin Films Prepared by Sol-Gel Method. X. Yuan, D. Xiao, G. Yu, Y. Fang, and J. Zhu*, Sichuan University Material Science Department</p>	<p>P1FE-Q-18 X13 Electron Backscatter Diffraction Micro-Texture Analysis of Pt and PZT Thin Films for FRAM. G. Fox^{*1}, T. Maitland², X. Han², and M. Vaudin³, ¹Ramtron International Corp., Colorado Springs, CO, ²HKL Technology Inc., Danbury, CT, ³NIST, Gaithersburg, MD</p>			
<p>P1FE-Q-3 Z7 Sol-Gel Derived Pb(Zr,Ti)O₃ Thin Films: Residual Stress, Orientation, and Electrical Properties. R. J. Ong*, T. A. Berfield, N. R. Sottos, and D. A. Payne, University of Illinois at Urbana-Champaign</p>	<p>P1FE-Q-11 Y7 The Effect of Thermal Treatment on PLD-Derived Ba_{0.8}Sr_{0.2}TiO₃ Thin Film Capacitor. C. Lin*, S. Xing, and Z. Song, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences</p>	<p>P1FE-Q-19 Z5 Ferroelectric Thin Films for Embedded Capacitor Applications. J.-P. Maria^{*1}, J. Ihlefeld¹, B. Laughlin¹, L. Jimison¹, M. Losego¹, and W. Borland², ¹North Carolina State University, Department of Materials Science and Engineering, Raleigh, NC, ²Dupont iTechnologies, Durham, NC</p>			

<p>P1FE-Q-4 Z8 Deposition of PZT Thin Films by Hybrid Process Comprising Sol-Gel Method and Laser Ablation for Microscanners. Z. Wang¹, H. Kokawa¹, J. Tsaur², and R. Maeda², ¹Department of Materials Processing, Graduate School of Engineering, Tohoku University, ²National Institute of Advanced Industrial Science and Technology</p>	<p>P1FE-Q-12 Y8 Fabrication and Characterization of Doped (Ba,Sr)TiO₃ Thin Films by an Improved sol-gel Method. Y. Fang, D. Xiao, X. Yuan, G. Yu, W. Lu, and J. Zhu*, Department of Material Science, Sichuan University</p>	<p><i>Session P1FC-R</i> THIN FILM BULK ACOUSTIC RESONATORS Chair: E. Eernisse Quartz Dyne Inc.</p>			
<p>P1FE-Q-5 Z9 The Electrical Characteristics of the (Ba_{0.7}Sr_{0.3})(Ti_{0.95}Zr_{0.05})O₃ Thin Film using Oxygen Plasma Surface Treatment. K.-H. Chen*, Y.-C. Chen*, C.-H. Chang, and C.-J. Wang, Department of Electrical Engineering</p>	<p>P1FE-Q-13 Y9 The Influences of Varied Sputtering Conditions on the Piezoelectric Coefficients of AlN Thin Films. K.-S. Kao¹, T.-F. Ou¹, Y.-C. Chen¹, and T.-K. Shing², ¹Department of Electrical Engineering, National Sun Yat-Sen University, ²Microsensor Laboratory, Industrial Technology Research Institute</p>	<p>P1FC-R-1 Q6 Self-Aligned Lateral Field Excitation Film Acoustic Resonator With Very Large Electromechanical Coupling. W. Pang¹, H. Yu¹, G. Feng¹, H. Zhang¹, and E. S. Kim¹, ¹University of Southern California, ²University of Southern California</p>			
<p>P1FE-Q-6 Z10 Preparation and Characterization of Pb(Zn_{1/3}Nb_{2/3}O₃-PbTiO₃ Thin Films. H. Maiwa¹ and N. Ichinose², ¹Shonan Institute of Technology, ²Waseda University</p>	<p>P1FE-Q-14 Y10 Microstructural and X-Ray Diffraction Investigations of Nanostructured Thin Films of ZnO. H. Bahadur¹, A. K. Srivastava¹, R. Kishore¹, and S. Chandra², ¹National Physical Laboratory, ²Center for Applied Research in Electronics, Indian Institute of Technology</p>	<p>P1FC-R-2 Q7 Bias-Enhanced Deposition of AlN Films and Characterization of AlN-Based Film Bulk Acoustic Resonators. D.-H. Cho*, D.-Y. Kim, B.-H. Kim, J.-B. Lee, J.-P. Jung, and J.-S. Park, Dept. of Electrical Engineering, Hanyang University</p>			
<p>P1FE-Q-7 Z11 Evaluation of Ba_{0.5}Sr_{0.5}TiO₃ as a Buffer Layer for Pb_{0.3}Sr_{0.7}TiO₃ Thin Films. B. Ni, D. Peng, W. Wu, and Z. Meng*, School of Materials Science and Engineering, Shanghai University</p>	<p>P1FE-Q-15 Y11 Processing and Property Studies of High Aspect Ratio Ferroelectric Nanostructures. B. Srowthi¹, N. Saldhana², M. Li², T. Mayer², V. Gopalan¹, and S. Trolier McKinstry¹, ¹Materials Science and Engineering and Materials Research Institute, ²Electrical Engineering Department</p>	<p>P1FC-R-3 Q8 The Method for Integrating FBAR with Circuitry on CMOS Chip. S. Po Hsun¹, C. Yung Chung², F. Chi Ming³, C. Pei Yen⁴, and C. Pei Zen³, ¹ERSO, Industrial Technology Research Institute, ²Institute of Electronic Engineering, Chung Yuan Christian University, ³Institute of Applied Mechanics, National Taiwan University, ⁴Chung-Shan Institute of Science and Technology</p>			

10:30 a.m – 12:00 p.m.

ULTRASONICS, Wednesday, August 25, 2004

Montreal

	<i>Session U1-C</i> CONTRAST AGENTS - FUNDAMENTALS Chair: N. De Jong Erasmus	<i>Session U2-C</i> BEAMFORMING I Chair: K. Thomenius GE	<i>Session U3-C</i> CMUT MODELING Chair: Y. Roh Kyungpook National University	<i>Session U4-C</i> BAW RESONATOR ANALYSIS, MAGNETIC INTERACTIONS Chair: K. Lakin TFR Technologies, Inc.	<i>Session U5-C</i> DMS FILTER Chair: C. Ruppel EPCOS AG	<i>Session U6-C</i> BAW SENSORS Chair: J. Vetelino University of Maine
	510AC	510BD	511AB	513AB	512C-H	512A-F
10:30 a.m.	U1-C-1 (Invited) Contrast Agents. P. N. Burns*, Depts. Medical Biophysics and Radiology, University of Toronto	U2-C-1 Spatial and Temporal Stability of Tissue Induced Aberration. J. J. Dahl ¹ , M. S. Soo ² , and G. E. Trahey ¹ , ¹ Duke University, ² Duke University Medical Center	U3-C-1 A Simple Distributed Model for c-MUT. F. Patat*, D. Certon, and F. Teston, GIP Ultrasons/LUSSI, CNRS FRE 2448	U4-C-1 Application of a DC Bias to Reduce Acceleration Sensitivity in Quartz Resonators. M. Patel* and Y.-K. Yong, Rutgers University	U5-C-1 DMS-Filters with Reduced Resistive Losses. G. Kovacs* and W. Sauer, EPCOS AG	U6-C-1 Electrode Optimization for a Lateral Field Excited Acoustic Wave Sensor. L. A. French ¹ , C. York ¹ , M. Meissner ² , G. Bernhardt ¹ , M. Pereira da Cunha ¹ , and J. F. Vetelino ¹ , ¹ Laboratory for Surface Science and Technology, ² Institute for Micro- and Sensor Systems, Sensors & Measurement Technology Group
10:45 a.m.		U2-C-2 A New Adaptive Imaging Technique using Optimal Aperture Size. M.-L. Li* and P.-C. Li*, Department of Electrical Engineering, National Taiwan University	U3-C-2 Dynamic FEM Analysis of Multiple CMUT Cells in Immersion. B. Bayram*, G. G. Yaralioglu, A. S. Ergun, and B. T. Khuri-Yakub, Stanford University	U4-C-2 Dedicated Finite Elements for Electrode Thin Films on Quartz Resonators. S. Srivastava ¹ , Y.-K. Yong ¹ , M. Tanaka ² , and T. Imai ² , ¹ Rutgers University, ² Seiko Epson, Inc.	U5-C-2 A Low-Loss and Wide-Band DMS filter using Pitch-Modulated IDT & Reflector Structures. O. Kawachi ¹ , T. Yamaji ¹ , Y. Kaneda ¹ , M. Tajima ¹ , S. Mitobe ¹ , Y. Ebata ¹ , S. Inoue ² , and K.-Y. Hashimoto ³ , ¹ Fujitsu Media Devices Limited, ² Fujitsu Laboratories Ltd., ³ Department of Electronic and Mechanical Engineering, Chiba University	U6-C-2 Kinetic Reaction Monitoring of Acidified Milk Gels with a Quartz Resonator. C. Ould Ehssein ¹ , S. Serfaty ¹ , P. Griesmar ¹ , E. Caplain ¹ , L. Martinez ¹ , and M. Gindre ² , ¹ ECIME, ² LIP

11:00 a.m.	U1-C-2 Microbubble Surface Modes. M. Versluis ^{*1} , P. Palanchon ² , D. Goertz ² , S. van der Meer ¹ , C. T. Chin ² , D. Lohse ¹ , and N. de Jong ^{1,2} , ¹ University of Twente, ² Erasmus MC	U2-C-3 High Resolution Ultrasonic Brain Imaging: Non Invasive Adaptive Focusing Based on Twin-Arrays. F. Vignon [*] , J.-F. Aubry, M. Tanter, and M. Fink, Laboratoire Ondes et Acoustique, ESPCI, Université Paris VII, U.M.R. C.N.R.S. 7587, 10 rue Vauquelin, 75005 Paris, France	U3-C-3 Analytical Calculation of Collapse Voltage of CMUT Membrane. A. Nikoozadeh [*] , B. Bayram, G. G. Yaralioglu, and B. T. Khuri-Yakub, Stanford University	U4-C-3 Optimization of Frame-Like Film Bulk Acoustic Resonators for Suppression of Spurious Lateral Modes using Finite Element Method. J.-H. Lee [*] , C.-M. Yao, K.-Y. Tzeng, C.-W. Cheng, and Y.-C. Shih, National Center for High-performance Computing	U5-C-3 (Invited) Evolution of the SAW Transducer for Communication Systems. D. C. Malocha [*] , ECE Dept., University of Central Florida	U6-C-3 Wideband Gelation Monitoring by Quartz Microbalance in Pulse Mode. E. Caplain ^{*1} , C. Ould Ehssein ¹ , L. Martinez ¹ , S. Serfaty ¹ , P. Griesmar ¹ , and M. Gindre ² , ¹ ECIME, ² LIP UMR CNRS 7623
11:15 a.m.	U1-C-3 Air Bubble Oscillations in an Ultrasound Field: Theoretical and Optical Results. P. Palanchon ^{*1} , A. Bouakaz ^{1,2} , and N. de Jong ^{1,2} , ¹ Erasmus Medical Center, ² Interuniversity Cardiology Institute Netherlands	U2-C-4 Resolution Improvement of Point Targets through Real-Time Phase Aberration Correction: In Vivo Results. S. A. McAleavey [*] , J. J. Dahl, and G. E. Trahey, Duke University	U3-C-4 Modeling and Design of cMUTs using Higher Order Vibration Modes for Harmonic Imaging. N. Hall [*] , J. McLean, and F. L. Degertekin, G.W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology	U4-C-4 Prediction of BAW Resonator Performance using Experimental and Numerical Methods. R. Thalhammer [*] , J. Kaitila, R. Aigner, and S. Marksteiner, Infineon Technologies		U6-C-4 Use of a Quartz Crystal Resonator to Study the Cell Adhesion Process on Ocular Bioactive Polymers. D. Le Guillou-Buffello ¹ , M. Gindre ¹ , V. Migonney ² , and P. Laugier ^{*1} , ¹ Laboratoire d'imagerie paramétrique CNRS-UMR 7623, Université Pierre et Marie Curie, ² Laboratoire de Biomateriaux et Polymères de Spécialité CNRS UMR 7052, Institut Galilée, Université Paris-13
11:30 a.m.	U1-C-4 Novel Method of Micro Bubble Manipulation by Self Organization in Ultrasonic Wave. Y. Yamakoshi [*] , Faculty of Engineering, Gunma University	U2-C-5 Refocusing Dual-mode Ultrasound Arrays in the Presence of Strongly Scattering Obstacles. H. Yao and E. Ebbini [*] , University of Minnesota	U3-C-5 (Invited) Accurate Modeling of CMUTs. R. Lerch ¹ , M. Kaltenbacher ^{*1} , M. Hofer ¹ , and H. Landes ² , ¹ University of Erlangen, ² WisSoft	U4-C-5 Excitability of Ultrasound Generated by Magnetostriction. V. J. Sánchez-Morcillo [*] , J. Redondo, V. Espinosa, and F. Camarena, Departamento de Física Aplicada, Escuela Politécnica Superior de Gandía, Universidad Politécnica de Valencia	U5-C-4 Experimental Results for a Longitudinally Coupled 5-IDT Resonator Filter with Distributed Gaps. J. Meltaus ^{*1} , V. P. Plessky ² , S. Härmä ^{1,2} , and M. M. Salomaa ¹ , ¹ Helsinki University of Technology, Materials Physics Laboratory, ² GVR Trade SA	U6-C-5 Sensitivity Enhancement of QCM Biosenor with Polymer Treatment. M. Atashbar ^{*1} , B. Bejcek ² , A. Vijh ¹ , and S. Singamaneni ¹ , ¹ Department of Electrical and Computer Engineering, Western Michigan University, ² Department of Biological Sciences, Western Michigan University
11:45 a.m.	U1-C-5 Monitoring the Pulse-to-Pulse Evolution of Microbubble Clouds using Light Scattering. J. Guan and T. Matula [*] , University of Washington	U2-C-6 Synthetic Aperture Angular Scatter Imaging. D. A. Guenther ^{*1} , K. Ranganathan ¹ , K. W. Rigby ² , and W. F. Walker ¹ , ¹ University of Virginia, ² General Electric		U4-C-6 Simulation of Magnetostatic Soliton Generation and Propagation in Thin YIG Films using Equivalent Circuit Technique. T. Kolke ^{*1} , R. Marcell ¹ , and G. Bartolucci ² , ¹ Tamagawa University, ² CNR-PSM, Rome Section, Microwave Microsystems Technology, ³ University of Roma "Tor Vergata"	U6-C-6 Quartz Thickness Shear Mode Resonator as a Functional Biosenor for Monitoring Living Cell Behavior under Controlled Biological Environments. F. Li ^{*1} , Q.-M. Wang ¹ , and J. H.-C. Wang ² , ¹ University of Pittsburgh, ² University of Pittsburgh	

Session FE1-C
THIN FILM II
 Chair: N. Setter
 EPFL

Session FC1-C
MINIATURE ATOMIC CLOCKS
 Chair: E. Rubiola
 LPMIA

Session FC2-C
MANUFACTURING TECHNOLOGY
 Chair: M. Nusbaum
 Saronix Corporation

513CD

511CF

511DE

10:30
a.m.

FE1-C-1 Improvement of Ultra-Thin Pb(Zr,Ti)O₃ Films by Controlling Interface with Novel Metal Electrode for High-Density Ferroelectric Memory Application by MOCVD. J.-M. Koo*, S. Kim, S. Shin, C. R. Cho, J. K. Lee, J. H. Lee, S. H. Park, Y. J. Cho, and Y. Park, Samsung Advanced Institute of Technology

FC1-C-1 (Invited) A Microfabricated Atomic Frequency Reference. S. Knappe^{*1}, L.-A. Liew², P. Schwindt^{1,3}, V. Shah^{1,3}, J. Moreland², L. Hollberg¹, and J. Kitching¹, ¹Time and Frequency Division, National Institute of Standards and Technology, ²Electromagnetics Division, National Institute of Standards and Technology, ³Department of Physics, University of Colorado

FC2-C-1 (Invited) Lattice Damages in Quartz Crystal Blanks — Influence on the Resonator Properties and on the X-Ray Measurement. E. Seydel^{*1}, H. Berger², G. Hildebrandt², and H. Bradaczek², ¹VITA-CHEMIE GmbH, ²EFG-International

10:45
a.m.

FE1-C-2 Enhanced Retention Property of Pb(Zr,Ti)O₃ Thin Film By Applying PbTiO₃ Seed Layer. B.-J. Bae*, K.-M. Lee, S.-D. Nam, J.-E. Lim, C.-M. Lee, S.-O. Park, U.-I. Chung, and J.-T. Moon, Process Development Team, Semiconductor R&D Division, Samsung Electronics Co

11:00 a.m.	FE1-C-3 Artificial Ferroelectricity in Paraelectric Superlattices. T. Tsurumi*, T. Harigai, D. Tanaka, H. Kakemoto, and S. Wada, Tokyo Institute of Technology			FC1-C-2 Practical Realization of a Passive Coherent Population Trapping Frequency Standard. J. Vanier* ^{1,2} , M. Levine ¹ , S. Kendig ¹ , D. Janssen ¹ , and M. Delaney ¹ , ¹ Kernco Inc, ² Physics Dept. University of Montreal	FC2-C-2 The Technique Development of Crystals and Oscillators in China and their Market Situation. W. Zhou*, H. Wang, J. Yu, and L. Bai, Xidian University	
11:15 a.m.	FE1-C-4 Epitaxial BiScO₃ Thin Films. S. Trolier-McKinstry* ¹ , M. Biegalski ¹ , D. Schlom ¹ , J. Wang ² , I. Takeuchi ² , and R. Ramesh ² , ¹ Materials Research Institute, Penn State, ² University of Maryland			FC1-C-3 Narrow Linewidth Coherent Population Trapping Signals in Small Vapor Cells for CHIP Scale Atomic Clock Application. M. Zhu* ¹ , L. S. Cutler ¹ , J. E. Berberian ¹ , J. F. DeNatale ² , P. A. Stupar ² , and C. Tsai ² , ¹ Agilent Laboratories, ² Rockwell Scientific Co.	FC2-C-3 Multistage Chemical Etching for High-Precision Adjustment of Resonance Frequencies in UHF Fundamental Quartz Resonators. H. Iwata* ^{1,2} , ¹ Toyo Communication Equipment Co., Ltd., ² Graduate School of Engineering, Tohoku University	
11:30 a.m.	FE1-C-5 Low Temperature AlN Thin Films Growth for Integrated Circuit Compatible Surface and Bulk Acoustic Wave Devices. M. B. Assouar*, O. Elmazria, M. El Hakiki, and P. Alnot, LPMI UMR 7040 CNRS, Université Henri Poincaré			FC1-C-4 All Optical Atomic Clock on a Chip. D. Strelakov, A. Savchenkov, N. Yu, A. Matsko, and L. Maleki*, Jet Propulsion Laboratory	FC2-C-4 Process Monitoring Via Self-Sensing Transducers. J. Wallaschek* ¹ , M. Brökelmann ¹ , and H. Hesse ² , ¹ Heinz Nixdorf Institut, University of Paderborn, ² Hesse & Knipps GmbH	
11:45 a.m.	FE1-C-6 Effect of 3-D State of Strain on the Elasto-Dielectric Properties of Paraelectric BST Thin Films on NdGaO₃. W. K. Simon*, E. K. Akdogan, and A. Safari, Rutgers University - Dept. of Ceramic and Materials Engineering					

1:30 p.m – 3:00 p.m.

ULTRASONICS, Wednesday, August 25, 2004

Montreal

40

	<i>Session U1-D</i> CONTRAST AGENTS - CHARACTERIZATION Chair: P. Burns University of Toronto	<i>Session U2-D</i> VASCULAR ELASTICITY I Chair: K. Nightingale Duke University	<i>Session U3-D</i> CMUT APPLICATIONS Chair: C. Daft Sensant Corp.	<i>Session U4-D</i> THIN FILM BAW RESONATORS AND FILTERS Chair: J. Vig US Army	<i>Session U5-D</i> SAW DEVICES AND PROPAGATION Chair: P. Smith McMaster University	
	510AC	510BD	511AB	513AB	512C-H	
1:30 p.m.	U1-D-1 New Contrast Imaging Method using Double Frequency Exposure. A. Bouakaz ^{1,2} and N. de Jong ^{1,2} , ¹ Erasmus Medical Center, ² Interuniversity Cardiology Institute Netherlands	U2-D-1 Cinical Evaluation of 3D Intravascular Ultrasound Palpography for Vulnerable Plaque Detection. A. F. W. van der Steen ^{1,2} , J. A. Schaar ^{1,2} , F. Mastik ¹ , C. L. de Korte ¹ , and P. W. Serruys ¹ , ¹ Biomedical Engineering Thorax Centre Erasmus Medical Centre Rotterdam The Netherlands, ² Interuniversity Cardiology Institute of the Netherlands	U3-D-1 (Invited) Medical Imaging with Capacitive Micromachined Ultrasound Transducer (cMUT) Arrays. D. M. Mills*, GE Global Research Center, Niskayuna, NY	U4-D-1 Wide Bandwidth Thin Film BAW Filters. K. M. Lakin*, TFR Technologies, Inc.	U5-D-1 Performances of Short Reflectors on 128° LiNbO₃. S. Lehtonen ¹ , V. P. Plessky ^{1,2} , C. S. Hartmann ³ , and M. M. Salomaa ¹ , ¹ Helsinki University of Technology, ² GVR Trade SA, ³ RF SAW, Inc.	
1:45 p.m.	U1-D-2 The Resonance Frequency of Individual Bubbles of Sonovue. S. van der Meer ¹ , M. Versluis ¹ , C. T. Chin ² , D. Lohse ¹ , and N. de Jong ^{1,2} , ¹ University of Twente, ² Erasmus MC	U2-D-2 Assessment of Vulnerable Coronary Plaque by Intravascular Elasticity Imaging. T. Shiina ¹ , N. Nitta ² , H. Endo ¹ , and M. Yamagishi ³ , ¹ Institute of Information Sciences and Electronics, Univ. of Tsukuba, ² Institute for Human Science and Biomedical Engineering, National Institute of Advanced Industrial Science and Technology, ³ National Cardiovascular Center		U4-D-2 Narrow Band Bulk Acoustic Wave Resonators and Filters. H.-P. Loebli ¹ , R. F. Milsom ¹ , C. Metzmacher ¹ , A. Tuinhout ² , and P. Lok ² , ¹ Philips Research Laboratories, ² Philips Discrete Semiconductors, MSI	U5-D-2 Calculation of the SAW-Induced Stress Distributions in an Electrode of a SAW-Device on LITAO₃. F. Kubat ¹ , W. Ruile ² , U. Rösler ² , and L. Reindl ¹ , ¹ University of Freiburg, ² Epcos AG	

2:00 p.m.	<p>U1-D-3 Experimental and Theoretical Contrast Agent Microbubble Collapse Threshold. A. Y. Ammi¹, J. Mamou², S. L. Bridal¹, and W. D. O'Brien, Jr², ¹Laboratoire d'Imagerie Parametrique CNRS UMR 7623, ²Bioacoustics Research Laboratory, Department of Electrical and Computer Engineering, University of Illinois</p>	<p>U2-D-3 Young's Modulus Reconstruction for Assessing Vulnerable Atherosclerotic Plaque Composition <i>In Vivo</i>. R. A. Baldewing¹, J. A. Schaar^{1,2}, F. Mastik¹, C. W. J. Oomens³, and A. F. W. van der Steen^{1,2}, ¹Biomedical Engineering, Thoraxcenter, Erasmus Medical Center Rotterdam, ²Interuniversity Cardiology Institute of the Netherlands (ICIN), ³Materials Technology, Biomedical Engineering, Eindhoven University of Technology</p>	<p>U3-D-2 Integrated Ultrasonic Imaging Systems Based on CMUT Arrays: Recent Progress. O. Oralkan¹, X. Zhuang¹, I. O. Wygant¹, D. Yeh¹, A. Nikoozadeh¹, A. S. Ergun¹, M. Karaman², and B. T. Khuri-Yakub¹, ¹E. L. Ginzton Laboratory, Stanford University, ²Isik University</p>	<p>U4-D-3 Single-To-Balanced Filters for Mobile Phones using Coupled Resonator BAW Technology. G. G. Fattinger[*], J. Kaitila, W. Nessler, and R. Aigner, Infineon Technologies AG</p>	<p>U5-D-3 A Novel Piezoelectric Interdigitated Transducer for the Excitation of High Frequency Surface Acoustic Wave W. Daniau¹, A. K. S. Kumar², P. Paruch², D. Marré³, L. Pellegrino², T. Tybell⁴, S. Ballandras¹, and J.-M. Triscone², ¹Institut FEMTO-ST, ²DPMC, University of Geneva, ³INFM, Research Unit of Genoa, ⁴Department of Physical Electronics</p>	
2:15 p.m.	<p>U1-D-4 Acoustic Detection of Controlled LIoB Bubble Creation in Tissue-Mimicking Gelatin Phantoms. C. Tse¹, M. J. Zohdy¹, J. Y. Ye², T. B. Norris², L. P. Balogh³, K. W. Hollman¹, and M. O'Donnell¹, ¹University of Michigan, Biomedical Engineering Department, ²University of Michigan, Center for Ultrafast Optical Science, ³University of Michigan, Center for Biologic Nanotechnology</p>	<p>U2-D-4 Non-Invasive High-Frequency Vascular Ultrasound Elastography: In-vitro Phantom Investigations. R. L. Maurice¹, M. Daronat¹, S. F. Foster², and G. Cloutier¹, ¹University of Montreal Hospital, ²Sunny Brook and Women's College Health Sciences Centre</p>	<p>U3-D-3 A cMUT Linear Array Used as Echographic Probe: Fabrication, Characterization, and Images. G. Caliano¹, R. Carotenuto³, E. Cianci², V. Foglietti², A. Caronti¹, and M. Pappalardo¹, ¹Università degli Studi Roma Tre - Dip. di Ingegneria Elettronica, ²Istituto di Fotonica e Nanotecnologie - CNR, ³Università degli Studi "Mediterranea" di Reggio Calabria - Dipartimento I.M.E.T.</p>	<p>U4-D-4 A Novel Design Technique & the Demonstration of a 2.0 mm x 1.6 mm Chip-on-Board PCSTx Band Pass Filter with Steep Low and High Frequency Rolloffs Having High Rejection in the PCS Rx & Image Bands. D. Feld[*], P. Bradley, B. Yu, and D. Lee, Agilent Technologies</p>	<p>U5-D-4 Fast FEM/BEM Computation of SAW Harmonic Admittance and Slowness Curves. V. Laude^{*1}, A. Reinhardt¹, S. Ballandras¹, A. Khelif¹, and M. Sola², ¹FEMTO-ST, ²TEMEX</p>	
2:30 p.m.	<p>U1-D-5 (Invited) U2: Combined Ultrasonic Microscopy and Ultrafast Optics for Molecular Imaging and Therapy. M. O'Donnell¹, C. Tse¹, M. Zohdy¹, T. Erpelding¹, and K. Hollman¹, ¹Biomedical Engineering Department, ²Electrical Engineering & Computer Science Department, ³Internal Medicine Department</p>	<p>U2-D-5 Estimation of 2D Displacement and Strain Field in High Frequency Ultrasound Based Elastography. M. Vogt[*], C. Perrey, and H. Ermert, Institute of High Frequency Engineering, Ruhr-Universitaet Bochum, Germany</p>	<p>U3-D-4 High-Frequency CMUT Arrays for High-Resolution Medical Imaging: Preliminary Results. O. Oralkan[*], S. T. Hansen, A. S. Ergun, and B. T. Khuri-Yakub, E. L. Ginzton Laboratory, Stanford University</p>	<p>U4-D-5 3.8mm x 3.8mm PCS-CDMA Duplexer Incorporating Thin Film Resonator Technology. H. Heinze[*], E. Schmidhammer, C. Diekmann, and T. Metzger, EPCOS AG</p>	<p>U5-D-5 SAW Delay Lines on Single Crystal GaN Films on Si and Sapphire: Acoustic Parameter Extraction. A. Peczkalski[*], J. Detry, P. Bauhahn, V. Buiculescu, M. Gologanu, and C. Cobianu, Honeywell</p>	
2:45 p.m.		<p>U2-D-6 Arterial Elastic Modulus Reconstruction from <i>In-vivo</i> Strain Image using Arterial Pressure Equalization. K. Kim¹, W. F. Weitzel², J. M. Rubin³, H. Xie¹, X. Chen¹, and M. O'Donnell¹, ¹Department of Biomedical Engineering, University of Michigan, ²Department of Internal Medicine, University of Michigan, ³Department of Radiology, University of Michigan</p>	<p>U3-D-5 CMUT Ring Arrays for Forward-looking Intravascular Imaging: Preliminary Results. O. Oralkan[*], S. T. Hansen, A. S. Ergun, and B. T. Khuri-Yakub, E. L. Ginzton Laboratory, Stanford University</p>	<p>U4-D-6 New Electrode Materials for Low-loss and High-Q FBAR Filters. T. Yokoyama¹, T. Nishihara¹, S. Taniguchi¹, M. Iwaki¹, T. Miyashita², and Y. Satoh¹, ¹Fujitsu Laboratories Ltd., ²Fujitsu Media Devices Limited</p>	<p>U5-D-6 RF-SAW Filters on Pyro-Suppressed Wafers. K. A. Vetelino[*], P. Welsh, M. Aguirre, and B. P. Abbott, Sawtek Inc.</p>	

