PROGRAM

2007 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM AND SHORT COURSES

28–31 October, 2007
The New York Hilton & Towers
New York, NY, USA

Sponsored by the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society

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WELCOME FROM THE ORGANIZING COMMITTEE

It is our distinct pleasure to welcome you as the Ultrasonics Symposium returns to its birthplace with a visit to New York City. The location of the conference provides unparalleled access to all that New York City has to offer. We encourage you to take advantage of this unique opportunity to experience New York City – dining options from sidewalk carts to Tavern on the Green, entertainment options from Broadway theaters to a stroll in Central Park, and cultural attractions from art museums to Greenwich Village. Please be sure to visit the website of NYC & Company at http://www.nycvisit.com/ to explore the many options available.

We are excited to report that nearly 1000 abstracts were submitted for consideration by the Technical Program Committee, representing fully 33% growth in just four years. Even with such unanticipated growth, the conference hotel provides an excellent venue for our Symposium as all of the oral sessions, morning and afternoon poster sessions, and exhibits will be located in newly renovated spaces, all on one floor and taking only a few seconds to walk between any two points. We are also excited to announce two significant extensions of our traditional program:

Sunday afternoon on 28 October 2007 will feature a first-ever, Members-Only, free short-course as a special benefit for IEEE UFFC Society Members. The course will equip researchers old and new with the latest information on how to publish in the UFFC Transactions, and tips for quickly negotiating the review and revision process for speedy publication.

Monday evening on 29 October 2007 will feature a semi-formal Awards Reception with special buffet dinner in the luxurious Grand Ballroom in place of a simpler, more limited social reception. The extended Awards Reception is intended to enhance the awards presentations while filling the role normally taken by a banquet activity in order that we might leave Tuesday evening on 30 October 30 2007 open for a “Night On The Town.”

We hope that you have planned well for the “Night On The Town” and enjoy this opportunity to explore the city on your own or with friends and colleagues. We thank you for attending the Symposium, and hope that all aspects of the conference and activities meet your expectations.

Sincerely,

The Organizing Committee

ORGANIZING COMMITTEE

UFFC President		Arthur Ballato U.S. Army RDECOM Fort Monmouth, NJ, USA
General Chair		John A. Kosinski U.S. Army RDECOM Fort Monmouth, NJ, USA
Technical Program Chair		Mauricio Pereira da Cunha University of Maine Orono, ME, USA
Short Course Chair		Stanislav Emelianov University of Texas at Austin Austin, TX, USA
Proceedings Editor		Marjorie Passini-Yuhas Industrial Measurement Systems, Inc. Aurora, IL, USA
Treasurer		Jackie Hines ASR&D Corporation Annapolis, MD, USA
Publicity Chair, Exhibits Chair		Sorah Rhee Volcano Corporation Rancho Cordova, CA, USA
Audio-Visual Chair, Webmaster		Oliver Keitmann-Curdes Flexim GmbH Berlin, Germany
Student Arrangements Chair Travel and Visa Arrangements		E. Koray Akdogan Rutgers, The State University of New Jersey, USA
Local Assistance Chair		Elisa Konofagou Columbia University, New York, NY, USA

VENUE

The New York Hilton & Towers
1335 Avenue of the Americas, New York, NY 10019, USA
Tel: +1-212-586-7000
Fax: +1-212-315-1374
Website: http://www1.hilton.com/en_US/hi/hotel/NYCNHHH-Hilton-New-York-New-York/index.do

TRAVEL INFORMATION

The New York Hilton & Towers is located on Avenue of the Americas (6th Ave.) between West 53rd and West 54th Streets. Traffic on 53rd street is one-way west bound while traffic on 54th street is one-way east bound. The closest airport is Newark (13 miles), with Laguardia (18 miles) and Kennedy (25 miles) slightly farther. For rail connections, Grand Central station is a 15 minute walk across town while Penn Station is a 15 minute walk downtown. The Port Authority Bus Terminal is a 10 minute walk downtown.

From Newark and Kennedy airports, the AirTrain provides reliable and convenient connections to the New York subway system, whose 'E'-train stops on either side of the Hilton. From LaGuardia airport, the best choice is likely to be a yellow taxi. Other options are available:

Type	LaGuardia	Kennedy	Newark
Bus Service	$13	$16	
Limousine	$90	$100	$100
Taxi	$30	$40	$40

Typical Minimum Charges

Details on transportation options between airport and hotel can be found on the NYC & Company website at:
http://www.nycvisit.com/content/index.cfm?pagePkey=281

LOCAL TRANSPORTATION

Getting around New York City is a breeze, thanks to the city's sophisticated transit system that includes buses and subways, along with the thousands of taxis and limousines at your service. There are also ferries, helicopters, bicycles, and frequent Amtrak and commuter rail services. And don't forget your feet! NYC is a walking city— it is flat and much of it is on a grid. For those looking to fully enjoy the New York experience, one of the least expensive transportation options is the New York City subway system. The fare is $2.00 per trip, and there are subway stops on either side of the Hilton on the 'E' line. Details on all of the local transportation options can be found on the NYC & Company website at:
http://www.nycvisit.com/content/index.cfm?pagePkey=14

HOTEL RESERVATIONS

A block of rooms was reserved at the conference hotel under the Group/Convention Code "IEE" (three letters only!) at the rate of $219 USD per night single/double plus appropriate state and local taxes. Due to unprecedented demand, the conference rate room block sold out nearly eight weeks in advance of the Symposium. The Hilton will continue to book rooms at their "best available rate" which is 50% or more higher than the room block rate. The Organizing Committee understands that this will present a challenge to those who have waited to make their reservations. We are confident that all concerned can find other suitable accommodations both in terms of price and quality within a short travel time from the Hilton. We recommend the following approach to making reservations:

1) Visit the website of the official marketing and tourism organization for the City of New York at:

http://www.nycvisit.com/content/index.cfm?pagePkey=8

Use the link to Orbitz to search for rooms. Use any of the midtown Manhattan options - these are simply looking west, south, or east from the Hilton. As of 10 September, prices close to the conference rate are available in several nearby hotels.

2) Visit the Alternative Hotel Recommendations link on this website. These are hotels used by visitors to Columbia University, and are generally conveniently located for subway access to the Hilton.

3) For the absolutely lowest prices, keep in mind that high quality hotels in New Jersey are only three miles from midtown Manhattan (see, for example, the Hilton Garden Inn Secaucus/Meadowlands) and one can travel to the Hilton NYC in about 30 minutes at quite low cost. This option likely will yield the lowest net cost per night when considering combined hotel/transportation cost per day. When booking, confirm access for New Jersey Transit bus service to the Port Authority bus terminal or New Jersey Transit rail service to New York Penn Station. The hotel is a modest walk uptown, or short subway ride, from either terminal.

In all cases, getting around in New York is very simple with options to walk or take a taxi, bus, or subway. The economics are simple: subway fare is $2 per ride (start to finish with unlimited transfers along the way) therefore saving $100-$200 per night by taking a hotel a short distance from midtown is quite easy.

REGISTRATION

All Symposium participants, guests, and exhibitors must register and are required to wear name badges. Admission to short courses, Symposium technical sessions, the Awards Reception, and guest program activities will be strictly controlled.

REGISTRATION DESK FOR SHORT COURSES AND THE SYMPOSIUM

Second Floor Promenade

Saturday 27 October 2007	6:00 PM – 9:00 PM
Sunday 28 October 2007	7:00 AM – 6:00 PM
Monday 29 October 2007	7:00 AM – 6:00 PM
Tuesday 30 October 2007	7:00 AM – 5:30 PM
Wednesday 31 October 2007	7:00 AM – 1:00 PM

SHORT COURSE REGISTRATION FEE

Registration fee per short course

	Before Sept. 15	*After Sept. 15*
IEEE Member/ Non-IEEE Member	$150	$200
Student/Retiree	$50	$75
Life Member	$0	$0

SYMPOSIUM REGISTRATION AND FEES

Registration fee includes CD proceedings except as noted
* Includes one Awards Reception ticket

	Before Sept. 15	*After Sept. 15*
IEEE Member*	$550	$650
Non-IEEE Member*	$700	$800
Student/Retiree*	$150	$150
Life Member*	$0	$0
One-Day Registration (without Proceedings)	$350	$350
Additional CD-ROM Proceedings	$75	$75
UFFC CD Archive (Available only to UFFC members)	$100	$100
Guest Program (coffee/tea service)	$75	$75
Guest Tour - Midtown and Lower Manhattan, Monday 29 October	$25	$25
Awards Reception - Additional Ticket	$35	$35

IEEE AND UFFC-S ENROLLMENT

If you wish to join the IEEE when registering for the Symposium, you may do so 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 for higher grade memberships (all except students).

If you are an IEEE member in good standing and wish to become a first time member of the UFFC-S, free membership is offered at the time of registration. You will receive online access to the UFFC-S Transactions and copies of the UFFC-S Newsletters published in 2007-2008. This offer applies only to on-site registrations.

It is the policy of the UFFC Society that "Each UFFC-S sponsored symposium will be required to include the Special IEEE/UFFC-S Membership application form in their respective Advance Program booklet ..." We regret that the form was unavailable at the time of printing. IEEE/UFFC-S enrollment forms will be available at the registration desk and/or nearby IEEE/UFFC-S booth.

PROCEEDINGS

The Symposium Proceedings (CD format) will be available in late December. A copy will be mailed to all paid registrants except guests and one-day registrants. A printed version of the Proceedings can be ordered from IEEE after the Symposium.

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

SPEAKERS ROOM

Upload and Review of Presentations
Location To Be Announced – see Registration Desk

All oral session rooms will be equipped with a lap-top computer and a projector as the only means of presenting viewgraphs. Presentations must be loaded into the Symposium computers and reviewed for proper display at the Speakers Room; any time spent loading presentations and delays due to display errors during the session will be deducted from the speaker's allotted presentation time.

Uploads and adjustments to presentations can be handed in the Speakers Room up to 1.5 hours before the session start time, after which A/V updates for that session will be frozen.

Please note than when you have an early morning session you will need to up-load your presentation the day before. The Speakers Room will be open:

Sunday, 28 October 2007 8:00 AM - 6:00 PM
Monday, 29 October 2007 7:00 AM. - 6:30 PM
Tuesday, 30 October 2007 7:00 AM - 6:30 PM
Wednesday, 31 October 2007 7:00 AM – 4:00 PM

Presentations should be in Microsoft PowerPoint as specified in the Author Instructions. Projection of video via PowerPoint works only if the correct codecs are in place. Authors wishing to present video are responsible for ensuring that their videos will run. All speakers are requested to bring a back-up of their presentation on CD or USB memory stick.

POLICY ON PHOTOGRAPHY

Recording of presented slides and posters by photo or video is not permitted.

POLICY ON JOB RECRUITING

Posting of notices of job opportunities by employers and of notices of jobs sought by IEEE members is permitted on the designated message board. All postings are subject to approval by the Organizing Committee.

WIRELESS INTERNET ACCESS

Wireless Internet access will be available to registered attendees in the Second Floor Promenade throughout the duration of the Symposium. Instructions and access codes will be available at the registration desk.

UFFC CD ARCHIVE

The Digital Archive may be purchased as a set of 29 CD-ROMs. The articles, in PDF format, are fully searchable across the entire collection. The collection contains all material through the year 2004. The cost for this collection is $100. The Digital Archive is only available to members of the UFFC Society, and is for personal use only. The Digital Archive can be ordered during Symposium registration, or online at: http://www.ieee-uffc.org/archive2/cdorder.asp

AWARDS RECEPTION

Monday evening on 29 October 2007 will feature a semi-formal Awards Reception with special buffet dinner in the

luxurious Grand Ballroom in place of a simpler, more limited social reception. The reception will commence at 7:00 PM with cocktail service in the Grand Ballroom Foyer, with dinner service in the Grand Ballroom opening at 7:30 PM. Guests are requested to be seated for the Awards Ceremony recognizing IEEE, UFFC Society, and Ultrasonics Committee award recipients, along with Student Paper Competition winners, commencing at 8:15 PM. This will be followed by a re-opening of the buffets for dessert. The extended Awards Reception is intended to enhance the awards presentations while filling the role normally taken by a banquet activity in order that we might leave Tuesday evening on 30 October 2007 open for a "Night On The Town."

IEEE Awards

The grade of Fellow recognizes unusual distinction in the profession and shall be conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. The accomplishments that are being honored shall have contributed importantly to the advancement or application of engineering, science and technology, bringing the realization of significant value to society. The candidate shall hold Senior Member grade at the time the nomination is submitted and shall have been a member in good standing in any grade for a period of five years or more preceding 1 January of the year of election. The year of election to the grade of Fellow is the year following approval by the Board of Directors conferring the grade of Fellow. Members elected to the Fellow grade may use the title immediately following approval by the Board of Directors. All those elected will receive a certificate and pin.

UFFC Society Awards

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

The Distinguished Service Award recognizes long-term support of the Society's activities. Recognition is given to those who innovate new Society programs, administer major Committees, manage Society functions, or promote the Society's areas of technical interest to the larger community.

The recipient usually has served for many years with sustained participation in the Society's management. Selection is made by the Officers and the Awards Committee from nominations submitted by the general membership. Presentation is usually at one of the Society's major symposia. The award consists of an honorarium of $2,000, a plaque and a certificate. The first award was presented in 1997.

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

The Outstanding Paper Award is presented to the author(s) of a paper published in the UFFC-S Transactions which exemplifies excellent technical contributions and is clearly written. The winner is selected on the basis of: originality, interest to the membership, contributions to the field, clarity of writing, and timeliness. Selection is made by the Awards Committee. Nominations and comments from the Editor-in-Chief, Associate Editors and Guest Editors of the Transactions are solicited. Papers are reviewed as a group for each Volume of the UFFC-S Transactions (January through December). In a given year, usually one paper is selected, but the Awards Committee may chose to give no award or multiple awards when circumstances warrant. Presentation is usually at one of the Society's major symposia. The award consists of a plaque and a certificate.

Ultrasonics Committee Awards

The Rayleigh Award recognizes meritorious service to the UFFC Society in the field of Ultrasonics. The achievement may be in technical innovations, research, education, publications and related professional endeavors. Typically, the recipient will have demonstrated these accomplishments over a sustained period of time. Selection will be made by an Awards Committee consisting of the Rayleigh Award Chair, the Technical Program Chair and the Technical Program Vice-Chairs in the spring of each year. The award consists of an honorarium of $1,000, a plaque and a certificate.

Award Nominations

Nominations for UFFC Society and Ultrasonics Committee awards may be submitted at any time. A member may submit a nomination by sending the nominees name and affiliation, the recommended award, and a description of that person's contributions meeting the specific criteria for the award, along with the submitter's own name and affiliation to the UFFC-S Awards Committee Chair:

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

OPEN "NIGHT ON THE TOWN"

New York City provides an astounding variety of cultural and entertainment options to suit all tastes. The location of the Symposium in the center of Midtown Manhattan makes these options readily available within a short walk, taxi ride, or subway trip. In order to allow Symposium participants to have the time to embrace the New York experience, the Organizing Committee has opted to set aside Tuesday evening on 30 October 2007 as an open "Night On The Town." Additional detail on the Midtown Manhattan neighborhood can be found via the NYC & Company website at:

http://www.nycvisit.com/content/index.cfm?pagePkey=443

GUEST PROGRAM

A Guest Program has been arranged that will include a morning coffee service and afternoon tea service each day of the conference, with a host provided by the Organizing Committee. Please check the registration desk for the hours and location of the Guest Program suite. Heavily discounted tickets are available for guests wishing to attend the Gala Awards Reception on Monday night. To introduce the wide variety of options available in New York City, the Symposium has arranged for a guided tour of midtown and lower Manhattan for Monday 29 October, with Tuesday and Wednesday deliberately left open for individuals and small groups to further explore the city on their own.

A full service tour and transportation concession is located on the ground floor of the hotel. As an alternative, consider stopping by the New York City Visitor Information Center located just around the corner at 810 Seventh Avenue (between 52nd and 53rd Streets). In addition to the tour listed below, other exciting packages are available through Gray Line Tours located just a few blocks from the hotel at 777 Eighth Avenue (between 47th & 48th Streets) and at the Times Square Visitor Center on Broadway between 46th & 47th Streets.

Guided Tour - Monday 29 October 2007 - $25 per person
Join us for a chartered motorcoach tour of Midtown and Lower Manhattan, guided by Gray Line New York Sightseeing. Where history meets technology - the neighborhoods on the Downtown Loop are some of the oldest and some of the newest in Manhattan. Stops will include Greenwich Village, where the literary past comes alive, and the New Times Square, the Empire State Building - an icon of architecture, as well as the Flatiron building and Union Square shopping districts, Rockefeller Center / Top of the Rock, the World Trade Center Site, Soho, Chinatown, Little Italy, Lower East Side, East Village, Rockefeller Center, the Intrepid Sea-Air-Space Museum and more. The tour will break for an hour to let you explore your lunch options at the South Street Seaport. Meet in the hotel lobby at 9:45 AM.

CONFERENCE MANAGEMENT

Federation of Animal Science Societies (FASS)
1111 N. Dunlap Ave., Savoy, IL USA 61874
Phone: +1-217-356-3182
Fax: +1-217-398-4119
Email: ieee-uffc@assoch.org

PATRONS

The 2007 IEEE International Ultrasonics Symposium is supported solely by the IEEE UFFC Society without benefit of corporate patronage.

SPECIAL THANKS

Special thanks to the tourism marketing organization for the City of New York for their assistance throughout the planning and organizing processes:

NYC & Company
810 Seventh Avenue, New York, NY 10019
Phone: +1-212-484-1200
http://www.nycvisit.com/

EXHIBITORS

Time: Monday 29 October 2007 8:00 AM to 6:30 PM
Tuesday 30 October 2007 8:00 AM to 6:30 PM
Wednesday 31 October 2007 8:00 AM to 1:00 PM
Location: Rhinelander Gallery

Exhibitor	Website
Sound Technology, Inc.	www.sti-ultrasound.com
Polytec Inc.	www.polytec.com
Onda Corporation	www.ondacorp.com
BERCLI , Ultrasonic Phased-Array Solutions	www.bercli.net
Nihon Dempa Kogyo Co. Ltd.	www.ndk.com
Electronics & Innovation Ltd.	www.EandIltd.com
Ferroperm Piezoceramics A/S	www.ferroperm.net
Imasonic	www.imasonic.com
Tegal Corporation	www.tegal.com
Weidlinger Associates Inc.	www.wai.com
TRS Technologies Inc.	www.trstechnologies.com
Sonora Medical Systems Inc.	www.4sonora.com
W.L. Gore & Associates	www.gore.com
LeCoeur-Electronique	www.lecoeur-electronique.com
CTS Electronic Components, Inc.	www.ctscorp.com
Precision Acoustics Ltd.	www.acoustics.co.uk
Valpey Fisher Corporation	www.valpeyfisher.com
EBL Products Inc.	www.eblproducts.com
Honda Electronics	www.honda-el.co.jp
Bossanova Tech	www.bossanovatech.com
aixAACT Systems GmbH	www.aixACCT.com
University of Michigan, Biomedical Engineering	
Ultrasonix Medical Corporation	www.ultrasonix.com
The Piezo Institute	www.piezoinstitute.net

FUTURE ULTRASONICS SYMPOSIA

2008 IEEE Ultrasonics Symposium
General Chair: Jian-yu Lu
Jilu@eng.utoledo.edu
Beijing, China
1 – 5 November 2008
http://ewh.ieee.org/conf/ius_2008

2009 IEEE Ultrasonics Symposium
General Chair: Massimo Pappalardo
pappalar@uniroma3.it
Rome, Italy
19 – 23 September 2009

2010 IEEE Ultrasonics Symposium
General Chair: Bob Potter
Bpotter@vectron.com
San Diego, California USA
11 – 14 October 2010

WELCOME FROM THE TECHNICAL PROGRAM CHAIR

On behalf of the Technical Program Committee (TPC), I am delighted to welcome you to the 2007 IEEE International Ultrasonics Symposium. I am excited to report that nearly 1000 abstracts were reviewed by the Technical Program Committee, with approximately 800 papers selected for inclusion in the Symposium technical program. In keeping with tradition, the first day of the conference will feature top quality short courses by renowned instructors, followed by three days of technical sessions including a student paper competition.

In a positive departure from our initial plans, the Symposium will feature twenty two invited papers, all as oral presentations spread throughout the three days of the Symposium. Special note should be made of two Special Sessions within the conference: Group 1 will host a Special Session on Clinical Cardiovascular Imaging featuring three invited papers by world-renowned clinicians, while Group 2 will host a Memorial Session to highlight the technical contributions of the late Robert Adler, a distinguished pioneer in our field.

The outstanding and consistent work of the IEEE Ultrasonics Symposium TPC has kept our symposium as the major international forum for Ultrasonics innovation and achievements. This year, the TPC undertook to (i) update the subtopic areas of the five Groups, (ii) improve the abstract submission format, (iii) improve the review system, and (iv) select invited speakers on new and challenging topics of interest to the Ultrasonics community. We are delighted both with this year's record number of submissions, as well as with the way these process improvements have influenced the Symposium technical program.

New York, as a venue, provides all the excitement of one of the greatest cosmopolitan areas in the world! We are confident that our outstanding technical program and your technical contributions are a great match to the Central Park, museums, shopping, food, and theaters a few blocks away, in making this the Ultrasonics event of the year!

Sincerely,
Mauricio Pereira da Cunha
2007 IEEE Ultrasonics Symposium Technical Program Chair

TECHNICAL PROGRAM COMMITTEE

Group 1: Medical Ultrasonics
Vice Chair: Stanislav Emelianov: University of Texas at Austin, USA
Olivier Basset: CREATIS, Université Lyon I, France
Geneviève Berger: University of Paris VI, France
Charles Cain, University of Michigan, USA
Richard Chiao: Siemens Medical Solutions, USA
Lawrence A. Crum: University of Washington, USA
Nico de Jong: Erasmus Medical Centre and University of Twente, The Netherlands
Jan D'hooge: Catholic University Leuven, Belgium
Emad Ebbini: University of Minnesota, USA
Stanislav Emelianov: University of Texas at Austin, USA
David Evans: University of Leicester, UK
Kathy Ferrara: University of California Davis, USA
Stuart Foster: University of Toronto, Canada
James Greenleaf: Mayo Clinic College of Medicine, USA
Anne Hall: General Electric Medical Systems, USA
Christopher Hall: Philips Research North America, USA
Peter Hoskins: The University of Edinburgh, UK
John Hossack, University of Virginia, USA
Kullervo Hynynen: University of Toronto, Canada
Michael F. Insana: University of Illinois, Urbana-Champaign, USA
Jorgen Jensen: Technical University of Denmark, Denmark
Hiroshi Kanai: Tohoku University, Japan
Nobuki Kudo, Hokkaido University, Japan
Pai-Chi Li, National Taiwan University, Taiwan
Jian-yu Lu: University of Toledo, USA
Leonardo Masotti: Università degli Studi di Firenze, Italy
James G. Miller: Washington University in Saint Louis, USA
Kathy Nightingale: Duke University, USA
William O'Brien: University of Illinois, Urbana-Champaign, USA
Helen Routh: Philips Research North America, USA
Georg Schmitz: Ruhr-Universität Bochum, Germany
Ralf Seip: Focus Surgery, Inc., USA
Mickael Tanter: Laboratoire Ondes et Acoustique, ESPCI, France
Tom Thomas: Boston Scientific, Inc., USA
Kai Thomenius: General Electric's Corporate R&D, USA
Hans Torp: Norwegian University of Science and Technology, Norway
Piero Tortoli: Università degli Studi di Firenze, Italy
Ton van der Steen: Erasmus Medical Center, The Netherlands
Keith Wear: US Food and Drug Administration, USA

Group 2: Sensors, NDE, and Industrial Application
Vice Chair: Jafar Saniie: Department of Electrical & Computer Engineering, Illinois Institute of Technology, USA
Robert C. Addison: Rockwell Science Center, USA
Walter Arnold: Fraunhofer Institute for Nondestructive Testing, Germany
Nihat Bilgutay: Drexel University, USA
Eric S. Furgason: Purdue University, USA
David Greve: Carnegie Mellon University, USA
Jacqueline Hines: Applied Sensor Research and Development Corporation, USA
Fabien J. Josse: Marquette University, USA
Oliver Keitmann-Curdes: Flexim GmbH, Berlin, Germany

Lawrence W. Kessler: Sonoscan Inc., USA
Pierre T. Khuri-Yakub: Stanford University, USA
Jun-ichi Kushibiki: Tohoku University, Japan
Lawrence C. Lynnworth: Lynnworth Technical Services, USA
Roman Maev: University of Windsor, Canada
Massimo Pappalardo: University di Roma TRE, Italy
Jafar Saniie: Illinois Institute of Technology, USA
Tony Sinclair: University of Toronto, Canada
Bernhard Tittmann: Pennsylvania State University, USA
Jiromaru Tsujino: Kanagawa University, Japan
John F. Vetelino: University of Maine, USA
Donald E. Yuhas: Industrial Measurement Systems, Inc., USA

Group 3: Physical Acoustics
Vice Chair: Yook-Kong Yong, Rutgers University, USA
Robert Aigner: TriQuint Semiconductor, USA
Art Ballato: U.S. Army, USA
Jan Brown: JB Consulting, USA
David Hecht: DLH Consulting, USA
Fred Hickernell
Yonkee Kim: U.S. Army, USA
Amit Lal: Cornell University, USA
C.S. Lam: TXC Corporation, Taiwan
John Larson: Avago Technologies, USA
Moises Levy: Department of Physics, Naples, Florida, USA
George Mansfeld: Russian Academy of Sciences, Russia
Vitold Poghar: Scientific and Technological Center of Unique Instrumentation of Russian Academy of Science, Russia
Valeri Proklov: Institute of Radio Engineering & Electricity, Russia
Richard Roby: Avago Technologies, USA
Edgar Schmidhammer: EPCOS, Germany
Susan Schneider: Marquette University, USA
Bikash Sinha: Schlumberger-Doll Research, USA
Ji Wang: Ningbo University, China
Yook-Kong Yong: Rutgers University, USA
Smaine Zeroug: Schlumberger-Doll Research, USA

Group 4: Surface Acoustic Waves
Vice Chair: Peter Smith, McMaster University, Canada
Sylvain Ballandras: LPMO, France
Kushal Bhattacharjee: RF Micro Devices, USA
Sergey Biryukov: Surfaces and Interfaces Department, Leibniz Institute for Solid State and Materials Research Dresden (IFW), Germany
Jidong Dai: RF Monolithics, USA
Yasuo Ebata: Fujitsu Media Device Ltd., Japan
Gernot Fattinger: Sawtek, USA
Ken-ya Hashimoto: Chiba University, Japan
Daniel Hauden: CNRS_LPMO, France
Mitsutaka Hikita: Hitachi, Ltd., Japan
Chunyun Jian: Nortel Networks, Canada
Jyrki Kaitila: Infineon, Germany
John Kosinski: U.S. Army RDE Command, USA
Ken Lakin: TFR Technologies, USA
Don Malocha, University of Central Florida, USA
David Morgan: Impulse Consulting, UK
Hiroyuki Odagawa: Tohoku University, Japan
Mauricio Pereira da Cunha: University of Maine, USA
Viktor Plessky: Thomson Microsonics, Switzerland
Bob Potter: Vectron International, USA

Leonard Reindl: University of Freiburg, Germany
Arne Ronnekleiv: Norwegian Institute of Technology, Norway
Clemens Ruppel: EPCOS AG - SAW RD SAM, Germany
Takahiro Sato: Samsung, Japan
Peter Smith: McMaster University, Canada
Marc Solal: Sawtek, USA
Robert Weigel: University of Erlangen-Nuremberg, Germany

Group 5: Transducers and Transducer Materials
Vice Chair: Scott Smith, GE Global Research, USA
Christopher Daft: Siemens Medical Solutions, USA
Levent Degertekin: Georgia Institute of Technology, USA
Charles Emery: Acoustx Corporation, USA
John Fraser: Philips Medical Systems, USA
Jean-Francois Gelly: GE Healthcare, France
Reinhard Lerch: Friedrich-Alexander-Universität Erlangen-Nuremberg, Germany
Geoff Lockwood: Queen's University, Canada
Clyde Oakley: W.L. Gore, USA
Paul Reynolds: Weidlinger Associates, USA
Yongrae Roh: Kyungpook National University, Korea
Ahmad Safari: Rutgers University, USA
Mark Schafer: Sonic Tech Inc., USA
Thomas Shrout: Pennsylvania State University, USA
Kirk Shung: University of Southern California, USA
Scott Smith, GE Global Research, USA
Stephen Smith: Duke University, USA
Wallace Smith: Office of Naval Research, USA
Yasuhito Takeuchi: Kagoshima University, Japan
Vasandara Varadan: University of Arkansas, USA
Jian Yuan: Boston Scientific, USA
Qiming Zhang: Pennsylvania State University, USA

SHORT COURSES

All short courses are Sunday 28 October 2007.