1:30 p.m – 3:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Wednesday, August 25, 2004

Montreal

	<i>Session FE3-D</i> PIEZOELECTRIC DEVICES Chair: A. Akdogan Rutgers University	<i>Session FE1-D</i> SINGLE CRYSTALS Chair: J. Yamashita Toshiba Corporation		<i>Session FC1-D</i> ENHANCING MICROWAVE STANDARD PERFORMANCE Chair: E. Burt JPL	<i>Session FC2-D</i> APPLICATIONS, JITTER, AND MINIATURE OSCILLATORS Chair: M. Frerking Innovative Technology Products	
	512A-F	513CD		511CF	511DE	
1:30 p.m.	FE3-D-1 (Invited) Theoretical Study of the Influence of the Electromechanical Constants and Non Linear Mechanical Losses of Various Piezoelectric Materials on their Performances in Power Transducers. P. Gonnard*, LGEF INSA	FE1-D-1 (Invited) Stress Dependent Electromechanical Properties of High Coupling Crystals. A. Amin*, Naval Sea Systems Command		FC1-D-1 Large Enhancement of CPT Signals in Frequency Standards. Y.-Y. Jau ^{*1} , E. Miron ² , A. Post ¹ , N. Kuzma ¹ , and W. Happer ¹ , ¹ Princeton University, ² NRCN	FC2-D-1 Mechanically-Coupled Micromechanical Resonator Arrays for Improved Phase Noise. S. Lee* and C. T.-C. Nguyen, University of Michigan	
1:45 p.m.				FC1-D-2 High Pressure CPT Signals using Intensity Modulated Light. A.B. Post*, Y.-Y. Jau, N.N. Kuzma, M.V. Romalis, and W. Happer, Princeton University	FC2-D-2 The Calculation of Frequency Source Requirements for Digital Communications Systems. V. S. Reinhardt*, Boeing Satellite Systems	

2:00 p.m.	FE3-D-2 Characterization and Modeling of Local Deformation Response in Stress-Biased Piezoelectric Actuators. N. Navapan ¹ , R. Schwartz ¹ , and D. Stutts ² , ¹ University of Missouri-Rolla, ² University of Missouri-Rolla	FE1-D-2 Broadband, High Power Sonar Arrays using Ferroelectric Single Crystals. H. C. Robinson ^{*1} , J. M. Powers ² , and M. B. Moffett ³ , ¹ NUWC Division Newport, ² EDO Corporation, ³ Anteon Corporation		FC1-D-3 Buffer Gas Experiments in Mercury (Hg⁺) Ion Clocks. S. K. Chung [*] , J. D. Prestage, R. L. Tjoelker, and L. Maleki, Jet Propulsion Laboratory	FC2-D-3 The Performance of the Anti-Jitter Circuit with Enhanced Feedback ('ef-ajc'). M. J. Underhill ^{*1,2} and J. Brodrick ² , ¹ University of Surrey, ² Toric Limited	
2:15 p.m.	FE3-D-3 Limitation of the Degradation Effect in Piezoelectric Multilayer Actuators with Ceramic Layer Thickness Below 50 μm. M. Laurent ^{*1} , H. Bödinger ¹ , T. Steinkopff ¹ , K. Lubitz ¹ , C. Schuh ¹ , S. Wagner ² , M. J. Hoffmann ² , H. Murmann-Biesenecker ³ , and A. J. Schmid ³ , ¹ SIEMENS AG CT MM2, ² Institute for Ceramics in Mechanical Engineering, ³ Argillon GmbH	FE1-D-3 Role of the Mn-Doping on Structural and Electromechanical Properties of 0.93PZN-0.07PT Single Crystals. C. Augier ^{*1,2} , M. Pham Thi ¹ , H. Dammak ² , P. Gaucher ² , and O. Lacour ³ , ¹ Thales Research & Technology France, ² Ecole Centrale de Paris, ³ Thales Underwater Systems		FC1-D-4 Laser-Pumped, Vapor-Cell Atomic Clock Employing a High Buffer-Gas Pressure Resonance Cell. J. Camparo ^{*1} , J. Coffer ¹ , and J. Townsend ^{1,2} , ¹ The Aerospace Corporation, ² University of Southern California	FC2-D-4 Direct Mounting of Quartz Crystal on a CMOS PLL Chip. H. Kim ^{*1} , J. Lim ² , K. Choi ² , D. Kenny ³ , and T. Jackson ¹ , ¹ Department of Electrical Engineering, The Pennsylvania State University, ² Department of Computer Science & Engineering, The Pennsylvania State University, ³ Saronix East Development Center	
2:30 p.m.	FE3-D-4 Low-frequency, Highly-sensitive Magneto-electric Laminate Composite for Anomaly Detection. D. Viehland [*] , S. Dong, and J. F. Li, Virginia Tech	FE1-D-4 Application of Pb[(Zn_{1/3}Nb_{2/3})_{0.91}Ti_{0.09}]O₃ Single Crystal with Giant k₃₁ Mode to Piezoelectric Bimorph. T. Ogawa [*] , M. Sakai, and T. Yamada, Shizuoka Institute of Science and Technology		FC1-D-5 (Invited) Methods for Reducing Microwave Resonance Asymmetry in Coherent-Population-Trapping Based Frequency Standards. L. S. Cutler [*] , M. Zhu, and J. E. Berberian, Agilent Laboratories	FC2-D-5 Jitter Analysis of Digital Frequency Dividers in Communication Systems. A. Fahim [*] , Qualcomm Inc.	
2:45 p.m.	FE3-D-5 Temperature Dependence of a Piezoelectric Sensor. E. P. Gnanamanickam ^{*1} , J. P. Sullivan ¹ , and J. Brosch ² , ¹ School of Aeronautics and Astronautics, Purdue University, ² Piezotechnologies	FE1-D-5 Observation of Hierarchical Domain Structures in PMN-x%PT Crystals by Piezo-force Microscopy. D. Viehland [*] , F. M. Bai, and J. F. Li, Virginia Tech			FC2-D-6 2.4 and 2.5 GHz Miniature, Low-Noise Oscillators Based on Surface Transverse Wave Resonators and a SiGe Sustaining Amplifier. C. E. Hay ^{*1} , R. J. Kansy ² , and M. E. Harrell ¹ , ¹ Q-DOT, Inc., ² RF Monolithics, Inc.	

3:00 p.m – 6:30 p.m.

Wednesday, August 25, 2004, POSTER SESSIONS

Montreal

<p><i>Session P2FC-A</i> PHYSICAL SENSORS Chair: R. Lucklam University of Magdeburg</p>	<p>P2FC-B-4 O8 A Method for the Fast Analysis of Vibrations of Mindlin First-order Plates for Resonator Design Applications. J. Wang*, T. Bian, and W. Zhao, Department of Engineering Mechanics and Material Science, School of Engineering, Ningbo University</p>	<p>P2FC-C-6 P7 Experimental Study on Mode-Coupling Strength in At-Cut Quartz Resonators with Multi-Stepped Bi-Mesa Structure. S. Goka*, Y. Mase, H. Sekimoto, Y. Watanabe, and T. Sato, Tokyo Metropolitan University</p>	<p>P2FE-D-6 V12 Phase Transformations After a Prior Electric Field Poling in $Pb(Mg_{1/3}Nb_{2/3})_{1-x}Ti_xO_3$ Crystals. F.-T. Wang^{1,2}, C. Tu¹, R. R. Chien², and V. H. Schmidt², ¹Dept. of Physics, Fu Jen University, ²Dept. of Physics, Montana State University</p>	<p>P2FE-E-6 X1 Enhanced Piezoelectric Properties of Potassium Niobate Single Crystals by Domain Engineering. S. Wada¹, K. Muraoka¹, H. Kakemoto¹, T. Tsurumi¹, and H. Kumagai², ¹Tokyo Institute of Technology, ²Asahi Techno Glass</p>	<p>P2FE-E-14 V6 Complex Rare-Earth Substituted Lead Titanate Piezoceramics. E. Dimitriu¹, F. Craciun², P. Verard², V. Ciupina¹, and G. Prodan¹, ¹Interdisciplinary Research Institute for Micro and Nanostructure, University "Ovidius", ²Istituto di Acustica "O.M. Corbino"</p>
<p>P2FC-A-1 O3 Development of SAW Pressure Sensor using ZnO/Si Structure. A. Talbi*, F. Sarry, L. Lebrizoual, O. Elmazria, and P. Alnot, Laboratoire de Physique des Milieux Ionisés et Applications</p>	<p>P2FC-B-5 O9 Optimization of the SAW Filter Design by Immune Algorithm. S. Goto* and T. Kawakatsu, Murata Mfg. Co., Ltd.</p>	<p>P2FC-C-7 P1 Experimental Study of Temperature Effects in Vibrating Beam and Thickness-Shear Resonators of GaPO4 Machined by Ultrasound Milling. L. Delmas, F. Sthal*, E. Bigler, J. J. Boy, and R. Bourquin, FEMTO-ST, UMR CNRS 6174, Laboratoire de Chronométrie, Electronique et Piézoélectricité, Ecole Nationale Supérieure de Mécanique et des Microtechniques</p>	<p>P2FE-D-7 V11 Phase Transition Behavior for PMN-PT Single Crystals in the Morphotropic Phase Boundary Region. A. Sehilioglu¹, P. D. Han², and D. A. Payne¹, ¹University of Illinois, ²H.C. Materials Corp., Urbana, IL</p>	<p>P2FE-E-7 X2 (K,Na)NbO₃-SrTiO₃ Lead-Free Relaxors. J. Holc*, V. Bobnar, M. Hrovat, J. Bernard, B. Malic, and M. Kosec, Jozef Stefan Institute</p>	<p><i>Session P2FC-F</i> PIEZOELECTRIC MATERIALS Chair: E. Eernisse Quartzdyne Inc</p>
<p>P2FC-A-2 O5 Measurement of Silicone Rubber Hardness by Use of a Quartz-Crystal Tuning-Fork Tactile Sensor. H. Itoh*, K. Mihara, Y. Yamada, and K. Ishikawa, Faculty of Engineering, Shinhsu University</p>	<p><i>Session P2FC-C</i> CRYSTAL AND MICROWAVE RESONATORS Chair: B. Oulmet LCEP</p>	<p><i>Session P2FE-D</i> SINGLE CRYSTAL Chair: S. Rhee Fraunhofer - IBMT</p>	<p><i>Session P2FE-E</i> PIEZOELECTRIC MATERIALS AND DEVICES Chair: E. Prasad BM HiTech</p>	<p>P2FE-E-8 X3 A High-Power Piezoelectric Transformer using in DC/DC Converters. J. Du*, J. Hu, and K. J. Tseng, Nanyang Technological University</p>	<p>P2FC-F-1 P8 Piezoelectricity in Poled Silica Films by Super-Lattice Structure with Tetravalent Metal Dopants. S. Noge*, M. Shiroishi, and T. Uno, Kanagawa Institute of Technology</p>
<p>P2FC-A-3 O7 Experimental Study of Quartz Crystal Gyro Sensor using Double-Ended Tuning Fork Resonator. K. Sato¹, A. Ono¹, and Y. Tomikawa², ¹Toyo Communication Equipment Co., Ltd., Japan, ²Yamagata University, Japan</p>	<p>P2FC-C-1 P2 Proposal of the Frequency Measurement Method for GHz Band Crystal Units. M. Koyama* and T. Sato, Nihon Dempa Kogyo Co., Ltd.</p>	<p>P2FE-D-1 U10 Growth of $Pb(In_{1/2}Nb_{1/2})O_3$-$PbTiO_3$ Crystals by the Solution Bridgman Method. Z. Duan, G. Xu*, X. Wang, and D. Yang, Shanghai Institute of Ceramics</p>	<p>P2FE-E-1 V1 Dielectric Properties of The SFE $(Pb_{1-x}La_x)(Zr_{1-y}Ti_y)_{1-x/4}O_3$ Ceramics Under Hydrostatic Pressures and DC Bias Field. B. Zhang, Z. Xu, Y. Feng, and J. Wang, Electronic Material Research Laboratory (EMRL), Key Laboratory of Education Ministry</p>	<p>P2FE-E-9 X4 Designing a Radial Mode Laminated Piezoelectric Transformer for High Power Applications. P. Laoratanakul¹, S. Manuspiya², and K. Uchino², ¹National Metal and Materials Technology Center (MTEC), ²International Center for Actuators and Transducers (ICAT)</p>	<p>P2FC-F-2 P9 Influence Electron and γ-Irradiation on Piezoelectric and Elastic Properties of Langasite Crystals. Y. Pisarevsky¹, V. Skuratov², A. Blagov¹, and B. Mill¹, ¹Institute of Crystallography RAS, ²Joint Institute of Nuclear Research</p>

<p>Session P2FC-B RESONATOR ANALYSIS AND MODE IMAGING Chair: E. Eernisse Quartzdyne Inc</p>	<p>P2FC-C-2 P3 Cavity Designs for a Space Hydrogen Maser. J. G. Hartnett¹, M. E. Tobar¹, P. Stanwix¹, T. Morikawa², D. Cross³, and O. Piquet³, ¹School of Physics, The University of Western Australia, ²Communications Research Laboratory, Japan, ³IRCOM, France</p>	<p>P2FE-D-2 U11 Low Symmetry Mono-Domain Pb[(Zn_{1/3}Nb_{2/3})_{0.91}Ti_{0.09}]O₃ Single Crystal with Giant Electromechanical Coupling Factor of k₃₁ Mode. T. Ogawa¹, M. Sakai, and T. Yamada, Shizuoka Institute of Science and Technology</p>	<p>P2FE-E-2 V7 Phenomenological and Structural Studies of the Morphotropic Phase Boundary in Lead Zinc Niobate (PZN)-Lead Titanate(PT). T. Yamamoto¹, H. Oka, and H. Okino, National Defense Academy</p>	<p>P2FE-E-10 V2 Driving of 35W (T5) Fluorescent Lamp by the Electronic Ballast using Piezoelectric Transformer. E. Jang¹, L. Hwang¹, J. Yoo¹, K.-H. Chung¹, I. S. Lee², Y. Jeong³, and H. Jeong⁴, ¹Semyung University, ²Chungju University, ³KEPRI, ⁴Juseong College</p>	<p>P2FC-F-3 P10 Silver Tantalum Niobate, Ag(Ta_{0.5}Nb_{0.5})O₃, Thin Films on (111)PbTi/SiO₂/(100)Si and (001)SrRuO₃ / (001)LaAlO₃ Substrates by Chemical Solution Deposition. M. B. Telli¹, M. Biegalski¹, S. Trolter-McKinstry¹, D. I. Woodward², and I. M. Reaney², ¹Materials Research Institute, The Pennsylvania State University, ²Department of Engineering Materials, University of Sheffield</p>
<p>P2FC-B-1 O2 Vibration Modes Analysis by X-ray Topography in Quartz and Langasite Resonators. I. Mateescu¹, B. Capelle², J. Detaint², G. Johnson³, and C. Bran¹, ¹National Institute of Materials Physics, ²University "Pierre et Marie Curie", ³Sawyer Research Products</p>	<p>P2FC-C-3 P4 Dual Mode Crystal Resonator With Lateral Field Excitation. A. Lepetaev and A. Kosykh¹, Omsk State Technical University</p>	<p>P2FE-D-3 U12 TGS Crystals with Non-Uniform Distribution of the Impurity. V. N. Shut¹ and I. F. Kashevich, Institute of Technical Acoustics NAS Belarus</p>	<p>P2FE-E-3 V8 Harmonic Analysis of the Polarization and Strain Response in Lead Zirconate Titanate-based Ceramics. S. Srilomsak and W. A. Schulze¹, Alfred University</p>	<p>P2FE-E-11 V3 The Transverse Strain Response of Electroactive Polymer Actuators. G. Yang¹, W. Ren¹, B. K. Mukher¹, and J. P. Szabo², ¹Department of Physics, Royal Military College of Canada, ²DRDC Atlantic</p>	<p>P2FC-F-4 P11 Measurements of the Viscosity Tensor Components of Langasite. G. Mansfeld¹, S. Alekseev¹, V. Kludzin², Y. Pisarevskii³, and V. Veretin¹, ¹Institute of radioengineering and electronics RAS, ²St.Petersbug State University of aerospace instrumentation, ³Institute of Crystallography RAS</p>
<p>P2FC-B-2 O4 An Analysis Of Lateral Field Excitation Convex Piezoelectric Resonators Of Thickness-Shear Vibrations. S. S. Nedorezov¹, O. Y. Shmaliy¹, and Y. S. Shmaliy², ¹Ukrainian Engineering-Pedagogical Academy, ²Guanajuato University</p>	<p>P2FC-C-4 P5 Thermal Transient Effect of Y-Cut Langanite and Langatate. Y. Kim¹, US Army CERDEC</p>	<p>P2FE-D-4 U13 Growth of Silver Lithium Niobate Single Crystals and Their Piezoelectric Properties. S. Wada, A. Saito, S. Uraki, H. Kakemoto, and T. Tsurumi¹, Tokyo Institute of Technology</p>	<p>P2FE-E-4 V9 The Isovalent Substitution at B-site of Modified Bi_{0.5}Na_{0.5}TiO₃ Piezoelectrics. A. Thanaboonsombut, S. Danwittayakul, P. Setasuwan¹, and N. Vaneesorn, National Metal and Materials Technology Center</p>	<p>P2FE-E-12 V4 Electroactive Polymer Based Microfluid Pump. F. Xia, S. Tadigadapa, and Q. M. Zhang¹, The Pennsylvania State University</p>	<p>P2FC-F-5 P12 Changes in Defects under External Influence in Langasite. A. Dubovskiy¹, G. Kuz'micheva², E. Dovoroshchina¹, S. Stepanov¹, and A. Tsegilev¹, ¹Russian Research Institute for Mineral Synthesis, ²Lomonosov State Academy of Fine Chemical Technology</p>
<p>P2FC-B-3 O6 In-Plane Mode Shape Visualization of Piezoelectric Resonators using Stroboscopic Laser Irradiation. Y. Watanabe¹, K. Tsuno, S. Goka, T. Sato, and H. Sekimoto, Graduate School of Engineering, Tokyo Metropolitan University</p>	<p>P2FC-C-5 P6 Study of Frequency-Temperature Characteristics of Quartz with Various Cut Angle and Metal Thickness of Electrode. M.-H. Chung¹, S. T. Wang¹, and A. C. S. Huang², ¹Department of Electrical Engineering, I-Shou University, ²ftech Corporation</p>	<p>P2FE-D-5 V13 Pyroelectric Properties of (1-x)Pb(Mg_{1/3}Nb_{2/3})O₃-xPbTiO₃ and (1-x)Pb(Zn_{1/3}Nb_{2/3})O₃-xPbTiO₃ Single Crystals Measured using a Dynamic Method. M. Davis¹, D. Damjanovic, and N. Setter, Swiss Federal Institute of Technology-EPFL</p>	<p>P2FE-E-5 V10 Piezoelectric Relaxation and Large Anisotropy of Modified Lead Titanate Ceramics. A. Barzegar¹, D. Damjanovic, and N. Setter, Swiss Federal Institute of Technology Lausanne - EPFL</p>	<p>P2FE-E-13 V5 Development of Bimorph Vibrator using Lead Free BNT Piezoelectric Film Deposited by Hydrothermal Method. T. Hasegawa¹, N. Kawashima¹, M. Ishikawa^{1,2}, M. Kurosawa², and S. Takeuchi¹, ¹Toin University of Yokohama, ²Tokyo Institute of Technology</p>	<p>P2FC-F-6 P13 Radiation Induced Glow Peaks in Ge-Doped Cultured Quartz Crystals. H. Bahadur¹, National Physical Laboratory</p>

3:00 p.m – 6:30 p.m.

Wednesday, August 25, 2004, POSTER SESSIONS

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<p>P2FC-F-7 Q13 Point Defects in Quartz Crystals and Their Radiation Response—A Review. H. Bahadur*, National Physical Laboratory</p>	<p><i>Session P2U-H</i> CONTRAST AGENTS II Chair: N. De Jong Erasmus University</p>	<p><i>Session P2U-I</i> BEAMFORMING II Chair: J. Hossack University of Virginia</p>	<p>P2U-I-8 F8 An Alternative Frequency Domain Beamforming. F. Bertora¹, C. Parodi¹, P. Pellegritti¹, A. Questa¹, and A. Trucco², ¹Esaote, ²Dept. of Biophysical and Electronic Engineering, University of Genoa</p>	<p>P2U-J-6 G12 Generation of Regional Strain Inside Object using Acoustic Radiation Forces. Y. Nishio*, N. Hashimoto, H. Hasegawa, and H. Kanai, Graduate School of Engineering, Tohoku University</p>	<p>P2U-K-6 G8 Accuracy of the Resonance Ultrasound Method in Determination of the Acoustic Phase Shifts in Plastic Plates at Oblique Angles of Incidence. J. Aamio¹, G. T. Clement², and K. Hynynen^{1,2}, ¹Department of Applied Physics, University of Kuopio, ²Department of Radiology, Harvard Medical School, Brigham and Women's Hospital</p>
<p><i>Session P2FC-G</i> MANUFACTURING TECHNOLOGY Chair: B. Tysinger Agilent Technologies</p>	<p>P2U-H-1 E7 Gaussian Integration Technique to Predict Backscatter Characteristics from Multiple Microbubbles with Wide Size Distribution using a Modified Rayleigh-Plesset Model. H. Zheng¹ and R. Shandas^{1,2}, ¹University of Colorado at Boulder, ²The Children's Hospital, Division of Cardiology</p>	<p>P2U-I-1 F1 Very Small Size Beamformer with 1.5bit ADCs for Hand-Held Ultrasound Imaging Systems. J.-J. Kim* and T.-K. Song, Center for Medical Solutions Research, Dept. of EE, Sogang University</p>	<p>P2U-I-9 F9 Pre-Amplifier Arrays for Intra-Oral Ultrasound Probe Receiving Electronics. L. L. Lay*, S. J. Carey, C. M. Gregory, and J. V. Hatfield, UMIST</p>	<p>P2U-J-7 G11 Mechanical Characterization of the Vitreous Body with Acoustic Radiation Force. F. Viola¹, C. Toth², and W. Walker¹, ¹University of Virginia, ²Duke University</p>	<p>P2U-K-7 G9 Evaluation of Ultrasonic Texture and Spectral Parameters for Coagulated Tissue Characterization. S. Siebers¹, M. Schwabe¹, U. Scheipers¹, C. Welp², J. Werner², and H. Ermert¹, ¹Institute of High Frequency Engineering, Ruhr-University Bochum, ²Institute of Biomedical Engineering, Ruhr-University Bochum</p>
<p>P2FC-G-1 O10 Quartz Resonator of Plano-Plano Type in Two-Steps Shape. Y. Nagaura¹, K. Nagaura¹, and Z.-I. Nagaura^{1,2}, ¹NagauraLab., ²Kyushu University</p>	<p>P2U-H-2 E8 Multiple Scattering of Ultrasound in Suspensions of Contrast Agent Particles: Simulations and Experimental Results. E. Stride*, Department of Mechanical Engineering, University College London</p>	<p>P2U-I-2 F2 A Method for Simultaneous Multi-Zone Focusing Along Multiple Scan Lines using Orthogonal Codes and Its Application to Multi-Dimensional Array Imaging. B.-H. Kim* and T.-K. Song, Center for Medical Solutions Research, Electronic Engineering, Sogang University</p>	<p><i>Session P2U-J</i> TISSUE CHARACTERIZATION: VESSELS Chair: K. Thomenius GE R&D</p>	<p><i>Session P2U-K</i> ULTRASOUND THERAPY Chair: L. Crum University of Washington</p>	<p><i>Session P2U-L</i> BIOEFFECTS Chair: W. O'Brien University of Illinois</p>
<p>P2FC-G-2 O11 Manufacturing Method and Electrical Characteristics of Shock-Tolerant Grooved Type Quartz Resonators in Two-Steps Convex-Lens Shape with Bend Phenomenon. Y. Nagaura^{1,2}, K. Nagaura¹, and Z.-I. Nagaura^{1,3}, ¹Nagaura Lab. Co., Inc., ²Sinshu University, ³Kyushu University</p>	<p>P2U-H-3 E9 Ultrasound Signals and Images Simulation of Phantoms with Contrast Agent. B. Durning¹, J. Laval¹, H. Torp², and C. Cachard¹, ¹Creatis, UMR 5515 CNRS, U 630 INSERM, Université Claude Bernard Lyon1, ²Department of Circulation and Medical Imaging, NTNU, Norway</p>	<p>P2U-I-3 F3 Optimized Filters for Dynamic RF Echo Blending in Multiple Focal Zone Imaging. W. G. Wilkening^{1,2}, B. Brendel^{1,2}, C. Hansen^{1,2}, and H. Ermert^{1,2}, ¹Institute of High Frequency Engineering, Ruhr-Universitaet Bochum, ²Ruhr Center of Excellence for Medical Engineering (KMR)</p>	<p>P2U-J-1 F10 Ultrasonic Measurement of Change in Elasticity of Brachial Artery due to Flow-Mediated Dilatation for Evaluation of Endothelial Function. M. Sugimoto*, H. Hasegawa, and H. Kanai, Graduate School of Engineering, Tohoku University</p>	<p>P2U-K-1 G3 Automated HIFU Treatment Planning and Execution based on 3D Modeling of the Prostate, Urethra, and Rectal Wall. R. Seip¹, R. F. Carlson¹, W. Chen¹, N. T. Sanghvi¹, K. A. Dines², M. A. Penna³, and R. Pfile¹, ¹Focus Surgery, Inc., ²DATA Corporation, ³Dept. of Mathematical Sciences, Indiana University, ⁴CoEval Systems LLC</p>	<p>P2U-L-1 E1 The Effect of Tissue Type and Exposure Parameters on Controlled Ultrasound Tissue Erosion. M. A. Cooper¹, Z. Xu¹, J. B. Fowlkes², A. P. Advincula³, and C. A. Cain¹, ¹University of Michigan, Biomedical Engineering, ²University of Michigan, Radiology, ³University of Michigan, Obstetrics and Gynecology</p>

<p>P2FC-G-3 O12 State-of-the-Art in the Design and Manufacture of Low Acceleration Sensitivity Resonators. R. B. Haskell^{*1}, J. E. Buchanan², P. E. Morley¹, B. B. Desai², M. A. Esmiol¹, M. E. Martin², and D. S. Stevens¹, ¹Vectron International Hudson, ²Vectron International Cinox</p>	<p>P2U-H-4 E10 Contrast Agent Detection through Low Frequency Manipulation of High Frequency Scattering Properties. R. Hansen[*] and B. A. J. Angelsen, Department of Circulation and Medical Imaging</p>	<p>P2U-I-4 F4 Arbitrary Waveform Coded Excitation using Bipolar Square Wave Pulsers. S.-W. Huang^{1,2} and P.-C. Li^{*1,2}, ¹Department of Electrical Engineering, National Taiwan University, ²National Health Research Institutes</p>	<p>P2U-J-2 F11 Blood Coagulation and Clot Formation Studies using High Frequency Ultrasounds. C.-C. Huang[*] and S.-H. Wang, Department of Biomedical Engineering, Chung Yuan Christian University</p>	<p>P2U-K-2 G4 Intravascular Ultrasound Ablation Catheter for Treating Atrial Fibrillation. S. H. Wong[*], G. C. Scott, S. M. Conolly, G. Narayan, and D. H. Liang, Stanford University</p>	<p>P2U-L-2 E2 Microbubble Potentiated Changes in Cell Permeability and Viability. R. Karshafian[*], P. D. Bevan, and P. N. Burns, Department of Medical Biophysics, University of Toronto, Sunnybrook & Women's College Health Sciences Centre</p>
<p>P2FC-G-4 O13 Development of Thin Film Getters for Assuring High Reliability and Long Lifetime to Crystal Oscillators. M. Moraja^{*1}, M. Amiotti¹, A. Conte¹, and H. Florence², ¹SAES Getters S.p.A., ²SAES Getters USA Inc.</p>	<p>P2U-H-5 E11 Design and Implementation of FM-Coded Harmonics. T. Misaridis[*], N. Uzunoglu, and N. Uzunoglu, National Technical University of Athens</p>	<p>P2U-I-5 F5 A New Performance Analysis Metric for Medical Ultrasound. K. Ranganathan[*] and W. F. Walker, University of Virginia</p>	<p>P2U-J-3 F12 Classification of Venous Thrombosis Combining Ultrasound Elastography and Tissue Characterization. S. Siebers^{*1}, B. Geier², M. Vogt¹, U. Scheipers¹, A. Mumme², and H. Erment¹, ¹Institute of High Frequency Engineering, Ruhr-University Bochum, ²Division of Vascular Surgery, Department of Surgery, Ruhr-University Bochum</p>	<p>P2U-K-3 G5 B-Scan Imaging and Thermal Lesion Monitoring using Miniaturized Image-Treat Ultrasound Arrays. I. R. S. Makin^{*1}, T. D. Mast¹, W. Faidi¹, M. M. Runk¹, P. G. Barthe², and M. H. Slayton², ¹33 South Sycamore Street, Mesa, AZ ²Guided Therapy Systems</p>	<p>P2U-L-3 E3 Correlation of the Exposed-Cell Mortality with the Transient Cavitation Noise <i>in vitro</i>. J.-L. Mestas¹, L. Alberti², S. Chesnais¹, J.-Y. Blay², and D. Cathignol^{*1}, ¹INSERM, ²Centre Léon Bérard</p>
<p>P2FC-G-5 O14 Novel Design Method of High Frequency Quartz Resonators in Grooved-Type and Concavo Convex Shape. Y. Naguara^{*1,2}, K. Naguara^{*1}, Z.-I. Naguara^{*1}, ¹Naguara Lab. Co. Inc., ²Shinsyu University</p>	<p>P2U-H-6 E12 Contrast Enhanced Flow Imaging with Phase-Coded Pulse Sequences. W. G. Wilkening^{*1,3}, B. Brendel^{1,3}, V. Uhlendorf^{2,3}, and H. Erment^{1,3}, ¹Institute of High Frequency Engineering, Ruhr-Universität Bochum, ²Research Laboratories of Schering AG, ³Ruhr Center of Excellence for Medical Engineering (KMR)</p>	<p>P2U-I-6 F6 Transcranial Ultrasound Focus Reconstruction with Amplitude Correction. J. White^{*1,3}, G. T. Clement^{1,2}, and K. Hynynen^{1,2}, ¹Brigham and Women's Hospital, ²Harvard Medical School, ³The Pennsylvania State University</p>	<p>P2U-J-4 F13 Segmentation of Three-Dimensional Intravascular Ultrasound Images using Spectral Analysis and a Dual Active Surface Model. J. D. Klingensmith[*], A. Nair, B. D. Kuban, and D. G. Vince, The Cleveland Clinic Foundation</p>	<p>P2U-K-4 G6 Ultrasound Therapy System and Ablation Results Utilizing Miniature Imaging/Therapy Arrays. P. G. Barthe^{*1}, M. H. Slayton¹, P. M. Jaeger¹, I. R. S. Makin², T. Douglas Mast², W. Faidi², M. M. Runk², and L. A. Gallagher², ¹Guided Therapy Systems, ²Ethicon Endo-Surgery</p>	<p>P2U-L-4 E4 A Study on Premature Ventricular Contractions Caused by Ultrasound Exposure with Microbubbles using Cultured Cardiac Myocytes. N. Kudo[*], G. Yokoyama, M. Ikebuchi, K. Okada, K. Kawahara, and K. Yamamoto, Graduate School of Engineering, Hokkaido University</p>
<p>P2U-H-7 E13 Removing Local Motion from Ultrasonic Images using Non-Affine Registration for Contrast Quantification. E. A. Gardner^{*1}, T. S. Sumanaweera¹, M. N. Woelmer¹, E. Leen², and R. W. Steins¹, ¹Siemens Medical Solutions, Ultrasound Division, ²Glasgow Royal Infirmary</p>	<p>P2U-I-7 F7 Beam Steering in Pulsed Doppler Ultrasound Velocity Estimation. A. H. Steinman^{*1}, E. Y. L. Lui¹, K. W. Johnston², and R. S. C. Cobbold¹, ¹University of Toronto, ²University of Toronto</p>	<p>P2U-J-5 G13 Development of Bone-Mimicking Phantom and Measurement of Its Acoustic Impedance by Interference Method. M. Yoshizawa^{*1}, H. Ushioda¹, and T. Moriya², ¹Tokyo Metropolitan College of Technology, ²Department of Electrical Engineering, Tokyo Metropolitan University</p>	<p>P2U-K-5 G7 External Ultrasonic Valvuloplasty for the Treatment of Superficial Venous Insufficiency: A Feasibility Study. S. Pichardo^{*1}, R. Millere², O. Pichot³, L. Curiel¹, and J.-Y. Chapelon¹, ¹French Institute of Health and Medical Research U556, ²Vascular Surgery Department of Saint Jean Clinic, ³Vascular Medicine Department of University of Grenoble</p>	<p>P2U-L-5 E5 Effects of Low Intensity Ultrasound on the Conduction Property of Neural Tissues. S.-H. Wang[*], Y.-L. Yen, and P.-H. Tsui, Department of Biomedical Engineering, Chung Yuan Christian University</p>	

3:00 p.m – 6:30 p.m.

Wednesday, August 25, 2004, POSTER SESSIONS

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<p>P2U-L-6 E6 Quantification of Acoustic Exposure during Cataract Surgery. M. E. Schafer* and L. B. Arbisser, Sonic Tech, Inc</p>	<p>P2U-M-7 I7 Comparison of Wavefront Distortion in the Breast Between Optoacoustic Imaging and Ultrasonic Imaging. D.-H. Huang* and P.-C. Li, Department of Electrical Engineering, National Taiwan University</p>	<p>Session P2U-O TRANSDUCER AND TRANSDUCER MATERIALS Chair: B. Sinha Schlumberger-Doll Research</p>	<p>P2U-P-3 J3 Velocity Dispersion of Nano-, Poly-, and Amorphous-Silicon Thin Films. I. Hadjoub, A. Doghmane*, and Z. Hadjoub, Université Badji Mokhtar -Annaba, Laboratoire des Semi-Conducteurs, Dépt. Physique</p>	<p>P2U-Q-3 J10 Balanced Wideband Three-Transducer Low-Loss SAW Filters using Tapered IDTs with Impedance Conversion. S. A. Doberstein*, ONIIP</p>	<p>P2U-R-3 K5 LiNbO₃ Ultrasonic Transducers with an Inverted-Domain Layer for Radiation into a Solid Medium. K. Nakamura*, H. Koyama*¹, S. Odakura¹, K. Yamada¹, and S. Saito², ¹Graduate School of Engineering, Tohoku University, ²Faculty of Marine Science and Technology, Tokai University</p>
<p>Session P2U-M DEVICES AND TOMOGRAPHY Chair: M. Kolios University of Toronto</p>	<p>P2U-M-8 I8 Simulations of Optoacoustic Wave Propagation in Light-Absorbing Media using the Finite Difference Time-Domain Method. D.-H. Huang*, C.-K. Liao, C.-W. Wei, and P.-C. Li, Department of Electrical Engineering, National Taiwan University</p>	<p>P2U-O-1 I9 Temperature-Compensation Factor for Measurement of Concentration in Solution using Ultrasonic Light Diffraction Effect. K. Ikeda*, Shinshu University</p>	<p>P2U-P-4 J4 Temperature Effect on the Characteristics of Surface Acoustic Wave on SiO₂ Thin Films. C.-C. Cheng¹, C.-J. Chung², K.-S. Kao*², and Y.-C. Chen², ¹Department of Electronic Engineering, De Lin Institute of Technology, ²Department of Electrical Engineering, National Sun Yat-Sen University</p>	<p>P2U-Q-4 J11 Extended P-Matrix Model to Calculate Imbalance Characteristics of CRF Filters. V. I. Grigorievsky*¹ and V. P. Plessky², ¹Institute of Radioengineering and Electronics RAS, ²GVR Trade SA</p>	<p>P2U-R-4 K6 A Linear Systems Model of the Thickness Mode Piezoelectric Transducer Containing Dual Piezoelectric Zones. Y. Estanbouli*, G. Hayward, S. N. Ramadas, and J. C. Barbenel, Strathclyde University</p>
<p>P2U-M-1 I11 Ultrasound Research Platform. W. G. Scott*, R. M. Schmitt, and R. D. Irving, Winprobe Inc.</p>	<p>Session P2FC-N FREQUENCY STANDARDS Chair: R. Wang JPL</p>	<p>P2U-O-2 I10 Non-Destructive Evaluation of Thin ZnO Shear Wave Transducer by Brillouin Scattering. K. Shintani*, T. Yanagitani, M. Matsukawa, and T. Ootani, Faculty of engineering, Doshisha University</p>	<p>P2U-P-5 J5 Approach to On-wafer Controllable Trimming of SAW Filters. S. Zhgoon*¹, K. Bhattacharjee², J. Flow-ers², and A. Shvetsov¹, ¹MPEI, ²Clarisy</p>	<p>P2U-Q-5 J12 Modeling of Electromagnetic and Acoustical Properties of RF SAW Filters from On-Chip Layout Including all Electrodes and Comparison with Experimental Data. S. Zhgoon*¹, K. Bhattacharjee², A. Loseu², and J. Rao², ¹MPEI, ²Clarisy</p>	<p>P2U-R-5 K7 10 MHz Ultrasound Linear Array Catheter for Endobronchial Imaging. O. Cladé*¹, F. Trancart², and D. Dinet¹, ¹VERMON, ²University Hospital- Bretonneau</p>
<p>P2U-M-2 I2 Superresolution Ultrasound for Imaging and Microscopy. G. T. Clement*^{1,2} and K. Hynynen^{1,2}, ¹Harvard Medical School, ²Brigham and Women's Hospital</p>	<p>P2FC-N-1 R1 A High-Resolution Frequency Standard Comparator Based on a Special Phase Comparison Approach. H. Zhou*, W. Zhou*, Z. Xuan, H. Wang, and C. Liu, Xidian University</p>	<p>P2U-O-3 I11 Cylinder-Sphere 3-DOF Ultrasonic Motor and Its Control. W. Huang*, C. Zhao, and F. J. Zhan, Nanjing University of Aeronautics & Astronautics</p>	<p>P2U-P-6 J6 Bonding Method of Semiconductor Devices on Piezoelectric Substrate using Laser Enhanced Flip-Chip Technology. K. Koh*, C. Kanashiro, and K. Hohkawa, Kanagawa Institute of Technology</p>	<p>P2U-Q-6 J13 21 Channel SAW Channelizer Filter Bank. S. He*, W. Wang, S. Li, and Y. Liang, Institute of Acoustics, The Chinese Academy of Sciences</p>	<p>P2U-R-6 K8 200 MHz Self-Focused ZnO MEMS Ultrasonic Transducers for Biomedical Imaging. C. Sharp*¹, G. H. Feng², Q. Zhou¹, E. S. Kim², and K. Shung¹, ¹Department of Biomedical Engineering and NIH Transducer Resource Center, University of Southern California, ²Department of Electrical Engineering Electrophysics, University of Southern California</p>

<p>P2U-M-3 I3 Radial Radon Transform for Electrode Localization in Biological Tissue. M. Barva^{*1,2}, J.-M. Mari², J. Kybic¹, and C. Chachard², ¹Czech Technical University, Faculty of Electrical Engineering, Dept. of Cybernetics, Center for Machine Perception, ²CREATIS, UMR 5515 CNRS, U 630 INSERM, Université Claude Bernard Lyon 1, France</p>	<p>P2FC-N-2 R2 Frequency Standards and Time Metrology in Romania. C. Mandache^{*1}, O. Gheorghiu¹, L. Giurgiu³, A. Niculescu², T. Acseste¹, B. Mihalcea¹, and O. Stoican¹, ¹National Institute for Laser, Plasma and Radiation, Plasma Laboratory, ²National Institute of Metrology, ³Faculty of Physics, University of Bucharest</p>	<p>P2U-O-4 I12 2-D Numerical Simulation of Acoustic Wave Phase Conjugation in Active Medium. P. Voinovich¹, A. Merlen², V. Preobrazhensky³, and P. Pernod⁴, ¹A.F.Ioffe Physico-Technical Institute, St.Petersburg, Russia, ²Laboratoire de Mécanique de Lille, Villeneuve d'Ascq, France, ³Wave Research Center of General Physics Institute, Moscow, Russia, ⁴Institute d'Electronique et Microelectronique du Nord, Villeneuve d'Ascq, France</p>	<p>P2U-P-7 J7 Fabrication of SAW Devices Based on SEM-Based EB Lithography for Lab Use. H. Hatakeyama[*], K.-Y. Hashimoto, T. Omori, and M. Yamaguchi, Dept. EME, Chiba University</p>	<p>P2U-Q-7 K13 Ultra Wide Bandwidth SAW Matched Filter with Chirp Signal Chips. K. Hohkawa[*], C. Kaneshiro, and K. Koh, Electric & Electrical Engineering, Kanagawa Institute of Technology</p>	<p>P2U-R-7 K9 Fabrication of Dome-Shaped-Diaphragm-Transducer Array for High Frequency Biomedical Image Application. G. H. Feng[*], E. S. Kim, C. Sharp, Q. F. Zhou, and K. K. Shung, University of Southern California</p>
<p>P2U-M-4 I4 Focused Array Transducer for Optoacoustic Tomography. I. Pelivanov, V. Kozhushko, T. Khokhlova[*], A. Zharinov, and A. Karabutov, International Laser Center of Moscow State University</p>	<p>P2FC-N-3 R3 Frequency-Locked Loop between a H-Maser and a Cs Clock. J. Saalaoui^{*1}, M. Addouche¹, F. Lardet-Vieudrin², V. Giordano², and E. Rubiola³, ¹Observatoire de Besançon, ²Laboratoire de Physique et Métrologie des Oscillateurs (LPMO), ³LPMIA</p>	<p><i>Session P2U-P THIN FILMS AND DEVICES</i> Chair: D. Malocha University of Central Florida</p>	<p><i>Session P2U-Q SAW FILTERS</i> Chair: S. Malocha University of Central Florida</p>	<p><i>Session P2U-R HIGH FREQUENCY APPLICATIONS</i> Chair: Q. Zhang The Pennsylvania State University</p>	<p>P2U-R-8 K10 High Performance Piezoelectric Films for High Frequency MEMS Ultrasonic Transducers. Q. Q. Zhang^{*1}, F. T. Djuth¹, Q. F. Zhou², and K. K. Shung², ¹Geospace Research, Inc, ²NIH Transducer Resource and Department of Biomedical Engineering, University of Southern California</p>
<p>P2U-M-5 I5 Tomographic Reconstruction of Sound Velocity Distribution in the Breast using Linear Arrays: Experimental Results. S.-W. Huang^{*1,2} and P.-C. Li^{1,2}, ¹Department of Electrical Engineering, National Taiwan University, ²National Health Research Institutes</p>	<p>P2FC-N-4 R4 Recent Experimental Aspects of Russian Caesium Fountain. Y. Domnin[*], G. Yolkin, A. Novoselov, L. Kopylov, Y. Malychev, V. Barychev, and V. Pal'chikov, Institute of Metrology for Time and Space at National Research Institute for Physical-Technical and Radiotechnical Measurements</p>	<p>P2U-P-1 J1 Observation of the Wave Propagating into Substrate. S. Matsuda[*], A. Miyamoto, S. Wakana, and A. Ito, Ultrasonics</p>	<p>P2U-Q-1 J8 Genetic Optimization Algorithms in the Design of Longitudinally Coupled SAW Filters. J. Meltaus^{*1}, V. P. Plessky², P. Hämäläinen³, and M. M. Salomaa¹, ¹Helsinki University of Technology, Materials Physics Laboratory, ²GVR Trade SA, ³Helsinki University of Technology, Telecommunications Software and Multimedia Laboratory</p>	<p>P2U-R-1 K1 High Frequency Ultrasonic Needle Transducers For Retinal Doppler. E. J. Gottlieb[*], J. Cannata, and K. Shung, University of Southern California</p>	<p>P2U-R-9 K11 Fabrication of Sol-Gel Modified Piezoelectric Thick Films for high Frequency Ultrasonic Applications. Q. F. Zhou^{*1}, K. K. Shung¹, and Y. Huang², ¹Department of Biomedical Engineering and NIH Transducer Research Center, University of Southern California, ²Chemat Technology Inc.</p>
<p>P2U-M-6 I6 A New Approach Towards Ultrasonic Transmission Tomography with a Standard Ultrasound System. M. Ashfaq[*] and H. Ermert, Institute of High Frequency Engineering</p>	<p>P2FC-N-5 R5 NIM4# Cesium Atomic Fountain Primary Frequency Standard: Performance and Evaluation. T. Li[*], M. Li[*], P. Lin, B. Huang, J. Qian, Y. Gan, P. Wang, M. Xin, W. Chen, C. Shi, N. Liu, and X. Zhao, National Institute of Metrology (NIM)</p>	<p>P2U-P-2 J2 A Model for the Accurate Determination of the Electromechanical Coupling Factor of Thin Film SAW Devices on Non-Insulating Substrates. E. Iborra, L. Vergara[*], J. Sangrador, M. Clement, A. Sanz-Hervás, and J. Olivares, Dpto. Tecnología Electrónica, Universidad Politécnica de Madrid</p>	<p>P2U-Q-2 J9 Design of High Selectivity Low-Loss Ladder Filters. V. S. Orlov[*], A. L. Schwartz, V. B. Chvets, A. O. Kustova, and E. I. Fedorov, Moscow Radiocommunication Research Institute</p>	<p>P2U-R-2 K4 PVdF Array Characterisation for High Frequency Ultrasonic Imaging. S. J. Carey^{*1}, C. M. Gregory¹, M. P. Brewin², M. J. Birch², and J. V. Hatfield¹, ¹University of Manchester Institute of Science and Technology, ²Barts and The London NHS Trust</p>	<p>P2U-R-10 K2 Ultra-Fine Piezoelectric Composite For High Frequency Ultrasonic Transducers. J. Yin[*], M. Lukacs, K. A. Harasiewicz, and F. S. Foster, Imaging Research, Sunnybrook & Women's College Health Science Centre, University of Toronto</p>

3:00 p.m – 6:30 p.m.

Wednesday, August 25, 2004, POSTER SESSIONS

Montreal

<p>P2U-R-11 K3 A 20-40 MHz Ultrasound Transducer for Intravascular Harmonic Imaging. H. J. Vos^{1,2}, M. E. Frijlink³, E. Droog^{2,3}, D. E. Goertz^{2,4}, G. Blacquièrè¹, A. Gisolf¹, and A. F. W. Van der Steen^{2,4}. ¹Delft University of Technology, ²Erasmus Medical Center Rotterdam, ³Netherlands Organisation for Applied Scientific Research (TNO/TPD), ⁴Interuniversity Cardiology Institute of the Netherlands</p>	<p>P2FC-S-3 T3 Théo1 Confidence Intervals. T. N. Tasset^{*1}, D. A. Howe¹, and D. Percival², ¹National Institute of Standards and Technology, ²Applied Physics Laboratory, University of Washington</p>	<p>P2FC-S-7 T7 Withdrawn</p>	<p>P2FC-S-11 R8 Symbolic Analysis of Quartz Crystal Oscillators. N. Ratier^{*1}, R. Brendel¹, D. Gillet¹, F. Chirouf¹, and J. Delporte², ¹FEMTO-ST/LPMO, ²CNES</p>	<p>P2FC-S-15 R12 Low-Power, Low-Jitter Direct Digital Synthesizer with Analog Interpolation. A. Fahim[*], Qualcomm, Inc</p>	
<p><i>Session P2FC-S OSCILLATORS, SYNTHESIZERS AND NOISE</i> Chair: M. Driscoll Northrop Grumman Corporation</p>	<p>P2FC-S-4 T4 Application of Dual-Mixer Time-Difference Multiplication in Accurate Time-Delay Measurement. R. Barillet^{*1}, J. Cermak², J.-Y. Richard¹, and L. Sojdr², ¹Observatoire de Paris, ²Institute of Radio Engineering and Electronics, Czech Academy of Sciences</p>	<p>P2FC-S-8 T8 Optimization of Drive-Level in High Stability Low-Noise OXOs. I. Abramzon[*], V. Tapkov, and S. Baranushkin, Maxic Crystal Ltd</p>	<p>P2FC-S-12 R9 Progress on 10 Kelvin Cryo-Cooled Sapphire Oscillator. R. T. Wang[*], G. J. Dick, and W. A. Diener, Jet Propulsion Laboratory</p>	<p>P2FC-S-16 R13 Direct Digital Synthesizer Clock Frequency Versus Temperature Dependency Compensation using Two Look-Up Tables. V. Stofanik^{*1}, A. Sam², I. Balaz³, and M. Minarik³, ¹Institute of Physics Slovak Academy of Sciences, ²Dar es Salaam Institute of Technology, ³Department of Radio and Electronics, FEI SUT</p>	
<p>P2FC-S-1 R6 The Noise Conversion Method for Oscillatory Systems. Y. S. Shmaliy[*], Guanajuato University</p>	<p>P2FC-S-5T5 Modeling Phase and Amplitude Noise in Heterojunction Bipolar Transistor Amplifiers. E. S. Ferrel-Pikal[*], K. Asirvatham, and S. Sengupta, University of Wyoming</p>	<p>P2FC-S-9T9 Colpitts-Type Oscillator for High Frequency Application. N. Nomura^{*1}, T.-L. Chou², Y. Aoyagi¹, and Y. Sekine², ¹Toyo Communication Equipment Co., Ltd., ²Nihon University</p>	<p>P2FC-S-13 R10 Rotating Michelson-Morley Experiment Based on a Dual Cavity Cryogenic Sapphire Oscillator. M. E. Tobar[*], P. L. Stanwix, J. Winterflood, E. N. Ivanov, M. Sulsi, J. G. Hartnett, and F. van Kann, School of Physics, The University of Western Australia, 35 Stirling Hwy, Crawley 6009 WA</p>	<p>P2FC-S-17 R14 Analysis of Multifrequency Crystal Oscillator Stability Area by Computer SPICE Simulation. A. Gubarev, A. Kosykh[*], S. Zavjalov, and A. Lepetaev, Omsk State Technical University</p>	
<p>P2FC-S-2 T2 Experimental Investigation of Phase Noise in High-Efficiency Class-E Amplifiers. S. Romisch^{*1} and M. D. Weiss², ¹Scriptl, LLC, ²Division of Engineering, Colorado School of Mines</p>	<p>P2FC-S-6 T6 Double Temperature Compensated Crystal Oscillator. W. Zhou[*], H. Jiang, Z. Xuan, Y. Liu, and J. Yu, Xidian University</p>	<p>P2FC-S-10 R7 A New Oscillator Circuit Effective in Frequency Range 100MHz to 1GHz. T. Adachi^{*1}, M. Kawagishi¹, S. Izumiya¹, N. Nomura², and Y. Aoyagi², ¹Yokohama National University, ²Toyo Communication Equipment Co., Ltd</p>	<p>P2FC-S-14 R11 Whispering Gallery Traveling Wave Interferometer for Low Phase Noise Applications. D. P. Tsarapkin[*] and N. A. Shtin, Moscow Power Engineering Institute (Technical University)</p>		

Oral Sessions continue next page

10:30 a.m – 12:00 p.m.

ULTRASONICS, Thursday, August 26, 2004

Montreal

		<i>Session U1-E</i> BLOOD FLOW I Chair: T. Thomas Siemens Medical	<i>Session U2-E</i> HEART CHARACTERIZATION Chair: J. Miller Washington University	<i>Session U3-E</i> ULTRASOUND MEMS TECHNOLOGY Chair: F. Levent Degertekin Georgia Institute of Technology	<i>Session U4-E</i> PHYSICAL ACOUSTICS I Chair: S. Zeroug Schlumberger-Doll Research	<i>Session U5-E</i> NDE AND IN-PROCESS MONITORING Chair: D. Yuhas Industrial Measurement Systems Inc.	<i>Session U6-E</i> BONE CHARACTERIZATION Chair: K. Wear FDA
		510AC	510BD	511AB	513AB	512C-H	512A-F
52	10:30 a.m.	U1-E-1 (Invited) Decomposition of Flow Signals into Basis Functions: Performance Advantages, Disadvantages, and Computational Complexity. H. Torp* and L. Løvstakken, Norwegian University of Science and Technology	U2-E-1 Ultrasonic Strain and Strain Rate Imaging for the Assessment of Regional Myocardial Function in Mice. J. D'hooge ^{1,2} , D. Thijs ² , K. Sipido ² , P. Claus ² , B. Bijnsens ² , J. Thoen ³ , F. Van de Werf ² , G. R. Sutherland ² , and P. Suetens ¹ , ¹ Dept. of Electrical Engineering; Catholic University of Leuven; Leuven; Belgium, ² Dept. of Cardiology; Catholic University of Leuven; Leuven; Belgium, ³ Dept. of Physics; Catholic University of Leuven; Leuven; Belgium	U3-E-1 Microfabricated Ultrasonic Transducers Monolithically Integrated with High Voltage Electronics. C. Daft*, D. Da Graca, S. Calmes, K. Patel, and I. Ladabaum, Sensant Corp	U4-E-1 Combined Radiation Pressure Field in a Dual-Frequency Ultrasound System. J. S. Thierman ¹ , G. T. Clement ² , and K. Hynynen ² , ¹ Harvard-MIT HST Program, ² Brigham and Women's Hospital, Harvard Medical School	U5-E-1 Observation and Control of Solidification Processes by Ultrasonic Pulse-Echo Technique. A. Drevermann*, C. Pickmann, and G. Zimmermann, ACCESS e.V.	U6-E-1 Axial Transmission Techniques for Bone Assessment: An In Vitro Comparative Study. M. Müller ¹ , P. Moilanen ^{2,3} , M. Talmant ¹ , V. Kilappa ^{2,3} , P. Nicholson ³ , J. Timonen ² , S. Cheng ³ , and P. Laugier ¹ , ¹ Laboratoire d'Imagerie Paramétrique UMR 7623, ² Department of Physics, University of Jyväskylä, ³ Dept of Health Sciences, University of Jyväskylä
	10:45 a.m.		U2-E-2 Automatic Detection and Tracking of Left Ventricular Landmarks. A. H. Torp ¹ , S. I. Rabben ¹ , A. Støylen ² , H. Ihlen ³ , K. Andersen ² , L.-Å. Brodin ⁴ , and B. Olstad ⁵ , ¹ GE Vingmed Ultrasound, ² Dept. of Circulation and Medical Imaging, Norwegian University of Science and Technology, ³ Rikshospitalet University Hospital, ⁴ Huddinge University Hospital, ⁵ Dept. of Computer and Information Science, Norwegian University of Science and Technology	U3-E-2 A Novel Method for Fabricating Capacitive Micromachined Ultrasonic Transducers with Ultra-Thin Membranes. L. L. Liu ¹ , O. M. Mukdadi ¹ , C. F. Herrmann ¹ , R. A. Saravanan ¹ , J. R. Hertzberg ¹ , S. M. George ¹ , V. M. Bright ¹ , and R. Shandas ^{1,2} , ¹ University of Colorado, ² Department of Pediatric Cardiology, The Children's Hospital	U4-E-2 Perfectly Matched Layer for FDTD Computations in Piezoelectric Crystals. F. Chagla*, C. Cabani, and P. Smith, McMaster University	U5-E-2 Ultrasonic In-Situ Monitoring of Solidification and Melting Behaviors of an Aluminum Alloy. I. Ihara*, D. Burhan, and Y. Seda, Nagaoka University of Technology	U6-E-2 Application of the Kramers-Krönig Relations to Measurements of Attenuation and Dispersion in Cancellous Bone. K. R. Waters ¹ , B. K. Hoffmeister ² , and J. A. Javarone ² , ¹ National Institute of Standards and Technology, Materials Reliability Division, ² Rhodes College, Department of Physics