Course Block	Time Slot
1A-1D	0800-1200
2A-2D	1300-1700
3A-3D	1800-2200

Course 1A: Elasticity Imaging: Dynamic Approaches
Kathy Nightingale and Mark Palmeri (Duke University)

The mechanical characterization of tissues and lesions within tissues has been used by clinicians to determine states of disease. Clinicians characterize the mechanical properties of tissue through manual palpation, but not all tissues are accessible through this approach. Therefore, imaging modalities that can interrogate tissue to illicit this mechanical information are desired clinically. This short course will explore the use of ultrasound in imaging the mechanical properties of tissue and lesions through the use of dynamic excitation modalities. The fundamentals of ultrasound imaging, as related to dynamic tissue elasticity imaging, will be reviewed. A foundation for elastic material characterization will be established, including the relationships of force-displacement and stress-strain, the definition of elastic material properties (elastic moduli, Poisson's

ratio, density), and the concept of stiffness, both structural and material. Linear isotropic materials will serve as the primary medium discussed in this course, but extensions will be made to anisotropic, viscoelastic, and nonlinear materials. Methods of static and dynamic excitation of soft tissue will be explored, using both external tissue compression/relaxation, and steady-state and impulsive acoustic radiation force excitation techniques. Imaging methods (MR and ultrasound) used to track static and dynamic displacement fields will be reviewed. The reconstruction of material properties from these dynamic displacement fields will be analyzed, including the use of inverse problems, the estimation of shear wave speeds, and the optimization and fitting of simplified viscoelastic and nonlinear tissue models.

Kathy Nightingale received her B.S. degree (Electrical Engineering) in 1989 from Duke University. She served in the United States Air Force as a program engineer from 1989 to 1992. She received her Ph.D. degree in Biomedical Engineering from Duke University in 1997. Dr. Nightingale is currently an Assistant Professor in the Department of Biomedical Engineering at Duke University. Her research interests include the investigation of radiation force based imaging methods, ultrasonic imaging, ultrasonic flow detection, and the bioeffects associated with diagnostic ultrasonic imaging.

Mark L. Palmeri received his B.S. degree in Biomedical and Electrical Engineering from Duke University, Durham, NC, in 2000. He was a James B. Duke graduate fellow and received his Ph.D. degree in Biomedical Engineering from Duke University in 2005 and his M.D. degree from the Duke University School of Medicine in 2007. He is currently an Assistant Research Professor in Biomedical Engineering at Duke University. His research interests include ultrasonic imaging, characterizing the mechanical properties of soft tissues, and finite element analysis of soft tissue response to acoustic radiation force excitation.

Course 1B: Nonlinear Acoustics and Harmonic Imaging

Victor F. Humphrey (Institute of Sound and Vibration Research, University of Southampton, UK)

This course will provide an introduction to the origins of nonlinear propagation, and its consequences and applications in medical ultrasound. The first section will review the basic physics of nonlinear propagation, and discuss the propagation of plane waves as a means of introducing nonlinear acoustics terminology. This will be followed by a discussion of the techniques used to numerically model nonlinear propagation and the specific problems of performing measurements in high amplitude fields with their associated distortion and harmonic content. The effects of diffraction and attenuation on nonlinear propagation will then be introduced by considering the fields of transducers and arrays, and the fields they generate in tissue; this will be illustrated by a combination of experimental results and model predictions. This will lead on to a discussion of the consequences for medical ultrasound of nonlinear propagation. Finally the application to harmonic imaging will be described.

Victor Humphrey is a Professor of Acoustics at the Institute of Sound and Vibration Research (ISVR) in Southampton, U.K. He received his BSc and PhD degrees from the University of Bristol in

1975 and 1981 respectively. He then moved to the School of Physics at the University of Bath where was promoted to Senior Lecturer. In 2004 he took up his current position at ISVR. His initial research was in the area of laboratory applications of nonlinear parametric arrays in underwater acoustics. For this work he was awarded the Institute of Acoustics A.B. Wood Medal 1988. Subsequently he helped to develop a research programme on the nonlinear propagation of ultrasound in medical fields that investigated these fields both numerically and experimentally. He was awarded the University of Bath Mary Tasker Award for excellence in teaching in 1995.

Course 1C: Ultrasound Contrast Agents: Theory and Experiment

Nico de Jong (1) and Michel Versluis (2) (1 Erasmus MC and 2 University of Twente, The Netherlands)

The course consists of 6 topics:
a) An overview will be presented of the (clinical and pre-clinical available) contrast agents, including the properties and characteristics of the gas inside the bubble and the shell surrounding it.
b) Models of the behavior of small bubbles in an ultrasound field will be discussed. Simple models based on a one dimensional mass-spring system and more complicated models including gas and shell properties.
c) Experimental acoustic methods for UCA will be presented for characterizing the bubbles in suspension, including harmonic and subharmonic scattering, absorption and attenuation. Also the influence of ambient pressure, temperature and gas concentration will be discussed.
d) Experimental optical and acoustical methods for characterizing individual bubbles.
e) Imaging methods for contrast agents, e.g. fundamental, harmonic, subharmonic and superharmonic and multi-pulse methods like pulse inversion, power modulation etc. and new methods including chirp excitation and radial modulation.
f) Molecular imaging and ultrasound mediated drug delivery: Interaction between mammalian cells and ultrasound in the presence of (targetted) bubbles will be discussed.

Nico de Jong graduated from Delft University of Technology, The Netherlands, in 1978. He got his M.Sc. in the field of pattern recognition. Since 1980, he has been a staff member of the Thoraxcenter of the Erasmus University Medical Center, Rotterdam, The Netherlands. At the Dept. of Biomedical Engineering, he developed linear and phased array ultrasonic probes for medical diagnosis, especially compound and transesophageal transducers. In 1986 his interest in ultrasound applications shifted toward the theoretical and practical background of ultrasound contrast agents. In 1993 he received his Ph.D. for "Acoustic properties of ultrasound contrast agents." His current interests are 3D (matrix) transducers, bubble behaviour and fast framing camera systems. Since 1996 he organizes, together with the cardiologist Dr. Folkert ten Cate, the annual European Symposium on Ultrasound Contrast Imaging, held in Rotterdam and attended by approximately 175 scientists from all over the world. Since 2003 Nico de Jong is part-time professor at the University of Twente.

Michel Versluis graduated in Physics in 1988 at the University of Nijmegen, the Netherlands, with a special interest in Molecular Physics and Astrophysics. Later, he specialized in the application of intense tunable UV lasers for flame diagnostics resulting in a successful defense of his PhD thesis in 1992. Michel Versluis is now a lecturer at the University of Twente, the Netherlands, in the Physics of Fluids group working on the experimental study of bubbles and jets in multiphase flows and granular flows. He also works on the use of microbubbles as a tool for medical diagnosis and therapy. Dr. Versluis teaches various courses in Fluid Mechanics, one of them focusing on the physics of bubbles.

Course 1D: Estimation and Imaging of Tissue Motion and Blood Velocity

Hans Torp (Norwegian University of Science and Technology, Trondheim, Norway)

This course provides basic understanding of physical principles and signal processing methods for estimation of blood flow and tissue motion. The course starts with an overview of currently used techniques for velocity estimation in pulsed and continuous wave Doppler and color Doppler imaging. Statistical models for the received signal, as well as commonly used velocity and flow estimators are developed. Several different simulation methods for ultrasound signals from moving blood and clutter signals will be discussed. Efficient simulation tools to explore estimator properties are derived, and examples on implementation in Matlab will be shown. Methods to suppress clutter signals from slowly moving targets, including regression filter will be discussed. Elements from classical estimation theory will be applied to develop minimum variance estimators for velocity and velocity gradients. Velocity components transversal to the ultrasound beam cannot be measured by Doppler techniques. However, several approaches to overcome this limitation have been developed, including speckle tracking, transit time measurements, and lateral beam modulation. Principles and practical limitations will be discussed. Applications in blood velocity imaging, myocardial velocity- and strain imaging, as well as elastography will be shown.

Hans Torp received the MS degree in mathematics in 1978, and the Dr. Techn. degree in electrical engineering in 1992; both from the University of Trondheim, Norway. Since 1980 he has been working with ultrasound technology applied to blood flow measurements and imaging at the University of Trondheim, in cooperation with GE-Vingmed Ultrasound. He is currently professor of medical technology at the Norwegian University of Science and Technology, and has since 1987 given courses on ultrasound imaging and blood flow measurements for students in electrical engineering and biophysics. His research interests include statistical signal- and image processing with applications in medical ultrasound imaging.

Course 2A: Submitting a Paper to the Transactions of the UFFC: A Helpful Look at the Peaks, Perils and Pitfalls along the Peer Review Pathway to Publication

Associate Editor-in-Chief Marjorie Passini Yuhas (Industrial Measurement Systems) along with various reviewers and Associate Editors

This is a special seminar with attendance limited to IEEE UFFC members-only. We will review the process of constructing a paper

according to IEEE guidelines, submitting on-line to Manuscript Central, and working with the assigned Associate Editor to quickly and efficiently move from manuscript to publication. Learn how to traverse a fast path through the submission, review, revision and publication processes using the "secrets" for a well constructed paper that conveys clearly the new scientific knowledge within the paper and includes appropriate references to the prior literature. Learn how to deal with reviewers' comments - both when they are right and when they may be wrong!

Both positive and negative examples gleaned from the Transactions will be used to illustrate various lessons. Those who are currently struggling with submissions or revisions should attend with their questions. This will not be a technical dialogue on the content of any specific paper, but an interactive discussion of the process for managing the generation of a well written and well reviewed paper.

Dr. Marjorie Passini Yuhas has been Associate Editor in Chief for the Transactions of the UFFC since 2002. In January of 2008, she will assume the responsibilities of Editor in Chief. She is currently Vice President of Industrial Measurement Systems in Aurora, IL. IMS, Inc. is a research and development firm that creates measurement systems to speed product development, measure critical material properties and improve product quality. In 2001, Dr. Yuhas retired from Bell Laboratories, Lucent Technologies after twenty-three years. For nineteen years of those years, she was in technical management in both Wire line and Wireless telecommunications. She was specifically involved in the creation of the Intelligent Network and the development and deployment of first generation of ISDN Wire line services and first generation Wireless GSM, CDMA, and TDMA services. While experienced in all phases of large industrial software development, Dr. Yuhas made major contributions to quality management and software manufacturing. While at Lucent Technologies, Dr. Yuhas received the Harvey Fletcher trophy for inventions with extraordinary financial benefits to AT&T. Dr. Yuhas was repeatedly recognized for her personal and professional contributions to the Women's, Native American, and Asian American communities of Lucent Technologies. Dr. Yuhas had a long-standing involvement in Lucent Technologies college internship programs and minority and women programs. Dr. Yuhas was research associate in the Physics Department at the University of Illinois, Champaign-Urbana developing a program that studied the basic electromagnetic properties of spin glasses at high pressures and low temperatures. Dr. Yuhas received her doctorate from Washington University under the direction of Dr. Daniel Bolef for studies of the quantum mechanical behaviors of dilute magnetic systems using low frequency non-resonant acoustic magnetic techniques. Prior to that, Dr. Yuhas worked in the Laboratory for Space Sciences at Washington University, where she developed a radioactive inclusion dating process that adapted technology from lunar science heat flow studies and radiation damage evaluation techniques.

Course 2B: Photoacoustic Imaging and Sensing

Stanislav Emelianov (University of Texas at Austin)

This course is designed to provide both a broad overview and a comprehensive understanding of photoacoustic (also known as optoacoustic and, more generally, thermoacoustic) imaging, sensing and spectroscopy. With a brief historical introduction, we will begin

the course by examining the foundations of photoacoustics, including derivations and a discussion of governing equations. We will also review relevant optical properties of the tissues and related topics of laser-tissue interaction. The experimental aspects of photoacoustic imaging and sensing will then be discussed with emphasis on system hardware and signal/image processing algorithms. Techniques to increase contrast and to differentiate various tissues in photoacoustic imaging will be presented. The course will conclude with an overview of several experimental systems capable of photoacoustic imaging, and discussion of current and potential biomedical and clinical applications of photoacoustics.

Stanislav Emelianov received B.S. and M.S. degrees in Physics and Acoustics in 1986 and 1989, respectively, from the Moscow State University, and a Ph.D. degree in Physics in 1993 from the Moscow State University and the Institute of Mathematical Problems of Biology of the Russian Academy of Sciences. In 1989, he joined the Institute of Mathematical Problems of Biology, where he was engaged in both mathematical modeling of soft tissue biomechanics and experimental studies of noninvasive visualization of the mechanical properties of tissue. Following his graduate work, he moved to the University of Michigan, Ann Arbor, as a post-Doctoral Fellow in the Bioengineering Program and in the Electrical Engineering and Computer Science Department. From 1996 to 2002, Dr. Emelianov was a Research Scientist at the Biomedical Ultrasonics Laboratory of the Biomedical Engineering Department at the University of Michigan. During his tenure at Michigan, Dr. Emelianov was involved primarily in the theoretical and practical aspects of elasticity imaging using ultrasound and MRI. Dr. Emelianov is currently teaching and conducting research in the Department of Biomedical Engineering at the University of Texas at Austin. His research interests are in medical imaging and therapeutics, including ultrasound, photoacoustic, elasticity and multi-modality imaging, photothermal therapy, cellular/molecular imaging and therapy, functional imaging, etc.

Course 2C: Ultrasound Imaging Systems: from Principles to Implementation

Kai E. Thomenius (General Electric Global Research, Niskayuna, NY, USA)

The design of medical ultrasound imagers is undergoing important changes brought about by advances in semiconductor and signal/image processing technologies coupled with changes in the hospital and its utilization of medical imaging. Unique aspects of data acquisition and processing in the ultrasound scanner open up opportunities not available to other imaging modalities. The goal of this course is to review the system design of ultrasound scanners from a linear systems point of view including transduction, beam formation, and image formation functions. We will discuss analytical methods used in developing the design of a scanner in use today. The key points to be covered deal with methods of analysis of array data, the interaction of transmit and receive beams with clinically relevant targets, and how this interaction is used in acquisition of clinically useful data. The means by which these analytical methods contribute to a system design and the trade-offs involved are reviewed. The last several years have seen steady migration of functionality into software. The impact of this on system design and the size of ultrasound scanners of the future will be discussed.

Kai E. Thomenius is a Chief Technologist in the Imaging Technologies Organization at General Electric's Global Research facility in Niskayuna, NY. His focus is on Ultrasound and Biomedical Engineering. Previously, he has held senior R&D roles at ATL Ultrasound, Inc., Interspec Inc., Elscint, Inc., as well as several other ultrasound companies, and is currently an Adjunct Professor in the Electrical, Computer, and Systems Engineering Department at Rensselaer Polytechnic Institute where he teaches a course in general imaging. Dr. Thomenius' academic background is in electrical engineering with a minor in physiology; all of his degrees are from Rutgers University. His long-term interests have been in ultrasound beamformation and miniaturization of ultrasound scanners, propagation of acoustic waves in inhomogeneous media such as tissue, the potential of bioeffects due to those acoustic beams, and determination of physiological information from the echoes that arise from such beams. Dr. Thomenius is a Fellow of the American Institute of Ultrasound in Medicine.

Course 2D: Regulatory and Safety Issues in Medical Ultrasound

Organizer: Keith Wear (FDA)

Many studies have demonstrated potential bioeffects associated with ultrasound exposure. In order to address safety as well as performance of medical ultrasound devices, the FDA has developed regulatory guidance for pre-clinical testing and evaluation, including establishing limits regarding diagnostic ultrasound acoustic output. This course will consider legal and scientific foundations for the FDA exposure limits. Topics will include basic medical device regulatory law, regulatory guidance, indexes of acoustic output, methods of and advances in measuring acoustic output, thermal bioeffects, mechanical bioeffects, and bioeffects associated with ultrasound contrast agents.

The course will be taught by several instructors: J. Brian Fowlkes (University of Michigan), Gerald R. Harris (FDA), Christy K. Holland (University of Cincinnati), Peter A. Lewin (Drexel University), William D. O'Brien, Jr. (University of Illinois), Keith A. Wear (FDA), James Zachary (University of Illinois).

Course 3A: Conservative Finite Difference Method and Allied Topics

Alireza Baghai-Wadji (RMIT University, Melbourne, Australia)

Many problems in computational engineering can be cast in differential or, alternatively, in various equivalent integral forms. In solving practical problems the associated governing equations are first discretized suitably and then solved numerically. Beside the Boundary Element Method (BEM), the Finite Difference Method (FDM) and the Finite Element Method (FEM) are amongst the most popular numerical techniques. While the FDM is comparatively easy to implement, the FEM is more flexible in regard to problems' possible geometrical irregularities. These observations lead to several fundamental questions: Is the simplicity of the FDM reconcilable with the flexibility of FEM? What about the preservation of fundamental properties existing in the original continuum model after discretization? More specifically, how well properties such as the energy conservation, symmetry, stability, and integral identities

involving (first-order) gradient, divergence, curl, and other higher-order differential operators can be maintained in discrete models of original continuum problems? Stated differently, to what degree do discrete models mimic their continuum counterparts? How can we control the robustness and stability of the numerical solutions without compromising the simplicity and flexibility of our discrete models? The Conservative Finite Difference Method (CFDM) convincingly provides us with positive answers to these questions and offers an easy-to-implement solution scheme applicable to a wide range of practical problems in computational engineering. CFDM, by construction, preserves the various relevant laws and operates on "logically" rather than "geometrically" rectangular grids. The attribute "conservative" in the title reflects this all-important property. The CFDM was originally developed by Favorskii, Samarskii, Shashkov, and Tishkin. In this course CFDM will be extended to include piezoelectric, ferroelectric, optoelectronic and other vector- and tensor field problems. The course is organized as follows: the CFDM will be introduced in terms of illustrative examples. A key element in CFDM is the involvement of adjoint operators. A simple recipe for the construction of adjoint operators in piezoelectric or electromagnetic media will be presented. An easy-to-follow recipe, consisting of 6 steps, will explain and exemplify the construction of conservative finite difference schemes. Stencils for 1-, 2- and 3D problems will help the course participants to appreciate the simplicity of the method, and, at the same time, its flexibility and power in preserving fundamental laws. We will construct GRAD and DIV operators, as discrete versions of conventional grad and div, respectively, along with their adjoint operators DIV and GRAD. Stencils and explicit formulae for GRAD, DIV, DIVGRAD in interior as well as on the boundary and corner grid points will be derived and discussed. The presentation will be enriched by establishing a comparison between CFDM and another powerful technique, the finite-volume method. We will conclude by a brief discussion of a decomposition method for solving partial differential equations of fractal order in finite domains. The mode of presentation is graphical and many examples written in a pseudo-code will clarify implementation aspects of the method. A comprehensive manuscript will be made available to the course participants.

Alireza Baghai-Wadji is currently a Professor of Electronic and Computational Engineering at the RMIT University, School of Electrical and Computer Engineering, Melbourne, Australia. He is the Director of the Discipline Electronic and Biomedical Engineering. He is also his school's representative for international research collaborations and curriculum development, a member of the research committee in the Science, Engineering and Technology portfolio of his university and a key researcher in the newly established prestigious Institute for Platform Technologies driving quantum mechanical initiatives. He received his MSc, PhD, and Doctor of Science (Physical Electronics) in 1984, 1987 and 1994, respectively, from Vienna University of Technology in Austria. In 2003 he was awarded a Doctor of Science in Quantum Electronics and Materials Science from Helsinki University of Technology in Finland. Prior to joining the RMIT University in March 2005 he was 1979-2005 with Vienna University of Technology: 1997-2005 an Associate Professor in the Department of Electrical and Information Technology, 1994-1997 a Docent, 1988-1994 an Assistant Professor, 1984-1988 a Research Assistant, 1979-1984 a Research Associate. He has extensive experience both in academia and industry on four continents: Since 2004 he has been a Consultant to

EPCOS in Germany, he was one-and-a-half year a Visiting Professor at Helsinki University of Technology, 4 months a Visiting Professor at the Institute for High Performance Computing in Singapore, a total of 10 months with the University of California Irvine in USA, 1995-2004 an Adjunct Professor in the Department of Statistics and Mathematics at Arizona State University in USA, 1994-1999 a Principal Engineer Consultant with Motorola in Arizona USA, 1990-1994 a Principal Engineer Consultant with Siemens Matsushita in Graz, and 1983-1990 a Consultant with Siemens in Germany. He is an honorary member of The Electromagnetics Academy, USA, and is listed in Who's Who in Electromagnetics, USA. He has more than 130 publications in reviewed journals and conference proceedings and is the owner of one patent in USA. Since 1994 he has instructed 18 short courses at various IEEE-sponsored international conferences. The speaker is widely known to be a dedicated educator, a passionate speaker and an effective communicator.

Course 3B: Medical Ultrasound Transducers

Douglas G. Wildes and L. Scott Smith (General Electric Global Research, Niskayuna, NY, USA)

This course will provide an introduction to the design, fabrication, and testing of medical ultrasound transducers. Starting from an overview of the basic types of phased-array transducers (linear, convex, sector), we will discuss how the design for a probe is derived from its target application and how equivalent-circuit, finite-element, and acoustic field models can be used to optimize the design and accurately predict performance. A discussion of the structure of an ultrasound probe will lead to a survey of the different types of materials used in probes and their critical properties. Typical fabrication processes will be introduced and common problems in probe manufacturing will be summarized. Methods for evaluating completed transducers will be discussed. The course will highlight recent developments in probe technology, including. single crystal piezoelectrics, cMUT transducers, catheters, multi-row and 2D arrays, and electronics in probes, and will discuss performance advantages and fabrication difficulties which may be associated with each.

Douglas G. Wildes is a physicist with GE Global Research. He earned an A.B. in physics and mathematics from Dartmouth College and a Ph.D. in low-temperature physics from Cornell University, then joined GE in 1985. Since 1991, Dr. Wildes' research has focused on aperture design, fabrication processes, and high-density interconnect technology for multi-row and 2D transducers for medical ultrasound. Dr. Wildes has 22 issued patents and 18 external publications. He is a member of the American Physical Society and a Senior Member of the IEEE.

L. Scott Smith is a physicist with GE Global Research. He earned B.S. and Ph.D. degrees in physics from the University of Rochester and the University of Pennsylvania respectively. Joining GE in 1976, he developed phased array probes for medical ultrasound. More recently, he examined novel probe materials and led projects on pediatric endoscopes and adaptive acoustics. Dr. Smith has 40 issued patents and over 35 refereed publications. He is a member of the American Physical Society and a Senior Member of the IEEE where he serves as Vice Chair for Transducers on the Ultrasonics Symposium's Technical Program Committee.

Course 3C: Therapeutic Ultrasound

Lawrence Crum (University of Washington)

Although the use of ultrasound for therapy had ambitious beginning with the work of the Fry brothers in the 1950's, it is only in the last decade or so that it has gained some prominence as a clinical modality. The list of applications can be quite large and broadly include: thrombolysis, lithotripsy, drug delivery, gene therapy, wound healing, tissue regeneration, bone fracture healing, fat emulsification, acoustic hemostasis, and tumor ablation, to name just a few. This course will review recent and selected developments in this general area, provide scientific explanations for some of the more interesting (to the instructor) phenomena, and offer speculations for future technology developments in this field. Emphasis will be devoted to those areas in which the instructor has on-going research activity or specialized knowledge.

Lawrence A. Crum is currently Principal Physicist and Founder/Former Director of the Center for Industrial and Medical Ultrasound in the Applied Physics Laboratory, and Research Professor of Bioengineering and Electrical Engineering at the University of Washington. He also works part-time as President of UltraSound Technologies, Inc., a company he founded in 2001. He has held previous positions at Harvard University, the U. S. Naval Academy and the University of Mississippi, where he was F. A. P. Barnard Distinguished Professor of Physics and Director of the National Center for Physical Acoustics. He has published over 300 articles in professional journals, holds an honorary doctorate from the Universite Libre de Bruxelles, and was recently awarded the Helmholtz-Rayleigh Silver Medal of the Acoustical Society of America. He is Past President of the Acoustical Society of America and of the Board of the International Commission for Acoustics. His principal areas of interest are therapeutic ultrasound, physical acoustics, and image-guided therapy.

Course 3D: Micro and Nano Scale Ultrasonic Sensors and Actuators

Amit Lal (1) and B. (Pierre) T. Khuri-Yakub (2) (1 Cornell University, Ithaca, NY and 2 Stanford University, Stanford, CA)

The goal of this course is to introduce the fundamentals of micromachining, the latest in micro and nano machining techniques, and the way they affect the design and performance of ultrasonic sensors and actuators. The first part of this course will cover established micromachining techniques, such as bulk micromachining and surface micromachining on silicon. The effect of fabrication conditions on material properties and dimensions, and their effects on ultrasonic device design will be presented. The following topics will be discussed with the help of case studies: (1) Electrostatic actuation of micromachined membranes: Nonlinearities and effective electromechanical coupling, (2) Comparison of bulk-PZT and thin-film piezoelectric actuation of bulk and surface micromachined structures, and silicon horn design, (3) microphones and speakers, and (4) Nonlinear ultrasound in microfluidic devices.

Amit Lal is an associate professor of electrical and computer engineering at Cornell University. He received his Ph. D. in electrical engineering from the University of California, Berkeley in 1996, and

the B.S. degree from the California Institute of Technology in 1990. Amit Lal directs the SonicMEMS group at Cornell University, which focuses on ultrasonics, micromachining, modeling of piezoelectric systems, use of radioactive energy sources in microsystems, and design and analysis of integrated circuits. Specifically his group focuses on design principles for ultrasonically driven MEMS for actuation of microstructures and fluids, and radioactive power sources for autonomous MEMS. He holds several patents, relating to micromachined acoustic sources/receivers, silicon-based high-intensity ultrasonic actuators, microfluidic devices, and power sources. He is also the recipient of the NSF CAREER award for research on applications of ultrasonic pulses to MEMS. He serves on the Technical Committee on Physical Acoustics in the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society.

B. (Pierre) T. Khuri-Yakub is a professor of electrical engineering at Stanford University. He received his Ph. D. from Stanford University in 1975, the M.S. degree from Dartmouth College in 1972, and the B.S. from the American University of Beirut, all in electrical engineering. Professor Khuri-Yakub's group research is presently focused on the development of micro-machined ultrasonic transducers and their applications to real time volumetric ultrasound imaging, real time functional photo-acoustic medical imaging, and therapy. Other research activities involve micro-machined drop ejectors and bio-fluidic sensors and actuators. Prof. Khuri-Yakub has extensive patents and publications in the areas of thin film transducers, analog convolvers and correlators, acoustic microscopy, non-destructive evaluation, in-situ sensors, and micro-machined transducers and medical imaging.