11:00 a.m.	U1-E-2 Comparison between Doppler Optical Coherence Tomography and High Frequency Ultrasound Speckle Variance Flow Imaging. V. X. D. Yang ^{1,2} , A. Needles ³ , D. Vray ⁴ , S. Lo ² , M. L. Gordon ² , S. Foster ³ , B. C. Wilson ² , and I. A. Vitkin ² , ¹ MD-PhD program, University of Toronto, ² Ontario Cancer Institute, University Health Network, ³ Sunnybrook and Women's College Health Sciences Center, ⁴ CREATIS	U2-E-3 A Model Based Approach to Estimate Contractile Force Development using Myocardial Velocity Imaging: A Validation Study During Alterations in Contractility and Heart Rate. M. McLaughlin ¹ , P. Claus ¹ , P. Mehwald ¹ , M. Marciniak ¹ , J. D'hooge ^{1,2} , G. Sutherland ¹ , and B. Bijnens ¹ , ¹ Department of Cardiology, ² Medical Image Computing, Department Electrical Engineering	U3-E-3 CMUTs with Dual Electrode Structure for Improved Transmit and Receive Performance. J. McLean [*] and F. L. Degertekin, Georgia Institute of Technology	U4-E-3 Numerical and Experimental Study of the Resonant Behavior of N Elastic Shells Embedded in Water. P.-Y. Le Bas [*] and P. Pareige, LAUE UMR CNRS 6068	U5-E-3 Real-time Monitoring of Fabrication Process of Microfluidic Plastic Devices using Miniature Ultrasonic Sensors. Y. Ono ^{*1} , C.-C. Cheng ² , M. Kobayashi ² , C.-K. Jen ¹ , and N. Nardini ¹ , ¹ IMI, National Research Council Canada, ² Dept. of ECE, McGill University	U6-E-3 Ultrasonic Wave Dispersion and Attenuation in a Periodically Two-Layered Medium. L. Yu ^{*1} , L. H. Le ² , and M. D. Sacchi ³ , ¹ Department of Radiology and Diagnostic Imaging, University of Alberta, ² Division of Imaging Sciences, Capital Health and Department of Radiology and Diagnostic Imaging, University of Alberta, ³ Department of Physics
11:15 a.m.	U1-E-3 Limitations of Dual Frequency Measurements for Embolus Classification. D. H. Evans [*] , University of Leicester	U2-E-4 Viscoelasticity Measurement of Heart Wall in In Vivo. H. Kanai [*] , Graduate School of Engineering, Tohoku University	U3-E-4 Optimized Membrane Configuration Improves CMUT Performance. Y. Huang [*] , E. O. Hægström, X. Zhuang, A. S. Ergun, and B. T. Khuri-Yakub, Edward L. Ginzton Laboratory, Stanford University	U4-E-4 Elastic Waves in Deviated Boreholes in Formations with Triaxial Stresses. B. K. Sinha ^{*1} and Q. H. Liu ² , ¹ Schlumberger-Doll Research, ² Duke University	U5-E-4 Super-Resolution In Situ Ultrasonic Monitoring of Chemical Reactions. A. N. Kalashnikov ^{*1} , K. L. Shafran ² , R. E. Challis ¹ , C. C. Perry ² , M. E. Unwin ¹ , and A. K. Holmes ¹ , ¹ The University of Nottingham, ² Nottingham Trent University	U6-E-4 Characterization of Human Femoral Trabecular Bone In Vitro using Transmission and Backscatter Ultrasound Measurements. F. Jenson, F. Padilla, and P. Laugier [*] , Laboratoire d'Imagerie Parametrique CNRS - Universite Paris 6
11:30 a.m.	U1-E-4 Implantable Doppler System for Self-monitoring Vascular Grafts. D. Vilkomerson [*] and T. Chilipka, DVX, LLC	U2-E-5 A New Method for Two-Dimensional Myocardial Strain Estimation by Ultrasound: An In-Vivo Comparison with Sonomicrometry. S. Langeland ^{*1} , J. D'hooge ^{1,2} , H. A. Leather ³ , P. Claus ¹ , G. R. Sutherland ¹ , P. F. Wouters ³ , and B. Bijnens ¹ , ¹ Dept. of Cardiology, KULeuven, ² Dept. of Electrical Engineering, KULeuven, ³ Dept. of Anaesthesiology, KULeuven	U3-E-5 Pzt-Driven, Micromachined, Two-Dimensional Membrane Arrays. S. M. Ardanuc [*] and A. Lal, SonicMEMS Laboratory	U4-E-5 Influence of Periodical Stiffeners on the Acoustic Response of a Finite Cylindrical Shell. R. Lietard ^{*1} , D. Decultot ¹ , G. Maze ¹ , and M. Tran-van-Nhieu ² , ¹ LAUE UMR CNRS 6068, ² Thales Underwater Systems	U5-E-5 Evaluation of Ultra-Low Expansion Glasses by the Line-Focus-Beam Ultrasonic Material Characterization System. J. Kushibiki [*] , M. Arakawa, K. Suzuki, and T. Maruyama, Tohoku University	U6-E-5 Acoustic Microscopy for Detection of Osteoporotic Bone Properties. J. Brandt [*] , A. Franke, and K. Raum, Martin-Luther-Universität, Orthopädische Klinik
11:45 a.m.	U1-E-5 High Frequency B-mode Ultrasound Blood Flow Estimation in the Microvasculature. D. Vray ^{*1} , A. Needles ² , V. X. D. Yang ³ , and S. Foster ² , ¹ Creatis, ² Sunnybrook and Women's College Health Sciences Center, ³ Ontario Cancer Institute	U2-E-6 A New Multifrequency Transducer for Microemboli Detection and Classification. P. Palanchon ^{*1} , A. Bouakaz ^{1,2} , J. Klein ¹ , and N. de Jong ² , ¹ Erasmus Medical Center, ² Interuniversity Cardiology Institute Netherlands	U3-E-6 Micromachined Piezoelectric Heterostructure using Epitaxial Pb(Mg_{1-x}Nb_{2x-1})O₃-PbTiO₃ Film on Si for Ultrasound Transducers. K. J. Choi ^{*1} , D. M. Kim ¹ , R. R. Das ¹ , C. B. Eom ¹ , V. Vaithyanathan ² , and D. G. Schlom ² , ¹ Department of Materials Science and Engineering, University of Wisconsin-Madison, ² Department of Materials Science and Engineering, Penn State University	U4-E-6 Propagation of Nonlinear Acoustic Signals through Inhomogeneous Moving Media. V. A. Khokhlova ^{*1} , P. Blanc-Benon ² , M. V. Averianov ¹ , and R. O. Cleveland ¹ , ¹ Department of Acoustics, Faculty of Physics, M. V. Lomonosov Moscow State University, ² Laboratoire de Mécanique des Fluides et d'Acoustique, UMRS CNRS 5509, Ecole Centrale de Lyon, ³ Dept. of Aerospace and Mechanical Engineering, Boston University	U5-E-6 Transmission of Acoustic Waves Through Piezoelectric Plate: Modelling and Experiment. Emmanuel Le Clezio ^{*1} and Alexander Shuvalov ² , ¹ Laboratoire UltraSons Signaux et Instrumentation de L'Université François Rabelais, FRE-CNRS 2448, ² Laboratoire de Mécanique Physique de L'Université Bordeaux 1, UMR-CNRS 5469 ³ Laboratoire de Mécanique Physique de L'Université Bordeaux 1, UMR-CNRS 5469	U6-E-6 Impact of Material and Structural Bone Properties on 1-MHz Velocity Measurement in Human Forearms. E. Bossy ^{1,2} , M. Talmant ¹ , F. Peyrin ^{3,4} , L. Akrouf ¹ , P. Cloetens ³ , and P. Laugier ^{*1} , ¹ Laboratoire d'Imagerie Paramétrique, ² Dept of Aerospace and Mechanical Engineering, ³ CREATIS, and ⁴ European Synchrotron Radiation Facility

		<i>Session FE1-E RELAXORS</i> Chair: T. Takenaka Science University of Tokyo		<i>Session FC1-E OPTICAL STANDARDS AND APPLICATIONS</i> Chair: J. Ye University of Colorado		<i>Session FC2-E CHEMICAL SENSORS</i> Chair: J. Hines Microsensor Systems, Inc.	
		513CD		511CF		511DE	
54	10:30 a.m.	FE1-E-1 Optical Properties of Epitaxial PLZT Thin Films Fabricated by a Sol-Gel Method. M. Ishii ¹ , K. Satoh, M. Kato, and K. Kurihara, Fujitsu Laboratories Ltd.		FC1-E-1 The Optical Local Oscillator Problem: A 40 dB Reduction of Vibrational Sensitivity via a New Optical Cavity Design. J. L. Hall ¹ , M. Notcutt ¹ , L.-S. Ma ² , and J. Ye ¹ , ¹ JILA, University of Colorado and National Institute of Standards, Boulder Colorado, USA, ² also affiliated with International Bureau des Poids et Mesures, Sèvres, France, and East China Normal University, Shanghai, China		FC2-E-1 Design Considerations for High Sensitivity Guided SH-SAW Chemical Sensor for Detection in Aqueous Environments. Z. Li ^{1*} , Y. Jones ² , J. Hossenlopp ² , R. Cernosek ³ , and F. Josse ¹ , ¹ Department of Electrical and Computer Engineering, Marquette University, ² Department of Chemistry, Marquette University, ³ Micro-Analytical Systems Dept., Sandia National Laboratories	
	10:45 a.m.	FE1-E-2 Relaxor Ferroelectricity in Epitaxial SrTiO₃ Thin Films on DyScO₃ Substrates. M. D. Biegalski ^{1*} , J. Haeni ¹ , W. Chang ² , S. W. Kirchoefer ² , D. G. Schlom ¹ , and S. Trolier-McKinstry ¹ , ¹ Materials Research Institute, Pennsylvania State University, ² Navy Research Labs		FC1-E-2 (Invited) Noise Properties of Femtosecond Lasers and Photodetectors at Infrared Frequencies. E. N. Ivanov ^{1*} , S. A. Diddams ² , and L. Hollberg ² , ¹ University of Western Australia, ² National Institute of Standards and Technology		FC2-E-2 Macroscale and Microscale Resonant Sensors for the Detection of Illicit Substances. R. A. McGill ¹ , S. Stepnowski ¹ , E. Houser ¹ , D. Simonson ¹ , D. DiLella ¹ , V. Nguyen ² , R. Chung ² , I. Voiculescu ² , E. Sokolovski ¹ , J. Stepnowski ¹ , T. Thundat ³ , D. Hedden ⁴ , and S. Ross ⁵ , ¹ Naval Research Laboratory, Code 6365, Washington, D.C. 20375-5345, ² Geo-Centers Inc., Rockville, MD, ³ George Washington University, Washington, DC, ⁴ Nova Research, Inc., Alexandria, VA, ⁵ Oak Ridge National Laboratory, Life Sciences Division, Oak Ridge, TN, ⁶ Dstl Porton Down, Salisbury, UK	

11:00 a.m.	FE1-E-3 Dielectric Relaxation in Ferroelectrics with Diffuse Phase Transition. X. Wang*, Department of Materials Physics, School of Science, Xi'an Jiaotong University				FC2-E-3 Strong-Axis Bending Mode Vibrations for Resonant Microcantilever (Bio)Chemical Sensors in Gas or Liquid Phase. I. Dufour ^{*1} , S. Heinrich ² , and F. Josse ³ , ¹ IXL Laboratory, CNRS UMR5818, ² Department of Civil and Environmental Engineering, Marquette University, ³ Microsensor Research Laboratory and Department of Electrical and Computer Engineering, Marquette University	
11:15 a.m.	FE1-E-4 Electrostrictive Properties in Pr Doped (Ba,Sr)(Ti,Al)O₃ Ceramics. W. Xu-Sheng ^{*1} , Y. Hiroshi ¹ , N. Keiko ² , and X. Chao-Nan ^{1,2} , ¹ PRESTO, Japan Science and Technology Agency, ² National Institute of Advanced Industrial Science and Technology			FC1-E-3 "Magic" Wavelengths for Optical Frequency Standards on Cold Atoms. V. Ovsianikov ¹ and V. Pal'chikov ^{*2} , ¹ Department of Physics, Voronezh State University, ² Institute of Metrology for Time and Space at National Research Institute for Physical-Technical and Radiotechnical Measurements	FC2-E-4 A Multi-Resonance Acoustic Interfacial Biosensor (MAIB) for Monitoring a Formation Process of Biological Thin Films. S. J. Kwoun [*] and R. M. Lec, School of Biomedical Engineering, Science and Health System, Drexel University	
11:30 a.m.	FE1-E-5 Monolithic Bulk Electro- and Acousto-Optic Devices Based on Domain Inverted Ferroelectrics. H. W. J. Gnewuch ^{*1} , C. N. Pannell ² , and J. H. Lehman ³ , ¹ School of Physical Sciences, University of Kent, ² Gooch and Housego Group, Optronics Laboratories, Inc., ³ NIST/815.01			FC1-E-4 Frequency Transfer of Optical Standards Through a Fiber Network using 1550-nm Mode-Locked Sources. K. Holman [*] , D. Jones, and J. Ye, JILA, NIST and University of Colorado	FC2-E-5 An Acoustic Wave Sensor for Measuring Soot Caused Lubricating Oil Thickening. C. Zhang [*] , The Lubrizol Corporation, OH	
11:45 a.m.				FC1-E-5 Application of Mode-Locked Lasers to Nanotechnology. L. Arissian ^{1,2} and J. C. Diels ^{*1,2} , ¹ University of New Mexico, ² Center of High Technology Materials	FC2-E-6 Resonant Properties of Ceramic Resonators Coated with Plasma Polymerized Styrene Film. S. Kurosawa ^{*1} , H. Aizawa ^{1,2} , M. Matsumoto ¹ , J.-W. Park ^{1,3} , H. Kaida ⁴ , H. Sakaguchi ⁴ , and J. Inoue ⁴ , ¹ National Institute of Advanced Industrial Science and Technology (AIST), ² New Energy and Industrial Technology Development Organization (NEDO), ³ The University of Tokyo, ⁴ Murata Mfg. Co., Ltd.	

1:30 p.m – 3:00 p.m.

ULTRASONICS, Thursday, August 26, 2004

Montreal

		<i>Session U1-F</i> BLOOD FLOW II Chair: H. Routh Phillips Research	<i>Session U2-F</i> CELLS AND CARDIAC Chair: M. Sherar University of Toronto	<i>Session U3-F</i> TRANSDUCER MODELING Chair: R. Lerch University of Erlanger	<i>Session U4-F</i> PHYSICAL ACOUSTICS II Chair: H. Engan Norwegian University of Science and Technology	<i>Session U5-F</i> ACOUSTIC IMAGING Chair: L. Kessler Sonoscan Inc.	<i>Session U6-F</i> THERAPY: THERMAL ABLATION Chair: L. Crum University of Washington
		510AC	510BD	511AB	513AB	512C-H	512A-F
56	1:30 p.m.	U1-F-1 Quantitative Real-Time Blood Flow Estimation With Intravascular Ultrasound in the Presence of In-Plane Flow. F. J. de Ana* and M. O'Donnell, University of Michigan	U2-F-1 Towards Understanding the Nature of High Frequency Backscatter from Cells and Tissues: An Investigation of Backscatter Power Spectra from Different Concentrations of Cells of Different Sizes. M. C. Kolios ^{1,3} , G. J. Czarnota ^{2,3} , A. E. Worthington ² , A. Giles ² , A. S. Tunis ^{4,2,3} , and M. D. Sherar ^{2,3} , ¹ Department of Mathematics, Physics and Computer Science, Ryerson University, ² Princess Margaret Hospital / University Health Network, ³ Department of Medical Biophysics, University of Toronto	U3-F-1 The Effect of Pillar Misalignment on the Underwater Performance of High Frequency Multilayer 1-3 Piezocomposite Transducers with Acoustic Matching and Backing Layers. J. F. Saillant ^{*1,2} , S. Cochran ¹ , R. Berriet ² , G. Fleury ² , and K. Kirk ¹ , ¹ University of Paisley, ² Imasonic.SA	U4-F-1 Guiding, Bending and Filtering of Acoustic Waves in a Two Dimensional Phononic Band Gap Materials. A. Kkhelif ¹ , S. Benchabane ¹ , A. Choujaa ¹ , B. Djafari-Rouhani ² , and V. Laude ¹ , ¹ Institut FEMTO-ST, CNRS UMR 6174, ² LDSMM, University of Lille	U5-F-1 (Invited) Ultrasonic Imaging of Fingerprints using Acoustic Impediography. R. M. Schmitt [*] , W. G. Scott, and R. D. Irving, Crossmatch Technologies	U6-F-1 MRI-Based Thermometry and Thermal Dosimetry during Focused Ultrasound Thermal Ablation of Uterine Leiomyomas. N. McDannold [*] , C. Tempny, E. Stewart, F. A. Jolesz, and K. Hynynen, Harvard Medical School and Brigham & Women's Hospital
	1:45 p.m.	U1-F-2 ECG-Triggered Retrospective Colour Flow Imaging. R. Williams [*] , A. Needles, A. Duckett, E. Cherin, and F. S. Foster, Sunnybrook and Women's College Health Sciences Centre	U2-F-2 Evaluation of the Layered Structure of Aortic Valve Cusps using High-Frequency Ultrasound. Q. Qiu ^{*1,2} , J. D. Buyze ^{1,2} , D. R. Boughner ^{2,3} , and J. C. Lacey ^{1,2} , ¹ the University of Western Ontario, ² Robarts Research Institute, ³ London Health Sciences Centre	U3-F-2 Application of Optimization Techniques to Finite Element Analysis of Piezoelectric Devices. P. Reynolds [*] and V. Pereyra, Weidlinger Associates, Inc.	U4-F-2 Measuring Permeability of Porous Materials via Acoustic Transmitted Waves. Z. E. A. Fellah ^{*1} , N. Sebaa ² , W. Lauriks ² , C. Depollier ³ , and J. Y. Chapelon ¹ , ¹ INSERM, Lyon, ² Katholieke Universiteit Leuven, ³ Laboratoire d'Acoustique de l'Universite du Maine		U6-F-2 Cavitation Enhances Treatment Depth when Combined with Thermal Effect using a Plane Ultrasound Transducer: An <i>In Vivo</i> Study. C. Goldenstedt [*] , D. Melodelima, F. Mithieux, S. Chesnais, Y. Theillère, and D. Cathignol, INSERM Unit 556

2:00 p.m.	U1-F-3 Clutter-Free Doppler Detection of Signed Velocity based on Legendre Series Expansion. S.-I. Umemura ^{*1} , T. Azuma ¹ , and T. Hayashi ² , ¹ Hitachi Central Research Laboratory, ² Hitachi Medical Corporation	U2-F-3 The Response of Regional Integrated Backscatter Levels and Regional Strain to Inotropic Stimulation and Acute Ischemia. J. D'hooge ^{*1,2} , S. Coenen ² , O. Turschner ² , P. Claus ² , M. McLaughlin ² , P. Mehwald ² , M. Marciniak ² , C. Dommke ² , B. Bijnens ² , G. R. Sutherland ² , and P. Suetens ¹ , ¹ Medical Image Computing, Dept. of Electrical Engineering, Catholic University of Leuven; Leuven; Belgium, ² Dept. of Cardiology, Catholic University Leuven; Leuven; Belgium	U3-F-3 Inverse Calculation Method for Piezocomposite Materials Characterisation. G. Férin ^{*1,2} , D. Certon ² , J. Guyonvach ² , and N. Félix ¹ , ¹ VERMON, ² GIP Ultrasons / LUSSI	U4-F-3 (Invited) Material Property Measurement in Hostile Environments using Laser Acoustics. K. L. Telschow [*] , Idaho National Engineering and Environmental Laboratory	U5-F-2 Hamster Kidney Cell Elastic Properties Evaluated using Ultrasonic Atomic Force Microscopy. A. Ebert [*] , J. Du, X. Wang, M. Salerno, W. Scheuchenzuber, and B. Tittmann, The Pennsylvania State University	U6-F-3 Feasibility of MRI-Guided Transurethral Thermal Therapy for Prostate Cancer. R. Chopra [*] , S. N. Baker, V. Choy, S. Lochhead, and M. J. Bronskill, Sunnybrook and Women's College Health Sciences Centre
2:15 p.m.	U1-F-4 Real-Time Simultaneous Assessment of Wall Distension and Wall Shear Rate in Carotid Arteries. G. Bambi, T. Morganti, S. Ricci, F. Guidi, and P. Tortoli [*] , University of Florence	U2-F-4 Silicon Based Ultrasonic Microprobes for Cardiac Signal Recording. X. Chen ^{*1} , A. Lal ¹ , M. Riccio ² , and R. Gilmour ² , ¹ Sonic MEMS Lab, Cornell University, ² Biomedical Sciences, College of Veterinary Medicine at Cornell University	U3-F-4 Modeling of the Temperature Increase in Ultrasonic Transducers. V. Loyau, G. Feuillard [*] , and L. P. Tran Hue Huu, Lussi-GIP Ultrasons, FRE CNRS 2448		U5-F-3 Multi-Frequency Ultrasonic NDE for Early Defect Recognition and Imaging. K. Pfeleiderer [*] , J. Aufrecht, I. Solodov, and G. Busse, Institute for Polymer Testing and Polymer Science (IKP)-Nondestructive Testing (ZFP), Stuttgart University	U6-F-4 Detection of Imaging Acoustic Signals for Synchronizing a Commercial Ultrasound Imager with a High Intensity Focused Ultrasound Therapy System. N. R. Owen [*] , M. R. Bailey, P. Kaczkowski, and L. A. Crum, Center for Industrial and Medical Ultrasound, University of Washington
2:30 p.m.	U1-F-5 Complex Blind Source Separation for Adaptive Time Domain-Based Phase Filtering. C. M. Gallippi [*] and G. E. Trahey, Duke University Biomedical Engineering	U2-F-5 (Invited) Mechanical Properties of Single Cells—Measurement Possibilities using Time Resolved Scanning Acoustic Microscopy. R. M. Lemor ^{*1} , E. C. Weiss ¹ , P. Zinin ² , and G. Pilarczyk ¹ , ¹ Fraunhofer Institute for Biomedical Technology, ² School of Ocean and Earth Science and Technology	U3-F-5 A Method for the Measurement of the <i>k</i> Factor in Lossy Piezoelectric Materials. N. Lamberti ^{*1} , A. Iula ² , and M. Pappalardo ² , ¹ Dipartimento d'Ingegneria dell'Informazione ed Ingegneria Elettrica - Università di Salerno, ² Dipartimento di Ingegneria Elettronica - Università Roma III	U4-F-4 Forward Modeling for Ultrasonic Leaky-Lamb Wave-Based Imaging Through a Highly Contrasting Steel Cylindrical Layer. S. Zeroug [*] , Schlumberger-Doll Research	U5-F-4 3D Ultrasonic Imaging and Contour Detection in Metal Sheet Hydroforming. O. Keitmann-Curdes ^{*1} , K. Hensel ¹ , P. Knoll ² , H. Meier ² , and H. Ermert ¹ , ¹ Institute of High Frequency Engineering, Ruhr-Universität Bochum, ² Department of Mechanical Engineering, Ruhr-Universität Bochum	U6-F-5 Temperature Rise Measured Non-Invasively During Thermal Therapy using Correlated Backscattered Ultrasound. P. J. Kaczkowski [*] and A. Anand, University of Washington
2:45 p.m.	U1-F-6 Real-time Blood Motion Imaging - A 2D Blood Flow Visualization Technique. L. Løvstakken ^{*1} , S. Bjærum ² , D. Martens ² , and H. Torp ¹ , ¹ Department of Circulation and Medical Imaging, Norwegian University of Science and Technology, ² GE Vingmed Ultrasound AS		U3-F-6 FEA and Experimental Characterization of Langevin Transducers with Comparable Longitudinal and Lateral Dimensions. A. Iula ^{*1} , D. Cerro ¹ , N. Lamberti ² , and M. Pappalardo ¹ , ¹ University Roma Tre, ² University of Salerno	U4-F-5 Measurement of Static and Dynamic Radiation Force on Spheres. S. Chen ^{*1} , G. Silva ² , R. R. Kinnick ¹ , M. Fatemi ¹ , and J. F. Greenleaf ¹ , ¹ Mayo Clinic College of Medicine, ² Universidade Federal de Alagoas	U5-F-5 Optimized Algorithm for Synthetic Aperture Imaging. T. Stepinski [*] and F. Lingvall, Uppsala University, Signals & Systems	U6-F-6 Noninvasive Localized Ultrasound Measurement of Tissue Properties. H. Yao, R. Griffin, and E. Ebbini [*] , University of Minnesota

1:30 p.m – 3:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Thursday, August 26, 2004

Montreal

		<p><i>Session FE1-F</i> MATERIALS CHARACTERIZATION Chair: A. Kholkin University of Aveiro</p>		<p><i>Session FC1-F</i> MICROWAVE OSCILLATORS Chair: J. Searls Poseidon Scientific Instruments Pty. Ltd.</p>		<p><i>Session FC2-F</i> PHYSICAL SENSORS Chair: J. Vig US Army CECOM</p>	
		513CD		511CF		511DE	
1:30 p.m.	<p>FE1-F-1 (Invited) Temperature- and Electric-Field-Dependent Phase Transformations in (001)-Oriented PMN-40%PT Single Crystal. R. R. Chien¹, V. H. Schmidt^{*1}, C.-S. Tu², and L.-W. Hung², ¹Department of Physics, ²Department of Physics</p>			<p>FC1-F-1 High Power Microwave Oscillators with Interferometric Signal Processing. E. N. Ivanov[*], M. E. Tobar, and J. Torrealba, UWA</p>	<p>FC2-F-1 Study on the Interaction of Solid Particles with Surfaces under Different Ambient Conditions using Piezoelectric Sensors. Q. Zhang[*], R. Lec, and K. Pourrezaei, Drexel University</p>		
1:45 p.m.				<p>FC1-F-2 (Invited) A Review of Sapphire Whispering Gallery Mode Oscillators Including Technical Progress and Future Potential of the Technology. D. Green¹, C. McNeilage¹, M. Mossammaparast¹, P. Stockwell¹, E. Ivanov², and J. Searls^{*1}, ¹Poseidon Scientific Instruments, ²School of Physics, University of Western Australia</p>	<p>FC2-F-2 Detection of Nanoparticles with QCR Sensors. R. Lucklum[*], B. Schlatt, U. Hempel, and P. Hauptmann, Otto-von-Guericke-University, IMOS</p>		

2:00 p.m.	FE1-F-2 Non-Linear Dielectric Response in {111} and {100} Oriented 0.5Pb(Yb_{1/2}Nb_{1/2})O₃-0.5PbTiO₃ Thin Films. N. Bassiri Gharb* and S. Trolier-McKinstry, The Pennsylvania State University				FC2-F-3 Measurements of Particles in Liquid using a Surface Acoustic Wave Sensors. T. Oyama ¹ , J. Kondoh ^{*1,2} , and S. Shiokawa ³ , ¹ Graduate School of Science and Technology, Shizuoka University, ² Faculty of Engineering, Shizuoka University, ³ A&R Center for Surface Wave Technology	
2:15 p.m.	FE1-F-3 Conversion of 45° Rotated X-Cut KNbO₃ Plates to Y-Cut Plates by Compression. K. Nakamura, N. Chiba, and S. Ito*, Graduate School of Engineering, Tohoku University			FC1-F-3 Photonic Microwave Oscillator using Mode-locked Laser as the High Q Frequency Discriminator. N. Yu*, E. Salik, and L. Maleki, Jet Propulsion Laboratory	FC2-F-4 An Acoustic Tweezer for Manipulation of Micro-and Nanoparticles. R. M. Lec*, G. Yang, and Q. Zhang, Drexel University	
2:30 p.m.	FE1-F-4 Evaluation of Ferroelectric Domain Structure by Ultrasonic Atomic Force Microscopy. T. Tsuji ^{*1,2} , H. Ogiso ² , J. Akedo ² , Y. Kawakami ³ , S. Saito ¹ , K. Fukuda ¹ , and K. Yamanaka ¹ , ¹ Tohoku University, ² National Institute of Advanced Industrial Science and Technology, ³ NEC Tokin Cooperation			FC1-F-4 Non-Interferometric Carrier Suppressed Cavity Oscillator. C. W. Nelson* and B. Riddle, National Institute of Standards and Technology	FC2-F-5 Techniques to Evaluate the Mass Sensitivity of Love Mode Surface Acoustic Wave Biosensors. L. A. Francis ^{*1,2} , J.-M. Friedt ³ , R. De Palma ^{2,4} , C. Zhou ^{2,4} , C. Bartic ² , P. Bertrand ¹ , and A. Campitelli ² , ¹ Université Catholique de Louvain, ² Biosensors Group, IMEC, ³ Université de Franche-Comté, ⁴ Katholiek Universiteit Leuven	
2:45 p.m.	FE1-F-5 The Direct Piezoelectric Effect in [001]_c-Poled Relaxor-Ferroelectric Single Crystals: Contrasting Longitudinal and Transverse Modes. M. Davis*, D. Damjanovic, and N. Setter, Swiss Federal Institute of Technology-EPFL			FC1-F-5 Pound Circuit - Induced Frequency Sensitivities in Ultra-Stable Cryogenic Oscillators. J. Dick*, Jet Propulsion Laboratory, California Institute of Technology	FC2-F-6 Love - Mode Surface Acoustic Wave Liquid Sensors using a Polyimide Waveguide Layer. A. Turton*, D. Bhattacharyya, and D. Wood, School of Engineering, University of Durham	

3:30 p.m – 5:00 p.m.