INVITED SPEAKERS

GROUP 1:
Lihong Wang, "High-Resolution Photoacoustic Tomography"
Bjorn Angelsen, "New Methods of Nonlinear Ultrasound Imaging"
Evan C. Unger, "Therapeutic Applications of Microbubbles - Sonothrombolysis and Beyond"
Juin-Jet Hwang, "Portable Echo Imaging System"
Kjell Kristoffersen, "Real-Time 3D Cardiac Imaging With 2D Array Transducers"
Kullervo Hynynen, "Ultrasound Potentiated Therapy"
George Sutherland, "Myocardial Strain Rate Imaging"
Steven Feinstein, "Contrast-Enhanced, Ultrasound Imaging of Atherosclerosis"
Zahi A. Fayad, "Multimodality (PET/CT, MR, and CT) Imaging of the Atherosclerotic Plaque and Novel Nanoparticulate Drug Delivery: Implications for Cardiovascular Drug Design and Discovery"

GROUP 2:
Michael Thompson and Scott Ballantyne, "Ultra High Frequency Acoustic Wave Detection Of HIV Antibody In Whole Serum"

Paul D. Wilcox and Bruce W. Drinkwater, "Ultrasonic Arrays for NDE - Historical Perspective and Future Concepts"
B. T. Khuri-Yakub , K-K Park, J. Lee, and G. Yaralioglu, "The Capacitive Micromachined Ultrasonic Transducer (CMUT) as a Chem/Bio Sensor"

GROUP 3:
Joel Kent, M. Takeuchi, and G. Laux, "Robert Adler's Touchscreen Inventions & A Memorial Video"
Sergey Nikitov, "Review of Phononic Crystals, Devices, and Prospects"
Jyrka Kaitila, "Review of Wave Propagation in BAW Thin Film Devices - Progress and Prospects"
Abdelkhrim Khelif, "Phononic Crystals: a New Acoustic Material System"

GROUP 4:
Michio Kadota, "High Performance and Miniature Surface Acoustic Wave Devices with Excellent Temperature Stability Using High Density Metal Electrodes"
Victor Steel, "Single-Chip Radio Solutions for Mobile Phone Front-Ends"
Richard Ruby, "Review and Comparison of Bulk Acoustic Wave FBAR and SMR Technology"

GROUP 5:
Levent Degertekin, "Design Optimization and Integrated Electronics for Dual Electrode CMUTs"
Rajiv Chopra, "Integrating Ultrasound Transducers With MRI For Therapeutic And Diagnostic Applications"
Sung Min Rhim, "Piezoelectric Single Crystal for Medical Ultrasound Transducer"

PLENARY SESSION

Monday, 29 October 2007
Sutton Complex
8:00 AM – 9:30 AM

Welcoming Remarks	J. Hines VP Ultrasonics
Administrative Remarks	J. Kosinski General Chair
Remarks on the Technical Program	M. P. da Cunha Technical Program Chair
Future Symposia	J. Hines VP Ultrasonics
Presidential Remarks	A. Ballato UFFC President
President's Speaker(s)	V. Mow and E. Konofagou Columbia University

PRESIDENT'S SPEAKER(S):

"Cartilage and Osteoarthritis: Biomechanics and Ultrasound"

Abstract - Many important clinical diseases result from the breakdown of the structural integrity of the cells and tissues comprising an organ, thus preventing them from providing the physiological functions that nature had intended for them during life. Osteoarthritis is such a disease. It is one of the most prevalent debilitating diseases, striking one third of our population over the age of 60. Clinically, this disease is viewed as a failure of an organ (knee, hip, etc) stemming from the earlier (perhaps by decades) breakdown of a major tissue within these joints (articular cartilage). While there are many causes, and many variants (in the thousands) of this disease, the one unifying and underlying cause is the biological and structural breakdown of cartilage, the bearing material within these joints. For centuries, articular cartilage has been known to provide superb friction, lubrication and wear characteristics, often exceeding the best man-made bearings. However, only within the last 25 years or so, with the on-rush development of the discipline that which we call bioengineering today, with its advanced theories, computational and microscopy tools, and the simultaneous advances in cell and molecular biology, and biochemistry, has the fundamental etiological factors of cartilage breakdown, and hence osteoarthritis, beginning to be elucidated. Cartilage is an enigmatic tissue in that it appears to be featureless at the macro-level, while at the micro-level it has a highly organized, structural hierarchy ranging from the nano-scale (10^{-9}m) to the micro-scale (10^{-3}m), and it has a complex compositional makeup. From the material point of view, it is charged-hydrated-soft, anisotropic and inhomogeneous composite possessing a variety of complex material properties. When the tissue is loaded, these features give rise to complex stress, strain, fluid flow, electric, and swelling fields that affect the mechano-signal transduction processes controlling cellular biosynthesis within the tissue. In this lecture, a synopsis of our current understanding of this tissue will be presented, and suggestions of the use of ultrasound and elasticity imaging techniques to assess some qualities of the tissue from the normal state to the diseased will be discussed.

Dr. Van C. Mow received his Ph.D. in applied mechanics in 1966 from Rensselaer Polytechnic Institute, and did his postdoctoral fellowship in applied mathematics at the Courant Institute of Mathematical Sciences, NYU, 1966-68, where he studied ocean waves, and a member of Technical Staff of Bell Labs, 1968-69 toward the development of programs for the anti-submarine sonar network off the East Coast of America. He returned to Rensselaer in 1969 when he began his biomechanics research. To deepen his

understanding of physiology and orthopaedic surgery, he studied at Harvard Medical School, 1976-78. He is one of the earliest, and most recognized, biomechanicians in the world with 701 full-length, book chapters and meeting abstract publications, and he has edited 7 books. In addition, he has also delivered more than 500, plenary, keynote, invited and professional lectures worldwide. He was elected to the U.S. National Academy of Engineering in 1991 and Institute of Medicine of the U.S. National Academy of Sciences, 1998, and elected Academician of the Academia Sinica, Republic of China, 2004. He has served numerous elected offices of both medical and engineering professional society, chaired or served on NIH, NSF and NRC committees, and received numerous awards for his literature and professional contributions. He currently holds 9 honorary professorships in China and Hong Kong. For his contributions to ASME, and its Bioengineering Division, in 2004 ASME created the *Van C. Mow Medal* for outstanding bioengineers at mid career (10 – 20 years after graduation with a PhD and/or MD). Most recently, his alma mater RPI created the Annual Van C. Mow lecture series in Applied Mechanics in his honor.

Dr. Elisa Konofagou received her B.S. degree in Chemical Physics from Université de Pierre et Marie Curie, Paris VI in Paris, France and her M.S. degree in Biomedical Engineering from Imperial College of Physics, Engineering and Medicine in London, U.K., in 1992 and 1993, respectively. In 1999, Dr. Konofagou received her Ph.D. from the University of Houston in Biomedical Engineering for her work on elastography at the University of Texas Medical School in Houston, TX and then pursued her postdoctoral work in elasticity-based monitoring of focused ultrasound therapy at Brigham and Women's Hospital, Harvard Medical School, Boston, MA. Professor Konofagou is currently an Assistant Professor of Biomedical Engineering and Director of the Ultrasound and Elasticity Imaging Laboratory at Columbia University, New York, USA. She is also a member of the IEEE Ultrasonics, Ferroelectrics and Frequency Control, the Acoustical Society of America and the American Institute of Ultrasound in Medicine. Her main interests are in the development of novel elasticity imaging techniques and therapeutic ultrasound methods, such as myocardial elastography, breast elastography, ligament elastography, harmonic motion imaging and ultrasound-induced brain drug delivery, with several clinical collaborations in the Columbia University Medical Center. She is author of over 90 published papers in the aforementioned fields. Dr. Konofagou is a technical committee member of the Acoustical Society of America and a technical standards committee member of the American Institute of Ultrasound in Medicine. She has also served as a special issue editor for the journal of Ultrasonics and is recipient of several awards

including from the American Heart Association, the Acoustical Society of America, the American Institute of Ultrasound in Medicine, the National Science Foundation and the Radiological Society of North America.

ROBERT ADLER MEMORIAL SESSION

On Monday, 29 October at 10:30 AM there will be a special historical session honoring the life of Robert Adler -- Scientist, Engineer, Teacher, Leader, and Inventor – who passed away on 15 February 2007 at the age of 93. Robert was an active contributor to our ultrasonics community for over 66 years having attended his last Ultrasonics Symposium in 2004 in Montreal.

With over 200 patents, Robert was an extraordinary technical contributor and visionary. In the early 1970's during an interview he remarked:

"Looking farther into the future, someday we may watch TV on large flat panels. It's a long way from this experiment to commercial use in people's homes, but there is the promise of a very large image on a panel no thicker than a framed painting.

Perhaps of more immediate interest is the video disk. Here the technology is quite well developed both for mechanical systems and for optical systems using a laser beam like this one. This approach makes possible a long playing non-contact, non-wearing system. Such a player offers capabilities such as stereo sound, freezing any desired frame and quick scanning through the program material on the disk. What the market for such a system will be like and what final form the system will eventually take … these are complex questions.

But there is one thing we do know. In research we have to keep looking toward the future because that is how we got where we are today."

Please join us for this special session. Your participation is invited to share your stories, anecdotes and other remembrances of Robert "Bob" Adler

SPECIAL SESSION ON CLINICAL CARDIOVASCULAR IMAGING

On Monday, 29 October at 1:30 PM there will be a special session on "Clinical Cardiovascular Imaging" chaired by Ton van der Steen, Erasmus Medical Center, Rotterdam, The Netherlands. The session will feature three invited talks by world-renowned ultrasound clinicians:

"Myocardial Strain Rate Imaging"
George R Sutherland, Bsc, MB, ChB, FRCP, FESC
Professor of Cardiac Imaging
Department of Cardiological Sciences
St. George's Hospital Medical School, London, UK

Abstract: On the basis of color Doppler myocardial motion data, 1-dimensional regional strain and strain rate curves can now be calculated by comparing local myocardial velocity profiles. Moreover, more recently, angle independent (2D) methodologies based on speckle tracking have been proposed. Such deformation data sets may be an important, new, and more sensitive approach to quantifying both regional radial and long-axis function of the left or right ventricle in both acquired and congenital heart disease.

The normal ranges of regional velocity, strain rate, and strain values have already been determined in both adults and children. This review will focus both on the potential clinical applications of these new ultrasound-based deformation parameters and the current limitations inherent in implementing the technique in everyday practice.

George R. Sutherland graduated from the University of Edinburgh in 1972. His cardiology training took place in Edinburgh, London and Newcastle. He was appointed Consultant Cardiologist in Southampton in 1984 and subsequently was Director of Clinical Echocardiography in the Thoraxcenter in Rotterdam from 1986-90. He became Senior Lecturer in Cardiology and British Heart Foundation Senior Research Fellow in the University of Edinburgh in 1990 and was subsequently appointed Professor of Cardiology in the University of Linkoping, Sweden in 1996 and then Professor of Cardiac Imaging in the Catholic University of Leuven in 1998.

He is currently Professor of Cardiac Imaging at St. George's Hospital, London. He is a Fellow of the European Society of Cardiology and a Fellow of the Royal College of Physicians (Edin). He is past Chairman of the Working Group on Echocardiography of the European Society of Cardiology (2000-2002). He is currently Deputy Editor of the European Heart Journal.

"Contrast-Enhanced, Ultrasound Imaging of Atherosclerosis"
Steven Feinstein, M.D., FACC
Professor of Medicine
Rush University Medical Center, Chicago, IL, USA

Abstract: The long term goal of our clinical research is to develop a widely available, simple, cost-effective screening technique for use in populations considered "at risk" for

developing cardiovascular diseases, i.e., metabolic syndrome, diabetes. Our imaging methods focus on the use of contrast-enhanced, ultrasound imaging to identify intra-plaque neovascularization associated with vessel wall inflammation. Specifically, we use contrast-enhanced, ultrasound imaging to provide an enhanced assessment of the intima and media (C-IMT) and the associated vessel wall angiogenesis (vasa vasorum) that has been traditionally associated with the presence of a "vulnerable" plaque.

In 2003, using contrast ultrasound methods, we initially observed angiogenesis within the carotid artery plaques of patients with known cardiovascular disease. Subsequently we correlated the presence and degree of plaque neovascularization to the histology findings from carotid endarterectomy surgical specimens. These data provided a link for the identification of "vulnerable" plaques. Therefore, if validated in larger clinical trials, the use of contrast-enhanced plaque imaging may provide a non-invasive method to detect early "vulnerable" lesions in patients who are at high risk for a cardiovascular event.

With further development, the quantitative measurement of pre-clinical atherosclerosis in a population considered at high risk for developing a cardiovascular event may provide a cost-effective strategy to screen individuals at risk for developing symptomatic cardiovascular disease. Ultimately, the diagnostic imaging techniques used to identify vulnerable plaques may be used to apply therapy via the vasa vasorum in order to deliver site-specific ultrasound-directed therapy.

Steven B. Feinstein is Professor of Medicine and Director of Echocardiography for the Section of Cardiology. Dr. Feinstein received his medical doctorate degree from the University of Minnesota, completed a residency in Internal Medicine at Michael Reese Hospital and Medical Center in Chicago, and completed a fellowship in Cardiology at the University of California-Los Angeles/Wadsworth Veterans Administration Hospitals in Los Angeles, California. Dr. Feinstein served as an Associate Professor of Medicine in the Section of Cardiology at the University of Chicago Medical Center and Director of Noninvasive Cardiology at Louis A. Weiss Memorial Hospital of the University of Chicago until 1992, when he became Associate Chief of Cardiology and Chief of Cardiovascular Research at the University of Illinois at Chicago.

Dr. Feinstein is recognized as one of the leading investigators in the world in the development and study of noninvasive contrast echocardiography techniques. His pioneering work includes the invention of the first FDA-approved ultrasound contrast agent, which enables

physicians to utilize safe, noninvasive ultrasound techniques to diagnose cardiac abnormalities.

"Multimodality (PET/CT, MR, and CT) Imaging of the Atherosclerotic Plaque and Novel Nanoparticulate Drug Delivery: Implications for Cardiovascular Drug Design and Discovery"

Zahi A. Fayad, PhD, FAHA, FACC
Director Translational and Molecular Imaging Institute
Professor of Radiology and Medicine (Cardiology)
Mount Sinai School of Medicine, New York, NY, USA

Abstract: Atherosclerosis is an inflammatory disease, where the degree of inflammation, not the plaque size, determines risk of rupture and therefore likelihood of a clinical event. Magnetic Resonance Imaging (MRI) can image atherosclerotic plaque with high resolution, and several MRI parameters of disease extent in the carotid arteries and aorta have been shown to correlate with atherosclerotic risk factors. Dynamic-contrast-enhanced MRI (DCE-MRI) is a new technique for the study of plaque composition. In this study, the extent of plaque inflammation determined by FDG uptake was correlated with DCE-MRI. By providing a metabolic image of macrophage activity, F18-Fluorodeoxuglucose (FDG) positron emission tomography (PET) can image atherosclerotic plaque inflammation in patients and in animal models of disease, with a strong correlation between FDG uptake and plaque macrophage content. In addition, autoradiography has confirmed that the FDG signal originates from activated macrophages within the lipid core and fibrous cap of the plaque. This has led to the suggestion that FDG-PET might have a role in identifying 'high risk' plaques and monitoring their response to therapy. Computed tomography (CT) can be used in conjunction with PET to help co-register the PET images and for attenuation corrections. Moreover, CT with its exquisite coronary imaging has the potential to address atherosclerosis in the vessel wall of the coronary arteries. We review in this talk to use of multimodality imaging (MR, PET, and CT) for the study of inflammation of vessel wall may be useful in assessment of plaque vulnerability. We will also discuss the use of these new imaging nanoparticulates not only for imaging but also for drug delivery and treatment of atherosclerosis.

Zahi A. Fayad received his Ph.D. in 1996 from the University of Pennsylvania under the supervision of Dr. Leon Axel. Dr. Fayad became involved in cardiovascular magnetic resonance (CMR) research in 1989 when he was a student at Johns Hopkins University. In 1996, as Assistant Professor of Radiology at the University of Pennsylvania, he worked on advanced imaging techniques and applications in CMR imaging using a 1.5T and 4.0 T whole-body MR system. Dr.

Fayad joined the Mount Sinai School of Medicine in New York in 1997, where he is in both the departments of Radiology and Medicine (Cardiology) as Associate Professor. He is founder and director of the Imaging Science Laboratories. Dr. Fayad is also the director of the Eva and Morris Feld Cardiovascular Imaging Research Laboratory.

Dr. Fayad's current research is in the development and use of CMR and fast computed tomography (CT) to characterize the elements leading to atherosclerotic plaque rupture and the definition of the components of plaque most active in initiating thrombosis. Dr. Fayad is an active member of the Society of Cardiovascular Magnetic Resonance (SCMR), where he serves on the board of trustees and on several SCMR committees. He is vice-president of the Society of Atherosclerosis Imaging and president-elect for 2004-2005. Dr. Fayad is on the editorial board of the Journal of Cardiovascular Magnetic Resonance, and was a member of the 2000-03 Annual Meeting Program Committee of the International Society of Magnetic Resonance in Medicine. Dr. Fayad serves on the advisory board of a variety of foundations, societies, and organizations. Dr. Fayad is a fellow of the American Heart Association.

SPECIAL PRESENTATION ON ULTRASOUND RESEARCH FUNDING OPPORTUNITIES

On Tuesday, 30 October at 5:30 PM there will be a special presentation on “Ultrasound Research Interests and Funding Opportunities at the National Institute of Biomedical Imaging and Bioengineering (NIBIB)” presented by Dr. Hector Lopez, director of the extramural ultrasound research portfolio of the NIBIB.

Abstract: Ultrasound technology development is one of the areas of research that is of great interest at the NIBIB. This technology presents considerable potential for improving diagnosis of disease, for image-guided therapy, and as a therapeutic agent, and is already an increasingly important component of medical care. The NIBIB is committed to the development and acceleration of biomedical technologies and encourages the integration of the physical and engineering sciences with the life sciences to advance basic research and medical care. To this end, it funds research in cutting-edge technologies that are not specific to a single or specific disease, which sets it apart from the other institutes at the NIH. This talk will present an overview of the NIBIB mission, program priorities, and mechanisms available for funding ultrasound research.

Hector Lopez is a Program Director in the Division of Applied Science and Technology at the National Institute of Biomedical Imaging and Bioengineering (NIBIB), and directs the extramural ultrasound research portfolio. He received the Doctor of Science degree in Biomedical Engineering from the George Washington University in 1990. Before joining NIBIB, he worked for the Food and Drug Administration (FDA), Center for Devices and Radiological Health (CDRH), where he conducted research in development of methods and tools for the objective measurement of imaging system performance. His research also included development of innovative ultrasound imaging techniques and measurement methods in the body. He has actively participated in professional societies, and was elected Fellow of the American Institute of Ultrasound in Medicine (AIUM) in 1995, as well as chairman of the AIUM Technical Standards Committee from 1999-2001, and was elected chairman of Working Group 9 of the International Electrotechnical Commission (IEC) from 1999-2004.

STUDENT PAPER COMPETITION

A highlight of the Symposium is the Student Paper Competition. The Technical Program Committee has selected student paper finalists in each of the five major technical areas of the Symposium during the paper selection meeting in June. Selection criteria are:

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

On the first day of the symposium, Monday 29 October 2007, all Student Finalist Posters will be presented for judging by a panel of experts from each of the major technical groups of the Symposium. Many of the papers will also be presented in oral sessions at the Symposium. Final Judging includes:

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

The winners will be announced at the Awards Reception on Monday evening. This year, Student Paper Winners will receive a certificate, a cash prize of $250 USD, and a UFFC 50th Anniversary etched glass "crystal."

Student Paper Finalists

P0-1--**High Resolution Intravascular Fundamental And Harmonic Imaging Using A MEMS Fabricated Focused Ultrasonic Transducer--C. Chandrana**[1,2], A. Nair[3], K. Waters[3], G. D. Vince[3], B. Kuban[1], G. Lockwood[4], S. Roy[1], A. J. Fleischman[1]
[1]Cleveland Clinic, Cleveland, OH, [2]Cleveland State University, Cleveland, OH, [3]Volcano Corporation, Cleveland, OH, [4]Queens University, Kingston, ON, CANADA.

P0-2--**Spectroscopic Intravascular Photoacoustic Imaging--S. Sethuraman**[1], B. Wang[1], S. H. Litovsky[2], J. H. Amirian[3], R. W. Smalling[3], S. Y. Emelianov[1]
[1]The University of Texas at Austin, Austin, TX, [2]University of Alabama Birmingham, Birmingham, AL, [3]University of Texas Health Science Center, Houston, TX.

P0-3--**Molecular Delivery and Microbubble Dependence Study of the FUS-induced Blood-Brain Barrier Opening In Vivo--J. J. Choi**, S. Wang, B. Morrison, III, E. E. Konofagou
Columbia University, New York, NY.

P0-4--**Transient in the Hysteresis Property of the Arterial Wall Due to Flow-Mediated Dilation--K. IKESHITA**, H. HASEGAWA, H. KANAI
Graduate School of Engineering, Tohoku University, Sendai, JAPAN.

P0-5--**An *In Vivo* Tumor-mimic Model For Evaluating the Accuracy of a HIFU Treatment: Preclinical Studies.--W. A. N'Djin**[1], D. Melodelima[1], H. Parmentier[1], M. Rivoire[2], J. Y. Chapelon[1]
[1]INSERM U556, Lyon, FRANCE, [2]CLB, Lyon, FRANCE.

P0-6--**Kelvin-Voigt Fractional Derivative (KVFD) Model Reduces the Parameter Space for Elasticity Imaging--C. Coussot**, S. Kalyanam, M. F. Insana
University of Illinois at Urbana Champaign, Urbana, IL.

P0-7--**Computational Time Reversal Ultrasonic Array Imaging Of Multippoint Targets--P. Simko**, J. Saniie
Illinois Institute of Technology, Chicago, IL.

P0-8--**Robotic Based Reconfigurable Lamb Wave Scanner for Non-Destructive Evaluation--G. I. Dobie**, W. Galbraith, M. Friedrich, S. G. Pierce, G. Hayward
University of Strathclyde, Glasgow, UNITED KINGDOM.

P0-9--**A Lateral Field Excited Acoustic Wave Sensor for the Detection of Saxitoxin in Water--M. Wark**, L. Ellis, J. Fick, D. Neivandt, L. Connell, J. F. Vetelino
University of Maine, Orono, ME.

P0-10--**A Ray Techinique To Calculate Multiple Reflections And Transmitted Waves From Layered Media--J. Sadler**, R. G. Maev
University of Windsor, Windsor, ON, CANADA.

P0-11--**Experimental Study of Complete Band Gaps and Waveguiding inside Phononic Crystal Slabs--F. Hsiao**[1,2], A. khelif[1], H. Moubchir[1], A. Choujaa[1], C. Chen[2], V. Laude[1]
[1]Institut FEMTO-ST, Besancon, FRANCE, [2]Department of Optics and Photonics, National Central University, Jung-Li, TAIWAN.

P0-12--**Highly Oriented *c*-axis 23° Tilted ZnO Films with High Quasi-Shear Mode Electromechanical Coupling Coefficients--T. Matsuo**[1], T. Yanagitani[2], M. Matsukawa[1], Y. Watanabe[1]
[1]Doshisha University, Kyoto, JAPAN, [2]Tohoku University, Miyagi, JAPAN.

P0-13--**Phase Velocity Control of Surface Acoustic Waves Based on Surface Shorting and Electrical Field Application using MEMS Switches--J. H. Kuypers**, M. E. Schmidt, S. Tanaka, M. Esashi
Tohoku University, Sendai, JAPAN.

P0-14--**Inline SAW RFID Tag Using Time Position and Phase Encoding--S. Harma**[1], W. G. Arthur[2], C. S. Hartmann[3], R. G. Maev[2], V. P. Plessky[4]
[1]Helsinki University of Technology, Espoo, FINLAND, [2]University of Windsor, Windsor, ON, CANADA, [3]RF SAW Inc., Richardson, TX, [4]GVR Trade SA, Bevaix, SWITZERLAND.

P0-15--**Temperature Compensated Bulk Acoustic Wave Resonator and its Predictive 1D Acoustic Tool for RF Filtering--D. Petit**[1,2], N. Abelé[1], A. Volatier[1], A. Lefevre[3], P. Ancey[1], J. F. Carpentier[1]
[1]STMicroelectronics, Crolles, FRANCE, [2]INSA, Lyon, FRANCE, [3]LETI, Grenoble, FRANCE.

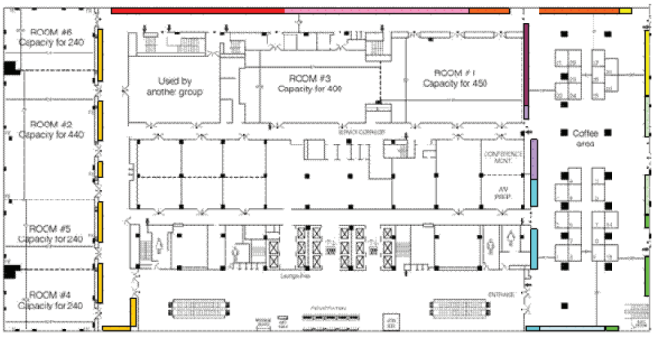
P0-16--**Temperature Insensitive High Tunability and Piezoelectric Response from Ferroelectric Multilayers--S. Zhong**[1], S. Alpay[1], R. Nath[1], B. D. Huey[1], M. W. Cole[2], E. Ngo[2], S. Hirsch[2], J. D. Demaree[2]
[1]University of Connecticut, Storrs, CT, [2]U.S. Army Research Laboratory, Aberdeen Proving Ground, MD.

P0-17--**100 MHz Micro Machined Linear Array Based On ZnO Membranes**--**E. C. Weiss**, A. Jakob, S. Tretbar, W. Haberer, T. Knoll, F. Bauerfeld, J. Hermann, R. M. Lemor
Fraunhofer IBMT, Sankt Ingbert, GERMANY.

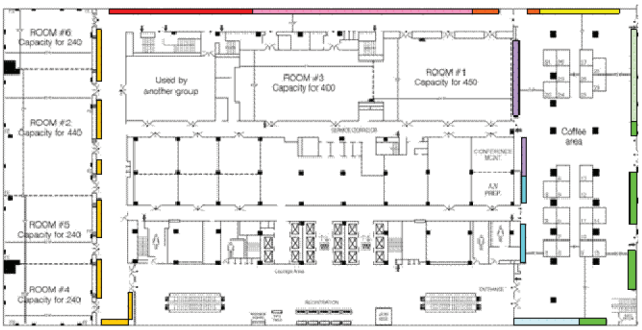
P0-18--**Forward Looking-IVUS Imaging Using a Dual-Annular-Ring CMUT Array: Experimental Results**--**R. GULDIKEN**[1], J. Zahorian[1], G. Gurun[1], S. Qureshi[1], M. Balantekin[1], P. Hasler[1], M. Karaman[2], S. Carlier[3], L. Degertekin[1]
[1]GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, GA, [2]Isik University, Istanbul, TURKEY, [3]Columbia University Medical Center, New York, NY.