ULTRASONICS, Thursday, August 26, 2004

Montreal

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	<i>Session U1-G</i> TISSUE ELASTICITY II Chair: M. O'Donnell University of Michigan	<i>Session U2-G</i> HIGH FREQUENCY AND MICE Chair: S. Foster University of Toronto	<i>Session U3-G</i> MEDICAL TRANSDUCERS Chair: M. Schafer Sonic Tech Inc.	<i>Session U4-G</i> PHYSICAL ACOUSTICS III Chair: J. Brown JB Consulting	<i>Session U5-G</i> SAW SENSORS Chair: M. Da Cunha University of Maine	<i>Session U6-G</i> TISSUE CHARACTERIZATION Chair: P. Laugier LIP
	510AC	510BD	511AB	513AB	512C-H	512A-F
3:30 p.m.	U1-G-1 In Vivo Prostate Elastography: Preliminary Results. S. K. Alam ¹ , E. J. Feleppa ¹ , A. Kalisz ¹ , S. Ramchandran ¹ , R. D. Ennis ² , F. L. Lizzi ¹ , C.-S. Wu ² , and J. Ketterling ¹ , ¹ Riverside Research Institute, ² New York Columbia Presbyterian Medical Center	U2-G-1 Comparison of 3D Deformable Models For in vivo Measurements of Mouse Embryo from 3D Ultrasound Images. B. Qiu ¹ , P. Clarysse ¹ , M. Janier ^{1,2} , J. Montagnat ¹ , and D. Vray ¹ , ¹ Centre de Recherche et d'Applications en Traitement de l'Image et du Signal(CREATIS), ² ANIMAGE	U3-G-1 (Invited) Clinical Application and Technical Challenges for Intracardiac Ultrasound Imaging. S. Bolorforosh [*] , J. Bartlett-Roberto, D. Tasker, and T. Proulx, Siemens Medical Solutions USA Inc., Ultrasound Division	U4-G-1 A Variational Principle for the Equations of Viscopiezoelectricity. P. C. Y. Lee [*] and N. P. Edwards, Department of Civil & Environmental Engineering, Princeton University	U5-G-1 Global SAW Tag RFID Systems. C. Hartmann [*] , P. Brown, P. Hartmann [*] , J. Bellamy, L. Claiborne, and W. Bonner, RF SAW, Inc.	U6-G-1 High Resolution Ultrasonography of Retinal Degeneration in Rat. C. Jolly ¹ , J.-C. Jeanny ² , F. Behar-Cohen ² , P. Laugier ^{1*} , and A. Saied ¹ , ¹ Laboratoire d'Imagerie Parametrique CNRS-Paris VI UMR 7623, ² Physiologie des maladies oculaires, Innovations theapeutiques INSERM U598
3:45 p.m.	U1-G-2 Acoustic Radiation Force Impulse Imaging of In Vivo Breast Masses. K. Nightingale [*] , A. Congdon, M. Scott Soo, and G. Trahey, Duke University	U2-G-2 Ultrasound B-Mode Degree Tomography in Mice. P. Hoskins [*] , T. Anderson, S. Meagher, T. McGillivray, S. Hammer, and N. McDicken, University of Edinburgh		U4-G-2 Piezoelectric Devices for Extreme-Temperature Applications. H. J. Whitehouse [*] , A. M. Leese de Escobar, and M. Pereira da Cunha, ¹ Linear Measurements, Inc, ² SPAWAR Systems Center, ³ Dept. of Electrical and Computer Engineering, University of Maine	U5-G-2 Dual Configuration High Temperature Hydrogen Sensor on LGS SAW devices. J. A. Thiele [*] and M. Pereira da Cunha, Dept. of Electrical and Computer Eng., University of Maine	U6-G-2 High Frequency Ultrasound in Monitoring Liver Suitability for Transplantation. R. Vlad ^{1*} , M. C. Kolios ^{1,3} , G. J. Czarnota ^{1,2} , A. Giles ^{1,2} , M. D. Sherar ^{1,2} , and J. W. Hunt ^{1,2} , ¹ Department of Medical Biophysics, University of Toronto, ² Ontario Cancer Institute, ³ Department of Mathematics, Physics and Computer Science, Ryerson University

4:00 p.m.	U1-G-3 Bubble-Based Acoustic Radiation Force for Monitoring Intraocular Lens Elasticity. T. N. Erpelding ^{*1} , K. W. Hollman ¹ , T. Juhasz ^{1,2} , and M. O'Donnell ¹ , ¹ University of Michigan, Biomedical Engineering Department, ² University of Michigan, Center for Ultrafast Optical Science	U2-G-3 Comparison and Validation of High Frequency Ultrasound Detection Techniques in a Mouse Model for Renal Tumors. E. Jouannot ^{*1} , J. P. Duong-Van-Huyen ² , K. Bourahla ¹ , M. Lelievre-Pegorier ² , P. Laugier ¹ , and L. Bridal ¹ , ¹ Laboratoire d'Imagerie Paramétrique CNRS Université Paris 6, ² INSERM U356, ³ Laboratoire d'Anatomie Pathologique HEGP, ⁴ Service de Biophysique Hotel-Dieu	U3-G-2 Real-Time 3-D Transesophageal Echocardiography. E. C. Pua [*] and S. W. Smith, Duke University	U4-G-3 Revisiting the Stokes Relations in a Time Reversal Cavity: Suppression of Intra-Plate Echoes Induced by an Ultrasonic Fabry Perot. F. Vignon [*] , J.-F. Aubry, M. Tanter, G. Montaldo, and M. Fink, Laboratoire Ondes et Acoustique, ESPCI, Université Paris VII, U.M.R. C.N.R.S. 7587, 10 rue Vauquelin, 75005 Paris, France	U5-G-3 A Theoretical Study of Love Wave Sensors Mass Loading and Viscoelasticity Sensitivity in Gas and Liquid Environments. P. Mazein ^{*1} , D. Rebière ¹ , C. Déjous ¹ , F. Josse ² , and J. Pistré ¹ , ¹ Laboratoire IXL (ENSEIRB - CNRS UMR5818 - Université Bordeaux 1), ² Microsensor Research Laboratory and Department of Electrical and Computer Engineering, Marquette University	U6-G-3 New Developments in Tissue-Type Imaging (TTI) for Guiding Prostate Biopsies and for Planning and Monitoring Treatment of Prostate Cancer. E. J. Feleppa ^{*1} , J. Ketterling ¹ , P. Lee ¹ , S. Urban ¹ , A. Kalisz ¹ , C. R. Porter ² , G. Kutcher ³ , and F. Arias-Mendoza ³ , ¹ Riverside Research Institute, ² Virginia Mason Medical Center, ³ Columbia University
4:15 p.m.	U1-G-4 Abdominal Acoustic Radiation Force Impulse (ARFI) Imaging. G. Trahey ^{*1,2} and B. Fahey ¹ , ¹ Biomedical Engineering Department, Duke University, ² Department of Radiology, Duke University	U2-G-4 Performance of a 50 MHz Annular Array Based Imaging System. J. A. Brown ^{*1,2} , C. E. Morton ¹ , S. Foster ² , and G. R. Lockwood ¹ , ¹ Queen's University, ² Sunnybrook Health Sciences Centre	U3-G-3 3D Ultrasound Imaging System using Fresnel Ring Array & High Voltage Multiplexer IC. S. Tamano ^{*1} , T. Kobayashi ² , S. Sano ² , K. Hara ³ , J. Sakano ³ , and T. Azuma ⁴ , ¹ Research & Development Center, Hitachi Medical Corporation, ² Ultrasound Department, Hitachi Medical Corporation, ³ Hitachi Research Laboratory, Hitachi, Ltd., ⁴ Central Research Laboratory, Hitachi, Ltd.	U4-G-4 2D Pseudo-Array using an Ultrasonic One Channel Time-Reversal Mirror. N. Quieffin [*] , S. Catheline, R. K. Ing, and M. Fink, laboratoire ondes et acoustique	U5-G-4 SAW Sensor for Anti-Human-Immuno-Globulin G Molecule Detection. Y. R. Roh [*] , D. W. Lim, and Y. J. Hur, Kyungpook National University	U6-G-4 The Intensity Reflection Coefficient: A New Method for Blood Tissue Characterization. A. Amararene [*] and G. Cloutier, Laboratory of Biorheology and Medical Ultrasonics, Research Center, Notre-Dame Hospital
4:30 p.m.	U1-G-5 High Frequency Elastography for In-Vivo Study of the Mechanical Behavior of Skin. Y. Mofid ^{*1} , F. Ossant ^{1,3} , C. Imberdis ² , and F. Patat ^{1,3} , ¹ LUSSI, ² LMARC, ³ Brettonneau University Hospital	U2-G-5 High-Resolution Ultrasound Imaging of Muscle Dynamics and Effects of Fatigue. R. S. Witte [*] , D. E. Dow, R. Olafsson, Y. Shi, and M. O'Donnell, University of Michigan	U3-G-4 Real-Time 3D Ultrasound with Multiple Transducer Arrays. M. P. Fronheiser [*] , E. D. Light, and S. W. Smith, Department of Biomedical Engineering, Duke University	U4-G-5 (Invited) What are the Limits of Energy Focusing in Sonoluminescence? S. Putterman [*] , C. Camara, B. Kappus, C.-K. Su, and E. Kirilov, University of California	U5-G-5 Ball SAW Hydrogen Sensor with Amplitude and Delay Time Response. A. Mizukami ^{*1} , D. Y. Sim ³ , I. Satoh ⁴ , T. Miyagishi ⁴ , H. Tanaka ⁴ , T. K. Fukiura ⁴ , H. Kazato ⁴ , S. Akao ² , T. Ohgi ² , N. Nakaso ² , H. Watanabe ¹ , T. Mihara ¹ , and K. Yamanaka ¹ , ¹ Tohoku University, ² Toppant Printing Co., Ltd., ³ Ball Semiconductor Inc., ⁴ Yamatake Corp	U6-G-5 Attenuation Compensated Spectral Slopes during the Kinetics of Rouleau Formation for Porcine Blood Backscattering in Couette Flow at 25-60 MHz. F. Yu ^{*1} , A. Amararene ¹ , D. Savéry ¹ , F. S. Foster ² , and G. Cloutier ¹ , ¹ LBMU - University of Montreal, ² Sunnybrook Health Science Centre
4:45 p.m.	U1-G-6 Acoustic Radiation Force Impulse (ARFI) Imaging of the Gastrointestinal Tract. M. L. Palmeri ^{*1} , K. D. Frinkley ¹ , R. C. Bentley ² , and K. R. Nightingale ¹ , ¹ Duke University, ² Duke University Medical Center	U2-G-6 High Frequency Ultrasound Signal Statistics from Mouse Mammary Tissue During Involution. A. S. Tunis ^{*1,2} , A. Giles ² , D. Spurrell ² , D. McAlduff ² , M. Hariri ^{1,2} , R. Khokha ^{1,2} , G. J. Czarnota ^{2,3} , M. D. Sherar ^{1,2} , J. W. Hunt ^{1,2} , and M. C. Kolios ^{1,3} , ¹ Department of Medical Biophysics, University of Toronto, ² Ontario Cancer Institute/Princess Margaret Hospital, University Health Network, ³ Department of Math, Physics & Computer Science, Ryerson University	U3-G-5 Advances in Two Dimensional Arrays for Real Time 3d Intravascular Ultrasound. E. D. Light [*] and S. W. Smith, Duke University		U5-G-6 Ultrasonic Measurement of Molar Fractions in Gas Mixtures by Orthogonal Signal Correction. J. E. Carlson [*] and P.-E. Martinsson, EISLAB, Dept. of Computer Science and Electrical Engineering, Luleå University of Technology	U6-G-6 High Frequency Ultrasound Characterization of the Coagulation Process of Whole Blood. F. Ossant ^{*1,2} , R. Libgot ¹ , P. Coupé ¹ , P. Lermusiaux ² , and F. Patat ^{1,2} , ¹ LUSSI FRE 2448 CNRS, ² Brettonneau University Hospital

3:30 p.m – 5:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Thursday, August 26, 2004

Montreal

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		Session FE1-G MODELING, THEORY, AND DOMAINS Chair: D. Damjanovic EPFL			Session FC1-G MICROWAVE AND MEMS RESONATORS - THEORY AND FABRICATION Chair: R. Eiller US Army CECOM		Session FC2-G PANEL DISCUSSION - MANUFACTURING TECHNOLOGY Chair: G. Johnson Sawyer Research Products	
		513CD			511CF		511DE	
3:30 p.m.		FE1-G-1FEM Modeling of Electro-Elastic Field in Ferroelectric Crystal with Domain Boundaries. J. Novak*, J. Maryska, and J. Fousek, Faculty of Mechatronics and Interdisciplinary Engineering Studies, Technical University of Liberec			FC1-G-1 (Invited) Design of Distributed Bragg Resonators with Cylindrical Symmetry. M. E. Tobar ^{*1} , J.-M. le Floch ^{1,2} , J. G. Hartnett ¹ , and D. Cros ² , ¹ School of Physics, The University of Western Australia, 35 Stirling Hwy, Crawley, WA, 6009, Australia, ² Institut de Recherche en Communications Optiques et Microondes, Faculte Des Sciences, 123 Avenue A. Thomas, 87060 Limoges Cedex, France		FC2-G-1 New Materials Panel Discussion. B. Tysinger ^{*1} and G. R. Johnson ² , ¹ Agilent Technologies, Inc., ² Sawyer Research Products, Inc.	
3:45 p.m.		FE1-G-2 Piezoelectric Anisotropy-Phase Transition Relations in Perovskite Single Crystals. M. Budimir*, D. Damjanovic, and N. Setter, EPFL						

4:00 p.m.	FE1-G-3 Modeling and Experiments of Local Stresses, Electric Fields, and Ferroelectric Domain Switching at Individual Grain Boundaries in PZT. B. D. Huey ^{1,2} , E. Garcia ² , A. Scotch ² , M. Vaudin ² , S. Hong ³ , and J. Blendell ² , ¹ University of Connecticut, Institute of Materials Science, ² NIST Ceramics Division, ³ Samsung Advanced Institute of Technology			FC1-G-2 Piezo-Controlled Frequency Agile Microwave Dielectric Devices. Y. Poplavko*, National Technical University of Ukraine	
4:15 p.m.	FE1-G-4 Complex Lattice Quasicontinuum Theory and Its Application to Ferroelectrics. O. Kowalewsky*, J. Knap, and M. Ortiz, California Institute of Technology			FC1-G-3 Frequency Tuning of Vibrating Micro-Electro-Mechanical Resonators and Filters Via Laser Trimming. M. Abdelmoneum* ¹ and C. Nguyen ² , ¹ Radiation Laboratory, University of Michigan Ann Arbor, ² DARPA	
4:30 p.m.	FE1-G-5 Modelling of the Poling Process in Functionally Graded Materials. R. Steinhausen*, A. Z. Kouvatov, C. Pientschke, H. T. Langhammer, and H. Beige, Martin-Luther-University Halle-Wittenberg			FC1-G-4 Bridged Micromechanical Filters. S.-S. Li*, M. U. Demirci, Y.-W. Lin, Z. Ren, and C. T.-C. Nguyen, University of Michigan	
4:45 p.m.					

<p><i>Session P3FC-A</i> FREQUENCY STANDARDS Chair: R. Wang JPL</p>	<p><i>Session P3FC-B</i> SENSOR TECHNOLOGY Chair: R. Lucklam University of Magdeburg</p>	<p>P3U-C-3 E3 NSPUdT Structures with Inclined Reflectors on Languasite. S. Zhgoon^{*1}, A. Shvetsov¹, S. Sakharov², V. Semenov², and S. Dobershtein³, ¹MPEI, ²Fomos Materials, ³ONIIP</p>	<p>P3U-D-4 E10 FEUDT Periodic Cell with Different Width Electrodes. S. V. Biryukov^{*1,2} and M. Weihnacht¹, ¹Leibniz Institute for Solid State and Materials Research Dresden, ²Mints Radiotechnical Institute</p>	<p>P3U-E-6 F10 Considerations on Coupling-of-Modes Equations for Shear Horizontal Type SAW. K. Hirota[*] and Y. Yamamoto, NRS Technologies Inc</p>	<p>P3FE-F-6 W12 Effects of Li₂CO₃ and Bi₂O₃ Additives on Sintering Temperature and Piezoelectric Properties of PCW-PMN-PZT Ceramics for Multilayer Piezoelectric Transformer. K. Chung^{*1}, J. Yoo², H. Song², Y. Jeong³, H. Yoon⁴, C. Park², and D. Lee¹, ¹Inha University, ²Semyung University, ³KEPRI, ⁴Kyungmoon College</p>
<p>P3FC-A-1 S2 Performance of PARCS Testbed Cesium Fountain Frequency Standard. D. G. Enzer[*] and W. M. Klipstein, Jet Propulsion Laboratory</p>	<p>P3FC-B-1 Q9 Single Board Impedance Analyzer and Transient Analysis of QCR Sensor Response. R. Schaefer, S. Doerner, R. Lucklum[*], and P. Hauptmann, Otto-von-Guericke-University</p>	<p>P3U-C-4 E4 Propagation Characteristics of Shear-Horizontal-Type Surface Acoustic Wave on Languasite with Au or Ta₂O₅ Thin Film. S. Kakio, M. Nozawa[*], and Y. Nakagawa, University of Yamanashi</p>	<p>P3U-D-5 E11 Low Loss SAW Double-Mode Structure Suppressing Spurious Radiation. T. Shiba^{*1}, S. Oosawa¹, J. Hamasaki¹, Y. Fujita¹, and T. Chiba², ¹Hitachi Media Electronics Co., Ltd., ²Meisei University</p>	<p>P3U-E-7 F9 The Improvement on the COM Parameters Extraction and Device Simulation for Leaky Surface Wave Devices. X. Zhang, W. Wang, H. Wu, and Y. Shui[*], Key lab. on Modern Acoustics, Nanjing University</p>	<p>P3FE-F-7 W13 Withdrawn</p>
<p>P3FC-A-2 S3 Adiabatic Passage in Two-Level Caesium Atom: Application to Frequency Control in Atomic Fountain. V. Pal'chikov[*], Y. Dornin, G. Yolkin, A. Novoselov, and V. Barychev, Institute of Metrology for Time and Space at National Research Institute for Physical-Technical and Radiotechnical Measurements</p>	<p>P3FC-B-2 Q10 Methodology of Design of Electronic Circuit Oscillators for QCM Sensors in Liquid Media. L. Rodriguez-Pardo^{*1}, J. Fariña¹, C. Gabriell², H. Perrot², and R. Brendel³, ¹Dpto. T. Electrónica, IEA Barriç de la Maza, Univ. Vigo, Spain, ²Lab. Interfaces et Systèmes Electrochimiques, CNRS, Paris, France, ³Lab. Physique et Métrologie des Oscillateurs, CNRS, Besançon, France</p>	<p>P3U-C-5 E5 Temperature Compensated Languasite Family Compound Ca₂NbGa₂Si₂O₁₄ Crystal for SAW Applications. M. Adachi[*], R. Sato, and T. Karaki, Toyama Prefectural University</p>	<p><i>Session P3U-E</i> SAW PROPAGATION THEORY Chair: B. Potter Vectron International</p>	<p><i>Session P3FE-F</i> MATERIALS PROCESSING Chair: D. P. Williams Sandia National Laboratory</p>	<p>P3FE-F-8 X11 Investigation of the Formation Mechanism of Perovskite Phase in (1-x)PST-xPT ceramics Prepared by One-Step-Sintering-Method. J. Zhu[*], D. Lan, D. Xiao, J. Cao, X. Yue, X. Yuan, W. Lu, and W. Zhang, Department of Materials Science, Sichuan University</p>
<p>P3FC-A-3 S4 Power Dissipation in a Vertically-Integrated Chip-Scale Atomic Clock. J. Kitching^{*1}, S. Knappe¹, L.-A. Liew¹, P. Schwindt^{1,2}, V. Shah^{1,2}, J. Moreland¹, and L. Hollberg¹, ¹NIST, ²The University of Colorado</p>	<p>P3FC-B-3 Q11 Miller Oscillators for High Sensibility Quartz Crystal Microbalance Sensors in Damping Media. L. Rodriguez-Pardo^{*1}, J. Fariña¹, C. Gabriell², H. Perrot², and R. Brendel³, ¹Dpto. T. Electrónica, IEA Barriç de la Maza, Univ. Vigo, Spain, ²Lab. Interfaces et Systèmes Electrochimiques - CNRS, Paris, France, ³Lab. Physique et Métrologie des Oscillateurs, CNRS, Besançon, France</p>	<p>P3U-C-6 E6 Theoretical Calculation of SAW Characteristics of the GdYCOB Single Crystals. T. Nishida[*], H. Shimizu, H. Takeda, S. Okamura, and T. Shiosaki, Materials Sci., Nara Institute of Science and Technology</p>	<p>P3U-E-1 E12 The Basic Scattering Theorem. B. V. Sveshnikov[*], Nizhny Novgorod State University</p>	<p>P3FE-F-1 W4 Grain Orientation of New Lead-Free Piezoelectric Ceramic in the System of (Bi_{1/2}Na_{1/2})TiO₃-(Bi_{1/2}K_{1/2})TiO₃-BaTiO₃. N. Marandian Hagh[*], M. Allahverdi, and A. Safari, Rutgers university</p>	<p>P3FE-F-9 X12 Optical Properties of Single Crystal Sm₂(MoO₄)₃. J. Y. Sohn^{*1}, S. D. Lee², and Y. S. Yu^{1,3}, ¹Research institute of Basic Science, Dongeui University, ²Department of Physics, Kyungnam University, ³Electronic Ceramics Center, Dongeui University</p>

<p>P3FC-A-4 S5 The PHARAO Time and Frequency Performance Verification System. P. Guillemot¹, J.-F. Dutrey¹, J.-F. Vega¹, M. Chaubet¹, D. Chebance¹, C. Sirmain¹, G. Santarelli², D. Chambon², P. Laurent², C. Locke³, E. Ivanov³, M. Rousselet⁴, and T. Potier⁵, ¹CNES (French Space Agency), ²BNM - SYRTE, ³University of Western Australia, ⁴RFPA, ⁵THALES Airborne Systems</p>	<p>P3FC-B-4 Q12 Electronic Circuit System of High Sensitivity Mass Detection for QCM-Biosensor. M. Koyama¹, K. Akaike¹, H. Aizawa², and S. Kurosawa², ¹Nihon Dempa Kogyo Co., Ltd., ²National Institute of Advanced Industrial Science & Technology (AIST)</p>	<p><i>Session P3U-D</i> SAW TRANSDUCERS Chair: P. Smith McMaster University</p>	<p>P3U-E-2 E13 Universal Functions for the Analysis of Electromagnetic Interactions in SAW Devices. A. Baghai-Wadji[*], Vienna University of Technology</p>	<p>P3FE-F-2 W8 PZT Thick Films by Direct-Write Technology. M. Allahverdi[*] and A. Safari, Rutgers University</p>	<p>P3FE-F-10 W5 Templated Grain Growth (TGG) of PMN-PT Textured Components by Layered Manufacturing (LM). R. Brennan[*], M. Allahverdi, and A. Safari, Rutgers University</p>
<p>P3FC-A-5 S6 A Frequency Standard Based on Expanding Cold Atom Cloud. S. T. Müller, M. S. Santos, D. V. Magalhães[*], A. Bebechibuli, and V. S. Bagnato, University of São Paulo - USP</p>	<p><i>Session P3U-C</i> MODERN SAW MATERIALS Chair: K. Hashimoto Chiba University</p>	<p>P3U-D-1 E7 Novel Approaches to the Electromagnetic Design of CSP RF-Filters with Improved Selectivity. J. E. Kiwitt, M. Pitschi[*], and K. Wagner, EPCOS AG</p>	<p>P3U-E-3 F13 SAW Propagation in Complex Periodic Systems of Strips. E. J. Danicki[*], Polish Academy of Sciences</p>	<p>P3FE-F-3 W9 Templated Grain Growth of Bi_{0.5}Na_{0.5}TiO₃ with Seeds of the Same Material. P. Setasuwon[*], N. Vaneesorn, A. Thanaboonsombut, and S. Kijamnajsuk, National Metal and Materials Technology Center</p>	<p>P3FE-F-11 W6 Influence of Processing Conditions on the Morphotropic Phase Boundary and Ferroelectric Properties of Pb(Zn_{1-x}Nb_{2x})O₃-Pb(Ni_{1-y}Nb_{2y})O₃-Pb(Zr_{1-z}Ti_{1-z})O₃ Solid Solutions. D. Cann¹, X. Tan¹, N. Vittayakorn², G. Rujjanagu², and T. Tunkasiri², ¹Materials Science and Engineering Department, Iowa State University, Ames, IA 50011, USA, ²Department of Physics, Faculty of Science, Chiang Mai University, Chiang Mai 50200, THAILAND</p>
<p>P3FC-A-6 S7 The 133CS Fountain Frequency Standard in Brazil. D. V. Magalhães[*], M. S. Santos, A. Bebechibuli, S. T. Müller, and V. S. Bagnato, University of São Paulo - USP</p>	<p>P3U-C-1 E1 SAW Substrate with Excellent Temperature Stability Suitable for Duplexer of US-PCS. M. Kadota[*], T. Nakao, N. Taniguchi, E. Takata, and M. Mimura, Murata Mfg. Co., Ltd.</p>	<p>P3U-D-2 E8 Scanning Window Technique in SPUDT Optimization. E. Bausk[*] and R. Taziev, Institute of Semiconductor Physics</p>	<p>P3U-E-4 F12 Fast Method of Solution for Mixed Electrostatic Problem in Periodic Arrays. D. Vadim[*], Duznow Vadim</p>	<p>P3FE-F-4 W10 Molding of High Aspect Ratio Ferroelectric Microstructures. I. Mina¹, B. Srowthi¹, N. Saldhana², T. Mayer², and S. Trolier McKinstry¹, ¹Materials Science and Engineering and Materials Research Institute, ²Electrical Engineering</p>	<p>P3FE-F-12 W7 Reduced Temperature Synthesis of Pb₃MgNb₂O₉. M. A. Kurata and D. A. Payne, Department of Materials Science and Engineering and Frederick Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, Illinois</p>
<p>P3FC-A-7 S1 An Examination of the Mössbauer Effect as the Basis for a Time/Frequency Standard. E. Potenziani II and J. Kosinski[*], US Army RDECOM</p>	<p>P3U-C-2 E2 All-Langasite-Packaged Surface Acoustic Wave Pressure sensors. T. Han[*], X. Ji, and W. Shi, Shanghai Jiaotong University</p>	<p>P3U-D-3 E9 Investigation of Single-Finger Interdigital Transducers as Programmable Reflectors. Q. Fu[*], W.-J. Fischer, and H. Stab, Semiconductor and Microsystems Technology Laboratory</p>	<p>P3U-E-5 F11 Numerical Modeling of One-Port Resonators Based on Harmonic Admittance. S. Malocha¹, B. P. Abbott¹, and N. Naumenko², ¹Sawtek, Inc, ²Mosow Steel and Alloys Institute</p>	<p>P3FE-F-5 W11 Electrophoretic Deposition of BaTiO₃ Films from Aqueous Suspensions. J. Zhao, X. Wang, T. Liu[*], and L. Li, Tsinghua University</p>	

5:00 p.m – 6:30 p.m.