NOTES

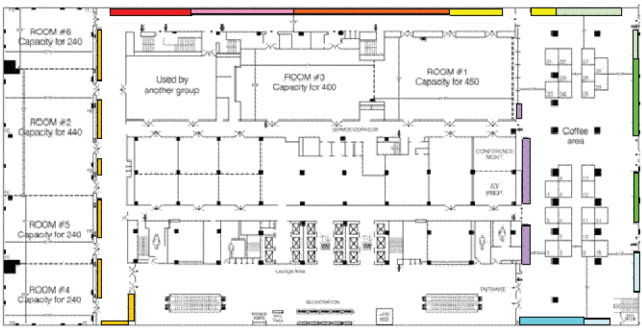
Poster Session P1
74 Contributed Posters plus 18 Student Posters
Monday 8:00 AM – 9:30 AM



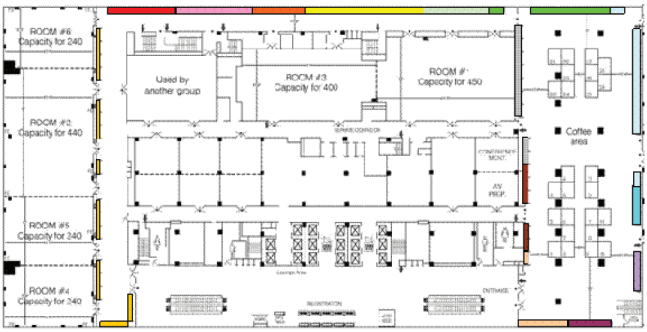
Poster Session P2
73 Contributed Posters plus 18 Student Posters
Monday 3:00 PM – 4:00 PM



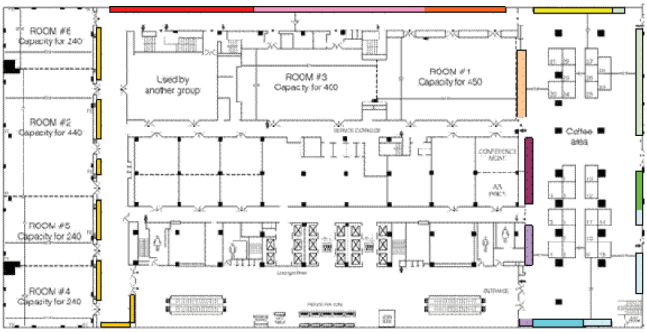
Poster Session P3
68 Contributed Posters plus 18 Student Posters
Tuesday 8:00 AM – 9:30 AM



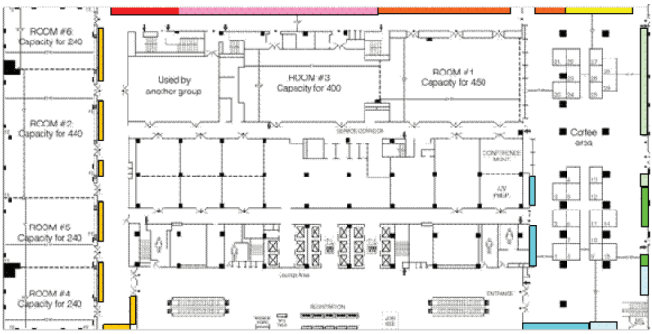
Poster Session P4
74 Contributed Posters plus 18 Student Posters
Tuesday 3:00 PM – 4:00 PM



Poster Session P5
72 Contributed Posters plus 18 Student Posters
Wednesday 8:00 AM – 9:30 AM



Poster Session P6
64 Contributed Posters plus 18 Student Posters
Wednesday 3:00 PM – 4:00 PM



2007 IEEE International Ultrasonics Symposium - Condensed Program - Sat - Mon

Saturday Oct 27	Registration (Second Floor Promenade) 6:00 pm - 9:00 pm					
Sunday Oct 28	Registration (Second Floor Promenade) 7:00 am - 6:00 pm					
8:00 am - 10:00 pm	SHORT COURSES (Sutton Complex)					
Monday Oct 29	Registration (Second Floor Promenade) 7:00 am - 6:00 pm					
8:00 am - 9:30 am	Plenary Session (Sutton Complex)					
9:30 am - 10:30 am	Posters / Refreshments (East and South Corridors, Rhinelander Gallery)					
	P0 - Student Paper Finalists P1A - Signal Processing P1B - Therapeutic Ultrasound I P1C - Elasticity Imaging: Applications	P1D - Acoustic Sensors P1E - NDE Defect Measurements P1F - Quartz/Langasite P1G - Thin Films		P1H - BAW Materials and Propogation P1I - BAW Device Modeling P1J - Tranducer Materials Characterization		
	Gramercy Suite	Murray Hill Suite	Regent Parlor	Sutton Parlor Center/South	Sutton Parlor North	Beekman Parlor
10:30 am - 12:00 pm	2A - Frontiers in Therapeutic Ultrasound	2B - Robert Adler Memorial Sesison	2C - Beamforming	2D - Material and Defect Characterization	2E - SAW System Applications	2F - High Frequency Transducers I
12:00 pm - 1:30 pm	Lunch					
1:30 pm - 3:00 pm	3A - Clinical Cardiovascular Imaging	3B - Therapeutic Ultrasound: Methods	3C - Acoustic Wave Propagation: Theory and Modeling	3D - NDE Signal Processing	3E - Wave Propagation and Numerical Simulation	3F - Transduction and Propagation Modeling
3:00 pm - 4:00 pm	Posters / Refreshments (East and South Corridors, Rhinelander Gallery)					
	P2A - Cardiac P2B - Beamforming and Beam Steering P2C - Brain	P2D - NDE Imaging and Signal Processing P2E - Sensors and NDE Transducers P2F - Acoustic Wave Propogation		P2G - BAW Device Design P2H -SAW Applications I P2I -Numerical and Analytical Modeling		
4:00 pm - 5:30 pm	4A - Therapeutic Ultrasound: Applications	4B - Beamforming Algorithms and Strategies	4C - High Frequency Ultrasound: Apoptosis and Skin Imaging	4D - Acoustic Wave Biosensors	4E - Applications of Thin Films for Acoustic Filters	4F - Single Crystals
7:00 pm - 9:00 pm	Gala Awards Reception (Grand Ballroom, 3rd Floor)					

2007 IEEE International Ultrasonics Symposium - Condensed Program - Tues

Tuesday Oct 30	Registration (Second Floor Promenade) 7:00 am - 5:30 pm					
	Gramercy Suite	Murray Hill Suite	Regent Parlor	Sutton Parlor Center/South	Sutton Parlor North	Beekman Parlor
8:00 am - 9:30 am	5A - Therapeutic Ultrasound: Guidance and Control	5B - High Frequency Ultrasound Imaging	5C - Strain / Elasticity Imaging	5D - Acoustic Wave Fluid Sensors	5E - Imaging / Visualization I	5F - cMUT Imaging Systems
9:30 am - 10:30 am	Posters / Refreshments (East and South Corridors, Rhinelander Gallery)					
	P3A - Vascular Viscoelasticity P3B - Nonlinear Acoustics P3C - Therapeutic Ultrasound II P3D - Tomography		P3E - NDE Transducers P3F - NDE General Methods P3G - Material Characterization P3H - Imaging and Visualization II		P3I - Wafer-Level Packaging P3J - SAW Interactions P3K - Passive Materials	
10:30 am - 12:00 pm	6A - Therapeutics: Brain and Blood	6B - Radiation Force and Strain / Elasticity	6C - Signal Processing	6D - Acoustic Wave Chemical Sensors	6E - Innovative SAW Components	6F - cMUT Fabrication
1:00 pm - 2:30 pm	Lunch					
1:30 pm - 3:00 pm	7A - Contrast Agents Imaging Methods	7B - Radiation Force / Shear Wave Imaging	7C - Vascular Imaging	7D - Array Imaging and Beam Forming	7E - Bulk Acoustic Wave Devices 1	7F - Phononics I
3:00 pm - 4:00 pm	Posters / Refreshments (East and South Corridors, Rhinelander Gallery)					
	P4A - Cardiac Strain / Elasticity P4B - Motion / Strain Measurements P4C - Contrast Agents: Applications P4D - Microbubbles: Theory and Optimization P4E - Bioeffects		P4F - Viscosity / Elasticity Measurements P4G - NDE Imaging P4H - Non-Linear Acoustics P4I - Phononics II P4J - SAW Sensors		P4K - SAW Applications 2 P4L - SAW Sensors and Other Applications P4M - cMUT	
4:00 pm - 5:30 pm	8A - Imaging Systems and Multi-modality Imaging	8B - Novel Contrast Imaging Techniques	8C - Viscoelasticity	8D - Wave Propagation and Material Characterization	8E - FEM/BEM Simulation	8F - Ultrasound Measurement and Device Characterization

9:30 am – 10:30 am | **POSTER SESSIONS - Monday, October 29, 2007** | **East and South Corridors, Rhinelander Gallery**

Session: P0
Student Paper Competition
Chair: J. Brown;
JB Consulting, Chicago, IL.

P0-1
High Resolution Intravascular Fundamental And Harmonic Imaging Using A MEMS Fabricated Focused Ultrasonic Transducer
C. Chandrana[1,2], *A. Nair*[3], *K. Waters*[3], *G. D. Vince*[3], *B. Kuban*[4], *G. Lockwood*[4], *S. Roy*[1], *A. J. Fleischman*[1];
[1]Cleveland Clinic, Cleveland, OH, [2]Cleveland State University, Cleveland, OH, [3]Volcano Corporation, Cleveland, OH, [4]Queens University, Kingston, ON, CANADA.

P0-2
Spectroscopic Intravascular Photoacoustic Imaging
S. Sethuraman[1], *B. Wang*[1], *S. H. Litovsky*[2], *J. H. Amirian*[3], *R. W. Smalling*[3], *S. Y. Emelianov*[1];
[1]The University of Texas at Austin, Austin, TX, [2]University of Alabama Birmingham, Birmingham, AL, [3]University of Texas Health Science Center, Houston, TX.

P0-3
Molecular Delivery and Microbubble Dependence Study of the FUS-induced Blood-Brain Barrier Opening In Vivo
J. J. Choi, *S. Wang, B. Morrison, III, E. E. Konofagou;*
Columbia University, New York, NY.

P0-4
Transient in the Hysteresis Property of the Arterial Wall Due to Flow-Mediated Dilation
K. IKESHITA, *H. HASEGAWA, H. KANAI;*
Graduate School of Engineering, Tohoku University, Sendai, JAPAN.

P0-5
An *In Vivo* Tumor-mimic Model For Evaluating the Accuracy of a HIFU Treatment: Preclinical Studies.
W. A. N'Djin[1], *D. Melodelima*[1], *H. Parmentier*[1], *M. Rivoire*[2], *J. Y. Chapelon*[1];
[1]INSERM U556, Lyon, FRANCE, [2]CLB, Lyon, FRANCE.

P0-6
Kelvin-Voigt Fractional Derivative (KVFD) Model Reduces the Parameter Space for Elasticity Imaging
C. Coussot, *S. Kalyanam, M. F. Insana;*
University of Illinois at Urbana Champaign, Urbana, IL.

P0-7
Computational Time Reversal Ultrasonic Array Imaging Of Multippoint Targets
P. Simko, *J. Saniie;*
Illinois Institute of Technology, Chicago, IL.

P0-8
Robotic Based Reconfigurable Lamb Wave Scanner for Non-Destructive Evaluation
G. I. Dobie, *W. Galbraith, M. Friedrich, S. G. Pierce, G. Hayward;*
University of Strathclyde, Glasgow, UNITED KINGDOM.

P0-9
A Lateral Field Excited Acoustic Wave Sensor for the Detection of Saxitoxin in Water
M. Wark, *L. Ellis, J. Fick, D. Neivandt, L. Connell, J. F. Vetelino;*
University of Maine, Orono, ME.

P0-10
A Ray Techinique To Calculate Multiple Reflections And Transmitted Waves From Layered Media
J. Sadler, *R. G. Maev;*
University of Windsor, Windsor, ON, CANADA.

P0-11
Experimental Study of Complete Band Gaps and Waveguiding inside Phononic Crystal Slabs
F. Hsiao[1,2], *A. khelif*[1], *H. Moubchir*[1], *A. Choujaa*1, *C. Chen*[2], *V. Laude*[1];
[1]Institut FEMTO-ST, Besancon, FRANCE, [2]Department of Optics and Photonics, National Central University, Jung-Li, TAIWAN.

P0-12
Highly Oriented c-axis 23° Tilted ZnO Films with High Quasi-Shear Mode Electromechanical Coupling Coefficients
T. Matsuo[1], *T. Yanagitani*[2], *M. Matsukawa*1, *Y. Watanabe*[1];
[1]Doshisha University, Kyoto, JAPAN, [2]Tohoku University, Miyagi, JAPAN.

P0-13
Phase Velocity Control of Surface Acoustic Waves Based on Surface Shorting and Electrical Field Application using MEMS Switches
J. H. Kuypers, *M. E. Schmidt, S. Tanaka, M. Esashi;*
Tohoku University, Sendai, JAPAN.

P0-14
Inline SAW RFID Tag Using Time Position and Phase Encoding
S. Harma[1], *W. G. Arthur*[2], *C. S. Hartmann*[3], *R. G. Maev*[2], *V. P. Plessky*[4];
[1]Helsinki University of Technology, Espoo, FINLAND, [2]University of Windsor, Windsor, ON, CANADA, [3]RF SAW Inc., Richardson, TX, [4]GVR Trade SA, Bevaix, SWITZERLAND.

P0-15
Temperature Compensated Bulk Acoustic Wave Resonator and its Predictive 1D Acoustic Tool for RF Filtering
D. Petit[1,2], *N. Abelé*[2], *A. Volatier*[1], *A. Lefevre*[3], *P. Ancey*[1], *J. F. Carpentier*[1];
[1]STMicroelectronics, Crolles, FRANCE, [2]INSA, Lyon, FRANCE, [3]LETI, Grenoble, FRANCE.

P0-16
Temperature Insensitive High Tunability and Piezoelectric Response from Ferroelectric Multilayers
S. Zhong[1], *S. Alpay*[1], *R. Nath*[1], *B. D. Huey*[1], *M. W. Cole*[2], *E. Ngo*[2], *S. Hirsch*[2], *J. D. Demaree*[2];
[1]University of Connecticut, Storrs, CT, [2]U.S. Army Research Laboratory, Aberdeen Proving Ground, MD.

P0-17
100 MHz Micro Machined Linear Array Based On ZnO Membranes
E. C. Weiss, *A. Jakob, S. Tretbar, W. Haberer, T. Knoll, F. Bauerfeld, J. Hermann, R. M. Lemor;*
Fraunhofer IBMT, Sankt Ingbert, GERMANY.

P0-18
Forward Looking-IVUS Imaging Using a Dual-Annular-Ring CMUT Array: Experimental Results
R. Guldiken[1], *J. Zahorian*[1], *G. Gurun*[1], *S. Qureshi*[1], *M. Balamtekin*[1], *P. Hasler*[1], *M. Karaman*[2], *S. Carlier*[3], *L. Degertekin*[1];
[1]georgia Institute of Technology, Atlanta, GA, [2]Isik University, Istanbul, TURKEY, [3]Columbia University Medical Center, New York, NY.

MON. POSTER

Session P1A

Signal Processing

Chair: A. Bouakaz, Sr.;
U619, Inserm, Tours, FRANCE.

P1A-1
Phase Domain Velocity Estimation in Medical Ultrasound with Linear Frequency Modulated Chirps: A simulation study
B. Lamboul, *M. J. Bennett, T. Anderson, W. N. McDicken; University of Edinburgh, Edinburgh, UNITED KINGDOM.*

P1A-2
Ultrasonographic Segmentation of Cervical Lymph Nodes Based on the Graph Cut with Elliptical Shape Prior
J. H. Zhang[1,2], *Y. Y. Wang*[1], *L. H. Le*[2], *E. Lou*[3], *Y. Dong*[4], *Y. Wang*[4]; [1]*Department of Electronic Engineering, Fudan University, Shanghai, CHINA,* [2]*Department of Radiology and Diagnostic Imaging, University of Alberta, Edmonton, AB, CANADA,* [3]*Rehabilitation Technology Department, Glenrose Rehabilitation Hospital, Edmonton, AB, CANADA,* [4]*Ultrasound Department, Huashan Hospital of Fudan University, Shanghai, CHINA.*

P1A-3
A New Sampling Strategy In Ultrasound Motion Estimation
L. Huang, *K. Beach; University of Washington, Seattle, WA.*

P1A-8
Blurred Ultrasonic Images as ISI-affected Signals: Joint Tissue Response Estimation and Channel Tracking in the Proposed Paradigm
L. De Marchi, *A. Palladini, N. Testoni, N. Speciale; University of Bologna, Bologna, ITALY.*

P1A-9
Transducer Bandwidth Influence on the Golay Encoded Ultrasound Echoes
I. Trots, *A. Nowicki, W. Secomski, J. Litniewski, M. Lewandowski; IFTR PAS, Warsaw, POLAND.*

P1A-10
Efficient Ultrasound Imaging Using Pixel-Oriented Processing
R. E. Daigle[1], *L. Pflugrath*[1], *P. J. Kaczkowski*[1,2]; [1]*Verasonics, Redmond, WA,* [2]*University of Washington, Seattle, WA.*

P1A-11
Non-linear Effects of Signal to Image Mapping in Voxel-driven SAFT Based Reconstruction Approaches
M. Zapf, *G. F. Schwarzenberg, M. Karl, N. V. Ruiter; Forschungszentrum Karlsruhe, Eggenstein-Leopoldshafen, GERMANY.*

P1B-2
Tissue Mimicking Flow Phantom for Ultrasound Research
D. Johnson, *V. Zderic; The George Washington University, Washington, DC.*

P1B-3
Noninvasive Bleeding Detection and Localization using Three Dimensional Doppler Ultrasound Imaging
A. Anand[1], *J. Petruzzello*[1], *X. Yin*[1], *J. Kucewicz*[2], *B. Dunmire*[2], *S. Vaezy*[2]; [1]*Philips Research North America, Briarcliff Manor, NY,* [2]*University of Washington, Seattle, WA.*

P1B-4
Characaterization of a HIFU Field at High Intensity
S. M. Howard, *C. I. Zanelli; Onda Corporation, Sunnyvale, CA.*

P1B-5
Magnetic Resonance Imaging of Boiling Induced by High Intensity Focused Ultrasound
M. R. Bailey[1], *T. D. Khokhlova*[1,2], *D. Lee*[3], *K. I. Marro*[3], *M. S. Canney*[3], *V. A. Khokhlova*[1,4]; [1]*Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA,* [2]*Department of Optics, Physics Faculty, Moscow State University, Moscow, RUSSIAN FEDERATION,* [3]*Department of Radiology, School of Medicine, University of Washington, Seattle, WA,* [4]*Department of Acoustics, Physics Faculty, Moscow State University, Moscow, RUSSIAN FEDERATION.*

P1B-10
Advantages of Capacitive Micromachined Ultrasonic Transducers (CMUTs) for High Intensity Focused Ultrasound (HIFU)
S. H. Wong, *M. Kupnik, K. Butts-Pauly, B. Khuri-Yakub; Stanford University, Stanford, CA.*

P1B-11
A 2d-array For Transcranial Ultrasound Focusing Using Shear-mode Conversion: A Numerical Study.
S. Pichardo, Sr., *K. Hynynen, Sr.; Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*

P1B-12
Inexpensive and Portable High Intensity Focused Ultrasound Driving System
D. Steines, *V. Zderic; The George Washington University, Washington, DC.*

P1B-13
Simulation and Evaluation of the Sound Field of an Image-guided Sonoporation Applicator
K. Hensel, *M. P. Mienkina, G. Schmitz; Institute of Medical Engineering, Ruhr-University Bochum, Bochum, GERMANY.*

P1C-3
Temporal Formation of the Ethanol-induced Hepatic Lesions: Preliminary in Vitro Elastographic Results
J. Shao[1], *J. Bai*[1], *L. Cui*[2], *Y. Zhang*[2], *J. Wang*[2]; [1]*Department of Biomedical Engineering, School of Medicine, Tsinghua University, Beijing, CHINA,* [2]*Department of Diagnostic Ultrasound, Peking University Third Hospital, Beijing, CHINA.*

P1C-4
Real-time Semi-automatic Segmentation Of Hepatic Radiofrequency Ablation Lesions In An In Vivo Porcine Model Using Sonoelastography
B. Castaneda, *M. Zhang, K. Hoyt, K. Bylund, J. Christensen, W. Saad, J. Strang, D. J. Rubens, K. J. Parker; University of Rochester, Rochester, NY.*

P1C-5
Transient Acoustic Radiation Force Elastography for HIFU Guidance and Monitoring
G. P. Berry, *J. C. Bamber, G. ter Haar, Y. Ma, L. Xu, H. Morris; Institute of Cancer Research, Sutton, UNITED KINGDOM.*

P1C-6
Monitoring Prostate Cryotherapy Using Vibro-acoustography - A Feasibility Study
F. G. Mitri, *A. Alizad, B. J. Davis, R. Kinnick, J. F. Greenleaf, M. Fatemi; Mayo Clinic, Rochester, MN.*

P1A-4
Model based pulse detection for 3D Ultrasound Computer Tomography
G. F. Schwarzenberg, *M. Weber, T. Hopp, N. V. Ruiter; Forschungszentrum Karlsruhe, Eggenstein-Leopoldshafen, GERMANY.*

P1A-5
Analysis of backscattered Signals with a Neural Network for Microemboli Classification
P. Palanchon[1], *N. Benoudjit*[2], *N. Cherrid*[2], *A. Bouakaz*[1]; [1]*INSERM U619, Tours, FRANCE,* [2]*University of Batna, Batna, ALGERIA.*

P1A-6
Versatile High Frequency Coded Imaging System
M. Lewandowski, *A. Nowicki; Institute of Fundamental Technological Research, Warsaw, POLAND.*

P1A-7
Automatic Segmentation of the Anterior Chamber in In Vivo High-frequency Ultrasound Images of the Eye
A. Coron[1,2], *R. H. Silverman*[3], *A. Saïed*[1,2], *P. Laugier*[1,2]; [1]*CNRS, UMR7623 LIP, Paris, FRANCE,* [2]*Université Pierre et Marie Curie-Paris6, UMR7623, Paris, FRANCE,* [3]*Weill Medical College of Cornell University, New York, NY.*

P1A-12
Using the Phase Modulation Imposed by Tissue Inhomogeneity to Determine the Full Acoustic Near Field
W. E. Padden, *R. S. Thompson, C. Macaskill; University of Sydney, Sydney, AUSTRALIA.*

P1A-13
Speckle Suppression using Maximal-Brightness-Difference-based Adaptive Median Weighting
C. Shen, W. Chen; National Taiwan University of Science and Technology, Taipei, TAIWAN.

Session P1B
Therapeutic Ultrasound I
Chair: T. Matula; University of Washington, Seattle, WA.

P1B-1
Optimization of Power Distributions Produced by Ultrasound Phased Arrays through Waveform Diversity
X. Zeng, *R. J. McGough; Michigan State University, East Lansing, MI.*

P1B-6
Clinically Relevant Passive Cavitation Detection for HIFU Therapy
J. R. T. Collin, *M. Arora, R. A. Roy, C. C. Coussios; University of Oxford, Oxford, UNITED KINGDOM.*

P1B-7
Experimental and Theoretical Study of Strongly Focused High Intensity Ultrasound
V. Goland, *L. Kushkuley, S. Mimran, A. Shalgi; UltraShape Ltd., Yoqneam, ISRAEL.*

P1B-8
Experimental Investigation of Effects of Gas Pockets in the HIFU Field
H. Hosseini, *X. Zheng, S. Vaezy; University of Washington, Seattle, WA.*

P1B-9
Enhanced Throughput of Pulsed-High Intensity Focused Ultrasound (HIFU) Exposure Using Split-Focus Transducer
A. Luk, *P. Patel, A. Durrani, S. Dromi, M. Angstadt, B. J. Wood, V. Frenkel; National Institutes of Health Clinical Center, Bethesda, MD.*

P1B-14
Evaluation of Therapy Effect on Lymph Node Size with 24 MHz Ultrasound in RANK Transgenic Mice
M. Bosisio[1], *C. Maisonneuve*[1], *C. Mueller*[2], *L. Bridal*[1]; [1]*Laboratoire d'Imagerie Parametrique, Paris, FRANCE,* [2]*Institut de Biologie Moléculaire et Cellulaire, Immunologie et Chimie Thérapeutiques, CNRS UPR 9021, Strasbourg, FRANCE.*

Session P1C
Elasticity Imaging: Applications
Chair: K. Kim; Biomedical Engineering, University of Michigan, Ann Arbor, MI.

P1C-1
Evaluation of Material Parameters of PVA Phantoms for Reconstructive Ultrasound Elastography
W. Khaled, *T. Neumann, S. Reichling, O. T. Bruhns, A. Arnold, H. Ermert; Ruhr-University Bochum, Bochum, GERMANY.*

P1C-2
Liver Stiffness Measurements Using Transient Elastography In Patients With Non-alcoholic Steatohepatitis
C. Fournier, V. Miette, S. Yon, **L. Sandrin**; *Echosens, Paris, FRANCE.*

P1C-7
In vivo Prostate Elastography Studies: Recent Progress
S. K. Alam[1], *E. J. Feleppa*[2], *C. R. Porter*[3], *S. Ramchandran*[2], *A. Kalisz*[2], *S. Dasgupta*[2], *D. Sparks*[3]; [1]*Riverside Research Institute, New York, NJ,* [2]*Riverside Research Institute, New York, NY,* [3]*Virginia Mason Medical Center, Seattle, WA.*

P1C-8
Clinical Performance of Balloon-inflation-based Elasticity Imaging for Prostate Cancer Diagnosis
T. Matsumura[1], *M. Tsutsumi*[2], *T. Miyagawa*[3], *S. Ishikawa*[2], *T. Osaka*[1], *R. Shinomura*[4], *T. Mitake*[1], *H. Kanda*[4], *T. Shiina*[4]; [1]*Hitachi Medical Corporation, Kashiwa, JAPAN,* [2]*Hitachi General Hospital, Hitachi, JAPAN,* [3]*Kitaibaraki Municipal Hospital, Kitaibaraki, JAPAN,* [4]*University of Tsukuba, Tsukuba, JAPAN.*

P1C-9
Prostate Cancer Detection Based On Three Dimensional Sonoelastography
B. Castaneda, *M. Zhang, K. Hoyt, D. Pasternack, L. Baxter, P. Nigwekar, A. di Sant'Agnese, J. Joseph, J. Strang, D. J. Rubens, K. J. Parker; University of Rochester, Rochester, NY.*

MON. POSTER

Session: P1D **Acoustic Sensors** *Chair: F. J. Josse;* *Department of Electrical, Computer and Biomedical Engineering, Marquette University, Milwaukee, WI.*	*Session: P1E* **NDE Defect Measurements** *Chair: N. M. Bilgutay;* *Department of Electrical and Computer Engineering, Drexel University, Philadelphia, PA.*	*Session P1F* **Quartz/ Langasite** *Chair: J. Vig;* *US Army CEDOM, AMSEL-RD-C2-PT, Fort Monmouth, NJ.*	**P1G-1** **Analysis of Sliding Film Effect In Near-Field Acoustic Levitation** **Y. Yin**, *P. I. Ro;* *North Carolina State University, raleigh, NC.*	**P1H-2** **Measurement of Acoustic Parameters of Thin Film using the Picosecond Ultrasonic Technique and Piezoelectric Overtone Thickness-Mode Resonators** **H. Odaka**, *N. Kihara;* *Asahi Glass Co., LTD., Yokohama, JAPAN.*
P1D-1 **A Rapid Method for Classification of Interfacial Processes using Multi-Resonance Thickness Shear Mode (MTSM) Sensors** **E. Ergezen**, *R. Lec;* *drexel university, Philadelphia, PA.*	**P1E-1** **Characterization of Defects in Composite Structures** **A. Mal**[1], *S. Banerjee*[2], *F. Ricci*[3]; *[1]UCLA, Los Angeles, CA, [2]Saint Louis University, Saint Louis, MO, [3]University of Naples Federico II, Naples, ITALY.*	**P1F-1** **3d Gabor Analysis of Lamb Waves Propagating Along an AT Cut Quartz Disk within its Fundamental and Overtone Frequency Range.** **L. Martinez**[1], *J. Goossens*[2], *P. Leclaire*[3], *N. Wilkie Chancellier*[4], *P. Griesmar*[4], *C. Glorieux*[2]; *[1]ECIME Universite de Cergy, Cergy-Pontoise Cédex, FRANCE, [2]ATF, Leuven, BELGIUM, [3]LRMA, Université de Bourgogne, Never, FRANCE.*	**P1G-2** **Assessment of Aluminum Nitride Films Sputtered on Iridium Electrodes** *J. Olivares*[1], **M. Clement**[1], *E. Iborra*[1], *S. Gonzalez-Castilla*[1], *N. Rimmer*[2], *A. Rastogi*[2]; *[1]Universidad Politécnica de Madrid, Madrid, SPAIN, [2]Aviza Technology Ltd., Newport, South Wales, UNITED KINGDOM.*	**P1H-3** **Epitaxial Pb(zr0.2ti0.8)o3 Thin Layers For The Fabrication Of Radio-frequency Elastic Wave Transducers.** **R. Salut**[1], *S. Gariglio*[2,3], *W. C. Daniau*[1], *G. Triscone*[3], *J. Triscone*[2], *S. J. Ballandras*[1]; *[1]CNRS, Besançon, FRANCE, [2]University of Geneva, DPMC, Geneva, SWITZERLAND, [3]Ecole d'Ingénieur de Genève, Geneva, SWITZERLAND.*
P1D-2 **High Temperature Gas Sensor Using Langasite Acoustic Wave Resonator And Nanostructured Zno Layer** **H. cheng**, *L. Qin, Q. Wang;* *University of Pittsburgh, Pittsburgh, PA.*	**P1E-2** **Detection of Hydrogen Assisted Cracks in High Strength Bolts Using Ultrasonic Leave-in-Place Sensors** **D. Xiang**[1], *X. Zhao*[1], *B. Bayles*[2]; *[1]Intelligent Automation Inc., Rockville, MD, [2]Center for Corrosion Science and Engineering, Naval Research Laboratory, DC.*	**P1F-2** **Effects Of Electromagnetic Radiation On The Q Of Quartz Resonators** **Y. Yong**[1], *M. Patel*[1], *J. Vig*[2], *A. Ballato*[2]; *[1]Rutgers University, Piscataway, NJ, [2]U.S. Army RDEC, Fort Monmouth, NJ.*	**P1G-3** **Highly (110)-Oriented Potassium Niobate Thin Films Prepared by RF-Magnetron Sputtering** **S. Kakio**, *T. Suzuki, H. Kurosawa, Y. Nakagawa;* *Univ. of Yamanashi, Kofu, JAPAN.*	**P1H-4** **FBAR Characteristics with AlN Film Using MOCVD Method and Ru/Ta Electrode** **Y. Aota**, *S. Tanifuji, H. Oguma, S. Kameda, H. Nakase, T. Takagi, K. Tsubouchi;* *Tohoku univ., sendai, JAPAN.*
P1D-3 **Application of Particle Swarm Optimization-Based Digital Beamforming Technique to the Identification of Multiple SAW Tags** **H. Zhu**, *X. J. Ji, W. K. Shi;* *Shanghai Jiaotong University, Shanghai, CHINA.*	**P1E-3** **Ultrasonic QNDE Instrument for Quantitative Inclusion and Pore Characterization of Steel Billets** **V. Kananen**[1], *J. Eskelinen*[1], *E. Hæggström*[1,2]; *[1]University of Helsinki, Helsinki, FINLAND, [2]Helsinki Institute of Physics, Helsinki, FINLAND.*	**P1F-3** **Investigation Of B-mode Activity Dips In TD-Cut Crystals And Development Of Dipless Dual-Mode Resonators** **A. Kosykh**, *I. Khomenko;* *Omsk State Technical University, Omsk, RUSSIAN FEDERATION.*	**P1G-4** **Characterization Of Nanoimprinting Polymer Films Using Picosecond Ultrasonics** **J. Bryner**[1], *J. Vollmann*[1], *T. Kehoe*[2], *J. Dual*[1]; *[1]ETH Zurich, Zurich, SWITZERLAND, [2]Tyndall National Institute, University College Cork, Cork, IRELAND.*	**P1H-5** **Uniformity Optimization of the Electromechanical Coupling Coefficient in AlN Based Bulk Acoustic Wave Resonators** **R. Lanz**, *L. Senn, L. Gabathuler, H. Auer, J. Chevrier, T. Eisenhammer;* *Oerlikon Balzers AG, Balzers, LIECHTENSTEIN.*

P1D-4
Characteristics of a Novel Magnetic Field Sensor using Piezoelectric Vibrations
K. Dan, *K. Nakamura, S. Ueha;*
Tokyo Institute of Technology, Yokohama, JAPAN.

P1E-4
Voids Detection in Brick Masonry Structures by Using Ultrasonic Testing
M. Raugi, *A. Musolino, F. Turcu;*
University of Pisa, Pisa, ITALY.

P1F-4
Revisiting LGT Dielectric Constants and Temperature Coefficients With Measurements Up To 120°C
P. M. Davulis, *B. Sturtevant, S. Duy, M. Pereira da Cunha;*
University of Maine, Laboratory for Surface Science and Technology, Orono, ME.

P1G-5
Ion Beam Sputter-deposited ZnO Thin Film for Broadband Shear Wave Excitation in the GHz Range
T. Yanagitani[1], *M. Kiuchi*[2];
[1]Department of Electrical, Information and Physics Engineering, Tohoku University, Sendai, JAPAN, [2]National Institute of Advanced Industrial Science and Technology, Ikeda, JAPAN.

P1H-6
Picosecond Ultrasonics, a Helpful Technique for Introducing a New Electrode Material in Bulk Acoustic Wave Technology: the Iridium Case
A. Devos[1], *E. Iborra*[2], *J. Olivares*[2], *M. Clement*[2], *A. Rastogi*[3], *N. Rimmer*[3];
[1]IEMN, Lille, FRANCE, [2]Universidad Politécnica, Madrid, SPAIN, [3]Aviza Technology Ltd, Newport, UNITED KINGDOM.

P1D-5
A Periodicity Breaks Technique In 1D Array Without Eliminated Elements, Using cMUTs Technology For The Layout
J. Villazón Terrazas[1], *A. Ibáñez*[1], *A. Austeng*[2];
[1]Instituto de Automática Industrial, Madrid, SPAIN, [2]Department of Informatics, University of Oslo, OSLO, NORWAY.

P1E-5
Understanding Ultrasound-induced Aluminum oxide Breakage during Wirebonding
H. Seppänen[1,2], *M. Oinonen*[1,2], *E. Hæggström*[1,2];
[1]University of Helsinki, Helsinki, FINLAND, [2]Helsinki Institute of Physics, Helsinki, FINLAND.

P1F-5
Investigation of xys/a-cuts Langasite Resonators Vibrating on the Extensional Mode
S. Sakharov[1], *D. Kalandadze*[2], *A. Zabelin*[1], *O. Buzanov*[1], *V. Alenkov*[1];
[1]FOMOS-MATERIALS, OAO, Moscow, RUSSIAN FEDERATION, [2]PIEZOTRON, Moscow, RUSSIAN FEDERATION.

Session P1H
BAW Materials and Propagation
Chair: R. Weigel;
University of Erlangen-Nuremberg, Erlangen, GERMANY.

P1D-6
Simulation of Wireless Passive SAW Sensors Based on FEM/BEM Model
W. Luo, **Q. Fu**, *J. Wang, D. Zhou;*
Huazhong University of Science and technology, Wuhan, CHINA.

P1E-6
Monitoring and Extracting Film Viscoelastic Properties using SH-SAW
D. Gallimore, *P. Millard, M. Pereira da Cunha;*
University of Maine, Orono, ME.

Session P1G
Thin Films
Chair: F. S. Hickernell;
Optical Science, University of Arizona, Phoenix, AZ.

P1H-1
LiNbO3-LiNbO3 High Overtone Bulk Acoustic Resonators Exhibiting High Q.f Product
D. Gachon, *E. Courjon, J. Masson, V. Petrini, J. Y. Rauch, S. Ballandras;*
FEMTO-ST Institute, BESANÇON, FRANCE.

MON. POSTER

Session: P1I

BAW Device Modeling

Chair: W. Pang;
Avago Technologies, Fort Collins, CO.

P1I-1
Acoustical Parameters Characterisation of Aluminium Nitride Thin Film BAW Resonators using Resonant Spectrum Approach
D. Cornez, *K. J. Kirk, S. Cochran;*
University of Paisley, Paisley, UNITED KINGDOM.

P1I-2
Anchor Loss Reduction in Resonant MEMS Using MESA Structures
A. T. Zehnder, *A. Lal, M. Pandey;*
Cornell University, Ithaca, NY.

P1I-3
Fbar Multi-Layer Resonator for Remote Identification
V. Cherednick;
Nizhny Novgorod State University, Nizhny Novgorod, RUSSIAN FEDERATION.

P1I-4
Simulation of BAW Resonators Frequency Adjustment
A. Reinhardt[1], *S. Joblot*[2], *N. Buffet*[1], *A. Shirakawa*[1], *J. David*[1], *G. Parat*[1], *M. Aïdi*[1], *P. Ancey*[2];
[1]*CEA-LETI/Minatec, Grenoble, FRANCE,*
[2]*STMicroelectronics R&D, design and industrial center, Crolles, FRANCE.*

Session: P1J

Transducer Materials Characterization

Chair: Y. Takeuchi;
Department of In formation and Computer Science, Kagoshima University, Kagoshima, JAPAN.

P1J-1
Optimized Piezoelectric Sol-Gel Composite Films for High Frequency Ultrasonic Transducers
A. Bardaine[1], *P. Boy*[1], *P. Belleville*[1], *O. Acher*[1], *F. Levassort*[2];
[1]*CEA/Le Ripault, Monts, FRANCE,* [2]*Francois-Rabelais University / LUSSI, Tours, FRANCE.*

P1J-2
Ultrasonic Response of Screen Printed Thick Film Transducers
S. N. Gwirc[1], *M. F. García Morillo*[1], *C. A. Negreira*[2];
[1]*Instituto Nacional de Tecnología Industrial, San Martín, ARGENTINA,* [2]*Laboratorio de Acústica Ultrasonora - Facultad de Ciencias, Montevideo, URUGUAY.*

P1J-3
Evaluation of 2D Hydrophone System Using Epitaxial PZT Thin Films Grown on Epitaxial Γ-Al_2O_3/Si Substrate
N. Okada[1], *K. Higuchi*[1], *K. Kobayashi*[1], *M. Ito*[2], *M. Takabe*[2], *M. Otonari*[2], *D. Akai*[2], *K. Sawada*[2,3], *M. Ishida*[2,3];
[1]*HONDA ELECTRONICS CO., LTD., Toyohashi, JAPAN,*
[2]*Toyohashi University of Technology, Toyohashi, JAPAN,*
[3]*Core Research for Evolutional Science and Technology (CREST), Tokyo, JAPAN.*

P1J-4
Evaluation of Small Ultrasonic Probe using Lead Zirconate Titanate Film Deposited by Hydrothermal Method
T. Hasegawa[1], *M. K. Kurosawa*[1], *S. Takeuchi*[2];
[1]*Tokyo Institute of Technology, Yokohama, JAPAN,* [2]*Toin University of Yokohama, Yokohama, JAPAN.*

P1J-5
Performance Comparison Of Screen-printed Piezoelectric Structures On Porous PZT And Alumina Substrates
P. Maréchal[1], *D. Kuščer*[2], *F. Levassort*[1], *L. Tran-Huu-Hue*[1], *J. Holc*[2], *M. Kosec*[2], *M. Lethiecq*[1];
[1]*François-Rabelais University, TOURS, FRANCE,* [2]*Jozef Stefan Institute, LJUBLJANA, SLOVENIA.*

P1J-6
Excitation and Measurement of Surface Acoustic Waves on a Piezoelectric Single Crystal Ball by using Noncontact Electrodes
K. Ote[1,2], *T. Tsuji*[1,2], *T. Ohgi*[3], *N. Nakaso*[3], *T. Fukiura*[4], *I. Satoh*[4], *S. Akao*[1,2], **K. Yamanaka**[1,2];
[1]*Tohoku University, Sendai, JAPAN,* [2]*JST, CREST, Kawaguchi, JAPAN,* [3]*Toppan Printing Co. Ltd., Sugito, JAPAN,* [4]*Yamatake Corporation, Fujisawa, JAPAN.*

10:30 am – 12:00 pm — **ORAL SESSIONS - Monday, October 29, 2007**

	Session 2A **Frontiers in Therapeutic Ultrasound** *Chair: E. S. Ebbini; Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN.*	*Session 2B* **Robert Adler Memorial Session** *Chair: J. Brown; JB Consulting, West Whately, MA.*	*Session 2C* **Beamforming** *Chair: J. Jensen; Technical University of Denmark, Lyngby, DENMARK.*	*Session 2D* **Material and Defect Characterization** *Chair: D. E. Yuhas; Industrial Measurement Systems, Inc., Aurora, IL.*	*Session 2E* **SAW System Applications** *Chair: K. Hashimoto; Dept. Elec. Mech. Eng., Chiba University, Chiba, JAPAN.*	*Session 2F* **High Frequency Transducers I** *Chair: J. Yuan; R & D, Imaging, Boston Scientific Corp, Fremont, CA.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/ South**	**Sutton Parlor North**	**Beekman Parlor**
10:30 am	2A-1 Ultrasound Potentiated Therapy (Invited) ***K. Hynynen***; *University of Toronto, Toronto, ON, CANADA.*	2B-1 Robert Adler's Touchscreen Inventions & A Memorial Video (Invited) ***J. Kent***[1], *M. Takeuchi*[2], *G. Laux*[3]; [1]*Elo TouchSystems, a division of Tyco Electronics, Menlo Park, CA,* [2]*Tamagawa University, Machida Tokyo, JAPAN,* [3]*LG / Zenith Co., Chicago, IL.*	2C-1 A Post-beamforming 2D Pseudoinverse Filter for Coarsely Sampled Ultrasound Arrays ***Y. Wan***, *E. S. Ebbini; University of Minnesota, twin cities, Minneapolis, MN.*	2D-1 Cure Characterization of Powder-coatings Using Pulse-echo and Pitch-catch Ultrasonic Investigation Systems ***R. S. Pai Panandiker***, *N. A. H. Rao, M. Helguera, B. Varela, J. S. Arney, D. B. Phillips; Rochester Institute of Technology, Rochester, NY.*	2E-1 Effect of Distortion in Saw Duplexer for Wcdma System ***T. SHIBA***; *Hitachi Media Electronics Co., Ltd., Yokohama-shi, JAPAN.*	2F-1 Fabrication and Performance of a High-Frequency Geometrically Focussed Composite Transducer with Triangular Pillar Geometry ***J. A. Brown***, *E. Cherin, J. Yin, F. S. Foster; Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*
10:45 am			2C-2 Second Harmonic Parallel Beamforming using Synthetic Transmit Beams in an Aberrating Environment: In Vivo and In Vitro experiments	2D-2 Ultrasonic Methods In Determining Elastic Material Properties Of Fibres In Suspension ***T. Lofqvist***, *J. Niemi, Y. Aitomaki; Lulea University of Technology, Lulea, SWEDEN.*	2E-2 0806 RF SAW Filters using Wafer Level Packaging Technology ***T. Fukano***, *Y. Ohkubo, J. Nishii, I. Obara; Kyocera Corporation, Kyoto, JAPAN.*	2F-2 Annular CMUT Arrays for Side Looking Intravascular Ultrasound Imaging ***J. Zahorian***[1], *R. Guldiken*[1], *G. Gurun*[1], *S. Qureshi*[1], *M. Balantekin*[1], *S. Carlier*[2], *M. Karaman*[3], *L. Degertekin*[1]; [1]*Georgia Tech, Atlanta, GA,* [2]*Columbia University Medical Center, New York, NY,* [3]*Isik University, Istanbul, TURKEY.*
11:00 am	2A-2 Investigations into the Contribution of a Thermal Mechanism for Pulsed-High Intensity Focused Ultrasound Mediated Delivery ***B. E. O'Neill***[1], *H. Vo*[1], *M. Angstadt*[1], *T. P. Quinn*[2], *B. J. Wood*[1], *V. Frenkel*[1]; [1]*National Institutes of Health, Bethesda, MD,* [2]*National Institute of Standards and Technology, Boulder, CO.*		2C-3 An Integrated Circuit with Transmit Beamforming and Parallel Receive Channels for 3D Ultrasound Imaging: Testing and Characterization ***I. Wygant***[1], *J. H. Lee*[1], *A. Nikoozadeh*[1], *O. Oralkan*[1], *M. Karaman*[2], *B. T. Khuri-Yakub*[1]; [1]*Stanford University, Stanford, CA,* [2]*Isik University, Istanbul, TURKEY.*	2D-3 Viscoelastic Study of Poly(ethylene glycol) Solutions ***V. Raimbault***[1], *D. Rebière*[1], *C. Dejous*[1], *M. Guirardel*[2]; [1]*IMS Bordeaux, Université de Bordeaux, ENSEIRB, CNRS, UMR 5218, Talence, FRANCE,* [2]*Rhodia - LOF, Pessac, FRANCE.*	2E-3 Asset Tracking on the International Space Station Using Global SAW Tag RFID Technology *P. Brown*[1], ***P. R. Hartmann***[1], *A. Schellhase*[2], *A. Powers*[3], *T. Brown*[4], *C. S. Hartmann*[1], *D. C. Gaines*[3]; [1]*RF SAW, Inc., Richardson, TX,* [2]*Barrios Technology - Johnson Space Center, Houston, TX,* [3]*NASA - Johnson Space Center, Houston, TX.*	2F-3 Design of 20 MHz Convex Array Transducers for High Frequency Ophthalmic Imaging ***H. H. Kim***, *J. H. Chang, J. M. Camata, K. K. Shung; University of Southern California, Los Angeles, CA.*

11:15 am	2A-3 Enhanced and Site-Specific HIFU Treatment with Phase-Change Nano Droplet ***k. Kawabata***[1], *R. Asami*[1], *T. Azuma*[1], *H. Yoshikawa*[1], *S. Umemura*[2]; *[1]Central Research Laboratory, Hitachi, Ltd., Tokyo, JAPAN, [2]Tohoku University, Sendai, JAPAN.*		2C-4 A 64-Channel Beamformer for 50 MHz Linear Arrays ***H. S. Lay***, *G. R. Lockwood;* *Queen's University, Kingston, ON, CANADA.*	2D-4 Characterization Of Elastic Parameters Of Composite Materials By Electro-mechanical Impedance Measurement: Application To The Thermal Ageing Of Carbon-epoxy Plates *Y. Gelebart,* ***H. Duflo***, *J. Duclos;* *LAUE, UMR CNRS 6068, University of Le Havre, FRANCE.*	2E-4 Temperature Compensation Method Of Φ 1mm Ball Saw Gas Sensor Using Harmonics ***D. Sim***[1], *M. Bryan*[1], *N. Takeda*[1], *N. Nakaso*[2], *N. Iwata*[3], *T. Tsuji*[3], *T. Mihara*[3], *K. Yamanaka*[3]; *[1]Ball Semiconductor Inc., Allen, TX, [2]Toppan Printing Co., Sugito-machi, Saitama, JAPAN, [3]Tohoku Univ.; JST, CREST, Aoba 02, Sendai; Kawaguchi, Saitama, JAPAN.*	2F-4 High Frequency (>30MHz) Flexible Broadband Transducers *M. Kobayashi*[1], ***Y. Ono***[2], *L. Song*[3], *C. Jen*[1]; *[1]Nat'l Research Council Canada, Boucherville, PQ, CANADA, [2]Department of Systems and Computer Engineering, Carleton University, Ottawa, ON, CANADA, [3]McGill University, Montreal, PQ, CANADA.*
11:30 am	2A-4 Biodegradable Polymer Nanoparticles and Ultrasound for In Vivo Gene and Drug Delivery ***V. Andreev***[1], *O. Chumakova*[2], *I. Cicenaite*[2], *M. Evers*[2], *Y. Petrov*[2], *S. Chakrabarty*[2], *R. Esenaliev*[2]; *[1]Moscow State University, Moscow, RUSSIAN FEDERATION, [2]University of Texas Medical Branch, Galveston, TX.*		2C-5 Simplification of High Frame Rate Imaging System with Coordinate Rotation ***J. Lu***, *S. Kwon;* *Ultrasound Lab (jilu@eng.utoledo.edu), Department of Bioengineering, The University of Toledo, Toledo, OH.*	2D-5 Combining X-rays and Ultrasound to Determine Micro-elasticity in Wood ***A. H. Salmi***[1], *A. Meriläinen*[2], *M. Torkkeli*[3], *M. Peura*[3], *J. Haapalainen*[2], *E. Haeggström*[2,4], *R. Serimaa*[3]; *[1]University of Helsinki, Helsinki, FINLAND, [2]University of Helsinki, Electronics Research Unit, Helsinki, FINLAND, [3]University of Helsinki, Division of X-ray physics, Helsinki, FINLAND, [4]Helsinki Institute of Physics, Helsinki, FINLAND.*	2E-5 Single-Chip Radio Solutions for Mobile Phone Front-Ends (Invited) ***V. Steel***; *RFMD, Greensboro, NC.*	2F-5 Surface Preparation Of 1-3 Piezocomposite Material For Microfabrication Of High Frequency Transducer Arrays ***A. L. Bernassau***[1], *S. McKay*[2], *D. Hutson*[1], *C. E. M. Démoré*[1], *H. Hughes*[3], *T. W. Button*[3], *J. J. McAneny*[2], *S. Cochran*[1]; *[1]Microscale Sensors, University of Paisley, Paisley, UNITED KINGDOM, [2]Logitech Ltd., Old Kilpatrick, Glasgow, UNITED KINGDOM, [3]AFM Ltd., Birmingham, UNITED KINGDOM.*
11:45 am	2A-5 Nucleating Inertial Cavitation "On Demand" Using Laser-Illuminated Gold Nano-particles, with Applications to HIFU Therapy ***R. A. Roy***[1], *T. Wu*[2], *C. H. Farny*[3], *T. W. Murray*[2], *R. G. Holt*[2]; *[1]Boston University, Boston, MA, [2]University of Chicago Medical Center, Chicago, IL, [3]Brigham and Women's Hospital, Boston, MA.*		2C-6 Optimal Contrast Resolution Beamforming ***D. A. Guenther***, *W. F. Walker;* *University of Virginia, Charlottesville, VA.*	2D-6 Automatic Classification of High Temperature Hydrogen Attack Defects from Ultrasonic A-scans Signals ***A. M. Yamani***, *M. Deriche;* *King Fahd University of Petroleum and Minerals, Dhahran, SAUDI ARABIA.*		2F-6 Fundamental Properties and Application-oriented Performance Characterisation of High Frequency Piezocomposite Ultrasonic Transducers ***D. MacLennan***[1], *J. Elgoyhen*[2], *T. W. Button*[2], *C. E. M. Demore*[3], *H. Hughes*[2], *C. Meggs*[2], *S. Cochran*[2]; *[1]University of Strathclyde, Glasgow, UNITED KINGDOM, [2]AFM Ltd, Birmingham, UNITED KINGDOM, [3]University of Paisley, Paisley, UNITED KINGDOM.*

MON. ORAL

1:30 pm - 3:00 pm — ORAL SESSIONS - Monday, October 29, 2007

	Session 3A **Clinical Cardiovascular Imaging** *Chair: T. van der Steen; Erasmus Medical Center, Rotterdam, THE NETHERLANDS.*	*Session 3B* **Therapeutic Ultrasound: Methods** *Chair: M. Tanter; Laboratoire Ondes et Acoustique, ESPCI, Paris, FRANCE.*	*Session 3C* **Acoustic Wave Propagation: Theory and Modeling** *Chair: R. Aigner; TriQuint Semiconductor Inc., Apopka, FL.*	*Session 3D* **NDE Signal Processing** *Chair: E. S. Furgason; Purdue University, West Lafayette, IN.*	*Session 3E* **Wave Propagation and Numerical Simulation** *Chair: M. Solal; R and D, TriQuint Semiconductor, Orlando, FL.*	*Session: 3F* **Transduction and Propagation Modeling** *Chair: P. Reynolds; Weidlinger Associates, Mountain View, CA.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
1:30 pm	3A-1 Myocardial Strain Rate Imaging (Invited) ***G. R. Sutherland***; *St. George's Hospital Medical School, London, UNITED KINGDOM.*	3B-1 Noninvasive Insulin Delivery in Large Pigs (> 100 lbs) Using the Lightweight Cymbal Array ***E. Park***, *J. R. Werner, N. B. Smith; The Pennsylvania State University, University Park, PA.*	3C-1 Review of Wave Propagation in BAW Thin Film Devices - Progress and Prospects (Invited) ***J. Kaitila***; *Infineon Technologies, Neubiberg, GERMANY.*	3D-1 Absolute Transit-Time Detection for Ultrasonic Gas Flowmeters based on Time and Phase Domain Characteristics ***M. Kupnik***[1], *E. Krasser*[2], *M. Gröschl*[3]; [1]*Stanford University, Stanford, CA,* [2]*Institute of Electronics, Graz University of Technology, AUSTRIA,* [3]*Institute of General Physics, Vienna University of Technology, AUSTRIA.*	3E-1 Fast Numerical Technique for Simulation of SAW Dispersion in Periodic Gratings and Its Application to Some SAW Materials ***N. Naumenko***[1], *B. Abbott*[2]; [1]*Moscow Steel and Alloys Institute, Moscow, RUSSIAN FEDERATION,* [2]*Triquint Semiconductors, Apopka, FL.*	3F-1 Perfectly Matched Layer Technique for the Numerical Computation of Wave Propagation Phenomena ***R. Lerch***, *M. Kaltenbacher; Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Department of Sensor Technology, Erlangen, GERMANY.*
1:45 pm		3B-2 Efficient Array Design for Sonotherapy Enhanced Drug Delivery ***D. Stephens***[1], *D. Kruse*[1], *S. Barnes*[2], *T. Clary*[2], *L. Nock*[2], *X. Lu*[1], *K. Ferrara*[1]; [1]*UC Davis, Davis, CA,* [2]*Siemens Corporate Research, Inc., Issaquah, WA,* [3]*Siemens Medical Solutions, USA, Issaquah, WA.*		3D-2 Classification Of Ultrasonic Scattering Signals For Grain Size Estimation ***M. S. Unluturk***[1], *J. Sanie*[2]; [1]*Software Engineering Department Izmir University of Economics, Izmir, TURKEY,* [2]*Electrical and Computer Engineering Department Illinois Institute of Technology, Chicago, IL.*	3E-2 Properties of the Anisimkin Jr.' Modes in Quartz Plates ***Y. V. Gulyaev, IV.*** *Institute of Radioeigineering & Electronics Russian Academy of Sciences, Moscow, RUSSIAN FEDERATION.*	3F-2 Investigation of Element Cross Talk in Arrays using 1-3 Piezocomposite Substrates ***C. E. M. Demore***[1], *P. Reynolds*[2], *S. Cochran*[1]; [1]*University of Paisley, Paisley, UNITED KINGDOM,* [2]*Weidlinger Associates, Mountain View, CA.*

2:00 pm	3A-2 Contrast-Enhanced, Ultrasound Imaging of Atherosclerosis (Invited) ***S. Feinstein***; *Rush University Medical Center, Chicago, IL.*	3B-3 Calibration of PVDF Hydrophones Using a Broad-Focus Electromagnetic Lithotripter ***O. A. Sapozhnikov***[1], *Y. A. Pishchalnikov*[2], *A. D. Maxwell*[3], *M. R. Bailey*[1]; *[1]University of Washington, Seattle, WA, [2]Indiana University, Indianapolis, IN.*	3C-2 Full-wave Simulation of Finite-amplitude Ultrasound in Heterogenous Media ***G. F. Pinton***, *G. Trahey;* *Duke University, Durham, NC.*	3D-3 Classification of Defects on Pipes by Ultrasonic Guided Waves Using a Neural Network Approach ***G. Fornarelli***[1], *G. Acciani*[1], *F. Bertoncini*[2], *G. Brunetti*[1], *M. Raugi*[2], *F. O. Turcu*[2]; *[1]Dipartimento di Elettrotecnica ed Elettronica - Politecnico di Bari, Bari, ITALY, [2]Dipartimento di Sistemi Elettrici e Automazione - Università di Pisa, Pisa, ITALY.*	3E-3 Dispersion and Polarization of Surface Waves Trapped in High Aspect Ratio Electrode Arrays *H. Moubchir, N. Khelfaoui, A. Khelif,* ***V. Laude***; *Institut FEMTO-ST, Besançon, FRANCE.*	3F-3 Theoretical Effects Of Epoxy Interlayer Bonds In Multilayer Piezoelectric Transducers ***J. F. Saillant***[1], *S. Cochran*[1], *R. Berriet*[2], *S. Ballandras*[3], *G. Fleury*[2]; *[1]University of Paisley, Paisley, UNITED KINGDOM, [2]Imasonic, Besancon, FRANCE, [3]FEMTO-LPMO Université de Franche Comté - CNRS, Besancon, FRANCE.*
2:15 pm		3B-4 Therapeutic Potential Metric for Diagnostic Transducers ***K. D. Frinkley***, *S. J. Rosenzweig, K. R. Nightingale;* *Duke University, Durham, NC.*	3C-3 A Ray Techinique To Calculate Multiple Reflections And Transmitted Waves From Layered Media ***J. Sadler***, *R. G. Maev;* *University of Windsor, Windsor, ON, CANADA.*	3D-4 Analysis of Ultrasonic 3D Image Compression Using Non-Uniform, Separable Wavelet Transform ***e. oruklu***, *S. Maharishi, J. Saniie;* *Illinois Institute of Technology, Chicago, IL.*	3E-4 Modelling Of Lamb Wave Propagation In Plate With Two-dimensional Phononic Crystal Layer Coated On Uniform Substrate Using Plane-wave-expansion Method *Z. HOU,* ***B. M. Assouar***; *Nancy University - CNRS, Vandoeuvre les Nancy Cedex, FRANCE.*	3F-4 Experimental and Modeling of Microsliding on a small Cantilever Quartz Beam ***h. nouira***[1], *E. Foltête*[1], *L. Hirsinger*[1], *S. Ballandras*[2]; *[1]Laboratoire de Mécanique Appliquée, Besançon, FRANCE, [2]Laboratoire de Physique et Métrologie des Oscillateurs, Besançon, FRANCE.*
2:30 pm	3A-3 Multimodality (PET/CT, MR, and CT) Imaging of the Atherosclerotic Plaque and Novel Nanoparticulate Drug Delivery: Implications for Cardiovascular Drug Design and Discovery (Invited) ***Z. Fayad***; *Mount Sinai Hospital New York, New York, NY.*	3B-5 Simultaneous Temperature Measurement and Acoustic Waveform Monitoring Using a Fibre-Optic Hydrophone in a HIFU Field ***P. Morris***[1], *A. Shaw*[2], *A. Hurrell*[3], *P. Beard*[4]; *[1]University College, London, London, UNITED KINGDOM, [2]Quality of Life Division, National Physical Laboratory, Teddington, UNITED KINGDOM, [3]Precision Acoustics Ltd., Dorchester, UNITED KINGDOM.*	3C-4 A Fast Nearfield Method For Calculating Pressures Generated By Rectangular Pistons With Polynomial Apodization ***D. Chen***, *R. J. McGough;* *Michigan State University, Lansing, MI.*	3D-5 Parameter Estimation of the Homodyned K Distribution Based on the Signal to Noise Ratio ***M. Martín-Fernández***, *R. Cárdenes, C. Alberola-López;* *University of Valladolid, Valladolid, SPAIN.*	3E-5 Interaction Between Two Lamb Wave Devices, Detection Of Evanescent Wave *F. Li*[1,2], ***J. F. MANCEAU***[1], *Y. Wu*[1], *L. Robert*[1], *F. Bastien*[1]; *[1]Institut FEMTO-ST, Besancon, FRANCE, [2]Changchun Institute of Optics, Fine Mechanics and Physics, Changchun, CHINA.*	3F-5 Design of a Phased Array for Tissue and Contrast Superharmonic Imaging ***P. L. M. van Neer***[1], *G. Matte*[1], *J. M. G. Borsboom*[2], *M. D. Verweij*[2], *N. de Jong*[1]; *[1]Erasmus Medical Center, Rotterdam, THE NETHERLANDS, [2]Delft University of Technology, Delft, THE NETHERLANDS.*
2:45 pm		3B-6 Tissue Fragmentation Treatment by Pulsed Cavitational Ultrasound Therapy-Histotripsy ***F. Winterroth***, *Z. Xu, T. Wang, J. E. Wilkinson, W. W. Roberts, J. B. Fowlkes, C. A. Cain;* *University of Michigan, Ann Arbor,, MI.*	3C-5 The Analysis of Thickness-shear Vibrations of the Third-order Overtone Mode of Quartz Crystal Plates with Mindlin Plate Theory ***J. Wang***[1], *J. Xu*[1], *J. Du*[1], *D. Huang*[1], *M. Chao*[2]; *[1]Ningbo University, Ningbo, Zhejiang, CHINA, [2]TAC Ningbo, Ningbo, Zhejiang, CHINA.*	3D-6 New Solution to Air-Data Transmission Using Low-Cost Narrow-Band Ultrasonic Transducers ***J. Sandoz***; *HE-ARC, Le Locle, SWITZERLAND.*	3E-6 Determination Of Third-order Elastic Constants Of Langasite Single Crystals Through Force-frequency Effect ***H. Zhang***[1], *J. Turner*[1], *J. Yang*[1], *J. Kosinski*[2]; *[1]University of Nebraska-Lincoln, Lincoln, NE, [2]U.S. Army RDECOM CERDEC, ATTN: AMSRD-CER-IW-DT, Fort Monmouth, NJ.*	3F-6 Ultra-wide Bandwidth Array For New Imaging Modalities. ***G. Ferin***, *M. Legros, N. Felix; Vermon, Tours, FRANCE.*

MON. ORAL

3:00 pm – 4:00 pm | **POSTER SESSIONS - Monday, October 29, 2007** | **East and South Corridors, Rhinelander Gallery**

Session: P2A
Cardiac

Chair: H. Torp;
Norwegian University of Science and Technology, Trondheim, NORWAY

P2A-1
3-d Acoustic Imaging System With A Reflector And A 2-d Array For Diagnosis Of Heart Disease
H. Taki, *T. Sato;*
Kyoto University, Kyoto, JAPAN.