Thursday, August 26, 2004, POSTER SESSIONS

Montreal

<p><i>Session P3FE-G TUNABLE/RF</i> Chair: R. R. Neurgaonkar Rockwell Scientific Co.</p>	<p><i>Session P3FE-H MATERIALS CHARACTERIZATION</i> Chair: V. H. Schmidt Montana State University</p>	<p><i>Session P3FE-I DOMAINS SWITCHING</i> Chair: D. Viehland Virginia Tech</p>	<p>P3FE-J-3 U3 Thermal Fields and Thermal Stresses in Semiconducting Barium Titanate. V. N. Shut*, S. R. Syrtsov, E. L. Gavrilenco, and A. V. Gavrilov, Institute of Technical Acoustics NAS Belarus</p>	<p>P3FE-K-4 U7 Pb_{0.5}Ca_{0.5}TiO₃ Thin Films as an Alternative Material for Varactors and DRAMs. J. Mendiola¹, R. Jimenez¹, P. Ramos², C. Alemany¹, and M. L. Calzada¹, ¹Instituto de Ciencia de Materiales (CSIC), ²Dpto. de Electrónica, Universidad de Alcalá</p>	<p>P3U-L-4 F4 A New Flexible Digital Research Platform Based on a Standard US Scanner: Results and Applicative Perspectives. P. Pellegritti¹, F. Bertora¹, A. Questa¹, C. Parodi¹, and S. Curletto², ¹Esaote, ²Dept. of Biophysical and Electronic Engineering, University of Genoa</p>
<p>P3FE-G-1 S8 Optimization of High Tunability Barium Strontium Titanate Thin Films Grown by RF Magnetron Sputtering. N. K. Pervez¹, P. J. Hansen², and R. A. York¹, ¹Department of Electrical and Computer Engineering, University of California, ²Materials Department, University of California</p>	<p>P3FE-H-1 X5 About the Determination of the Electromechanical Coupling Factor of the Ferroelectric Plate Vibrating in Thickness-Shear Mode. L. Burianova* and J. Nosek, Technical University of Liberec</p>	<p>P3FE-I-1 T11 Pulse Electric Field Induced Phase Transition Behaviors of La-Doped Pb(Zr,Sn,Ti)O₃ Antiferroelectric Ceramics. Z. Xu*, Y. Feng, X. Wei, and X. Yao, Electronic Materials Research Laboratory, Xi'an Jiaotong University</p>	<p>P3FE-J-4 W1 Calculation of Electronic Structure of Ferroelectric CaTiO₃ in Cubic and Orthorhombic Phases. A. Kompany*, S. M. Hosseini, and S. H. Hashemi, Dept. of Physics, Ferdowsi University of Mashhad</p>	<p>P3FE-K-5 U8 Sol-Gel Derived La-modified PZT Thin Films on Ni/Cu Foils for PCB Embedded Capacitors. H. Xu¹, G. Xing², Q. Zou², and G. Himer², ¹VLSI Reserach Group, University of Toronto, ²Division of Materials Development, Energenius Inc</p>	<p>P3U-L-5 F5 An Optimized Echo-Processing Algorithm using TMS320C6202DSP Processor for Small Scale Ultrasound Systems. H.-C. Kim*, J.-H. Sim, and T.-K. Song, Center for Medical Solutions Research, Electronic Engineering, Sogang University</p>
<p>P3FE-G-2 S9 Reversible Dielectric Nonlinearity and Mechanism of Tunability for. X. Wei* and X. Yao, Electronic Materials Research Laboratory, Xi'an Jiaotong University</p>	<p>P3FE-H-2 X6 Direct Strain-Field Hysteresis Measurements in PZT Films Via Scanning Force Microscopy. I. K. Bdikin¹, V. V. Shvartsman¹, N. Vyshatko¹, A. L. Kholkin¹, J. M. Herrero², and C. Zaldo², ¹Dept. of Ceramics and Glass Engineering, CICECO, University of Aveiro, ²Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Cientificas</p>	<p>P3FE-I-2 T12 Cooling-Rate-Dependent Domain Structures of PMN-PT Single Crystals Observed by Contact-Resonance Piezoresponse Force Microscopy. J. Sakamoto*, H. Okino, and T. Yamamoto, National Defense Academy</p>	<p>P3FE-J-5 W2 Residual Strain and Ferroelectric Behaviours of Pb_{0.7}La_{0.2}TiO₃-Based Perovskite. H.P. Soon¹, J.M. Xue, and J. Wang, National University of Singapore</p>	<p>P3FE-K-6 U9 Evaluation of Sol-Gel Derived BST Thin Films for Embedded Capacitor Application. G. Xing¹, Q. Zou¹, H. Xu², and G. Himer¹, ¹Division of Materials Development, Energenius Inc., ²VLSI Group, University of Toronto</p>	<p>P3U-L-6 F6 A Real-time Clinical Ultrasound Contrast Dosimeter with Adaptive Algorithms. F.-M. Wang*, R. Karshafian, and P. N. Burns, Department of Medical Biophysics, University of Toronto</p>
<p>P3FE-G-3 S10 An Investigation of BST:MgTiO₃ and X7R:MgTiO₃ Based Ceramics for Microwave Applications. R. Kurchania¹, A. J. Bell¹, T. Chakraborty², and I. C. Hunter², ¹Institute for Materials Research, ²Institute of Microwaves & Photonics, School of Electronic & Electrical Engineering, University of Leeds, Leeds LS2 9JT, UK</p>	<p>P3FE-H-3 X7 Nonlinear Piezoresponse in Ferroelectric Thin Films Studied by Scanning Force Microscopy. V. V. Shvartsman¹, J. M. Herrero², C. Zaldo², N. A. Pertsev³, and A. L. Kholkin¹, ¹Dept. of Ceramics and Glass Engineering, CICECO, University of Aveiro, ²Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Cientificas, ³A. F. Ioffe Physico-Technical Institute RAS</p>	<p>P3FE-I-3 T13 Local Switching Properties of Dense Nanocrystalline BaTiO₃ Ceramics by AFM Piezoresponse Investigations. C. Harnagea¹, V. Buscaglia², M. T. Buscaglia², M. Viviani², P. Nanni¹, A. Testino³, L. Mitoseriu^{3,4}, M. Nygren⁵, and Z. Zhao⁶, ¹Institut National de la Recherche Scientifique - Energie, Matériaux et Télécommunications, ²Institute for Energetics & Interfaces - CNR, ³University of Genoa, ⁴Al. I. Cuza University, ⁵University of Stockholm</p>	<p>P3FE-J-6 W3 Electronic Structure of Piezoelectric PbTiO₃ in Cubic and Tetragonal Phases. S. M. Hosseini¹, A. Kompany¹, and T. Molaroooy¹, ¹Dept. of Physics, Ferdowsi University of Mashhad, ²Dept. of Physics, Ferdowsi University of Mashhad, ³Dept. of Physics, Ferdowsi University of Mashhad</p>	<p>P3FE-K-7 T10 Spatial Resitivity Profiling of Multilayer Capacitors as a Function of Furnace Conditions. C. M. Williams, A. E. Hydrick, H. M. Schulze*, and W. A. Schulze*, Alfred University</p>	<p>P3U-L-7 F7 Automated Detection of the Aortic Valve Closure Event in Tissue Velocity Images. S. Aase¹, C. Bjork Ingul¹, S. Frigstad², and H. Torp¹, ¹NTNU - Dept of Circulation & Medical Imaging, ²GE Vingmed Ultrasound</p>

<p>P3FE-G-4 S11 Dielectric Behaviour of Composite Films of Nickel-Zinc Ferrite and Barium Titanate in Low Frequency and Microwave Frequency Range. N. Gupta*, S. C. Kashyap, and D.C. Dube, Indian Institute of Technology, Delhi</p>	<p>P3FE-H-4 X8 Thickness Dependence of the Microscopic and Macroscopic Piezoelectric Properties of Lead Zirconate Titanate Thin Films. J. Perez¹, V. V. Shvartsman¹, P. M. Vilarinho¹, A. L. Kholkin^{1*}, J. M. Herrero², and C. Zaldo², ¹Dept. of Ceramics and Glass Engineering, CICECO, University of Aveiro, ²Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas</p>	<p>P3FE-I-4 T14 <i>In-Situ</i> Domain Observation of $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3$ Single Crystals Near the Curie Temperature using Contact-Resonance Piezoresponse Force Microscope. H. Okino*, J. Sakamoto, and T. Yamamoto, National Defense Academy</p>	<p>Session P3FE-K CAPACITORS AND DIELECTRICS Chair: D. McCauley Ferroelectric Material Systems</p>	<p>Session P3U-L MEDICAL SIGNAL PROCESSING II Chair: C. Hall Philips Research</p>	<p>P3U-L-8 F8 Implementation of Digital Synthetic Aperture Technique for a High Frequency Annular Array. S. N. Ramachandran^{1*}, J. A. Ketterling¹, F. L. Lizzi¹, O. Aristizabal², and D. H. Turnbull², ¹Riverside Research Institute, ²Skirball Inst of Biomolecular Med, NYU School of Medicine</p>
<p>P3FE-G-5 S12 Design of a Si MMIC Compatible Ferroelectric Varactor Shunt Switch for Microwave Switching Applications. F. Ahamed* and G. Subramanyam, University of Dayton</p>	<p>P3FE-H-5 X9 Analytical Modeling of Apparent d_{33} Piezoelectric Coefficient Measured by the Direct Quasistatic Method for Different Boundary Conditions. A. Barzegar*, D. Damjanovic, and N. Setter, EPFL-Swiss Federal Institute of Technology Lausanne</p>	<p>Session P3FE-J MODELING AND THEORY Chair: D. Viehland Virginia Tech</p>	<p>P3FE-K-1 U4 Dielectric Behavior of Calcium Copper Titanium Oxide under High Electric Field. M.-J. Pan* and B. A. Bender, Naval Research Laboratory</p>	<p>P3U-L-1 F1 Filtering of Chirped Ultrasound Echo Signals with the Fractional Fourier Transform. M. J. Bennett^{1*}, S. McLaughlin¹, T. Anderson², and N. McDicken², ¹University of Edinburgh, ²University of Edinburgh</p>	<p>Session P3U-M TISSUE CHARACTERIZATION Chair: J. Greenleaf Mayo Clinic</p>
<p>P3FE-G-6 S13 Influence of Stacking Periodicity on the Dielectric Tunability Properties of $(\text{Ba}_{1-x}\text{Sr}_x)\text{TiO}_3$ Multilayers Films. D. Peng, W. Wu, and Z. Meng*, School of materials Science and Engineering, Shanghai University</p>	<p>P3FE-H-6 X10 Complex Rare-Earth Substituted Lead Titanate Piezoceramics. E. Dimitriu, F. Craciun*, P. Verardi*, V. Ciupina, and G. Prodan, Interdisciplinary Research Institute for Micro and Nanostructure, University "Ovidius", Constanta, Romania, Istituto di Acustica "O.M. Corbino", Area di Ricerca Tor Vergata, Via del Fosso del Cavaliere 100, I-00133, Rome, Italy</p>	<p>P3FE-J-1 U1 Numerical Model of Influence of External Electric Loading on Electro-Elastic Field in Ferroelectrics. J. Královcová* and J. Maryka, Technical University of Liberec</p>	<p>P3FE-K-2 U5 Size Effect of Barium Titanate Based Ceramics Sintered in Reducing Atmospheres. X. Wang*, H. Wen, R. Chen, H. Zhou, and L. Li, Tsinghua University</p>	<p>P3U-L-2 F2 The Use of Chirp Overlapping Properties for Improved Target Resolution in Ultrasonic Ranging Systems. F. Devaud*, G. Hayward, and J. J. Soraghan, University of Strathclyde</p>	<p>P3U-M-1 G1 Causal Transient Propagation in Media with Classical or Power-Law Loss. R. S. C. Cobbold*, N. V. Sushilov, and A. Weathermon, University of Toronto</p>
		<p>P3FE-J-2 U2 A Fatigue Model for PZT Thin Films. F. Chen*, C. Yang, J. Liu, Z. Tian, and S. Zhang, School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China</p>	<p>P3FE-K-3 U6 Sodium Bismuth Titanate Modifications for High Temperature Capacitor Applications. C. J. Walsh and W. A. Schulze*, Alfred University</p>	<p>P3U-L-3 F3 Ultrasound Imaging System using Combinational Coding of Excitation. K. Asafusa^{1*}, T. Azuma², H. Kanda¹, R. Shinomura¹, and S.-I. Umemura¹, ¹Hitachi Medical Corporation, ²Hitachi Central Research Laboratory</p>	<p>P3U-M-2 G2 The Ultrasonic Attenuation Coefficient for Human Blood Plasma in the Frequency Range of 7 - 90 MHz. M. M. Calor-Filho and J. C. Machado*, Biomedical Engineering Program - COPPE/Federal University of Rio de Janeiro</p>

5:00 p.m – 6:30 p.m.

Thursday, August 26, 2004, POSTER SESSIONS

Montreal

<p>P3U-M-3 G3 Resolution Improved Ultrasound Attenuation Estimation Based on RF-Data of Spatial Compound Scans. K. V. Jenderka*, Physikalisch-Technische Bundesanstalt (PTB), Ultrasonics Section</p>	<p>P3U-N-4 G11 Application of Doppler Measurement using Multiplexed Dual-Chirp Signals to Multiple Reflectors. M. Yoshizawa*¹, K. Ueda¹, N. Tagawa², and T. Moriya², ¹Tokyo Metropolitan College of Technology, ²Department of Electrical Engineering, Tokyo Metropolitan University</p>	<p>P3U-O-4 H10 Evaluation of Thin Compression Plates for Mammographically Compatible Breast Ultrasound. R. C. Booi*^{1,2}, J. F. Kruecker¹, M. M. Goodsitt¹, M. O'Donnell², A. Kapur², G. L. LeCarpentier¹, M. A. Roubidoux¹, J. B. Fowlkes¹, and P. L. Carson^{1,2}, ¹Department of Radiology, ²Department of Biomedical Engineering, ³General Electric Global Research Center</p>	<p>P3U-P-3 H3 Diagnostics of Prostate Cancer based on Ultrasonic Multifeature Tissue Characterization. U. Scheipers*^{1,4}, K. Koenig^{2,4}, T. Senge^{2,4}, S. Philippou^{2,4}, and H. Erment^{1,4}, ¹Institute of High Frequency Engineering, Ruhr-Universitaet Bochum, ²Urological Department, Marienhospital, ³Institute for Pathology, Augusta-Krankenanstalt, ⁴Ruhr Center of Excellence for Medical Engineering KMR</p>	<p>P3U-Q-2 I5 3-D Ultrasound Calibration Using a Phantom with Reduced Complexity. S. Dandekar¹, J. Hossack*¹, and J. Molloy², ¹University of Virginia Department of Biomedical Engineering, ²University of Virginia Department of Radiation Oncology</p>	<p>P3U-R-3 I12 Energy and Pulse Control Possibilities using Ultra-Tight Integration of Electronics and Piezoelectric Ceramics. J. Johansson*, J. van Deventer, and J. Delsing, Lulea University of Technology</p>
<p>P3U-M-4 G4 Dependence of Tissue Characterization Features on Region of Interest Size: Studies on Phantoms and In Vitro Prostate Tissues. Z. He*¹, S. Grimm¹, R. F. Wagner², K. A. Wear², E. Jannicky², D. Huston¹, and B. S. Garra³, ¹Department of Mechanical Engineering, College of Engineering, University of Vermont, ²Center for Devices and Radiological Health, FDA, ³Department of Radiology, University of Vermont College of Medicine</p>	<p>P3U-N-5 G12 Inter-Frame Clutter Filtering for High Frequency Flow Imaging. A. Needles*¹, D. E. Goertz², and F. S. Foster¹, ¹Sunnybrook and Women's College Health Sciences Center, Toronto, ²Erasmus MC, Rotterdam</p>	<p>P3U-O-5 H9 A Feasibility Study on the Development of Ultrasonic Parametric Imaging Based on Nakagami Statistical Model. S.-H. Wang*, P.-H. Tsui, and C.-T. Chuang, Department of Biomedical Engineering, Chung Yuan Christian University</p>	<p>P3U-P-4 H2 Ultrasonic Tissue Characterization as a Predictor of White Matter Damage: Results of a Preliminary Study. T. A. Hope*¹, P. H. Gregson¹, N. Linney², and M. Schmidt³, ¹Dalhousie University, ²Saint Mary's University, ³IWK Health Centre</p>	<p>P3U-Q-3 I6 Variability of Three-Dimensional High-Frequency Ultrasound Measurements of Small Tumor Volumes. L. A. Hastie*^{1,3}, K. C. Graham^{2,3}, A. C. Groom^{2,3}, I. C. MacDonald^{2,3}, A. F. Chambers^{2,3}, A. Fenster^{1,3}, and J. C. Lacefield^{1,3}, ¹Robarts Research Institute, ²London Regional Cancer Centre, ³The University of Western Ontario</p>	<p>P3U-R-4 I13 Technique for Reducing Variance in Transducer Array Pulse-Echo Response. S. Zhou* and J. A. Hossack, University of Virginia</p>
<p>P3U-M-5 G5 Viscoelastic Characterization of in-vitro Canine and Porcine Tissues. M. Kiss* and T. Varghese, University of Wisconsin, Department of Medical Physics</p>	<p>P3U-N-6 G7 Velocity and Acceleration Estimation Employing Nonuniform Sampling. L. Benner¹, W. G. Wilkening*^{1,2}, and H. Erment^{1,2}, ¹Institute of High Frequency Engineering, Ruhr-Universitaet Bochum, ²Ruhr Center of Excellence for Medical Engineering (KMR)</p>	<p>P3U-O-6 H8 Analysis and Measurement of Spectral Characteristics and Spatial Resolution of High Frequency Ultrasound Imaging Systems. M. Vogt*¹, B. Paul², S. Scharenberg², R. Scharenberg², and H. Erment¹, ¹Institute of High Frequency Engineering, Ruhr-Universitaet Bochum, Germany, ²taberna pro medicum GmbH, Lueneburg, Germany</p>	<p>P3U-P-5 H1 Construction of Reference Data for Classification of Elasticity Images of Arterial Wall. J. Inagaki*¹, H. Hasegawa¹, H. Kanai¹, M. Ichiki², and F. Tezuka³, ¹Graduate School of Engineering, Tohoku University, ²Sendai Hospital of East railway Company, ³Sendai National Hospital</p>	<p>P3U-Q-4 I7 Ultrasound Spatial Compounding via Registration of 2D Slices into 3D Volume. J. Liu*¹, N. Pagoulatos², and Y. Kim³, ¹University of California, Davis, ²Siemens Medical Solution, ³University of Washington</p>	<p>P3U-R-5 J13 High Density Interconnections for Polymer Ultrasound Transducers. C. Gregory*, S. Carey, and J. Hatfield, UMIST</p>
<p>P3U-M-6 G6 Mean Scatterer Spacing Estimation using Wavelet Spectrum. J. Tsao* and K.-H. Chiang, Dept. of EE. And Inst. of Comm., National Taiwan University</p>	<p>P3U-N-7 G13 Transit Time Broadening: A Pulsed-Wave Doppler Ultrasound Perspective. A. C. H. Yu*, A. H. Steinman, E. Y. L. Lui, and R. S. C. Cobbold, University of Toronto</p>	<p>P3U-O-7 H7 Use of a Composite Non-Linear Model Including Microbubbles and Tissue to Examine Harmonic Effects for Ultrasonic Propagation and Backscatter in Complex Tissues. O. Mukdadi*¹ and R. Shandas^{1,2}, ¹University of Colorado, ²The Children's Hospital</p>	<p>P3U-P-6 I1 Parametric Imaging On a Clinical Scanner. J. Zagzebski*, A. Gerig, Q. Chen, T. Varghese, T. Hall, and H. Tu, Medical Physics, University of Wisconsin</p>	<p>P3U-Q-5 I8 Theoretical and Experimental High-Frequency Nonlinear Ultrasound Propagation through Multilayered Media. R. Williams*¹, E. Cherin¹, J. Tavakkoli², R. J. Zemp³, and F. S. Foster¹, ¹Sunnybrook and Women's College Health Sciences Centre, ²VisualSonics Inc., ³University of California at Davis</p>	<p><i>Session P3U-S CMUT TECHNOLOGY</i> Chair: S. Smith GE Global Research</p>

<p><i>Session P3U-N</i> BLOOD FLOW Chair: T. Thomas Siemens</p>	<p><i>Session P3U-O</i> IMAGING TECHNIQUES AND MODELING Chair: P. Li National Taiwan University</p>	<p>P3U-O-8 H6 Improving Reliability in Measurement of Minute Change in Wall Thickness using Template Matching. J. Tang*, H. Hasegawa, and H. Kanai, Graduate School of Engineering, Tohoku University</p>	<p>P3U-P-7 I2 Liver Fatty Change Classification using 25MHz High Frequency Ultrasound. W.-C. Yeh¹, Y.-M. Jeng², C.-H. Lee¹, P.-H. Lee³, and P.-C. Li¹, ¹Department of Electrical Engineering, National Taiwan University, ²Department of Pathology, National Taiwan University Hospital, ³Department of Surgery, National Taiwan University Hospital</p>	<p>P3U-Q-6 I9 Ultrasound High Frequency Image of Human Esophagus In Vitro. M. Soldan and J. C. Machado*, Biomedical Engineering Program - COPPE/ Federal University of Rio de Janeiro</p>	<p>P3U-S-1 J9 A Low-Noise, Wideband Electronic System for Pulse-Echo Ultrasound Imaging with CMUT Arrays. A. Caronti¹, D. Fiasca¹, G. Calliano¹, R. Carotenuto², and M. Pappalardo¹, ¹Dipartimento di Ingegneria Elettronica, Università degli Studi Roma Tre, ²Dipartimento I. M. E. T., Università degli Studi "Mediterranea" di Reggio Calabria</p>
<p>P3U-N-1 G8 Test Phantoms for Color Flow Imaging Systems. T. Kondo¹, H. Kanda², K. Mizusige³, and H. Matuo⁴, ¹Tokushima Bunri University, ²Hitachi Medical Corporation, ³Kagawa University Medical School, ⁴General Health Promotion Center, Shikoku Electric Power, Inc</p>	<p>P3U-O-1 H13 Edge Shadows Around Rigid, Absorbing, and Non-Absorbing Cylinders. R. Steel¹, T. Poepping², R. Thompson¹, and C. Macaskill¹, ¹University of Sydney, ²University of Edinburgh</p>	<p><i>Session P3U-P</i> CLINICAL TISSUE CHARACTERIZATION Chair: J. Miller Washington University</p>	<p>P3U-P-8 I3 Clinical Test of RULES (Radiofrequency Ultrasonic Local Estimators). L. Masotti, E. Biagi*, S. Granchi, L. Breschi, E. Magrini, and F. Di Lorenzo, Laboratorio Ultrasuoni e Controlli Non Distruttivi, Dipartimento di Elettronica e Telecomunicazioni</p>	<p><i>Session P3U-R</i> TRANSDUCER TECHNOLOGY Chair: V. Varadan The Pennsylvania State University</p>	<p>P3U-S-2 J10 A Front-End Integrated Circuit for 3D Acoustic Imaging using 2D CMUT Arrays. I. Cicek¹, A. Bozkurt¹, and M. Karaman², ¹Sabancı University, ²Isik University</p>
<p>P3U-N-2 G9 Effect of Beam Shape on Techniques That use Doppler Signal Power for Monitoring Vessel Size Change. L. Sweetman and D. H. Evans*, University of Leicester</p>	<p>P3U-O-2 H12 Knowledge Based Extraction of Left Ventricular Endocardial Border from 2D Echocardiograms. J. Hanseg'rd¹, E. Steen², S. I. Rabben², A. H. Torp², S. Frigstad², and B. Olstad², ¹Department of Informatics, University of Oslo, ²GE Vingmed Ultrasound</p>	<p>P3U-P-1 H5 Ultrasonic Imaging of Biochemical Changes in Tissues. M. Sridhar*, H. Du, C. Pellot-Barakat, J. K. Tsou, and M. F. Insana, UC, Davis</p>	<p><i>Session P3U-Q</i> 3D Chair: O. Basset CREATIS</p>	<p>P3U-R-1 I10 Quantitative Estimation of Acoustic Streaming Effects on Ultrasonic Power Measurement. T. Kikuchi*, S. Sato, and M. Yoshioka, National Metrology Institute of Japan, AIST</p>	<p>P3U-S-3 J11 Capacitive Micromachined Ultrasonic Transducers (CMUT) with Isolation Posts. Y. Huang*, E. O. Hæggström, X. Zhuang, A. S. Ergun, and B. T. Khuri-Yakub, Edward L. Ginzton Laboratory, Stanford University</p>
<p>P3U-N-3 G10 Volume Flow Measurements with a Novel Semi-Automated 4D Doppler Ultrasound Scanner. F. Forsberg¹, J. B. Liu¹, A. Stein², X. Deng¹, W. Ackerman², D. Herzog², K. Abend², and L. Needleman¹, ¹Department of Radiology, Thomas Jefferson University, Philadelphia, PA, ²Vuesonix Sensors, Wayne, PA</p>	<p>P3U-O-3 H11 Evaluation of 2-D Speckle Tracking Based Strain Rate Imaging using a 3-D Heart Simulation Model. X. Chen¹, X. Li², D. Sahn², K. Kim¹, H. Xie¹, and M. O'Donnell¹, ¹Biomedical Engineering Department, University of Michigan, ²Department of Pediatrics, Oregon Health Science University</p>	<p>P3U-P-2 H4 Local Inversion of Transient Shear-Wave Propagation for Elasticity and Viscosity Mapping in Soft Tissues: Theoretical and Experimental Analysis. J. Bercoff*, M. Tanter, M. Muller, and M. Fink, Laboratoire Ondes et Acoustique</p>	<p>P3U-Q-1 I4 A New 3D Ultrasonic Model of Pathologic Carotid Vessels Based on Generalized Cylinders. S. Balocco^{1,2}, O. Basset¹, J. Azencot¹, P. Delachartre¹, P. Tortoli², and C. Cachard¹, ¹CREATIS, UMR 5515 CNRS, U 630 INSERM, Lyon France, ²Microelectronic Systems Design Laboratory, Firenze, Italy</p>	<p>P3U-R-2 I11 Development of Miniature Hydrophone with PZT Film Deposited by Hydrothermal Method. H. Kitsunai¹, T. Suzuki¹, N. Kawashima¹, M. Ishikawa^{2,1}, M. Kurosawa², and S. Takeuchi¹, ¹Toin University of Yokohama, ²Tokyo Institute of Technology</p>	<p>P3U-S-4 J12 Comparison of Measurements and Simulations of CMUT Cells and Arrays. M. Hofer¹, A. Caronti², M. Kaltenbacher¹, M. Pappalardo², and R. Lerch¹, ¹Department of Sensor Technology, ²Dip. di Ingegneria Elettronica</p>

5:00 p.m – 6:30 p.m.

Thursday, August 26, 2004, POSTER SESSIONS

Montreal

<p>P3U-S-5 J6 Theoretical Analysis of MUT using a Simple 1D Model. M. Wilm* and S. Ballandras, Institut FEMTO-ST</p>	<p>P3U-U-3 K2 A Novel Ultrasonic Motor with a Built-in Clutch Mechanism for a Force-feed-back Actuator. M. Aoyagi¹, Y. Tomikawa², and T. Takano³, ¹Muroran Institute of Technology, ²Yamagata University, ³Tohoku Institute of Technology</p>	<p>P3U-U-11 J2 A Simple Model of a Multi-Layer Piezoelectric Longitudinal Actuator. D. S. Stutts*, University of Missouri-Rolla</p>	<p><i>Session P3U-W</i> NDE IMAGING Chair: N. Bilgutay Drexel University</p>	<p><i>Session P3U-X</i> SIGNAL PROCESSING Chair: E. Furgason Purdue University</p>	<p>P3U-Y-2 L2 Configuration of a 20-mm-Diameter 150 kHz Ultrasonic Longitudinal Vibration System for Plastic Welding. M. Hongoh*, H. Miura, M. Yoshikuni, T. Ueoka, and J. Tsujino, Kanagawa University</p>
<p><i>Session P3U-T</i> SURGICAL TRANSDUCERS Chair: S. Smith GE Global Research</p>	<p>P3U-U-4 K3 Prediction Method for the Fundamental Radial Mode of Multi-Mode Ultrasonic Motors. J. Puccio*, L. Gatzoulis, and G. Hayward, Centre for Ultrasonic Engineering</p>	<p>P3U-U-12 J1 Torque Control of a Rotary Traveling Wave Type Ultrasonic Motor Impressed High Load Torque in Low Speed Range. Y. Ogahara* and T. Maeno, Keio University</p>	<p>P3U-W-1 L13 Surface-Breaking Flaw Evaluation using an Adaptive Laser Ultrasound System with a Photo-Refractive Quantum-Wells. Y. Matsuda*, H. Nakano, and S. Nagai, National Metrology Institute of Japan / AIST</p>	<p>P3U-X-1 L4 Multiplexed Dual-Chirp Pulse Compression Method for Ultrasonography. N. Tagawa¹, T. Moriya¹, K. Iwashita¹, and M. Yoshizawa², ¹Tokyo Metropolitan University, ²Tokyo Metropolitan College of Technology</p>	<p>P3U-Y-3 L3 Linear and Nonlinear Acoustic Parameters Measurements in Plates with Various Moisture Contents. F. Vander Meulen*, J. Fortineau, L. Haumesser, S. Dos Santos, and O. Bou Matar, LUSI</p>
<p>P3U-T-1 J7 Focused Ultrasound Thermal Surgery, Imaging, and Elastometry using the Same Phased Array: Feasibility Study. A. V. Zaitsev¹, J. S. Thierman², J. Juste¹, and K. Hynynen¹, ¹Brigham and Women's Hospital, Harvard Medical School, ²Harvard-MIT HST Program</p>	<p>P3U-U-5 K4 Characteristics, Modeling and Simulation of a Travelling Wave Ultrasonic Linear Motor. J. M. Fernandez Lopez* and Y. Perriard, Swiss Federal Institute of Technology - EPFL</p>	<p><i>Session P3U-V</i> ACOUSTIC AND OPTICAL SCATTERING Chair: D. Hecht DLH Laboratories</p>	<p>P3U-W-2 L12 QNDT of Surface Tilt Defects by Photoacoustic Microscopic Imaging. H. Endoh*, K. Inomata, K. Miyamoto, and T. Hoshimiya, Tohoku Gakuin University</p>	<p>P3U-X-2 L5 Denoising and Compression of Ultrasonic Signals using Model-Based Estimation Techniques. R. Demirli* and J. Saniie, Illinois Institute of Technology</p>	
<p>P3U-T-2 J8 Design, Finite Element Analysis and Experiments Study on Ultrasonic Torsional Surgery Tool. Z. Zhou* and Y. Chen, Tsinghua University</p>	<p>P3U-U-6 K5 An Effective Frequency Tracking Control and Balancing Compensation Between CW and CCW Rotation Speed Techniques for Ultrasonic Motor. C. Zhihua^{1,2}, Z. Chunsheng¹, and H. Weiqing¹, ¹Nanjing University of Aeronautics and Astronautics, ²National University of Defense Technology</p>	<p>P3U-V-1 K9 An Optical Tunable Notch Filter using an Ultrasonically Induced Long Period Fiber Grating. K. Nakamura*, K. Kubota, J. R. Friend, and S. Ueha, Precision and Intelligence Laboratory, Tokyo Institute of Technology</p>	<p>P3U-W-3 L11 Nondestructive Evaluation of Adhesive Joints in Layered Structures using Nonlinear Measurements of Second Harmonics of Ultrasonic Lamb Waves. M. Deng^{1,2}, X. Lv², and P. Wang², ¹Department of Physics, Logistics Engineering University, ²College of Automation, Chongqing University of Posts and Telecommunications</p>	<p>P3U-X-3 L6 Waveguide Damage Detection by the Matching Pursuit Using the Gaussian Chirp Pulses. J.-C. Hong*, K. H. Sun, and Y. Y. Kim, Seoul National University</p>	