P2A-2
Three-dimensional Cardiac Image Segmentation using Adaptive Filtering and 3D Deformable Simplex Meshes.
M. M. Nillesen[1], *R. G. P. Lopata*[1], *I. H. Gerrits*[1], *H. J. Huisman*[2], *L. Kapusta*[3], *J. M. Thijssen*[1], *C. L. de Korte*[1];
[1]Clinical Physics Laboratory, Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS, [2]Department of Radiology, Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS, [3]Children's Heart Centre, Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS.

P2A-3
Multimodal PET/Ultrasound Imaging for Cardiac Molecular Imaging
S. Hold[1], *N. Lang*[2], *K. Schäfers*[2], *M. P. Mienkina*[1], *G. Schmitz*[1];
[1]Institute of Medical Engineering, Ruhr-University Bochum, Bochum, GERMANY, [2]Department of Nuclear Medicine, University Hospital Münster, Münster, GERMANY.

P2A-8
Fully Automatic Detection of the Left Ventricular Long Axis and Mitral Valve Plane in 3D Echocardiography
M. van Stralen[1,2], *K. Y. E. Leung*[1], *M. M. Voormolen*[1,2], *N. de Jong*[1,2], *A. F. W. van der Steen*[1,2], *J. H. C. Reiber*[2], *J. G. Bosch*[1];
[1]Erasmus MC Rotterdam, Rotterdam, THE NETHERLANDS, [2]Interuniversity Cardiology Institute of the Netherlands, Utrecht, THE NETHERLANDS, [3]Leiden University Medical Center, Leiden, THE NETHERLANDS.

P2A-9
Analysis of 4D Ultrasound for Dynamic Measures of Cardiac Function
Q. Duan, *S. Homma, A. F. Laine;*
Columbia University, New York, NY.

P2A-10
Identification of Heart Wall Based on Coherence of Ultrasonic RF Echoes Evaluated in Frequency Domain
T. KINUGAWA, *H. HASEGAWA, H. KANAI;*
Graduate School of Engineering, Tohoku University, Sendai, JAPAN.

P2A-11
In Vivo Cardiac Imaging Of Adult Zebrafish Using High Frequency Ultrasound
L. Sun[1], *C. Lien*[2], *K. K. Shung*[1];
[1]University of Southern California, Los Angeles, CA, [2]University of Southern California and Childrens Hospital Los Angeles, Los Angeles, CA.

P2B-4
Crisscross 2D cMUT Array: Beamforming Strategy and Synthetic 3D Imaging Results
A. Savoia[1], *V. Bavaro*[1], *G. Caliano*[1], *A. Caronti*[1], *R. Carotenuto*[2], *P. Gatta*[1], *C. Longo*[1], *M. Pappalardo*[1];
[1]Università degli Studi Roma Tre, Rome, ITALY, [2]Università degli Studi Mediterranea, Reggio Calabria, ITALY.

P2B-5
Integrated Amplifier Array for High Frequency Ultrasound
S. J. Carey[1], *L. L. Lay*[2], *J. V. Hatfield*[1];
[1]University of Manchester, Manchester, UNITED KINGDOM, [2]University of Manchester (now with Republic Polytechnic, Singapore), Manchester, UNITED KINGDOM.

P2B-6
Parallel Image Reconstruction Operation by Dedicated Hardware for Three Dimensional Ultrasound Imaging
K. Satoh, *J. Tada, Y. Tamura;*
Yamagata University Graduate School of Science and Engineering, Yonezawa, JAPAN.

P2B-7
Development of a Versatile Signal Processing Board for Real-time 3D Beamforming
K. Wall, *G. R. Lockwood;*
Queen's University, Kingston, ON, CANADA.

P2B-12
Minimum Variance Beamforming for High Frame-Rate Ultrasound Imaging
I. K. Holfort, *F. Gran, J. A. Jensen;*
Technical University of Denmark, Lyngby, DENMARK.

P2B-13
Speckle Statistics in Adaptive Beamforming
J. Synnevåg, *C. Nilsen;*
University of Oslo, Oslo, NORWAY.

P2B-14
Real-time Indication of Acoustic Window for Phased-array Transducers in Ultrasound Imaging
F. Orderud, *L. Løvstakken, H. Torp;*
Norwegian University of Science and Technology, Trondheim, NORWAY.

P2B-15
Transient Acoustic Fields Produced by Rectangular Apertures and Linear Arrays in Viscous Media
J. F. Kelly, *R. J. McGough;*
Michigan State University, East Lansing, MI.

P2C-2
Transcranial Ultrasound: Brain Phantom And Device Development For Non-invasive Monitoring Of Hydrocephalus
S. Palchaudhuri[1], *G. T. Clement*[2];
[1]Tufts University, Medford, MA, [2]Harvard Medical School, Boston, MA.

P2C-3
Ultrasound Based Intraoperative Brain Shift Correction
J. Gonzalez[1], *D. Sosa-Cabrera*[1], *M. Ortega*[2], *J. A. Gil*[2], *E. Muñoz-Moreno*[3], *A. Tristan-Vega*[3], *R. de Luis-García*[3], **R. Cárdenes**[2];
[1]University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, SPAIN, [2]University Politecnica de Valencia, Valencia, SPAIN, [3]University of Valladolid, Valladolid, SPAIN.

P2A-4
Persistence Of ‚Real Reflectors' In 2D and 3D Dynamic Ultrasound Scans Of The Left Ventricle Of The Heart
M. Lempel[1], **D. Adam**[1], *W. Fehske*[2], *Z. Friedman*[1];
[1]*Technion - Israel Institute of Technology, Haifa, ISRAEL,* [2]*Vinzenz hospital, Köln, GERMANY.*

P2A-5
Guided Automatic Segmentation of the Murine Left Ventricle Using Conservation of Myocardial Volume
C. D. Garson, *B. Li, S. T. Acton, J. A. Hossack;*
University of Virginia, Charlottesville, VA.

P2A-6
Automatic Segmentation of the Left Ventricle in 3D Echocardiography using Active Appearance Models
M. van Stralen[1,2], *K. Y. E. Leung*[1], *M. M. Voormolen*[1,2], *N. de Jong*[1,2], *A. F. W. van der Steen*[1,2], *J. H. C. Reiber*[3], *J. G. Bosch*[1];
[1]*Erasmus MC Rotterdam, Rotterdam, THE NETHERLANDS,* [2]*Interuniversity Cardiology Institute of the Netherlands, Utrecht, THE NETHERLANDS,* [3]*Leiden University Medical Center, Leiden, THE NETHERLANDS.*

P2A-7
A Robust Deformable Simplex Mesh Model with Temporal Signal Decorrelation Constraints in Echocardiography
I. H. Gerrits[1], *M. M. Nillesen*[1], *R. G. P. Lopata*[1], *J. P. T. Rijk*[2], *J. M. Thijssen*[1], *C. L. de Korte*[1];
[1]*Clinical Physics Laboratory Paediatrics, Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS,* [2]*Children's Heart Centre, Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS.*

Session: P2B
Beamforming and Beam Steering
Chair: K. Thomenius;
General Electric's Corporate R&D, Niskayuna, NY.

P2B-1
Synthetic Aperture Focusing Applied to Imaging Using a Rotating Single Element Anorectal Transducer
J. Kortbek[1,2], *J. Jensen*[1], *K. Gammelmark*[2];
[1]*Oersted-DTU, Kgs. Lyngby, DENMARK,* [2]*B-K Medical, Herlev, DENMARK.*

P2B-2
A New Architectural Design Of Full Aperture, Full Frame-rate Synthetic Aperture Beamforming Asic
M. Bae, Sr.[1], *B. Kim, Sr.*[1], *M. Jeong, Sr.*[2], *R. Yoon*[3], *H. Lee, Sr.*[3], *Y. Kim, Sr.*[2];
[1]*Hallym University, Chuncheon Gangwon-do, REPUBLIC OF KOREA,* [2]*Daejin University, Pocheon GyeongGi-do, REPUBLIC OF KOREA,* [3]*Medison Co., Ltd., Seoul, REPUBLIC OF KOREA.*

P2B-3
A New Motion Estimation and Compensation Method for Real-Time Ultrasonic Synthetic Aperture Imaging
M. Bae, Sr.[1], *B. Kim, Sr.*[1], *M. Jeong, Sr.*[2], *J. Ham*[1], *D. Kim*[1], *W. Lee*[3], *H. Lee, Sr.*[3];
[1]*Hallym University, Chuncheon Gangwon-do, REPUBLIC OF KOREA,* [2]*Daejin University, Pocheon GyeongGi-do, REPUBLIC OF KOREA,* [3]*Medison Co., Ltd., Seoul, REPUBLIC OF KOREA.*

P2B-8
Design of a Digital High Frequency Linear Array Ultrasound Imaging System with High Frame Rate
C. Hu[1], *A. Chang*[2], *K. Shung*[1];
[1]*University of Southern California, Los Angeles, CA,* [2]*E23 Inc, Brea, CA.*

P2B-9
Delta-Sigma Beamforming Using Parallel Modulation
C. Nilsen;
University of Oslo, Oslo, NORWAY.

P2B-10
Second-Harmonic Aberration Correction
H. Kaupang[1], *S. Masoy*[1], *T. Varslot*[2];
[1]*Norwegian University of Science and Technology, Trondheim, NORWAY,* [2]*Rensselear Polytechnic Institute, Troy, NY.*

P2B-11
New Compression Algorithm for Reducing Memory Requirements in Dynamic Receive Beamforming
F. T. Baluyot[1], *F. K. Schneider*[2], *Y. Yoo*[1], *A. Agarwal*[1], *Y. Kim*[1];
[1]*University of Washington, Seattle, WA,* [2]*Federal University of Technology, Curitiba, BRAZIL.*

P2B-16
Beamforming for Realizing Designed Point Spread Function
C. Sumi, *A. Tanuma, T. Itoh;*
Sophia University, Tokyo, JAPAN.

P2B-17
Single-chip Solution for Ultrasound Imaging Systems: Initial Results
A. Agarwal[1], *T. Fukuoka*[2], *Y. M. Yoo*[1], *F. K. Schneider*[3], *F. T. Baluyot*[1], *Y. Kim*[1];
[1]*University of Washington, Seattle, WA,* [2]*Hitachi Ltd., Tokyo, JAPAN,* [3]*Federal University of Technology, Curitiba, BRAZIL.*

Session: P2C
Brain
Chair: G. Schmitz;
Ruhr-Universität Bochum, Bochum, GERMANY.

P2C-1
A Training Station to Facilitate Transcranial Ultrasound Imaging
C. Hansen, *M. Engelhardt, S. Hold, K. Hensel, B. Brendel, C. Krogias, C. Brenke, K. Schmieder, H. Ermert;*
Ruhr-Universität Bochum, Bochum, GERMANY.

Session P2D **NDE Imaging and Signal Processing** *Chair: e. Oruklu;* *Electrical and Computer Engineering, Illinois Institute of Technology, Chicago, IL.*	**P2E-1** **Carbon Nanotube Array Based Surface Acoustic Wave Oxigen Sensor Simulation** **V. Barkaline**, *A. Chasinsky;* *Belarusian National Technical University, Minsk, BELARUS.*	**P2F-1** **The Hybridization of Backward Acoustic Waves in Piezoelectric Plates** **I. Kuznetsova**, *I. Borodina, B. Zaitsev, A. Teplykh;* *Institute of Radio Engineering and, Saratov, RUSSIAN FEDERATION.*	**P2F-9** **The Examination of Frequency Dependences of Elastic Waves Velosities and Their Attenuation in Heterogeneous Mediums** **P. P. Turchin**[1,2], *A. A. Parfenov*[1], *V. V. Beletsky jun.*[1], *A. A. Volzhentcev*[1], *V. M. Ruzanov*[1], *K. S. Aleksandrov*[1,2]; *[1]Siberian Federal University, Krasnoyarsk, RUSSIAN FEDERATION, [2]Kirensky Institute of Physics, Krasnoyarsk, RUSSIAN FEDERATION.*	*Session: P2H* **SAW Applications 1** *Chair: K. Hashimoto;* *Dept. Elec. Mech. Eng., Chiba University, Chiba, JAPAN.*
P2D-1 **Regularized Cross-Correlation for Charged Liquid Flow Measurement** **F. Abda**, *P. Schmitt;* *Institut de Mecanique des Fluides et Solides, Strasbourg, FRANCE.*	**P2E-2** **Study of Particles Separation in The Ultrasonic Microdevice** *H. Yang, H. Sun,* **H. Guo**; *Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen, Fujian, CHINA.*	**P2F-2** **Vibration of Post-Buckled Homogeneous Circular Plates** *M. D. Williams,* **B. Griffin**, *B. Homeijer, M. Sheplak, B. Sankar;* *University of Florida, Gainesville, FL.*	**P2F-10** **Love Wave Propagation In Cylindrically Layered Magneto-electro-elastic Structures** **J. Du**, *K. Xian, J. Wang;* *Ningbo University, Ningbo, Zhejiang Province, CHINA.*	**P2H-1** **High Frequency and High Selectivity Balanced Front-End Saw Modules for Handheld Transceivers** **S. Doberstein, III**; *ONIIP, OMSK, RUSSIAN FEDERATION.*
P2D-2 **Quantitative Estimation Of Ultrasonic Multiple Access Method Based On M-sequence Code** **Y. Wang**[1], *T. Siginouchi*[1], *M. Hashimoto*[1], *H. Hachiya*[2]; *[1]Matsushita Electric Industial Co., Ltd., Kyoto, JAPAN, [2]Chiba University, Chiba, JAPAN.*	**P2E-3** **Power Harvesting using Piezoelectric MEMS Generator with Interdigital Electrodes** **B. S. Lee**[1], *W. J. Wu*[1], *W. P. Shih*[1], *D. Vasic*[2], *F. Costa*[2]; *[1]National Taiwan University, Taipei, TAIWAN, [2]Ecole Normale Supérieure de Cachan, UniverSud, Cachan, Paris, FRANCE.*	**P2F-3** **Three Dimensional Periodic Finite Element Analysis of Solidly Mounted Resonators** **M. S. Patel**[1], *Y. Yong*[1], *H. Safar*[2], *M. Mastrapasqua*[2]; *[1]Rutgers University, Piscataway, NJ, [2]Renaissance Wireless Corporation, New Brunswick, NJ.*	*Session: P2G* **BAW Device Design** *Chair: P. D. Bradley;* *Wireless Semiconductor Division, Avago Technologies, San Jose, CA.*	**P2H-2** **Phases of Carrier Wave in a SAW Identification Tags** *T. Han*[1], *W. Wang*[2], *H. Wang*[2], *H. Wu*[2], **Y. Shui**[2,1]; *[1]Shanghai Jiaotong University, Shanghai, CHINA, [2]Nanjing University, Nanjing, CHINA.*
P2D-3 **Performance Evaluation of The Neural Network Based Ultrasonic Flaw Detection** **S. Yoon**, *E. Oruklu, J. Saniie;* *Illinois Institute of Technology, Chicago, IL.*	**P2E-4** **Energy Harvesting Using Composite Silicon/ lithium Niobate Vibrating Structures** **B. Cavallier**[1], *H. Nouira*[2], *E. Foltête*[2], *P. Berthelot*[1], *L. Hirsinger*[2], *S. Ballandras*[1]; *[1]FEMTO-ST, LPMO dept., Besancon, FRANCE, [2]FEMTO-ST, LMARC dept., Besancon, FRANCE.*	**P2F-4** **Frequency Selective Wave Propagation In Graded Materials** **L. Aebi**, *K. Löffel, J. Vollmann, Sr., J. Dual, Sr.;* *ETH Zurich, Zurich, SWITZERLAND.*	**P2G-1** **Frequency Trimming of Monolithic Thickness-Mode Piezoelectric Filters** **W. Pan**, *R. Abdolvand, F. Ayazi;* *Georgia Institute of Technology, Atlanta, GA.*	**P2H-3** **Guided Lamb Waves in AlN Free Strips** *M. Benetti, D. Cannatà,* **F. Di Pietrantonio**, *E. Verona;* *Italian National Research Council (CNR), Rome, ITALY.*

P2D-4
A Phase Based Approach for Estimation and Tracking of Locally Varying Delays
Ø. Standal, *T. Tangen, B. A. J. Angelsen; Norwegian University of Science and Technology, Trondheim, NORWAY.*

P2E-5
Silicon Based GHz Acoustic Lenses For Time Resolved Acoustic Microscopy
A. Jakob, *E. C. Weiss, T. Knoll, F. Bauerfeld, J. Hermann, R. Lemor; Fraunhofer IBMT, Sankt Ingbert, GERMANY.*

P2F-5
Exact Analytical Solution to the Problem of Acoustic Resonances in Pyramidal Cavities of Particular Shape
A. V. Kozlov, **V. G. Mozhaev**; *Moscow State University, Moscow, RUSSIAN FEDERATION.*

P2G-2
Capacitively Coupled VHF Silicon Bulk Acoustic Wave Filters
Q. Qin[1], *S. Pourkamali*[2], *F. Ayazi*[1]; *[1]Georgia Institute of Technology, Atlanta, GA, [2]University of Denver, Denver, CO.*

P2H-4
Small (3x2.5mm²) Surface Acoustic Wave Duplexer for W-CDMA with Good Temperature and Frequency Characteristics
M. Kadota, T. Nakao, **K. Nishiyama**, *S. Kido, M. Kato, R. Omote, H. Yonekura, N. Takada, R. Kita; Murata Mfg. Co., Ltd., Yasu-shi, Shiga, JAPAN.*

P2D-5
The Progressive Dynamic Focusing Correction Technique in NDE
J. Camacho, *M. Parrilla, A. Ibañez, C. Fritsch; Instituto de Automática Industrial, Madrid, SPAIN.*

P2E-6
New Design of Electromagnetic Acoustic Transducer for Precise Determination of Defect
Y. Ohtsuka, *T. Yoshimura, Y. Ueda; Osaka University, Osaka, JAPAN.*

P2F-6
Pulse Laser Induced Elastic Wave Propagation in Layered and Graded Planar Structures
J. Vollmann[1], *J. Bryner*[1], *L. Aebi*[1], *J. Dual*[1], *D. M. Profunser*[2]; *[1]ETH Zurich, Zurich, SWITZERLAND, [2]Hokkaido University, Sapporo, JAPAN.*

P2G-3
Piezotransduced Single-Crystal-Silicon BAW Resonators
A. Jaakkola, *A. Nurmela, T. Pensala, T. Riekkinen, J. Dekker, T. Mattila, A. Alastalo; VTT Technical Research Centre of Finland, Espoo, FINLAND.*

P2H-5
Small 3.0x2.5mm² sized Surface Acoustic Wave Duplexer for US-PCS with Excellent Temperature and Frerquency Characteristics
T. Nakao, **M. Kadota**, *K. Nishiyama, Y. Nakai, D. Yamamoto, Y. Ishiura, T. Komura, N. Takada, R. Kita; Murata Mfg. Co., Ltd., Yasu-shi, Shiga Prefecture, JAPAN.*

P2D-6
Efficiency and Sensitivity Analysis of Chirplet Signal Decomposition for Ultrasonic NDE Applications
Y. Lu, *R. Demirli, J. Saniie; ILLINOIS INSTITUTE OF TECHNOLOGY, chicago, IL.*

P2E-7
A Novel At-cut Quartz Gyroscope, Its Analysis And Design
M. S. Patel[1], *Y. Yong*[1], *S. Kanna*[2], *M. Tanaka*[2]; *[1]Rutgers University, Piscataway, NJ, [2]Seiko Epson, Suwa-city, JAPAN.*

P2F-7
Formation Stress Effects on Wave Propagation in a Fluid-Filled Borehole
B. K. Sinha, *E. Simsek; Schlumberger-Doll Research, Cambridge, MA.*

P2G-4
Suppression of Acoustic Energy Leakage in FBARs with Al Bottom Electrode : FEM Simulation and Experimental Results
R. Ohara, *N. Yanase, T. Yasumoto, M. Kawase, S. Masuko, T. Ohno, K. Sano; Toshiba Corporation, Kawasaki, JAPAN.*

Session P2E
Sensors and NDE Transducers
Chair: J. Saniie; Department of Electrical & Computer Engineering, Illinois Institute of Technology, Chicago, IL.

Session: P2F
Acoustic Wave Propagation: Theory and Modeling II
Chair: J. Kaitila; Infineon Technologies, Neubiberg, GERMANY.

P2F-8
Multipath Interference between Direct and Corner Reflections for Ultrasonic Ranging Systems
C. CHENG, *P. Chong, K. Kwok, M. Chan, C. Chao, W. Leung; THE HONG KONG POLYTECHNIC UNIVERSITY, Hung hom, kowloon, HONG KONG.*

P2G-5
Area and Dispersion Dependence of Vibration Shape and Coupling Coefficient in Thin Film BAW Resonators
T. Pensala[1], *M. Ylilammi*[1], *J. Meltaus*[1], *K. Kokkonen*[2]; *[1]VTT Technical Research Centre of Finland, Espoo, FINLAND, [2]Helsinki University of Technology, Espoo, FINLAND.*

MON. POSTER

Session: P2I **Numerical and Analytical Modeling** *Chair: P. Reynolds; Weidlinger Associates, Mountain View, CA.*	**P2I-4** **Design and Experimental Characterization of an Composite Longitudinal-Flexural Mode Ultrasonic Transducer** **A. Iula**[1], *N. Lamberti*[2], *M. Pappalardo*[3]; *[1]University of Basilicata, Potenza, ITALY, [2]University of Salerno, Salerno, ITALY, [3]University of Roma Tre, Roma, ITALY.*	**P2I-8** **Modelling the Operating Frequency of Piezoelectric Thin Film Transducers** **J. P. Hood, Jr.**, *K. J. Kirk, J. Elgoyhen, D. Hutson; University of Paisley, High Street Paisley, UNITED KINGDOM.*		
P2I-1 **Analysis And Design of a Flextensional Transducer by means of the Finite Element Method** **Y. Roh**, *H. Kim, Y. Lim; Kyungpook National University, Daegu, REPUBLIC OF KOREA.*	**P2I-5** **Enhanced Finite Element Scheme for Non-linear Piezoelectricity** **R. Lerch**, *M. Kaltenbacher, B. Kaltenbacher, T. Hegewald; Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Department of Sensor Technology, Erlangen, GERMANY.*	**P2I-9** **Modeling of Axisymetrical Transducer Configurations Based on Pseudospectral / Finite-Difference Time-Domain Method** **E. Filoux**, *F. Levassort, S. Callé, D. Certon, M. Lethiecq; LUSSI, TOURS, FRANCE.*		
P2I-2 **Design of Steep Intensity Distribution for Acoustic Tweezer Using Multiple High Frequency Focused Transducers** **J. Lee**, *K. K. Shung; University of Southern California, Los Angeles, CA.*	**P2I-6** **The Time Reversal Acoustic Holography For Cylindrical Sources.** **Y. D. Sinelnikov**[1], *O. A. Sapozhnikov*[2]; *[1]ProRhythm Inc, Stony Brook, NY, [2]Moscow State University, Moscow 119992, RUSSIAN FEDERATION.*			
P2I-3 **A Comparison of Acoustic Beam Properties of a High-Frequency-Ultrasound Annular and Linear Array** **S. Ramachandran**, *J. A. Ketterling; Riverside Research Institute, New York, NY.*	**P2I-7** **1-3 Piezofiber Silicone-Rubber Composite with Different Resonance Frequencies Enabling Frequency Controlled Shapes of the Ultrasound Radiation Pattern** **J. Kellner**, *H. Schweinzer; Vienna University of Technology, Vienna, AUSTRIA.*			

4:00 pm - 5:30 pm — **ORAL SESSIONS - Monday, October 29, 2007**

	Session 4A **Therapeutic Ultrasound: Applications** *Chair: C. Cain; University of Michigan, Ann Arbor, MI.*	*Session 4B* **Beamforming Algorithms and Strategies** *Chair: R. Chiao; Siemens Medical Solutions, Issaquah, WA.*	*Session 4C* **High Frequency Ultrasound: Apoptosis and Skin Imaging** *Chair: C. S. Hall; Philips Research North America, Briarcliff Manor, NY.*	*Session 4D* **Acoustic Wave Biosensors** *Chair: J. F. Vetelino; University of Maine, Orono, ME.*	*Session 4E* **Applications of Thin Films for Acoustic Filters** *Chair: R. Weigel; University of Erlangen-Nuremberg, Erlangen, GERMANY.*	*Session: 4F* **Single Crystals** *Chair: C. Oakley; W.L. Gore, Englewood, CO.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
4:00 pm	4A-1 Preclinical Testing Of A Second-generation MRI-guided Focused Ultrasound System For Transcranial Brain Tumor Ablation ***N. McDannold***[1], *E. Zadicario2, M. Pilatou1, F. Jolesz1; 1Brigham & Women's Hospital, Boston, MA, 2InSightec, Haifa, ISRAEL.*	4B-1 Diffuse Targets for Improved Contrast in Beamforming Adapted to Target ***M. A. Ellis***, *F. Viola, W. F. Walker; University of Virginia, Charlottesville, VA.*	4C-1 Empirical Validation of the Theoretical Frameworks Underlying Ultrasound Scattering in Tissue ***S. Dasgupta***[1], *E. Feleppa*[1], *J. Mamou*[1], *M. Rondeau*[2]; [1]*Riverside Research Institute, New York, NY,* [2]*Weill Medical College of Cornell University, New York, NY.*	4D-1 Ultra High Frequency Acoustic Wave Detection Of HIV Antibody In Whole Serum (Invited) ***M. Thompson, Sr.***, *S. Ballantyne; University of Toronto, Toronto, ON, CANADA.*	4E-1 Periodically Poled Transducers built on single crystal Lithium Niobate layers bonded onto Silicon ***E. Courjon***[1], *J. Hauden*[2], *D. Gachon*[1], *L. Gauthier-Manuel*[1], *W. Danian*[1], *N. Bodin*[1], *S. Ballandras*[1]; [1]*FEMTO-ST, Besancon, FRANCE,* [2]*Photline Technologies, Besancon, FRANCE.*	4F-1 Optimization of Single Crystal Composite Arrays for Harmonic Imaging ***K. A. Snook***[1], *X. Geng*[2], *W. S. Hackenberger*[1], *X. Jiang*[1], *A. Winder*[3], *F. Forsberg*[4]; [1]*TRS Technologies, Inc., State College, PA,* [2]*Blatek Inc., State College, PA,* [3]*J&W Medical, LLC, Westport, CT,* [4]*Thomas Jefferson University Hospital, Philadelphia, PA.*
4:15 pm	4A-2 Non Invasive Ultrasonic Transcranial Brain Therapy Based On Ct Scan: In Vitro And In Vivo Investigation On Monkeys ***M. Fabrice***[1], *M. Pernot2, J. Aubry1, G. Montaldo1, M. Tanter1, A. Boch3, M. Kujas4, D. Seilhean4, M. Fink1; 1Laboratoire Ondes et Acoustique, ESPCI, INSERM, CNRS Université Paris VII UMR 7587, Paris, FRANCE, 2Supersonic Imagine, Aix-en-Provence, FRANCE, 3Department of Neurosurgery, Pitie-Salpetriere, Paris, FRANCE, 4Departement of Histology-Embryology, Cytogenetics, Pitie-Salpetriere, Paris, FRANCE.*	4B-2 Simulation of Steered Harmonic Acoustic Beams from Medical Transducers ***M. M. Voormolen***[1], *N. de Jong*[1], *A. Bouakaz*[2]; [1]*Erasmus MC, Rotterdam, THE NETHERLANDS,* [2]*Inserm, U619, Tours, FRANCE.*	4C-2 High Frequency Ultrasound Characterization of Cell Death In Vivo: Quantification of Tumour Responses to Radiation, Photodynamic Therapy, and Chemotherapy ***G. J. Czarnota***[1], *W. Chu*[1], *B. Banihashemi*[1], *C. Cho*[1], *R. Vlad*[1], *A. Giles*[1], *B. Debeljevic*[1], *M. C. Kolios*[2]; [1]*Sunnybrook Health Sciences Centre, Toronto, ON, CANADA,* [2]*Ryerson University, Toronto, ON, CANADA.*		4E-2 Extensive Theoretical and Experimental Study of the Differential Thermal Expansion Effect on the TCF of a Layered SAW Structure for High Temperature Sensor ***P. Nicolay***, *O. Elmazria, F. Sarry, F. Moreira, L. Le Brizoual; LPMIA/UMR 7040, Vandoeuvre-les-Nancy, FRANCE.*	Effects Of Increasing Environmental Temperature On The Practical Performance Of PMN-PT And PZN-PT Single Crystals *M. F. Wallace*[1], ***S. Cochran***[1], *P. Marin*[2], *K. Mayne*[2], *M. P. Walsh*[2], *R. Wright*[3], *R. Marsh*[3]; [1]*University of Paisley, Paisley, UNITED KINGDOM,* [2]*PCT Ltd, Aberdeen, UNITED KINGDOM,* [3]*Tritech International Ltd, Aberdeen, UNITED KINGDOM.*

4:30 pm	4A-3 Intracranial Catheter for Integrated 3D Ultrasound Imaging/ Hyperthermia: Feasibility Study ***C. D. Herickhoff***, *E. D. Light, S. Mukundan, P. D. Wolf, E. Dixon-Tulloch, T. Shih, S. J. Hsu, S. W. Smith;* *Duke University, Durham, NC.*	4B-3 Time Reversal Acoustic Focusing Of Short Pulses ***L. Fillinger***[1], *A. Sutin*[1,2], *A. Sarvazyan*[2]; *[1]Stevens Institute of Technology, Hoboken, NJ, [2]Artann Laboratories, West Trenton, NJ.*	4C-3 Limited-Angle Spatial Compound Imaging of Skin with High-Frequency Ultrasound (20 MHz) ***M. Vogt***, *H. Ermert;* *Institute of High Frequency Engineering, Ruhr-University Bochum, Bochum, GERMANY.*	4D-2 Manipulation Of Micro-particles Using A Piezoelectric Actuator ***J. F. Desa***, *Q. Zhang, G. Yang, R. M. Lec;* *Drexel University, Philadelphia, PA.*	4E-3 Very High Surface acoustic wave velocity on the layered structure formed of Aluminium Nitride on Nanocrystalline Diamond on Silicon ***O. Elmazria***[1], *F. BÃ©nÃ©dic*[2], *M. B. Assouar*[1], *D. MonÃ©ger*[1], *A. GicquelÃ*[2], *P. Alnot*[1]; *[1]Nancy University - CNRS, Vandoeuvre les Nancy, FRANCE, [2]UniversitÃ© Paris 13 - CNRS, Villetaneuse, FRANCE.*	4F-3 Piezoelectric Single Crystal for Medical Ultrasound Transducer (Invited) ***S. Rhim***, *H. Jung;* *HUMANSCAN Co., Ltd., Ansan, REPUBLIC OF KOREA.*
4:45 pm	4A-4 In Vivo Atrial Septum Perforation using Pulsed Cavitation Ultrasound Therapy (Histotripsy) for Cardiac Application ***Z. Xu***[1], *A. Ludomirsky2, J. B. Fowlkes1, C. A. Cain1;* *1University of Michigan, Ann Arbor, MI, 2Washington University, St. Louis, MO.*	4B-4 Precise Time-of-Flight Calculation for 3D Synthetic Aperture Focusing ***H. Andresen***, *S. I. Nikolov, J. A. Jensen;* *Technical University of Denmark, Kgs. Lyngby, DENMARK.*	4C-4 B-mode and C-mode Imaging of Regenerated 3D Skin Model with 100 MHz Ultrasound ***Y. Saijo***[1], *Y. Hagiwara*[2], *K. Kobayashi*[3], *N. Okada*[3], *A. Tanaka*[4], *N. Hozumi*[5], *K. Tomihata*[5]; *[1]Institute of Development, Aging and Cancer, Tohoku University, Sendai, JAPAN, [2]Tohoku University School of Medicine, Sendai, JAPAN, [3]Honda Electronics Co. Ltd., Toyohashi, JAPAN, [4]Faculty of Symbiotic Systems Science, Fukushima University, Fukushima, JAPAN, [5]Aichi Institute of Technology, Toyota, JAPAN, [6]Gunze Co. Ltd., Ayabe, JAPAN.*	4D-3 Multi-layer Interfacial Property Analysis using a Multi-Frequency Thickness Shear Mode Device builds on a Single Chip ***M. M. A. Francois***, *E. Ergezen, J. Desa, K. Pourrezaei, R. Lec;* *Drexel University, Philadelphia, PA.*	4E-4 Propagation Characteristics of SH-SAW in (11-20) ZnO Layer/Silica Glass Substrate Structures ***A. Tanaka***[1], *T. Yanagitani*[2], *M. Matsukawa*[1], *Y. Watanabe*[1]; *[1]Doshisha University, Kyoto, JAPAN, [2]Tohoku University, Miyagi, JAPAN.*	
5:00 pm	4A-5 HIFU Treatment for Tendinosis - Ex Vivo Studies ***R. Muratore***, *T. Akabas;* *Riverside Research Institute, New York, NY.*	4B-5 3-D Strain Imaging Using a Sparse Rectilinear 2-D Array ***S. I. Awad, IV***, *J. T. Yen;* *University of Southern California, Los Angeles, CA.*	4C-5 Combining High Frequency Ultrasound Reflex Transmission Imaging and Imaging Spectrophotometry for the Diagnosis of Skin Cancer ***J. C. Bamber***[1], *N. L. Bush*[1], *M. Haddock*[1], *D. Rallan*[2], *C. J. Harland*[2]; *[1]Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Surrey, UNITED KINGDOM, [2]Epsom and St Helier University Hospitals NHS Trust, Carshalton, UNITED KINGDOM.*	4D-4 Love Wave Acoustic Array Biosensor Platform for Autonomous Detection ***D. W. Branch***, *T. L. Edwards;* *Sandia National Laboratories, Albuquerque, NM.*	4E-5 Temperature Coefficient of Frequency And Electromechanical Coupling Coefficient Study Of SAW Devices Operating In X Band and Based On AlN/Diamond Layered Structure ***B. M. Assouar***, *O. Elmazria*[1], *P. Kirsch*[1], *V. Mortet*[1], *P. Alnot*[1]; *[1]Nancy University - CNRS, Vandoeuvre les Nancy Cedex, FRANCE, [2]Institute for Materials Research-Limburgs, Diepenbeek, BELGIUM.*	4F-4 Parametric Array Design And Characterisation For Underwater Sonar And Medical Strain Imaging Applications *M. F. Wallace*[1], *H. Mulvana*[2], ***S. Cochran***[1], *P. Marin*[1], *K. Mayne*[1], *M. P. Walsh*[1], *R. Wright*[1], *R. Marsh*[1], *B. Spence*[1], *S. Solomondis*[1]; *[1]University of Paisley, Paisley, UNITED KINGDOM, [2]University of Strathclyde, Glasgow, UNITED KINGDOM, [3]PCT Ltd, Aberdeen, UNITED KINGDOM, [4]Tritech International Ltd, Aberdeen, UNITED KINGDOM.*
5:15 pm	4A-6 Ultrasound Guidance for Placement of Pedicle Screws in Spinal Fusion Surgery *M. Mujagic1, H. J. Ginsberg2,1,* ***R. S. C. Cobbold1****;* *1University of Toronto, Toronto, ON, CANADA, 2St Michael's Hospital, Toronto, ON, CANADA.*	4B-6 A Novel Method for Direct Localized Sound Speed Measurement using the Virtual Source Paradigm ***B. Byram***[1], *J. Jensen*[2]; *[1]Duke University, Durham, NC, [2]Technical University of Denmark, Kgs. Lyngby, DENMARK.*	4C-6 Low-Frequency Ultrasound Spectral Characterization of Apoptosis and Necrosis ***G. J. Czarnota***[1], *M. Azrif*[1], *S. Ranieri*[1], *A. Giles*[1], *M. Papanicolau*[1], *A. Sadeghian*[2], *M. C. Kolios*[2]; *[1]Sunnybrook Health Sciences Centre, Toronto, ON, CANADA, [2]Ryerson University, Toronto, ON, CANADA.*	4D-5 Lateral Field Excited High Frequency Bulk Acoustic Wave Sensors ***D. F. McCann***, *J. M. Parks, M. P. da Cunha, J. F. Vetelino;* *LASST, University of Maine, Orono, ME.*	4E-6 An Analysis of Thermal Effect of Surface Acoustic Waves in a Quartz Crystal Substrate Covered by a Metal Electrode Layer ***J. Wang***, *R. Wu, J. Du, D. Huang;* *Ningbo University, Ningbo, Zhejiang, CHINA.*	4F-5 PC-MUT Arrays for Ophthalmologic Ultrasound ***X. Jiang***[1], *K. A. Snook*[1], *W. S. Hackenberger*[1], *M. Schafer*[2]; *[1]TRS Technologies, Inc., State College, PA, [2]Sonic Tech, Inc, Ambler, PA.*

MON. ORAL

8:00 am - 9:30am — ORAL SESSIONS - Tuesday, October 30, 2007

	Session 5A **Therapeutic Ultrasound: Guidance and Control** *Chair: L. Crum; University of Washington, Seattle, WA.*	*Session 5B* **High Frequency Ultrasound Imaging** *Chair: J. Ketterling; Riverside Research Institute, New York, NY.*	*Session 5C* **Strain / Elasticity Imaging** *Chair: M. Insana; Bioengineering, University of Illinois, Urbana-Champaign, Urbana-Champaign, IL.*	*Session 5D* **Acoustic Wave Fluid Sensors** *Chair: L. C. Lynnworth; Lynnworth Technical Services, Waltham, MA.*	*Session 5E* **Imaging / Visualization I** *Chair: D. Hecht; Palo Alto Research Center, Palo Alto, CA.*	*Session: 5F* **cMUT Imaging Systems** *Chair: S. Smith; GE Global Research, Niskayuna, NY.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
8:00 am	5A-1 Guiding HIFU Therapy in Real Time Using Cavitation Noise Diagnostics ***R. A. Roy***[1], *C. H. Farny2, R. G. Holt1, C. C. Coussios3, J. McLaughlan4, G. ter Haar4; 1Boston University, Boston, MA, 2Brigham and Women's Hospital, Boston, MA, 3University of Oxford, Oxford, UNITED KINGDOM, 4Institute for Cancer Research, Sutton, UNITED KINGDOM.*	5B-1 Picosecond Ultrasonics in a Single Biological Cell ***C. Rossignol***[1], *B. Audoin[1], N. Chigarev[1], M. Durrieu[2], F. Guillemot[2], G. Forget[2], R. Bareille[2], C. Cholet[2];* *[1]Universite Bordeaux - CNRS, Talence, FRANCE, [2]Universite Bordeaux - INSERM, Bordeaux, FRANCE.*	5C-1 Ultrasonic Microprobe based Tubular Size Assay ***A. Ramkumar***[1], *D. A. Paduch[2], P. N. Schlegel[2], A. Lal[1];* *[1]Cornell University, Ithaca, NY, [2]Weill Medical College, New York, NY.*	5D-1 Measurement of Ultrasound Speed in Several Car Engine Oils as a Function of Temperature ***V. Wilkens***, *H. P. Reimann; Physikalisch-Technische Bundesanstalt, Braunschweig, GERMANY.*	5E-1 Full Field Measurement Of Acoustic Stresses And Strains Through Surface Laser Doppler Vibrometry. ***S. D. Holland***, *J. Renshaw; Iowa State University, Ames, IA.*	5F-1 Design Optimization and Integrated Electronics for Dual Electrode CMUTs (Invited) ***L. Degertekin***[1], *P. Hasler[1], M. Balantekin[1], M. Karaman[2], A. Basu[1], R. Guldiken[1], G. Gurun[1], S. Peng[1], S. Qureshi[1], J. Zahorian[1];* *[1]Georgia Institute of Technology, Atlanta, GA, [2]Isik University, Istanbul, TURKEY.*
8:15 am	5A-2 CT-Guided High-Intensity Focused Ultrasound Ablation with Optical 3D Tracking ***H. Vo1***, *A. Patriciu2, A. Luk1, V. Frenkel1, B. Wood1; 1NIH, Bethesda, MD, 2McMaster University, Hamilton, ON, CANADA.*	5B-2 3D Imaging of Teeth using High Frequency Ultrasound ***D. A. Hughes***[1,2], *T. W. Button[3], S. Cochran[2], J. Elgohoyen[2], J. M. Girkin[4], H. Hughes[3], C. Longbottom[3], S. Poland[4];* *[1]Bioengineering Department, University of Strathclyde, Glasgow, UNITED KINGDOM, [2]Scottish Universities Physics Alliance, University of Paisley, Paisley, UNITED KINGDOM, [3]Applied Functional Materials Limited, University of Birmingham, Birmingham, UNITED KINGDOM, [4]Institute of Photonics, University of Strathclyde, Glasgow, UNITED KINGDOM, [5]Centre for Clinical Innovations, University of Dundee, Dundee, UNITED KINGDOM.*	5C-2 Non-invasive Assessment of Biomaterial Tissue Scaffold Degradation using Ultrasound Elasticity Imaging (UEI) ***K. Kim***, *C. G. Jeong, S. J. Hollister; University of Michigan, Ann Arbor, MI.*	5D-2 Application of a portable RF Impedance Spectrum Analyzer for the Investigation of Lateral Field Excited Acoustic Wave Sensors in a Liquid Environment ***U. Hempel***[1], *T. Schneider[1], S. Doerner[1], R. Lucklum[1], J. F. Vetelino[2], P. R. Hauptmann[1];* *[1]University of Magdeburg, Institute of Micro and Sensor Systems, Magdeburg, GERMANY, [2]University of Maine, Laboratory for Surface Science & Technology, Orono, ME.*	5E-2 Acoustical Imaging in Inhomogeneous Media and the Human Eye ***R. G. Maev***[1,2], *V. D. Svet[1];* *[1]University of Windsor, Windsor, ON, CANADA, [2]Centre for Imaging Research and Advanced Materials Characterization, Windsor, ON, CANADA.*	

8:30 am	5A-3 Spatial and Temporal Controlled Tissue Heating on a Modified Clinical Ultrasound Scanner for Generating Mild Hyperthermia in Tumors ***D. E. Kruse**, D. N. Stephens, E. E. Paoli, K. W. Ferrara;* *University of California, Davis, Davis, CA.*	5B-3 High Resolution Intravascular Fundamental And Harmonic Imaging Using A MEMS Fabricated Focused Ultrasonic Transducer ***C. Chandrana**[1,2], A. Nair[1], K. Waters[3], G. D. Vince[1], B. Kuban[1], G. Lockwood[4], S. Roy[1], A. J. Fleischman[1];* *[1]Cleveland Clinic, Cleveland, OH, [2]Cleveland State University, Cleveland, OH, [3]Volcano Corporation, Cleveland, OH, [4]Queens University, Kingston, ON, CANADA.*	5C-3 3D Imaging of Radiofrequency-Ablated Lesions using the Siemens C7F2 fourSight 4D Ultrasound Transducer for Electrode Displacement Elastography ***S. Bharat**, T. G. Fisher, T. Varghese, T. J. Hall, J. Jiang, E. L. Madsen, J. A. Zagzebski;* *University of Wisconsin - Madison, Madison, WI.*	5D-3 More Accurate Simulation of Quartz Crystal Microbalance (QCM) Response to Viscoelastic Loading ***M. Weihnacht**[1], R. Bruenig[2], H. Schmidt[2];* *[1]InnoXacs, Dippoldiswalde, GERMANY, [2]Leibniz Institute for Solid State and Materials Research, Dresden, GERMANY.*	5E-3 Experimental Evidence for a Growing Surface Wave and Acoustic Beam Narrowing upon Reflection from Fluid-Solid Interfaces ***O. A. Sapozhnikov**[1,2], A. A. Karabutov, Jr.[2], V. G. Mozhaev[2];* *[1]University of Washington, Seattle, WA, [2]Moscow State University, Moscow, RUSSIAN FEDERATION.*	5F-2 Packaging and Design of Reconfigurable Arrays for Volumetric Imaging ***R. Fisher**, R. Wodnicki, S. Cogan, R. Thomas, D. Mills, C. Woychik, K. Thomenius;* *GE Global Research, Niskayuna, NY.*
8:45 am	5A-4 Thermal Ablation by Ultrasound: Increasing the Coagulated Volume ***D. Melodelima**1, W. A. N'Djin1, H. Parmentier1, M. Rivoire2, J. Chapelon1;* *1INSERM, Lyon, FRANCE, 2Centre Leon Berard, Lyon, FRANCE.*	5B-4 A Backend Processing System for High Frequency High Frame Rate Ultrasound B-mode Imaging ***J. H. Chang**, J. T. Yen, L. Sun, K. K. Shung;* *University of Southern California, Los Angeles, CA.*	5C-4 Volumetric Strain Imaging ***T. G. Fisher**, J. Jiang, T. Hall;* *University of Wisconsin, Madison, WI.*	5D-4 Reciprocal Operation of Ultrasonic Flow Meters: Applications ***P. Lunde**[1,2], M. Vestrheim[2], R. Bø[3], S. Smørgrav[3], A. K. Abrahamsen[3];* *[1]Christian Michelsen Research AS, Bergen, NORWAY, [2]University of Bergen, Bergen, NORWAY, [3]FMC Technologies, Kongsberg, NORWAY.*	5E-4 Refracto-vibrometry for Visualizing Ultrasound in Gases, Fluids and Condensed Matter ***L. Zipser**, H. Franke;* *HTW University of Applied Sciences, Dresden, GERMANY.*	5F-3 A Matrix Transducer Design with Improved Image Quality and Acquisition Rate ***C. M. W. Daft**[1], D. E. Brueske[2], P. A. Wagner[1], D. C. Liu[2];* *[1]Siemens Medical Solutions USA, Mountain View, CA, [2]Siemens Medical Solutions USA, Issaquah, WA.*
9:00 am	5A-5 Identification of Kidney Stone Fragmentation in Shock Wave Lithotripsy ***N. R. Owen**1, M. R. Bailey1, O. A. Sapozhnikov2, L. A. Crum1;* *1University of Washington, Seattle, WA, 2Moscow State University, Moscow, RUSSIAN FEDERATION.*	5B-5 High-frequency Duplex Ultrasound Imaging System for Biomedical Applciations Using a 30 MHz Linear Array ***X. Xu**, L. Zhang, L. Sun, J. Yen, J. M. Camata, K. K. Shung;* *Univ. of Southern California, Los Angeles, CA.*	5C-5 A Rigid Wall Approach to Physiological Motion Rejection in Arterial ARFI Imaging: Simulation and In Vivo Demonstration ***R. H. Behler**, T. C. Nichols, E. P. Merricks, C. M. Gallippi;* *University of North Carolina at Chapel Hill, Chapel Hill, NC.*	5D-5 Electromagnetic Excitation of High-Q Silicon Face Shear Mode Resonator Sensors ***F. Lucklum**, B. Jakoby;* *Johannes Kepler University Linz, Linz, AUSTRIA.*	5E-5 Numerical Simulation and Schlieren Visualization of Ultrasonic Field Generated by a Piston Transducer in Gas. ***R. Balek**, M. Cervenka;* *CTU in Prague, Faculty of Electrical Engineering, Prague, CZECH REPUBLIC.*	5F-4 Design and Experimental Characterization of Dual-Electrode CMUT Array for Intra-Cardiac Ultrasound Imaging ***R. GULDIKEN**, J. Zahorian, M. Balantekin, L. Degertekin;* *GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, GA.*
9:15 am	5A-6 Bleeding Detection and Localization by Doppler Ultrasound ***W. Luo**1, H. Hosseini1, S. Zolfagharil, X. Zheng1, F. Starr1, V. Zderic2, S. Vaezy1;* *1University of Washington, Seattle, WA, 2the George Washington University, Washington DC, DC.*	5B-6 Chirp Pulse-Compression Imaging Using a 40-MHz Annular Array ***J. Mamou**, J. A. Ketterling, R. H. Silverman;* *Riverside Research Institute, New York, NY.*	5C-6 Muscle Tissue Characterization Using Quantitative Sonoelastography: Preliminary Results ***K. Hoyt**, B. Castaneda, K. J. Parker;* *University of Rochester, Rochester, NY.*		5E-6 Extremum Imitation Study of Thermoelastic Ultrasound Stress Pulse Generation by Laser Pulse ***s. ning**, S. Y. Kai, Z. J. Hai, Y. Qin, Y. X. Qing;* *Northwest Polytechnical University, Shaanxi xi'an, CHINA.*	5F-5 An Assessment of the Thermal Efficiency of Capacitive Micromachined Ultrasonic Transducers ***A. S. Ergun**[1], E. A. Gardner[1], S. Barnes[2];* *[1]Siemens Corporate Research, Mountain View, CA, [2]Siemens Corporate Research, Issaquah, WA.*

9:30 am – 10:30 am | **POSTER SESSIONS - Tuesday, October 30, 2007** | **East and South Corridors, Rhinelander Gallery**

Session: P3A
Vascular Viscoelasticity

Chair: C. de Korte;
University Children's Hospital, Nijmegen, THE NETHERLANDS.

P3A-1
Transient in the Hysteresis Property of the Arterial Wall Due to Flow-Mediated Dilation
K. IKESHITA, *H. HASEGAWA, H. KANAI;*
Graduate School of Engineering, Tohoku University, Sendai, JAPAN.

P3A-2
Analytical Modeling Of Plane Shear Wave Diffraction By A Radially Layered Cylinder For Dynamic Vascular Elastography
A. Hadj Henni, *C. Schmitt, G. Cloutier;*
Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center, Montreal, PQ, CANADA.

P3A-3
Further Investigation Of Ring Resonance In Estimation Of Local Elasticity Of Arteries
X. Zhang, *R. R. Kinnick, J. F. Greenleaf;*
Mayo Clinic College of Medicine, Rochester, MN.

P3B-1
Experimental Demonstration Of Improvements To Operator Splitting Method Using Field II
P. D. Fox;
ISVR, University of Southampton, Southampton, UNITED KINGDOM.

P3B-2
Clutter From Multiple Scattering and Aberration in a Nonlinear Medium
G. F. Pinton, *J. Dahl, G. Trahey;*
Duke University, Durham, NC.

P3B-3
Comparison of an Angular Spectrum Method and a Green's Function Method for Nonlinear Propagation of Pulsed Acoustic Fields from Medical Phased Array Transducers
J. Huijssen[1], *M. D. Verweij*[1], *N. De Jong*[2,3];
[1]Delft University of Technology, Delft, THE NETHERLANDS, [2]Erasmus Medical Centre, Rotterdam, THE NETHERLANDS, [3]Interuniversity Cardiology Institute of The Netherlands, Utrecht, THE NETHERLANDS.

P3B-4
Coded Excitation and Nonlinear Pulse Compression in Pulse Inversion Fundamental Imaging
C. Shen[1], *Y. Cheng*[2], *P. Li*[2];
[1]National Taiwan University of Science and Technology, Taipei, TAIWAN, [2]National Taiwan University, Taipei, TAIWAN.

P3C
Therapeutic Ultrasound II

Chair: K. Hynynen;
Department of Medical Biophysics, University of Toronto, Toronto, ON, CANADA.

P3C-1
Modelling of *In Vivo* Liver Motion on HIFU Treatments: A Combined Method
W. A. N'Djin[1], *N. R. Miller*[2], *J. C. Bamber*[2], *J. Y. Chapelon*[1], *D. Melodelima*[1];
[1]INSERM U556, Lyon, FRANCE, [2]ICR, Sutton, UNITED KINGDOM.

P3C-2
Ultrasound Energy Rapidly Labels Stem/ Progenitor Cells with Nanoparticle Beacons Without Disrupting Membrane Integrity
K. C. Partlow, J. A. Brant, **J. N. Marsh**, *J. A. Nolta, M. S. Hughes, G. M. Lanza, S. A. Wickline;*
Washington University School of Medicine, St. Louis, MO.

P3C-3
An *In Vivo* Tumor-mimic Model For Evaluating the Accuracy of a HIFU Treatment: Preclinical Studies.
W. A. N'Djin[1], *D. Melodelima*[1], *H. Parmentier*[1], *M. Rivoire*[2], *J. Y. Chapelon*[1];
[1]INSERM U556, Lyon, FRANCE, [2]CLB, Lyon, FRANCE.

P3C-8
Techniques For Real-time Monitoring And Control For Hifu Ablation In Porcine Brains In Vitro Studies
T. Long[1], *V. Amin*[1], *T. Ryken*[2], *S. McClure*[1];
[1]Iowa State University, Ames, IA, [2]University of Iowa, Ames, IA.

P3C-9
Simulation and Experiment Results of a 1D High Intensity Focused Ultrasound Array for Acoustic Hemostasis Applications
S. Zhou, *J. Petruzzello;*
Philips Research North America, Briarcliff Manor, NY.