<p>P3U-T-3 J5 A Mechanical Transformer and a Focusing Applicator for the Transmission of Ultrasonic Wave through Thin Ultrasonic Transmission Line. T. Moriya^{*1}, N. Tagawa¹, S. Naganuma¹, Y. Hashimoto², and S.-I. Yagi², ¹Tokyo Metropolitan University, ²Meisei University</p>	<p>P3U-U-7 K6 Experimental Study of Heat Radiating System in Electronic Apparatus using Electro-Mechanical Vibrator Pump. T. Takano^{*1}, Y. Tomikawa², and M. Aoyagi³, ¹Tohoku Institute of Technology, ²Yamagata University, ³Muroran Institute of Technology</p>	<p>P3U-V-2 K10 Waveguide-Type Acoustooptic Frequency Shifter with High Diffraction Efficiency Driven by Surface Acoustic Wave. S. Kakio^{*1}, M. Kitamura¹, Y. Nakagawa¹, T. Hara², H. Ito², T. Iizuka³, T. Kobayashi³, and M. Watanabe³, ¹University of Yamanashi, ²Tohoku University, ³OPTOQUEST Corp</p>	<p>P3U-W-4 L10 Ultrasonic Testing of Steel Tubes by Supercritical Parametric Wave Phase Conjugation. A. Brysev^{1,2}, L. Krutyansky^{1,2}, O. Bou Matar¹, V. Preobrazhensky^{1,2}, and P. Pernod^{*1}, ¹Institut d'Electronique, de Microélectronique et de Nanotechnologie (IEMN-DOAE, UMR CNRS 8520), ²Wave Research Center of General Physics Institute (RAS)</p>	<p>P3U-X-4 L7 Performance Evaluation of DWT, DCT, and WHT for Compression of Ultrasonic NDE Data. G. Cardoso[*] and J. Saniie, Illinois Institute of Technology</p>	
<p><i>Session P3U-U</i> ULTRASONIC MOTORS AND ACTUATORS Chair: Y. Yong Rutgers University</p>	<p>P3U-U-8 K7 Optimal Design on Stator of a 3-DOF Ultrasonic Motor. C. Zhao^{*1}, Z. Li², and W. Huang³, ¹Nanjing University of Aeronautics and Astronautics, ²Nanjing University of Aeronautics and Astronautics, ³Nanjing University of Aeronautics and Astronautics</p>	<p>P3U-V-3 K11 Dependence of Poisson's Ratio on Porosity in Nanoporous Films using Brillouin Light Scattering. C. M. Flannery[*] and S. Kim, NIST</p>	<p>P3U-W-5 L9 Ultrasonic Air-Coupled Metrology of Material Surfaces. Y. Gomez-Ullate and F. Montero de Espinosa[*], Instituto de Acustica CSIC</p>	<p>P3U-X-5 L8 Flaw Location from Perpendicular NDE Ultrasonic Transducers using the Wavelet Packet Transform. M. A. Rodríguez-Hernández¹, A. Ramos², J. L. San Emeterio², and J. J. Pérez-Solano³, ¹ETSI Telecomunicación, Universidad Politécnica de Valencia, ²Instituto de Acústica, CSIC, ³Instituto de Robótica, Universidad de Valencia</p>	
<p>P3U-U-1 J4 Localized Heating Effects of Liquid Based on SAW Streaming. N. Shimizu¹, J. Kondoh^{*1,2}, Y. Matsui³, and S. Shiokawa³, ¹Graduate School of Science and Technology, Shizuoka University, ²Faculty of Engineering, Shizuoka University, ³A&R Center for Surface Wave Technology</p>	<p>P3U-U-9 K8 Novel Horn Designs for Power Ultrasonics. S. Sherrit[*], X. Bao, Y. Bar-Cohen, and Z. Chang, Jet Propulsion Laboratory, California Institute of Technology</p>	<p>P3U-V-4 K12 Design of Functional Devices with Resonant Filter with a Simple Sonic Crystal Structures. C. Kaneshiro[*], M. Ozaki, K. Koh, and K. Hohkawa, Electric & Electrical Engineering, Kanagawa Institute of Technology</p>	<p>P3U-W-6 K13 In vitro Ultrasonic Force Microscopy. B. D. Huey^{*1,3}, O. V. Kolosov², R. Szoszkiewicz³, and A. Kulik³, ¹University of Connecticut, Institute of Materials Science, ²Symyx Technologies, ³EPFL, IPMC</p>	<p><i>Session P3U-Y</i> NDE METHODS Chair: D. Yuhas Industrial Measurement Systems</p>	
<p>P3U-U-2 K1 Development of a Multi-layer Actuator with PMN-PT Single Crystals for an Implantable Hearing Aid. Y. R. Roh^{*1}, J. H. Seon¹, D. W. Lim¹, and S. G. Lee², ¹Kyungpook National University, ²iBULE Photonics Co.</p>	<p>P3U-U-10 J3 Configurations of Ultrasonic Motors Using Multiple Longitudinal Transducers. A. Suzuki[*], M. Kihara, Y. Katsumata, N. Kikichi, and J. Tsujino, Kanagawa University</p>			<p>P3U-Y-1 L1 Concentration Control in Lactic Fermentation Process from Ultrasonic Velocity Measurements. P. Resa[*], L. Elvira, and F. Montero de Espinosa, Instituto de Acústica, CSIC</p>	

	<i>Session U1-H</i> ABERRATION CORRECTION Chair: G. Trahey Duke University	<i>Session U2-H</i> THERAPY: CAVITATION Chair: K. Hynynen Harvard	<i>Session U3-H</i> HIGH FREQUENCY TRANSDUCERS Chair: G. Lockwood Queens University	<i>Session U4-H</i> TRANSDUCERS I Chair: Y. Yong Rutgers University	<i>Session U5-H</i> WAVE PROPAGATION Chair: W. Arnold Fraunhofer Institute	<i>Session U6-H</i> LADDERTYPE FILTERS AND DUPLEXERS Chair: M. Solal TEMEX
	510AC	510BD	511AB	513AB	512C-H	512A-F
8:30 a.m.	U1-H-1 (Invited) Time Reversed Acoustics. F. Mathias*, Laboratoire Ondes et Acoustique, ESPCI	U2-H-1 Effect of Pulse Parameters on Cavitation and Acoustic Streaming in Ultrasonic Surgical Devices. M. E. Schafer*, Sonic Tech, Inc.	U3-H-1 Development of a High Frequency (35 MHz) Linear Ultrasonic Array Using 2-2 Composite Elements. J. M. Cannata*, Q. F. Zhou, and K. K. Shung, University of Southern California	U4-H-1 Development of Strong Elasticoluminescence From Ferroelectric Phase. C.-N. Xu ^{1,2} , Y. Liu ¹ , H. Yamada ² , X. Wang ² , and X.-G. Zheng ³ , ¹ National Institute of Advanced Industrial Science and Technology (AIST), ² PRESTO, Japan Science and Technology Agency, ³ Department of Physics, Saga University	U5-H-1 Optimized Excitation Sources and Velocity Exact Solutions for Ultrasonic Field Propagation in a Non-linear Medium with Hysteretic Behavior. S. Dos Santos ^{*1} , V. Gusev ² , L. Haumesser ¹ , F. Vander Meulen ¹ , and O. Bou Matar ¹ , ¹ LUSSI FRE 2448 CNRS -GIP Ultrasons, ² LPEC UPRESA-CNRS 6087	U6-H-1 A Miniaturized 3x3 mm₂ SAW Antenna Duplexer for US-PCS Band with Temperature Compensated LiTaO₃/Sapphire Substrate. J. Tsutsumi ^{*1} , S. Inoue ¹ , Y. Iwamoto ¹ , M. Miura ¹ , T. Matsuda ¹ , Y. Satoh ¹ , T. Nishizawa ² , M. Ueda ² , and O. Ikata ² , ¹ Fujitsu Laboratories Ltd., ² Fujitsu Media Devices Limited
8:45 a.m.		U2-H-2 Relative Effects of Acoustic Nonlinearity and Cavitation on the Dynamics of HIFU Lesion Formation in a Tissue Phantom. V. A. Khokhlova ^{*1} , M. R. Bailey ² , J. Reed ² , P. J. Kaczkowski ² , and L. A. Crum ² , ¹ Department of Acoustics, Faculty of Physics, M. V. Lomonosov Moscow State University, ² Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington	U3-H-2 Piezocomposite 30MHz Linear Array for Medical Imaging: Design Challenges and Performances Evaluation of a 128 Elements Array. S. Michau*, P. Mauchamp, and R. Dufait, VERMON S.A	U4-H-2 Spherical F1mm SAW device based on Ball Semiconductor/MEMS Technology. D. Y. Sim ^{*1} , A. Mizukami ² , S. Akao ³ , I. Satoh ⁴ , M. Bryan ¹ , N. Takeda ¹ , T. Ohgi ² , N. Nakaso ³ , T. Miyagishi ⁴ , H. Tanaka ⁴ , T. K. Fukiura ⁴ , H. Kazato ⁴ , H. Watanabe ² , T. Mihara ² , and K. Yamanaka ² , ¹ Ball Semiconductor Inc., ² Department of Materials Processing, Tohoku University, ³ Toppan Printing Co., Ltd., ⁴ Yamatake Corp	U5-H-2 A Novel Numerical Method for Simulating Wave Propagation in Moving Media. M. Bezdek*, A. Rieder, H. Landes, and R. Lerch, Department of Sensor Technology, University of Erlangen	U6-H-2 High-Q SAW Resonator with SiO₂ Coat for Stabilizing Temperature Characteristic. R. Takayama*, H. Nakanishi, Y. Iwasaki, and T. Kawasaki, Matsushita Electronic Components Co., Ltd.

9:00 a.m.	U1-H-2 A Novel Phase Aberration Measurement Technique Derived from the DORT Method: Comparison with Correlation-Based Method on Simulated and <i>In-Vivo</i> Data. A. T. Fernandez, M. R. Burcher*, and C. R. Cohen-Bacrie, Philips Research USA	U2-H-3 Spatial Control of Cavitation: Theoretical and Experimental Validation of a Dual-Frequency Excitation Method. S. D. Sokka*, T. P. Gauthier, and K. Hynynen, Brigham & Women's Hospital, Harvard Medical School	U3-H-3 Wide Frequency Band and High Intensity Thickness Vibration of Hydrothermal Lead Zirconate Titanate Polycrystalline Film. M. Ishikawa*, M. K. Kurosawa ¹ , and S. Takeuchi ² , ¹ Tokyo Institute of Technology, ² Toin University of Yokohama	U4-H-3 Single Crystal Piezomotor for Large Stroke, High precision and Cryogenic Actuators. X. Jiang* ¹ , P. W. Rehrig ¹ , W. S. Hackenberger ¹ , D. Viehland ² , and S. Dong ² , ¹ TRS Technologies, Inc., ² Virginia Polytechnic Institute and State University	U5-H-3 Analysis of Ultrasonic Wave Propagation in Metallic Pipe Structures using Finite Element Modelling Techniques. A. Gachagan* ¹ , P. Reynolds ² , and A. McNab ¹ , ¹ University of Strathclyde, ² Weidlinger Associates	U6-H-3 SAW Ladder Filter with Wide Rejection Band Adjacent to Passband. J. J. Caron* and S. Shishkin, Sawtek, Inc.
9:15 a.m.	U1-H-3 Iteration of Ultrasound Aberration Correction Methods. S.E. Måsøy* ¹ , T. Varslot ² , and B. Angelsen ¹ , ¹ Norwegian University of Science and Technology, Department of Circulation and Imaging, ² Norwegian University of Science and Technology, Department of Mathematical Sciences	U2-H-4 Heating Mechanism of Microbubbles and Bubble Properties. Y. Kaneko*, J. S. Allen, S. Yoshizawa, and Y. Matsumoto, Dept. of Mech. Eng., The Univ. of Tokyo	U3-H-4 Shear Wave Transducer using (11-20) Textured ZnO Film. T. Yanagitani*, T. Nohara, M. Matsukawa, Y. Watanabe, and T. Otani, Doshisha University	U4-H-4 New Technology for Control of Light Intensity using Acoustical Activity in Ferroelectrics. F. R. Akhmedzhanov*, Samarkand State University	U5-H-4 Wave Propagation in Transversely Isotropic Circular Cylinders. F. Honarvar* ¹ , A. Engilela ² , S. A. Mirnezami ¹ , and A. N. Sinclair ³ , ¹ K.N. Toosi University of Technology, ² Islamic Azad University, ³ University of Toronto	U6-H-4 SAW Duplexers without 2/4 Phase Shifter for CDMA Cellular Phone Systems. T. Onzuka*, K. Noguchi, S. Yoshimoto, and Y. Yamamoto, NRS Technologies Inc.
9:30 a.m.	U1-H-4 Experimental Comparisons of the Impact of Abdominal Wall Aberrators on Linear and Nonlinear Beam Patterns. K. D. Wallace* ¹ , B. S. Robinson ² , M. R. Holland ¹ , M. R. Rielly ² , and J. G. Miller ¹ , ¹ Washington University, ² Philips Ultrasound	U2-H-5 Nonlinear Ultrasound Propagation in a Spherical Bubble Cloud. S. Yoshizawa*, T. Ikeda, S. Takagi, and Y. Matsumoto, Dept. of Mech. Eng., The Univ. of Tokyo	U3-H-5 Lead-Free Thick Piezoelectric Films as Miniature High Temperature Ultrasonic Transducers. M. Kobayashi* ¹ , C.-K. Jen ² , and Y. Ono ² , ¹ Dept. of ECE, McGill University, ² IMI, National Research Council Canada	U4-H-5 High Frequency Filters Based on Piezoelectrically Transduced Micromechanical Resonators. L. Yan* ¹ , J. Wu ² , and W. C. Tang ³ , ¹ Department of Mechanical and Aerospace Engineering, University of California, Irvine, ² Department of Electrical Engineering and Computer Science, University of California, Irvine, ³ Department of Biomedical Engineering, University of California, Irvine	U5-H-5 Experimental Study of a Sharp Bending Wave-Guide Constructed in a Sonic-Crystal Slab of an Array of Short Aluminum Rods in Air. T. Miyashita*, Dept. Electronics and Informatics, Ryukoku University	U6-H-5 Investigation of SAW W-CDMA Antenna Duplexer and GSM-Based FEM Including Duplexer. M. Hikita* ¹ , N. Shibagaki ¹ , K. Sakiyama ² , H. Sunayama ² , and K. Tachibatake ² , ¹ Central Research Lab. Hitachi Ltd., ² Hitachi Media Electronics Ltd.
9:45 a.m.	U1-H-5 Efficient and Accurate Spline-Based Time Delay Estimation. F. Viola* and W. Walker, University of Virginia	U2-H-6 Bubble Interactions in Clouds Produced during Shock Wave Lithotripsy. E. A. Zabolotskaya*, Y. A. Ilinskii, G. Douglas Meegan, and M. F. Hamilton, Applied Research Laboratories The University of Texas at Austin		U4-H-6 Piezoelectric Micromechanical Disk Resonators Towards UHF Band. L. Yan* ¹ , J. Wu ² , and W. C. Tang ³ , ¹ Department of Mechanical and Aerospace Engineering, University of California, Irvine, ² Department of Electrical Engineering and University of California, Irvine, ³ Department of Biomedical Engineering, University of California, Irvine	U5-H-6 A Computational Method to Calculate the Transmit-Receive mode Echo Responses from Targets of Complex Geometry. F. Buiochi* ¹ , O. Martinez ² , L. Gimezu-Ullate ² , and F. Montero de Espinosa ³ , ¹ Escola Politecnica da Universidade de Sao Paulo, ² Instituto de Automatica Industrial - CSIC, ³ Instituto de Acustica - CSIC	U6-H-6 A SAW Duplexer with Superior Temperature Characteristics for US-PCS. M. Jakob, U. Rösler, E. Garova-Mayer, G. Kovacs*, and W. Ruile, EPCOS AG

		<i>Session FE1-H PIEZOELECTRIC MATERIALS I</i> Chair: A. Safari Rutgers University		<i>Session FC1-H PHASE NOISE MEASUREMENT AND REDUCTION TECHNIQUES</i> Chair: G. Montress Raytheon Research Division		<i>Session FC2-H SENSOR TECHNOLOGY AND INSTRUMENTATION</i> Chair: R. Lec Drexel University	
		513CD		511CF		511DE	
8:30 a.m.		FE1-H-1 (Invited) Bismuth Layer-Structured Ferroelectric Ceramics for Lead-Free Piezoelectric Applications. T. Takenaka*, H. Nagata, and S. Horiuchi, Tokyo University of Science		FC1-H-1 Direct-Digital Phase Noise Measurement. J. Grove, W. Solbrig, and S. R. Stein, Timing Solutions Corporation		FC2-H-1 SAW Sensors using Orthogonal Frequency Coding. D. Puccio* ¹ , D. C. Malocha ¹ , D. Gallagher ¹ , and J. H. Hines ² , ¹ ECE Dept., University of Central Florida, ² Microsensor Systems, Inc	
8:45 a.m.				FC1-H-2 Phase Noise Measurement of Low-Power Signals. E. Rubiola* ¹ , E. Salik ² , N. Yu ² , and L. Maleki ² , ¹ Université Henri Poincaré - ESSTIN - LPMIA, ² Jet Propulsion Laboratory, Caltech Institute of Technology		FC2-H-2 Measurement of the Equivalent Circuit Parameters of Chemical Interface Layers on Bulk Acoustic Wave Resonators. G. Gouws*, R. Holt, and J. Zhen, School of Chemical Physical Sciences	

9:00 a.m.	FE1-H-2 Dielectric and Piezoelectric Characteristics of Lead-Free (Bi,Na,K)0.5TiO3 System Ceramics as a Function of Sr Substitution and the Amount of MnO2 Addition. J. Yoo ¹ , H. Lee ² , D. Oh ³ , Y. Jeong ⁴ , J. Hong ⁵ , and C. Lee ⁶ , ¹ Semyung University, ² Semyung University, ³ Sunny Electronics Corp., ⁴ KEPRI, ⁵ Dongseoul College, ⁶ Chungju National University			FC1-H-3 W-Band Dual Channel AM/PM Noise Measurement System. A. Hati ^{*1} , C. W. Nelson ¹ , F. G. Nava ² , D. A. Howe ¹ , and F. L. Walls ² , ¹ National Institute of Standards and Technology, ² Total Frequency	FC2-H-3 On-Chip Self-Sensing Function of 4x4 Matrix Micromachined Resonating Piezoelectric Membranes for Mass Detection Applications. L. Nicu ¹ , M. Guirardel ^{*1} , D. Saya ¹ , S. Hinh ¹ , J. Sicard ¹ , D. Lagrange ¹ , F. Mathieu ¹ , E. Cattan ² , D. Remiens ² , and C. Bergaud ¹ , ¹ LAAS-CNRS, ² IEMN-CNRS/DOAE	
9:15 a.m.	FE1-H-3 Piezoelectric Properties of BiFeO3 - PbTiO3 Ceramics. T. Comyn [*] , S. McBride, and A. Bell, Institute for Materials Research, University of Leeds			FC1-H-4 Dual Photonic-Delay-Line Cross Correlation Method for the Measurement of Microwave Oscillator Phase Noise. E. Salik ^{*1} , N. Yu ¹ , L. Maleki ¹ , and E. Rubiola ² , ¹ Jet Propulsion Laboratory, California Institute of Technology, ² ESSTIN and LPMIA, Université Henri Poincaré	FC2-H-4 Packaging of Surface Acoustic Wave (SAW) Based Biosensors: An Important Issue for Future Biomedical Applications. K. Länge ¹ , G. Bläss ¹ , A. Voigt ¹ , M. Rapp ^{*1} , and E. Hansjosten ² , ¹ Forschungszentrum Karlsruhe, Institute for Instrumental Analysis, ² Forschungszentrum Karlsruhe, Institute for Micro Process Engineering, Germany	
9:30 a.m.	FE1-H-4 Alternative Lead-Free Piezoelectrics: (K,Na)NbO₃ Based Ceramics. B. Malic ^{*1} , J. Bernard ¹ , D. Jenko ¹ , J. Holc ¹ , M. Kosec ¹ , A. Barzegar ² , and D. Damjanovic ² , ¹ Jozef Stefan Institute, ² Ceramics Laboratory, Swiss Federal Institute of Technology EPFL			FC1-H-5 The Photonic Delay Technique for Phase Noise Measurement of Microwave Oscillators. E. Rubiola ^{*1} , E. Salik ² , S. Huang ² , N. Yu ² , and L. Maleki ² , ¹ Université Henri Poincaré - ESSTIN - LPMIA, ² Jet Propulsion Laboratory, California Institute of Technology	FC2-H-5 A New Analog Oscillator Electronics Applied to a Piezoelectric Vibrating Gyro. R. Levy ^{*1} , G. Jean-paul ² , D. Janiaud ¹ , O. Le Traon ¹ , S. Muller ¹ , and G. Raynaud ² , ¹ ONERA : Office National Détudes et de Recherche Aérospatiales, ² IEF: Institut D'électronique Fondamentale	
9:45 a.m.	FE1-H-5 Piezoelectric/Electrostrictive Multimaterial PMN-PT Monomorph Actuators. A. Hall [*] , M. Allahverdi, E. K. Akdogan, and A. Safari, Rutgers University			FC1-H-6 Phase Noise Suppression in Frequency Comb Generators. F. G. Nava [*] , C. W. Nelson, A. Hati, and D. A. Howe, National Institute of Standards and Technology	FC2-H-6 Miniaturizing Quartz Vibratory Gyro Sensor with Hammer-Headed arms. T. Kikuchi ^{*1} , S. Gouji ¹ , T. Tomoyoshi ¹ , S. Hayashi ¹ , N. Okada ¹ , M. Tani ¹ , S. Ishikawa ¹ , S. Yokoi ¹ , T. Enokijima ¹ , Y. Kawamura ¹ , Y. Osugi ¹ , M. Masuda ¹ , H. Katsukawa ¹ , Y. Kobayashi ² , and Y. Morita ² , ¹ NGK insulators, Ltd, ² Seiko Epson Corporation	

10:30 a.m – 12:00 p.m.

ULTRASONICS, Friday, August 27, 2004

Montreal

	<i>Session U1-1</i> CONTRAST AGENTS IMAGING Chair: K. Ferrara University of California - Davis	<i>Session U2-1</i> THERAPY: BRAIN Chair: E. Ebbini University of Minnesota	<i>Session U3-1</i> SINGLE CRYSTAL TRANSDUCER MATERIALS Chair: C. Oakley Tetrad Corporation	<i>Session U4-1</i> ACOUSTIC AND OPTICAL SCATTERING Chair: F. Hickernell University of Arizona	<i>Session U5-1</i> IMAGING AND SIGNAL PROCESSING Chair: J. Saniie Illinois Institute of Technology	<i>Session U6-1</i> SYSTEM AND DEVICE APPLICATIONS Chair: B. Abbott Sawtek
	510AC	510BD	511AB	513AB	512C-H	512A-F
10:30 a.m.	U1-I-1 A Two-Step Procedure for Optimization of Contrast Sensitivity and Specificity of Post-Beamforming Volterra Filters. M. F. Al-Mistarihi*, P. Phukpattaranont, and E. S. Ebbini, University of Minnesota Twin Cities	U2-I-1 Large Volume Blood-Brain Barrier Disruption by Low Frequency Focused Ultrasound: A Method for Targeted Drug Delivery and Molecular Imaging. K. Hynynen*, N. McDannold, N. Vykhodtseva, N. Sheikov, and F. A. Jolesz, Harvard Medical School and Brigham & Women's Hospital	U3-I-1 High Coupling KNbO₃ Width-Extensional Vibrators with a Polar Multidomain Structure. H. Koyama* ¹ , K. Nakamura ¹ , and T. Takano ² , ¹ Graduate School of Engineering, Tohoku University, ² Tohoku Institute of Technology	U4-I-1 Ultrasonic Field Measurement in Test Cells Combining the Acousto-Optic Effect, Laser Interferometry & Tomography. G. Harvey*, A. Gachagan, and A. McNab, Centre for Ultrasonic Engineering	U5-I-1 Optimization of an Array Based Pulse-Echo System for Identification of Reflector Geometry. P. Pedersen* and A. Nadkarni, Worcester Polytechnic Institute	U6-I-1 (Invited) SAW in China. Y. Shui*, Nanjing University
10:45 a.m.	U1-I-2 Spectral Compensation for Tissue Attenuation and Transmit Intensity in Ultrasonic Detection of Microbubbles by Harmonic Method. S. Chen*, M. Fatemi, E. McMahon, J. F. Greenleaf, and M. Belohlavek, Mayo Clinic College of Medicine	U2-I-2 Transcranial MRI-Guided Focused Ultrasound-Induced Blood-Brain Barrier Opening in Rats. L. H. Treat* ^{1,2} , N. J. McDannold ² , N. Vykhodtseva ² , and K. Hynynen ² , ¹ Harvard-MIT Division of Health Sciences & Technology, ² Dept. of Radiology, Brigham and Women's Hospital/ Harvard Medical School	U3-I-2 Multilayer PMN-PT Single Crystal Transducer for Medical Application. S. M. Rhim* ¹ , H. Jung ¹ , and S.-G. Lee ² , ¹ HUMANSKAN Co., Ltd., ² BULE PHOTONICS Co., Ltd.	U4-I-2 Nondestructive Elasticity Evaluation of Thin Adhesive Layers by Brillouin Scattering. M. Matsukawa* ¹ , H. Yamura ¹ , and N. Ohtori ² , ¹ Faculty of Engineering, Doshisha University, ² Graduate School of Science and Technology, Niigata University	U5-I-2 Ultrasonic Flaw Detection using Fast Lifting Wavelet Transform for NDE Applications. E. Oruklu* and J. Saniie, Illinois Institute of Technology	

11:00 a.m.	U1-I-3 High Frequency Nonlinear Scattering and Imaging using a Sub-micron Contrast Agent. D. E. Goertz ^{1,2} , M. E. Frijlink ¹ , N. de Jong ^{1,3} , and A. F. W. van der Steen ^{1,2} , ¹ Erasmus MC, ² Interuniversity Cardiac Inst. Netherlands, ³ Physics of Fluids, Univ. Twente	U2-I-3 Schlieren Observation of Therapeutic Field in Water Surrounded by Cranium Radiated from 500 kHz Ultrasonic Sector Transducer. T. Azuma ¹ , K. Kawabata ¹ , S. Umemura ¹ , M. Ogihara ² , K. Asafusa ² , J. Kubota ² , A. Sasaki ² , and H. Furuhashi ³ , ¹ Central Research Laboratory, Hitachi, Ltd., ² Hitachi Medical Corporation, ³ ME Lab. Jikei Univ. School of Med	U3-I-3 A Multirow Single Crystal Phased Array for Wideband Ultrasound Imaging. M. J. Zipparo ¹ , C. G. Oakley ¹ , D. M. Mills ² , A. M. Dentinger ² , and L. S. Smith ² , ¹ Tetrad Corporation, ² GE Global Research	U4-I-3 Longitudinal Acoustic Properties Measurements of Solid Specimens by the Plane-Wave Ultrasonic Material Characterization System in the UHF Range. J. Kushibiki and M. Arakawa [*] , Tohoku University	U5-I-3 Performance Assessment of a New Kalman Filter-Based Method for Ultrasonic Time-of-Flight Estimation. L. Angrisani ¹ , A. Baccigalupi ¹ , and R. Schiano Lo Moriello ² , ¹ Università di Napoli Federico II - Dipartimento di Informatica e sistemistica, ² Università di Napoli Federico II - Dipartimento di Ingegneria Elettrica	U6-I-2 Orthogonal Frequency Coding for SAW Device Applications. D. C. Malocha [*] , D. Gallagher, and D. Puccio, ECE Dept., University of Central Florida
11:15 a.m.	U1-I-4 High Frequency Contrast Imaging. Y. Sun [*] , D. E. Kruse, and K. W. Ferrara, University of California, Davis	U2-I-4 Prediction of the Skull Overheating during High Intensity Focused Ultrasound Transcranial Brain Therapy. M. Pernot, M. Tanter [*] , J.-F. Aubry, and M. Fink, Laboratoire Ondes et Acoustique, ESPCI, Université Paris VII, UMR CNRS 7587	U3-I-4 Broad Band Single Crystal Transducers for Contrast Agent Harmonic Imaging. W. Hackenberger ¹ , X. Jiang ¹ , X. Geng ² , A. Winder ³ , and F. Forsberg ⁴ , ¹ TRS Technologies, Inc., ² Blatek, Inc., ³ J&W Medical, LLC, ⁴ Thomas Jefferson University Hospital	U4-I-4 Tunable Phononic Band Gaps of Surface and Bulk Acoustic Waves in Two-Dimensional Phononic Crystals. T.-T. Wu and Z.-G. Huang [*] , Institute of Applied Mechanics, National Taiwan University	U5-I-4 Ensemble of Classifiers Approach for NDE Data Fusion. D. Parikh [*] , M. Kim, J. Oagaro, S. Mandayam, and R. Polikar, Rowan University	U6-I-3 The New Approach To Realize Small Imbalances In Differential Rx-outputs For SAW Front End Module. O. Hikino ¹ , M. Kijima ¹ , K. Yokoyama ¹ , M. Ohki ¹ , N. Matsuura ¹ , K. Sakiyama ¹ , and M. Hikita ² , ¹ Hitachi Media Electronics Co., Ltd., ² Central Research Lab. Hitachi Ltd.
11:30 a.m.	U1-I-5 (Invited) Ultrasound Contrast Imaging—A Company Perspective. P. J. A. Frinking [*] , M. Arditi, and M. Schneider, Bracco Research S.A	U2-I-5 The Use of Optison to Reduce the Power Requirements for Focused Ultrasound Lesion Production in the Brain: A MRI/Histology Study in Rabbits. N. I. Vykhodtseva [*] , N. McDannold, and K. Hynynen, Department of Radiology, Brigham and Women's Hospital, Harvard Medical School	U3-I-5 Characterization of Very High Frequency Transducers with Wire Target and Hydrophone. B. Huang and K. K. Shung [*] , University of Southern California	U4-I-5 Full Band Gaps for Surface Acoustic Waves in Piezoelectric Phononic Crystals. V. Laude [*] , M. Wilm, S. Benchabane, and A. Khelif, FEMTO-ST	U5-I-5 Broadband Ultrasonic Attenuation Measurements using Coded Sweep Excitations. R. P. B. Costa-Felix ¹ and J. C. Machado ² , ¹ National Institute of Metrology, Standardization, and Industrial Quality Inmetro, ² Biomedical Engineering Program - COPPE/Federal University of Rio de Janeiro, RJ, Brasil	U6-I-4 Modular Integration of RF SAW Filters. M. Goetz [*] and C. Jones, Clarisay, Inc.
11:45 a.m.		U2-I-6 Ultrasonic Transcranial Brain Therapy: First In Vivo Clinical Investigation on 22 Sheep using Adaptive Focusing. M. Pernot ¹ , J.-F. Aubry ¹ , M. Tanter ¹ , A.-L. Boch ² , M. Kujas ² , and M. Fink ¹ , ¹ Laboratoire Ondes et Acoustique, ESPCI, Université Paris VII, U.M.R. C.N.R.S. 7587, 10 rue Vauquelin, 75005 Paris, France, ² Groupe Hospitalier Pitié-Salpêtrière, Paris, France		U4-I-6 Some Peculiarities of Acoustooptical Interactions in X-Ray Range. M. Kovalchuk, Y. Pisarevsky [*] , and A. Blagov, Institute of crystallography RAS	U5-I-6 Theoretical and Experimental Study of Time Reversal in Anisotropy. B. Zhang [*] , M. Lu, and C. Wang, Institute of Acoustics, The Chinese Academy of Sciences	U6-I-5 Quantitative Evaluation of Congruent LiNbO₃ Crystals using the LFB Ultrasonic Material Characterization System. J. Kushibiki, Y. Ohashi [*] , and J. Hirohashi, Tohoku University

10:30 a.m – 12:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Friday, August 27, 2004

Montreal

		<i>Session FE1-I PIEZOELECTRIC MATERIALS II</i> Chair: S. Pilgrim Alfred University		<i>Session: FC1-I TIMESCALES AND TIME TRANSFER</i> Chair: T. Parker NIST		<i>Session FC2-I FREQUENCY SHIFTS IN CRYSTAL RESONATORS</i> Chair: D. Stevens Vectron International	
		513CD		511CF		511DE	
10:30 a.m.		FE1-I-1 (Invited) High Performance, High Temperature Perovskite Piezoelectrics. T. R. Shrout [*] , S. Zhang, R. Eitel, C. Stringer, and C. A. Randall, Penn State University		FC1-I-1 Time Comparisons between USNO and PTB: A Model for the Determination of the Time Offset between GPS Time and the Future Galileo System Time. A. Bauch ¹ , D. Piester ¹ , G. Petit ¹ , and A. Moudrak ² , ¹ Physikalisch-Technische Bundesanstalt, Braunschweig, Germany, ² Bureau International des Poids et Mesures, Sèvres, France, ³ Deutsches Zentrum für Luft- und Raumfahrt, IKV, Oberpfaffenhofen, Germany		FC2-I-1 Examination of Detailed Frequency Behavior of Quartz Resonators under Low Dose Exposures to Proton Radiation. G. L. Weaver ^{*1} , M. J. Reinhart ¹ , H. B. Sequeira ¹ , and W. Stapor ² , ¹ The Johns Hopkins University Applied Physics Laboratory, ² Innovative Concepts	
10:45 a.m.				FC1-I-2 A New Technique for Estimating Frequency from GPS Carrier-Phase Time-Transfer Data. C. Hackman ^{*1} , J. Levine ^{1,2} , T. Parker ² , D. Piester ³ , and J. Becker ³ , ¹ JILA, ² National Institute of Standards and Technology, ³ Physikalisch-Technische Bundesanstalt		FC2-I-2 622MHz High Frequency Fundamental Composite Crystal Resonator with an Air-Gapped Electrode. M. Umeki [*] , T. Sato, H. Uehara, and M. Okazaki, Nihon Dempa Kogyo Co., Ltd.	

11:00 a.m.	FE1-I-2 Piezoelectrics and Electrostrictors for High Temperature Ultrasonic Drills. W. Hackenberger ^{*1} , E. Alberta ¹ , S. Shang ² , R. Eitel ² , and T. Shrout ² , ¹ TRS Technologies, Inc., ² The Pennsylvania State University			FC1-I-3 Continuous Geodetic Time Transfer Analysis Method. R. Dach ^{*1} , T. Schildknecht ¹ , U. Hugentobler ¹ , and G. Dudle ² , ¹ Astronomical Institute, University of Bern, ² Swiss Federal Office of Metrology and Accreditation (metas)	FC2-I-3 An Investigation Into the Effects of Electrode Film Thickness on RBA in High Frequency Fundamental Mode Crystals. R. Morris [*] , Connor Winfield	
11:15 a.m.	FE1-I-3 Charging and Switching of Ferroelectrets: How Much Can Ferroelectrets Behave Like Ferroelectrics? R. Schwoediauer [*] , I. Graz, and S. Bauer, Johannes Kepler University Linz			FC1-I-4 Uncertainty Estimation on Multi-Channel GPS Time Transfer. M. Addouche [*] , F. Meyer, and F. Verotte, Observatoire de Besançon	FC2-I-4 Frequency Shifts in Crystal Resonators Due to Intrinsic Stresses in Unequal Thickness Electrodes. X. Yang ¹ , J. Yang ¹ , J. Kosinski ^{*2} , and J. Turner ¹ , ¹ University of Nebraska, ² US Army RDECOM	
11:30 a.m.	FE1-I-4 (Invited) Relaxor Ferroelectric Polymers with High Electromechanical Responses. Q. M. Zhang ^{*1} , C. Huang ¹ , R. Klein ¹ , F. Xia ¹ , D.-Y. Jeong ¹ , K. Ren ¹ , V. Bohner ² , and A. Levstik ² , ¹ The Pennsylvania State University, ² Jozef Stefan Institute			FC1-I-5 Comparison between GPS and Loran Performance using Indoor and Outdoor Loran Antennas. J. Jacoby [*] , C. Schweitzer, P. Schick, and H. Monson, Locus, Incorporated	FC2-I-5 Reduction of Spurious Responses in a Thickness-Twist Mode Resonator Made of Crystal Class 32 by Tilting Edges. M. Onoe ^{*1} , H. Sekimoto ² , and M. Okazaki ³ , ¹ University Tokyo (Emeritus), ² Tokyo Metropolitan University, ³ Nihon Dempa Kogyo Co. Ltd.	
11:45 a.m.						

1:30 p.m – 3:00 p.m.

ULTRASONICS, Friday, August 27, 2004

Montreal

		<i>Session U1-J</i> CONTRAST AGENTS: THERAPY Chair: A. Boukaz Erasmus M. C.	<i>Session U2-J</i> INTRAVASCULAR IMAGING Chair: H. Ermert Ruhr University	<i>Session U3-J</i> TRANSDUCER MATERIALS Chair: S. Smith GE Global Research	<i>Session U4-J</i> ULTRASONIC MOTORS AND ACTUATORS Chair: T. Maeno Keio University	<i>Session U5-J</i> NDE Chair: R. Maev University of Windsor	<i>Session U6-J</i> SAW MATERIALS AND PROPAGATION Chair: M. Pereira da Cunha University of Maine
		510AC	510BD	511AB	513AB	512C-H	512A-F
08	1:30 p.m.	U1-J-1 Remote Manipulation of Cells with Ultrasound and Microbubbles. A. van Wamel ^{1,2} , A. Boukaz ^{1,2} , M. Versluis ³ , and N. de Jong ^{2,3} , ¹ Dept. of Experimental Echocardiography, Thoraxcentre, Erasmus MC, ² Interuniversity Cardiology Institute of The Netherlands, ³ Dept. of Applied Physics, Physics of Fluids, University of Twente, Enschede	U2-J-1 Intravascular Ultrasound Tissue Harmonic Imaging in vivo. M. E. Frijlink ¹ , D. E. Goertz ^{1,2} , and A. F. W. van der Steen ^{1,2} , ¹ Erasmus MC, Biomedical Engineering, ² Interuniversity Cardiology Institute of the Netherlands	U3-J-1 Ferroelectrets: Highly Anisotropic Electrically Charged Polymer Foams for Electromechanical Transducer Applications. M. Wegener ¹ , E. Tuncer ¹ , W. Wirges ¹ , R. Gerhard-Multhaupt ¹ , M. Dansachmüller ² , S. Bauer-Gogonea ² , R. Schwödiauer ² , and S. Bauer ² , ¹ University of Potsdam, Department of Physics, ² Johannes Kepler University, Soft-Matter Physics	U4-J-1 A Novel Approach for High Power Ultrasonic Linear Motors. T. Hemsel ¹ , M. Mracek ¹ , P. Vasiljev ² , and J. Wallaschek ¹ , ¹ Heinz Nixdorf Institute, Mechatronics and Dynamics, University of Paderborn, ² Dept. of Physics and Technology, Ultrasonic Mechanism, Vilnius Pedagogical University	U5-J-1 (Invited) Ultrasonic Tomography - Application to the Visualization of Air Flows. F. C. Tenoudji, V. Dewailly, J. P. Frangi, and G. Theron, Laboratoire d'Environnement et Développement de l'Université Paris 7, 2, Place Jussieu, Paris, France	U6-J-1 Existence of Harmonic Metal Thickness Mode Propagation for Longitudinal Leaky Waves. M. Solal ¹ , T. Makkonen ² , R. Lardat ¹ , V. P. Plessky ² , W. Steichen ¹ , and M. M. Salomaa ² , ¹ TEMEX Microsonics, ² Materials Physics Laboratory, Helsinki University of Technology, ³ GVR Trade SA
	1:45 p.m.	U1-J-2 Combined Optical and Ultrasonic Monitoring of Laser-Generated Intracellular Contrast Agents: Initial Cell Culture Studies. M. J. Zohdy ¹ , C. Tse ¹ , J. Y. Ye ² , and M. O'Donnell ¹ , ¹ Biomedical Engineering Department, University of Michigan, ² Center for Ultrafast Optical Science, University of Michigan	U2-J-2 Computerized Segmentation of Blood and Luminal Borders in Intravascular Ultrasound. C. Perrey ^{1,2} , U. Scheipers ^{1,2} , W. Bojara ^{2,3} , S. Holt ^{2,3} , M. Lindstaedt ^{2,3} , and H. Ermert ^{1,3} , ¹ Institute of High Frequency Engineering, Ruhr-Universitaet, ² Department of Cardiology Bergmannsheil, Ruhr University, ³ Ruhr Center of Excellence for Medical Engineering KMR	U3-J-2 Ferroelectrets: Ultrasonic Transducer for a Biomimetic Sonar System. A. Streicher ¹ , M. Kaltenbacher ¹ , R. Müller ² , H. Peremans ³ , and R. Lerch ¹ , ¹ Department of Sensor Technology, ² Maersk Institute, ³ Antwerp-University Faculty St. Ignatius	U4-J-2 An Ultrasonic Linear Motor using a Ridge Waveguide. M. Tominaga ¹ , J. R. Friend, R. Kaminaga, K. Nakamura, and S. Ueha, Precision and intelligence Laboratory, Tokyo Institute of Technology		U6-J-2 Optimized Cut of Lithium Niobate for HVPSAW Filters with Different Metalization Ratio of Element Resonators. N. Naumenko ¹ and B. Abbott ² , ¹ Moscow Steel and Alloys Institute, ² Sawtek Inc

2:00 p.m.	U1-J-3 In Vitro Acoustic Molecular Imaging of Tissue Factor Expressed by Smooth Muscle Cells with Stable Liquid Perfluorocarbon Nanoparticle Contrast Agents. J. N. Marsh ¹ , K. C. Crowder, M. S. Hughes, M. J. Scott, E. K. Lacy, S. A. Wickline, and G. M. Lanza, Washington University School of Medicine	U2-J-3 'Blind' Data Calibration of Intravascular Ultrasound Data for Automated Tissue Characterization. A. Nair ¹ , D. Calvetti ² , and D. G. Vince ¹ , ¹ Department of Biomedical Engineering, ND20, The Cleveland Clinic Foundation, ² Department of Mathematics, Case Western Reserve University	U3-J-3 Semi-Quantitative Piezoelectric Activity Testing in Polymer Layers. C. Brox Nilsen [*] , C. Gregory, and J. Hatfield, University of Manchester Institute of Science and Technology	U4-J-3 Analysis of Bidirectional Vibrational Transport of Small Objects by Periodic Wave Trains of Pulses. V. G. Mozhaev [*] and A. V. Zyryanova, Faculty of Physics, Moscow State University	U5-J-2 Operating Principles of the Monolithic Cylinder Gyroscope. B. Kanani [*] , B.K. Pulse Ltd	U6-J-3 Evaluation of Material Constants and SAW Properties in LaCa₂O(BO₃)₂ Single Crystals. H. Shimizu ¹ , H. Takeda ¹ , T. Nishida ¹ , T. Shikita ² , S. Okamura ¹ , and T. Shiosaki ¹ , ¹ Graduate School of Materials Science, Nara Institute of Science and Technology (NAIST), ² Research Development Division, Sakai Chemical Industry Co., Ltd.
2:15 p.m.	U1-J-4 In Vivo Ultrasonic Detection of Angiogenesis with Site-Targeted Nanoparticle Contrast Agents using Measure-Theoretic Signal Receivers. M. S. Hughes ¹ , J. N. Marsh ¹ , C. S. Hall ² , J. H. Allen ¹ , P. A. Brown ¹ , E. K. Lacy ¹ , M. J. Scott ¹ , S. A. Wickline ¹ , and G. M. Lanza ¹ , ¹ Washington University School of Medicine, Cardiovascular Division, ² Philips Research, USA	U2-J-4 Application of Ultrasonic Thermal Imaging in IVUS Systems. Y. Shi [*] , X. Chen, H. Xie, and M. O'Donnell, University of Michigan	U3-J-4 Piezoelectric Material Nonlinearity Identification with a Multiharmonic Finite Element Method. B. Kaltenbacher [*] , M. Hofer, M. Kaltenbacher [*] , and R. Lerch, Department of Sensor Technology, University of Erlangen	U4-J-4 Analytical and Numerical Modeling of an Ultrasonic Stepping Motor using Standing Waves. J. M. Fernandez Lopez [*] and Y. Perriard, Swiss Federal Institute of Technology - EPFL	U5-J-3 Precision Ultrasonic Micrometer Position Indicator with Temperature Compensation. M. Pedrick [*] and B. R. Tittmann, The Pennsylvania State University	U6-J-4 Properties of Radio Frequency Rayleigh Waves on Langasite at Elevated Temperatures. R. Fachberger ¹ , J. Biniasz ² , G. Bruckner ¹ , G. Knoll ¹ , R. Hauser ¹ , and L. Reindl ² , ¹ Carinthian Tech Research, ² Albert-Ludwig University
2:30 p.m.	U1-J-5 Acoustic Radiation Force Enhances Adhesion of Microbubbles Targeted to P-Selectin. J. Rychak ¹ , J. Hossack ¹ , and A. Klibanov ² , ¹ University of Virginia Department of Biomedical Engineering, ² University of Virginia Cardiovascular Imaging Center	U2-J-5 Intravascular Ultrasound Palpography for Determining the Age of a Thrombus: An Animal Study in Vivo. J. A. Schaar ^{1,2} , F. Mastik ¹ , E. D. van Deel ¹ , C. J. Slager ¹ , P. W. Serruys ¹ , D. J. Duncker ¹ , and A. F. W. van der Steen ^{1,2} , ¹ Biomedical Engineering Thorax Centre Rotterdam, ² Interuniversity Cardiology Institute of the Netherlands	U3-J-5 New Low Acoustic Impedance Piezoelectric Material for Broadband Transducer Applications. M. Lethiecq ¹ , F. Levassort ¹ , L.-P. Tran-Huu-Hue ¹ , G. Feuillard ¹ , T. Bove ² , E. Ringgaard ² , and W. Wolny ² , ¹ GIP ULTRASONICS/LUSSI, ² Ferroperm Piezoceramics A/S	U4-J-5 Precise Position Control of Ultrasonic Motor using Fuzzy Controller. H. Li ¹ , C. Gu ² , and C. Zhao ¹ , ¹ Nanjing University of Aeronautics and Astronautics, ² Huazhong University of Science and Technology	U5-J-4 On the Sensitivity of Corrosion and Fatigue Damage Detection using Guided Ultrasonic Waves. P. Fromme ¹ , P. D. Wilcox ² , M. Lowe ³ , and P. Cawley ³ , ¹ University College London, ² University of Bristol, ³ Imperial College London	U6-J-5 Analysis of the SAW Propagation in Langasite Crystal by X-Ray Topography. D. V. Roshchupkin ¹ , E. D. Roshchupkina ^{1,2} , O. A. Buzanov ^{2,3} , and D. V. Irzhak ¹ , ¹ Institute of Microelectronics Technology RAS, ² Moscow State Institute of Steel and Alloys, ³ FOMOS-Materials Co.
2:45 p.m.	U1-J-6 Increasing Binding Efficiency of Ultrasound Targeted Agents with Radiation Force. S. Zhao [*] , M. Borden, S. Bloch, D. Kruse, K. W. Ferrara, and P. A. Dayton, University of California, Davis	U2-J-6 Analysis of Blood Clot Formation with Transient Elastography: Similarity with Sol-Gel Transition in Agar-Gelatin Phantoms. J.-L. Gennisson [*] , F. Yu, and G. Cloutier, Laboratory of Biorheology and Medical Ultrasonics	U3-J-6 Piezoelectric Ceramics with High Dielectric Constants for Ultrasonic Medical Transducers. Y. Hosono [*] and Y. Yamashita, Advanced Discrete Semiconductor Technology Laboratory, Corporate Research & Development Center, Toshiba Corporation	U4-J-6 Development of an Arrayed-type Multi-Degree-of-Freedom Ultrasonic Motor Based on a Selection of Reciprocating Vibration Modes. K. Otokawa ¹ , K. Takemura ² , and T. Maeno ¹ , ¹ Keio University, ² Tokyo Institute of Technology	U5-J-5 Nonlinear Interaction of Ultrasonic with an Unbounded Rough Interface. P. Wu [*] , Signals and Systems Group, Department of Engineering Sciences, Uppsala University	U6-J-6 Acoustic Waves on Plane Interfaces in Piezoelectric Bi-Crystalline Structures of Specific Types. A. N. Darinskii ¹ and M. Weinhacht ² , ¹ Institute of Crystallography, Russian Academy of Sciences, ² Leibniz Institute for Solid State and Materials Research Dresden

1:30 p.m – 3:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Friday, August 27, 2004

Montreal

Session FE1-J
**CAPACITORS AND
DIELECTRICS**
Chair: J. Capurso
Ferroelectric Material Systems

513CD

1:30
p.m.

**FE1-J-1 (Invited) The Nature of Large
Dielectric Constant of Relaxors.** Y.
Poplavko*, National Technical Univer-
sity of Ukraine "KPI"

1:45
p.m.

2:00 p.m.	FE1-J-2 Integrated High Energy Density PLZT Based Capacitors. D. P. Williams*, B. A. Tuttle, J. A. Voigt, D. L. Moore, and P. G. Clem, Sandia National Labs					
2:15 p.m.	FE1-J-3 Laser Crystallized Bismuth Zinc Niobate Thin Films. J.-G. Cheng* and S. Trolier-Mckinstry, Materials Research Institute and Materials Science and Engineering Department, Penn State University					
2:30 p.m.	FE1-J-4 High Dielectric Constant All-polymer Composites. C. Huang*, F. Xia, H. Li, M. Poh, and Q. M. Zhang, The Pennsylvania State University					
2:45 p.m.	FE1-J-5 Structure and Properties of High Dielectric Constant $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ Ceramics. W. Ren ^{*1,2} , Z. Yu ¹ , V. D. Krstic ¹ , and B. K. Mukherjee ^{1,2} , ¹ Centre for Manufacturing of Advanced Ceramics and Nanomaterials, ² Department of Physics, Royal Military College of Canada					

3:30 p.m – 5:00 p.m.

ULTRASONICS, Friday, August 27, 2004

Montreal

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	<i>Session U1-K</i> VASCULAR IMAGING Chair: J. Greenleaf Mayo Clinic	<i>Session U2-K</i> BEAMFORMING II Chair: W. Walker University of Virginia	<i>Session U3-K</i> TRANSDUCERS II Chair: J. Tsujino University of Kanagawa	<i>Session U4-K</i> ULTRASONIC MOTORS AND ACTUATORS II Chair: M. Kurosawa Tokyo Institute of Technology	<i>Session U6-K</i> ADVANCED TECHNIQUES Chair: B. Potter Vectron International	
	510AC	510BD	511AB	513AB	512C-H	
3:30 p.m.	U1-K-1 High-Frequency Ultrasound Characterization of Pulmonary Artery Wall under Normotensive and Hypertensive Conditions. K. R. Waters*, National Institute of Standards and Technology, Materials Reliability Division	U2-K-1 Nearfield Coding and Spatial Processing for Ultrasound Imaging. R. Zemp* and M. Insana, Department of Biomedical Engineering, University of California, Davis	U3-K-1 Ultrasonic Lamb Wave NDE System using an Air-Coupled Concave Array Transducer. M. J. Garcia-Hernandez ¹ , J. A. Chavez ¹ , Y. Yañez ¹ , J. P. Prego-Borges ¹ , J. Salazar ¹ , A. Turo ¹ , and F. Montero de Espinosa ² , ¹ Sensor Systems Group, Electronic Engineering Department, Universitat Politècnica de Catalunya, ² Instituto de Acústica CSIC	U4-K-1 A Cylindrical Micro Ultrasonic Motor using a Micro-Machined Bulk Piezoelectric Transducer. T. Kanda ¹ , A. Makino ¹ , K. Suzumori ¹ , T. Morita ² , and M. K. Kurosawa ³ , ¹ Okayama University, ² Tohoku University, ³ Tokyo Institute of Technology	U6-K-1 Temperature Compensated LiTaO₃/Sapphire Bonded SAW Substrate with Low Loss and High Coupling Factor Suitable for US-PCS Application. M. Miura ¹ , T. Matsuda ¹ , Y. Satoh ¹ , M. Ueda ² , O. Ikata ² , Y. Ebata ² , and H. Takagi ³ , ¹ Fujitsu Laboratories Ltd., ² Fujitsu Media Devices Limited, ³ The National Institute of Advanced Industrial Science and Technology	
3:45 p.m.	U1-K-2 Improved Accuracy of Vascular Wall Shear Rate Measurements. J. K. Tsou ¹ , J. Liu ¹ , C. Pellot-Barakat ^{1,2} , and M. F. Insana ¹ , ¹ University of California, Davis, ² INSERM	U2-K-2 Two-Dimensional Blind Iterative Deconvolution of Medical Ultrasound Images. R. Jirik ¹ and T. Taxt ² , ¹ Dept. of Biomedical Engineering, Brno University of Technology, ² Dept. of Biomedicine, University of Bergen	U3-K-2 Investigation into the Non-Linear Response from Active Ultrasonic Monitoring Systems for Application in the Pharmaceutical Industry. A. Gachagan*, M. Tramontana, A. Alsada, A. Nordon, D. Littlejohn, and G. Hayward, University of Strathclyde	U4-K-2 Design and Testing of a 4-mm³ Bidirectional Linear Microfin Actuator. J. Friend*, G. Yasuyuki, K. Nakamura, and S. Ueha, Tokyo Institute of Technology	U6-K-2 Low Resistance Quartz Resonators for Automotive Applications Without Spurious Modes. M. Mayer*, A. Bergmann, K. Wagner, T. Telgmann, and A. Glas, EPCOS AG	

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4:15 p.m.	U1-K-4 3D Simulations of Difference Frequency Effects on a Blood Vessel in Ultrasound-Stimulated Vibro-Acoustography. J. Heikkilä ¹ , T. Karjalainen ¹ , K. Hynynen ^{1,2} , and M. Vauhkonen ¹ , ¹ Department of Applied Physics, University of Kuopio, ² Department of Radiology, Brigham and Women's Hospital, Harvard Medical School	U2-K-4 Rectilinear 3-D Ultrasound using Synthetic Aperture Techniques. N. M. Daher* and J. T. Yen, University of Southern California	U3-K-4 Efficient Generation and Measurement of Guided Torsional Waves Using Magnetostrictive Nickel Patches. C. I. Park*, S. H. Cho, S. W. Han, and Y. Y. Kim, Seoul National University	U4-K-4 Very Fast Scanning Probe for Ophthalmic Ecography using an Ultrasound Motor. R. Carotenuto ¹ , G. Caliano ² , A. Caronti ² , A. Savoia ² , and M. Pappalardo ² , ¹ Dipartimento I. M. E. T., Università degli Studi "Mediterranea" di Reggio Calabria, ² Dipartimento di Ingegneria Elettronica, Università degli Studi Roma Tre	U6-K-4 Theoretical and Experimental Results of Unidirectional Interdigital Transducers using Grating SAW Substrates and New Resonators using ?-Period Reflectors. K. Yamanouchi* and Y. Satoh, Tohoku Institute of Technology
4:30 p.m.	U1-K-5 Detection of Shear Wave propagation in an Artery using Pulse Echo Ultrasound and Kalman Filtering. Y. Zheng ¹ , S. Chen ² , X. Zhang ² , and J. F. Greenleaf ² , ¹ St. Cloud State University, ² Mayo Foundation	U2-K-5 Curved Two-Dimensional Arrays in Ultrasound. J. E. Kirkebo*, A. Austeng, and S. Holm, Institute for Informatics, University of Oslo	U3-K-5 A 5MHz Piezocomposite Ultrasound Array for Operation in High Temperatures and Harsh Environment. C. Devallencourt*, S. Michau, C. Bantignies, and N. Felix, VERMON	U4-K-5 Single Crystal Ultrasonic Motor for Cryogenic Actuators. X. N. Jiang ¹ , S. Dong ² , P. W. Rehrig ¹ , W. S. Hackenberger ¹ , and D. Viehland ² , ¹ TRS Technologies, Inc., ² Virginia Tech	U6-K-5 Phase Sensitive Optical Measurements and Numerical Simulations of a Fan-Shaped Filter. K. Kokkonen ¹ , P. Dufile ² , J. V. Knuutila ¹ , and M. M. Salomaa ¹ , ¹ Helsinki University of Technology, ² Temex
4:45 p.m.	U1-K-6 Transcutaneous Measurement of Viscoelasticity of Arterial Wall by Application of Remote Actuation. H. Hasegawa* and H. Kanai, Graduate School of Engineering, Tohoku University	U2-K-6 A 3x3 Matrix Beamformer of Partially Overlapping Beams using a 1.5D Array for Real Time Cross-Correlation Imaging (CCI)-A Numerical Validation. R. M. Schmitt ¹ , W. G. Scott ¹ , J. B. Fowlkes ² , O. D. Kriptfgans ² , R. D. Irving ¹ , J. M. Rubin ² , and P. L. Carson ² , ¹ Winprobe Inc., ² Dept. of Radiology, University of Michigan	U3-K-6 Configurations of 40 kHz Ultrasonic Complex Vibration Sources with Complex Transverse Vibration Rods and a Disk with Multiple Transducers. J. Tsujino*, T. Ueoka, and Y. Kikuchi, Kanagawa University	U4-K-6 An Autonomous Self-Powered Acoustic Transmitter using Radioactive Thin Films. R. Duggirala*, H. Li, and A. Lal, SonicMEMS Laboratory, School of Electrical and Computer Engineering, Cornell University	U6-K-6 A Study of Electrostatic Discharge Effects of the SAW Pattern by the FDTD Method. K.-Y. Lin* and K.-H. Lin*, Department of Electrical Engineering, National Sun Yat-sen University

3:30 p.m – 5:00 p.m.

FERROELECTRICS and FREQUENCY CONTROL, Friday, August 27, 2004

Montreal

Session FE1-K
PROCESSING
 Chair: M. Crendon
 Ferroelectric Materials
 Systems

513CD

3:30
p.m.

FE1-K-1 Solid State Conversion Grain Growth of Piezoelectric Single Crystals. S. Kwon^{*1}, W. Hackenberger¹, P. Rehrig¹, J. B. Lee², T. M. Heo², D. H. Kim², and H.-Y. Lee^{2,3}, ¹TRS Technologies, ²Ceracomp Co. Ltd., ³Sunmoon University

3:45
p.m.

FE1-K-2 Fabrication of Piezoelectric Single Crystals without Melting Step of Major Components. T.-M. Heo², J.-B. Lee², D.-H. Kim², and H.-Y. Lee^{*1}, ¹Sunmoon University, ²Ceracomp Co., Ltd.

4:00 p.m.	FE1-K-3 Microstructure and Piezoelectric Properties of Fiber Textured Pb(Mg_{1/3}Nb_{1/3})O₃-PbTiO₃ Ceramics. M. Pham Thi ^{*1} , P. Colomban ² , and O. Lacour ³ , ¹ Thales Research & Technology France, ² LADIR, ³ Thales Underwater Systems					
4:15 p.m.	FE1-K-4 Novel Transducers by Layered Manufacturing and Direct-Write Technology. A. Safari [*] and M. Allahverdi, Rutgers University					
4:30 p.m.	FE1-K-5 Ferroelectric and Relaxor Ferroelectric Materials by New Sol-Gel Routes. K. Babooram [*] , H. Taylor, D. Chin, and Z.-G. Ye, Simon Fraser University					
4:45 p.m.	FE1-K-6 Processing and Application of Ferroic Glass Ceramics. Y. Xi ^{1,2} and Z. Liangying ² , ¹ Electronic Materials Research Laboratory Xian Jiaotong University, Xian, 710049, China, ² Functional Materials Research Laboratory Tongji University, Shanghai, 200092, China					

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Palais des Congrès Floor Plan