P3C-10
Towards a Reflex Transmission Method For Ultrasound Thermometry
C. H. Farny, *G. T. Clement;*
Harvard Medical School, Boston, MA.

P3C-11
The Effects of Ultrasound Contrast Agent and Difference Frequency in Dual-Frequency High-Intensity Focused Ultrasound on Thermal Lesions
F. Yang, *S. Lin, W. Lin;*
Institute of Biomedical Engineering, National Taiwan University, Taipei, TAIWAN.

P3D-3
Tranmission Ultrasound Imaging to guide Thermal Therapy
E. Soleimankhani, *M. Kolios;*
Ryerson University, Toronto, ON, CANADA.

P3D-4
Two Dimensional Ultrasonic Computed Tomography Of Growth Bone
P. Lasaygues[1], *N. Salaud*[2], *R. Guillermin*[1], *E. Franceschini*[2], *P. Petit*[3], *J. Lefebvre*[1];
[1]Laboratoire de Mécanique et d'Acoustique, CNRS, Marseille, FRANCE, [2]Ecole Supérieure des Ingénieurs de Luminy - ESIL, Marseille, FRANCE, [3]Service Radiologie Pédiatrique, APHM Hôpital Timone-Enfant, Marseille, FRANCE.

P3D-5
Aperture Optimization for 3D Ultrasound Computer Tomography
G. F. Schwarzenberg, *M. Zapf, N. V. Ruiter;*
Forschungszentrum Karlsruhe, Eggenstein-Leopoldshafen, GERMANY.

P3D-6
Simulation, Fabrication, and Characterization of a Novel Flexible, Conformable Ultrasonic Transducer Array
R. S. Singh[1], *M. O. Culjat*[2], *S. P. Vampola*[2], *K. Williams*[1], *W. S. Grundfest*[2], *H. Lee*[1], *E. R. Brown*[1];
[1]University of California, Santa Barbara, Santa Barbara, CA, [2]University of California, Los Angeles, Los Angeles, CA.

P3A-4
Non-invasive Compound Strain Imaging of Vessel Phantoms using Beam Steering at Large Angles
H. H. G. Hansen, *R. G. P. Lopata, C. L. De Korte;*
Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS.

P3A-5
Improving IVUS Palpography By Incorporating Catheter Motion Compensation Based Local Block Matching And Optical Flow.
M. Daniloucbkine, *F. Mastik, T. van der Steen;*
Erasmus Medical Center, Rotterdam, THE NETHERLANDS.

P3A-6
Non-Invasive Vascular Ultrasound Micro-Elastography: Comparisons with M-Mode Strain Measurements in Rat Models of Hypertension
R. Maurice, *J. Fromageau, É. Stoyanova, Z. Qin, J. Peng, P. Hamet, J. Tremblay, G. Cloutier;*
University of Montreal, Montreal, PQ, CANADA.

P3B
Nonlinear Acoustics
Chair: J. J. Dahl;
Biomedical Engineering, Duke University, Durham, NC.

P3B-5
A Feasibility Study of Tissue Harmonic Generation with $3f_0$ Transmit Phasing
C. Shen, *Y. Wang;*
National Taiwan University of Science and Technology, Taipei, TAIWAN.

P3B-6
Implications of Ultrasound Mode Conversion on Transcranial Imaging
F. Vignon[1], *W. T. Shi*[1], *X. Yin*[1], *T. Hoelscher*[2], *J. E. Powers*[3];
[1]*Philips Research North America, Briarcliff Manor, NY,* [2]*University of California in San Diego, San Diego, CA,* [3]*Philips Medical Systems, Bothell, WA.*

P3B-7
Study on Harmonic Pulse Compression Imaging with Consideration of Harmonic Property
M. Fujiwara, M. Tanabe, **N. Akazawa**, *N. Tagawa;*
Tokyo Metropolitan University, Hino, JAPAN.

P3B-8
Signed Echo Imaging with High Axial Resolution
S. Umemura[1], *T. Azuma*[2];
[1]*Tohoku University, Sendai, JAPAN,* [2]*Hitachi Central Research Laboratory, Kokubunji, Tokyo, JAPAN.*

P3C-4
Effect Of Various Ultrasound Insonifications On The Aβ-induced Apoptotic Neurons
C. Chiu, **S. Wang**, *S. Chen;*
Department of Biomedical Engineering, Chung Yuan Christian University, Chung Li, TAIWAN.

P3C-5
Split-focused Ultrasound for Breast Tumor Thermal Surgery with Multidirectional Heating
T. Cheng[1], *K. Ju*[2], *C. Ho*[1], *Y. Chen*[3], *W. Lin*[4];
[1]*Institute of Biomedical Engineering, National Taiwan University, Taipei, TAIWAN,* [2]*Department of Biomedical Engineering, I-Shou University, Kaohsiung, TAIWAN,* [3]*Department of Electrical Engineeing, National Taiwan University, Taipei, TAIWAN,* [4]*Division of Medical Engineering Research, National Health Research Institutes, Miaoli, TAIWAN.*

P3C-6
Power Ultrasonics in Oral Implantology
A. Cardoni;
University of Glasgow, Glasgow, UNITED KINGDOM.

P3C-7
Investigation of Dual Curved Ultrasound Phased Arrays for Breast Tumor Thermal Therapy
Y. Huang[1], *C. Ho*[1], *M. Hsu*[1], *Y. Chen*[2], *W. Lin*[1];
[1]*Institute of Biomedical Engineering,National Taiwan University, Taipei, TAIWAN,* [2]*Department of Electrical Engineering,National Taiwan University, Taipei, TAIWAN.*

P3C-12
Combining Spectral and Intensity Data to Identify Regions of Cavitation in Ultrasound Images; Applicaion to HIFU
C. Hsieh[1], *P. P. Smith*[1], *T. Leslie*[2], *J. Kennedy*[2], *G. Ye*[1], *F. Mayia*[3];
[1]*Department of Engineering Science, University of Oxford, Oxford, UNITED KINGDOM,* [2]*The HIFU Unit, Churchill Hospital, Headington, Oxford, UNITED KINGDOM,* [3]*Department of Medical Physics, Churchill Hospital, Headington, Oxford, UNITED KINGDOM.*

P3D
Tomography
Chair: H. Ermert;
Electrical Engineering, Ruhr-University Bochum, Bochum, GERMANY.

P3D-1
An Analysis Of The Refraction Artifacts In Time-Of-Flight Tomography Regarding Their Impact On Image Definition And Contrast Resolution
M. Ashfaq, *H. Ermert;*
Institute of High Frequency Engineering, Ruhr-University Bochum, Bochum, GERMANY.

P3D-2
Phase Aberration Correction for 3D Ultrasound Computer Tomography Images
N. V. Ruiter, *R. Schnell, M. Zapf, J. Kissel, H. Gemmeke;*
Forschungszentrum Karlsruhe, Eggenstein-Leopoldshafen, GERMANY.

TUES. POSTER

P3E
NDE Transducers

Chair: P. T. Khuri-Yakub;
Stanford University, Palo Alto, CA.

P3E-1
Torsoinal Wave Transduction In A Rotating Shaft Using Magnetostrictive Patch Array
C. Park[1], *S. Cho*[2], *S. Han*[3], *Y. Kim*[1];
[1]Seoul National University, Seoul, REPUBLIC OF KOREA, [2]Korea research institute of standards and science, Daejeon, REPUBLIC OF KOREA, [3]Korea railroad research institute, Gyeonggi, REPUBLIC OF KOREA.

P3E-2
Ultrasonic Transducer Self-reciprocity Calibration with Compensated Frequency Modulated Coded Excitaton Pulse (CFM-CEP) as Excitation
E. G. Oliveira, Sr., *R. P. B. Costa-Felix, Sr.;*
Inmetro, Duque de Caxias - Rio de Janeiro, BRAZIL.

P3E-3
Lateral Mode Piezoelectric Dual Oscillator Sensors for Structural Health Monitoring
B. Kim, *Y. Roh;*
Kyungpook National University, Daegu, REPUBLIC OF KOREA.

P3F
NDE General Methods

Chair: R. G. Maev;
University of Windsor, Windsor, ON, CANADA.

P3F-1
Lamb Wave Generation With An Air-coupled Piezoelectric Array Using Different Square Chirp Modulation Schemes
Y. Yanez, *M. Garcia-Rodriguez, M. J. Garcia-Hernandez, J. Salazar, A. Turo, J. A. Chavez;*
Technical University of Catalonia, Barcelona, SPAIN.

P3F-2
Robotic Based Reconfigurable Lamb Wave Scanner for Non-Destructive Evaluation
G. I. Dobie, *W. Galbraith, M. Friedrich, S. G. Pierce, G. Hayward;*
University of Strathclyde, Glasgow, UNITED KINGDOM.

P3F-3
Matrix Modeling Technique And Its Application For Ultrasonic Lamb Waves In Multilayered Anisotropic MediaA
H. Zhang;
School of Communication and Information Engineering,Shanghai University, Shanghai, CHINA.

P3G-1
The Evaluation of Nonpermanent Acoustic Bonding Agents Incorporating Micron Size Particles
F. S. Hickernell;
University of Arizona, Phoenix, AZ.

P3G-2
Effect of Ultrasound Exposure in Standing Wave Sound Field on Isoelectric Point of Nanometer Sized Diamond Particles for Abrasive Agent
T. Uchida[1], *T. Kikuchi*[1], *N. Kawashima*[2], *S. Takeuchi*[2];
[1]ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY, Ibaraki, JAPAN, [2]Toin University of Yokohama, Kanagawa, JAPAN.

P3G-3
Acoustical Characterization of Alkaline Earth Chalcogenides
R. Singh[1], *M. K. Singh*[1], *R. K. Singh*[2];
[1]Physics Department, Banaras Hindu University,, Varanasi, INDIA, [2]Physics Deparment, Banaras Hindu University,, Varanasi, INDIA.

P3G-4
Acoustic Field Influence on the Defect Formation in Silicon during Ion Implantation
J. M. Olikh, Sr.;
Lashkaryov's Institute of Semiconductor Physics of NAS of Ukraine, Kyiv, UKRAINE.

P3H-3
Thin Film Stack Transducer for Simultaneous Generation of Longitudinal and Shear Waves at Same Frequency
T. Yanagitani[1], *T. Matsuo*[2], *M. Matsukawa*[2], *Y. Watanabe*[2];
[1]Department of Electrical, Information and Physics Engineering, Tohoku University, Sendai, JAPAN, [2]Faculty of Engineering, Doshisha University, Kyotanabe, JAPAN.

P3H-4
Finite Element Analysis of Quartz Crystal Resonators with Mindlin Plate Theory and Parallel Computing Techniques on Computer Clusters
J. Wang[1], *W. Hu*[1], *W. Zhao*[2], *J. Du*[1], *D. Huang*[1];
[1]Ningbo University, Ningbo, Zhejiang, CHINA, [2]Vectron Frequency Devices (Shanghai) Co., Ltd., Shanghai, CHINA.

P3I
Wafer-Level Packaging

Chair: B. Potter;
Vectron International, Hudson, NH.

P3I-1
Effect of Gamma and Neutron Radiation on Quartz SAW Resonators
A. Ternawly, R. Kleiman, **P. M. Smith**;
McMaster University, Hamilton, ON, CANADA.

P3I-6
Interfacial Leaky Longitudinal Acoustic Waves in Lithium Niobate and Lithium Tantalate
V. Grigorievski[1], *V. Plessky*[2], *A. Grigorievskiy*[2];
[1]IRE RAS, Fryazino, Moscow Region, RUSSIAN FEDERATION, [2]GVR Trade SA, Bevaix, SWITZERLAND.

P3J
SAW Interactions

Chair: M. Solal;
R and D, TriQuint Semiconductor, Orlando, FL.

P3J-1
Direct Observation of Surface Acoustic Wave Interaction with a Phononic Crystal
K. Kokkonen[1], *S. Benchabane*[2], *A. Khelif*[3], *V. Laude*[2], *M. Kaivola*[1];
[1]Helsinki University of Technology, Espoo, FINLAND, [2]ICFO-Institut de Ciencies Fotoniques, Barcelona, SPAIN, [3]Institut FEMTO-ST, Besancon, FRANCE.

P3J-2
Laser-interferometric Analysis of Rayleigh-wave Radiation from a LLSAW Resonator
O. Holmgren[1], *T. Makkonen*[1], *J. V. Knuuttila*[1], *V. P. Plessky*[2], *W. Steichen*[3];
[1]Helsinki University of Technology, Espoo, FINLAND, [2]GVR Trade SA, Bevaix, SWITZERLAND, [3]TEMEX, Sophia Antipolis, FRANCE.

P3E-4 **Transducer Design for Liquid Custody Transfer Ultrasonic Flowmetering** *T. H. Nguyen, O. Khrakovsky,* **L. Sui**; *General Electric --Inspection Technologies & Sensing, Billerica, MA.*	**P3F-4** **The Use of Nonlinear Effect of Lamb Waves for Characterizing Elastic Anisotropy in a Solid Plate** **M. Deng**[1], *J. Yang*[2]; *[1]Logistics Engineering University, Chongqing, CHINA, [2]Institute of Acoustics, Chinese Academy of Science, Beijing, CHINA.*	**P3G-5** **Fluid Motion Induced by Acoustic Field in a Microfluidic Device** *H. Sun,* **H. Guo**; *Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen, Fujian, CHINA.*	**P3I-2** **Cavityless Wafer Level Packaging of SAW Devices** *K. Bhattacharjeee*[1], *A. Shvetsov*[2], **S. A. Zhgoon**[2]; *[1]RF MicroDevices, Greensboro, NC, [2]Moscow Power Engineering Institute, Moscow, RUSSIAN FEDERATION.*	**P3J-3** **SAW Method for Measuring of Relaxation Process in Ferroelectric Ceramics** **A. Rybianets**; *Ultrashape Ltd., Tel-Aviv, ISRAEL.*
P3E-5 **Evaluation of Fatigue Specimens Using Emats For Nonlinear Ultrasonic Wave Detection** **R. Murayama, Sr.**, *K. Ayaka, IV;* *Fukuoka Institute of Technology, Fukuoka, JAPAN.*	**P3F-5** **An Ultrasonic Through-Wall Communication System with Power Harvesting** **D. A. Shoudy**[1], *G. J. Saulnier*[1], *H. A. Scarton*[1], *P. K. Das*[2], *S. Roa-Prada*[1], *A. J. Gavens*[3]; *[1]Rensselaer Polytechnic Institute, Troy, NY, [2]University of California, San Diego, LaJolla, CA, [3]Lockheed Martin, Schenectady, NY.*	*P3H* **Imaging and Visualization II** *Chair: V. V. Proklov, Sr.;* *IRE RAS, Moscow, RUSSIAN FEDERATION.*	**P3I-3** **Wafer Level Chip Size Packaging of SAW Devices Using Low Temperature Sacrifice Etching Process** *K. Hohkawa,* **K. Koh**, *T. Yamazaki;* *Kanagawa Institute of Technology, Atsugi, JAPAN.*	**P3J-4** **Investigation of Acoustic Properties of Carbon Nanotubes** *Y. Zhang,* **H. Guo**; *Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen, Fujian, CHINA.*
P3E-6 **Ultrasound Attenuation Spectroscopy For Highly Dissipative Fluids - A Novel Approach Focussing Process Applications** **R. Schaefer**, *P. Hauptmann;* *University of Magdeburg, Institute of Micro and Sensor Systems, Magdeburg, GERMANY.*	**P3F-6** **Acoustic Emission Based Online Valve Leak Detection and Testing** *V. Rajaraman*[1], **A. Püttmer**[2]; *[1]Delft University of Technology, EI Laboratory, Delft, THE NETHERLANDS, [2]Siemens AG, A&D SC PS 1 RD 3, Karlsruhe, GERMANY.*	**P3H-1** **Tunable Solidly Mounted Resonators** **A. Ballato**; *US Army CERDEC HQ, Fort Monmouth, NJ.*	**P3I-4** **Fabrication of Potassium Lithium Niobate Thin Films using RF-Magnetron Sputtering Method and Thermal Annealing Process** **N. KIHARA**, *H. Odaka;* *ASAHI GLASS CO., LTD., Yokohama-shi, JAPAN.*	
P3E-7 **Turbulence Induced Thermal De-stratification Of Liquids Using High-intensity, Multi-frequency Ultrasonic Field** **R. Vetri Murugan**, *R. Nagarajan;* *Indian Institute of Technology, Chennai, INDIA.*	*P3G* **Material Characterization** *Chair: T. Shrout;* *Pennsylvania State University, University Park, PA.*	**P3H-2** **Piezoelectric Excitation and Detection by Coulomb Coupling** **A. Habib**[1], *E. Twerdowski*[1], *M. von Buttlar*[1], *M. Pluta*[2], *H. Voigt*[1], *R. Wannemacher*[1], *W. Grill*[1]; *[1]University of leipzig, Leipzig, GERMANY, [2]Wroclaw University of Technology, Wroclaw, POLAND.*	**P3I-5** **Study On SAW Characteristics Of Amorphous-TeO_2/128°Y-X $LiNbo_3$ Structures** *S. Shang,* **X. Gong**, *J. Xiong, J. Duan;* *Department of Electronics Science and Engineering, Institute of Acoustics,Nanjing University, Nanjing, CHINA.*	

TUES. POSTER

P3K Passive Materials

Chair: V. Varadan;
Department of Electrical Engineering, University of Arkansas, Fayetteville, AR.

P3K-1 Low Sound Velocity and Acoustic Attenuation Silicone Rubber Lens Based on Heavy Density Ceramic Nano-powder Composite for Medical Array Probe

Y. Hosono[1], *K. Itsumi*[1], *Y. Yamashita*[2];
[1]*Corporate R&D Center, Toshiba Corporation, Kawasaki, JAPAN,* [2]*Toshiba Research Consulting Co.Ltd., Kawasaki, JAPAN.*

P3K-2 Tio_2 -polymer Nanocomposites For Matching Layers Of Ultrahigh Frequency Transducers

J. Zhu[1], *W. Cao*[1], *B. Jiang*[1], *D. Zhang*[2], *H. Zheng*[2], *Q. Zhou*[3], *K. Shung*[3];
[1]*Penn State University, University Park, PA,* [2]*Chemat Technology, Inc., Northridge, CA,* [3]*University of Southern California, Los Angeles, CA.*

P3K-3 Investigation of Low Glass Transition Temperature Epoxy Resin Blends for Lossy, yet Machineable, Transducer Substrates

M. D. C. Eames, *J. A. Hossack;*
University of Virgina, Charlottesville, VA.

P3K-4 Ultrasound Damping Polyurethane Composites with Improved Thermal Stability

M. State[1,2], *L. Ledoux*[1], *F. van de Vosse*[2];
[1]*ESAOTE Europe B.V., Maastricht, THE NETHERLANDS,* [2]*Department of Biomedical Engineering, University of Technology, Eindhoven, THE NETHERLANDS.*

P3K-5 Passive Materials for High Frequency Ultrasound Components

R. A. Webster[1], *S. Cochran*[2], *D. MacLennan*[3], *C. Meggs*[4], *T. W. Button*[1];
[1]*University of Birmingham, Birmingham, UNITED KINGDOM,* [2]*University of Paisley, Paisley, UNITED KINGDOM,* [3]*University of Strathclyde, Glasgow, UNITED KINGDOM.*

10:30 am - 12:00 pm — ORAL SESSIONS - Tuesday, October 30, 2007

	Session 6A **Therapeutics: Brain and Blood** *Chair: R. Seip; Focus Surgery, Inc., Indianapolis, IN.*	*Session 6B* **Radiation Force and Strain / Elasticity** *Chair: **G. Trahey**; Duke University, NC.*	*Session 6C* **Signal Processing** *Chair: S. I. Nikolov; Technical University of Denmark, Kgs. Lyngby, DENMARK.*	*Session 6D* **Acoustic Wave Chemical Sensors** *Chair: J. H. Hines; Applied Sensor Research and Development Corporation, Annapolis, MD.*	*Session 6E* **Innovative SAW Components** *Chair: C. Ruppel; EPCOS AG, Munich, GERMANY.*	*Session: 6F* **cMUT Fabrication** *Chair: L. Degertekin; Georgia Institute of Technology, Atlanta, GA.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
10:30 am	6A-1 The Role of Inertial Cavitation of Ultrasound Contrast Agents in Producing Sonoporation ***M. M. Forbes**, W. D. O'Brien, Jr.; University of Illinois at Urbana-Champaign, Urbana, IL.*	6B-1 Magnetic Resonance Acoustic Radiation Force Imaging (MR-ARFI) ***N. McDannold**, S. Maier; Brigham & Women's Hospital, Boston, MA.*	6C-1 Imaging the Elastic Nonlinearity of Tissues ***T. J. Hall**[1], A. A. Oberai[2], P. E. Barbone[3], A. M. Sommer[1], J. Jiang[1], N. H. Gokhale[3], S. Goenzen[2]; [1]University of Wisconsin, Madison, WI, [2]Rensselaer Polytechnic Institute, Troy, NY, [3]Boston University, Boston, MA.*	6D-1 The Capactive Micromachined Ultrasonic Transducer (CMUT) as a Chem/Bio Sensor (Invited) ***B. T. Khuri-Yakub**[1], K. Park[1], J. Lee[1], G. yaralioglu[1], A. S. Ergun[1], O. Oralkan[1], M. Kupnik[1], C. F. Quate[1], T. Braun[2], H. Lang[2], M. Hegner[2], J. Ramseyer[2], C. Gerber[2], J. Gimzewski[2]; [1]Stanford University, Stanford, CA, [2]University of Basel, Basel, SWITZERLAND, [3]UCLA, Los Angeles, CA.*	6E-1 A Small-Sized SAW Duplexer on a SiO_2/IDT/$LiNbO_3$ Structure for Wideband CDMA Application ***H. Nakamura**, H. Nakanishi, T. Tsurunari, K. Matsunami, Y. Iwasaki; Panasonic Electronic Devices Co., Ltd., Kadoma City, Osaka, JAPAN.*	6F-1 Trench-Isolated CMUT Arrays with a Supporting Frame: Characterization and Imaging Results ***X. Zhuang**, I. O. Wygant, D. Lin, O. Oralkan, B. T. Khuri-Yakub; Stanford University, Stanford, CA.*
10:45 am	6A-2 Molecular Delivery and Microbubble Dependence Study of the FUS-induced Blood-Brain Barrier Opening In Vivo ***J. J. Choi**, S. Wang, B. Morrison, III, E. E. Konofagou; Columbia University, New York, NY.*	6B-2 Visualizing The Anatomic Structures Of Human Prostate Using Acoustic Radiation Force Impulse Imaging ***L. Zhai**, V. Mouraviev, J. Madden, T. Polascik, K. R. Nightingale; Duke University, Durham, NC.*	6C-2 Differential Diagnosis of Parotid Gland Lesions using Spatially Fused Sonohistologic Features ***S. Siebers**[1], U. Scheipers[1], F. Gottwald[2], A. Bozzato[2], J. Zenk[2], H. Iro[2], H. Ermert[1]; [1]Ruhr University Bochum, Bochum, GERMANY, [2]University Erlangen-Nuremberg, Erlangen, GERMANY.*		6E-2 Phase Velocity Control of Surface Acoustic Waves Based on Surface Shorting and Electrical Field Application using MEMS Switches ***J. H. Kuypers**, M. E. Schmidt, S. Tanaka, M. Esashi; Tohoku University, Sendai, JAPAN.*	6F-2 Extended Insulation Layer Structure for Capacitive Micromachined Ultrasonic Transducers ***M. Kupnik**, Y. Huang, A. S. Ergun, B. T. Khuri-Yakub; E. L. Ginzton Lab, Stanford University, Stanford, CA.*

11:00 am	6A-3 Therapeutic Applications of Microbubbles - Sonothrombolysis and Beyond (Invited) ***e. unger***: *University of Arizona Health Sciences Center, Tucson, AZ.*	6B-3 Viscoelastic Property Measurement in Thin Tissue Constructs Using Ultrasound ***D. LIU***, *E. S. Ebbini;* *University of Minnesota, Minneapolis, MN.*	6C-3 Singular Spectrum Analysis for Detecting Brachytherapy Seeds with Angle Variation ***S. Ramachandran***, *J. Mamou, E. J. Feleppa;* *Riverside Research Institute, New York, NY.*	6D-2 MEMS-Enabled Miniaturized Particulate Matter Monitor Employing 1.6 GHz Aluminum Nitride Thin-Film Bulk Acoustic Wave Resonator (FBAR) and Thermophoretic Precipitator ***J. P. Black***[1], *R. M. White*[1], *M. G. Apte*[2], *L. A. Gundel*[2], *R. Cambie*[2]; [1]*University of California at Berkeley, Berkeley, CA,* [2]*Lawrence Berkeley National Laboratory, Berkeley, CA.*	6E-3 Influence of passivation on Single Phase Unidirectionnal Transducer cells ***S. J. Ballandras***[1], *R. Lardat*[2], *W. Steichen*[2], *T. Pastureaud*[3], *W. Daniau*[1], *L. El Fissi*[4], *J. Bennes*[1]; [1]*CNRS, Besançon, FRANCE,* [2]*TEMEX SAS, Sophia Antipolis, FRANCE,* [3]*THALES, Sophia Antipolis, FRANCE,* [4]*SENSeOR, Sophia Antipolis, FRANCE.*	6F-3 Fabrication and Assembly of A Monolithic 3D CMUT Array for Imaging Applications ***X. Cheng***[1], *J. Chen*[1], *I. Shen*[2], *P. Li*[2], *M. Wang*[1]; [1]*University of New Mexico, Albuquerque, NM,* [2]*National Taiwan University, Taipei, TAIWAN.*
11:15 am		6B-4 In vivo Acoustic Radiation Force Impulse Imaging of Abdominal Lesions *B. J. Fahey*[1], *R. C. Nelson*[2], *S. J. Hsu*[1], *D. P. Bradway*[1], *D. M. Dumont*[1], ***G. E. Trahey***[1,2]; [1]*Duke University, Durham, NC,* [2]*Duke University Medical Center, Durham, NC.*	6C-4 Segmentation of Speckle-Reduced 3D Medical Ultrasound Images, Evaluated with a Surface Accuracy Metric ***J. D. Quartararo***[1], *P. C. Pedersen*[1], *T. L. Szabo*[2]; [1]*Worcester Polytechnic Institute, Worcester, MA,* [2]*Boston University, Boston, MA.*	6D-3 A Lateral Field Excited Acoustic Wave Sensor for the Detection of Saxitoxin in Water ***M. Wark***, *L. Ellis, J. Fick, D. Neivandt, L. Connell, J. F. Vetelino;* *University of Maine, Orono, ME.*	6E-4 Acoustic ID-tags for Under Water Use ***A. Rennekleiv, Sr.***; *Norwegian University of Science and Technology, Trondheim, NORWAY.*	6F-4 Low Frequency Capacitive Micromachined Ultrasonic Transducers for Airborne Applications in the 40 kHz to 100 kHz Frequency Range ***I. Wygant***[1], *M. Kupnik*[1], *G. Yaralioglu*[1], *M. F. Hamilton*[2], *B. T. Khuri-Yakub*[1]; [1]*Stanford University, Stanford, CA,* [2]*The University of Texas at Austin, Austin, TX.*
11:30 am	6A-4 Focused Ultrasound-Induced Spreading Depression's Potential for Blood-Brain Barrier Disruption ***N. Vykhodtseva***[1], *I. Konopatskaya2, V. Koroleva3;* *1Harvard Medical School, Boston, MA, 2N.N. Andreyev Acoustics Institute, Moscow, RUSSIAN FEDERATION, 3Institute of Higher Nervous Activity and Neurophysiology, Russian Academy of Sciences, Moscow, RUSSIAN FEDERATION.*	6B-5 Combined Optical and Ultrasound-Based Tracking of an Acoustic Radiation Force-Induced Excitation ***R. R. Bouchard***[1,2], *G. van Soest*[1], *A. F. W. van der Steen*[1]; [1]*Erasmus MC, Rotterdam, THE NETHERLANDS,* [2]*Duke University, Durham, NC.*	6C-5 An Ultrasonic Imaging Speckle Suppression and Contrast Enhancement Technique by Means of Frequency Compounding and Coded Excitation ***J. Sanchez***, *M. L. Oelze;* *University of Illinois at Urbana-Champaign, Urbana, IL.*	6D-4 Generalized And Pure Shear Horizontal Saw Sensors On Quartz For Hydrogen Fluoride Gas Detection ***B. J. Meulendyk***, *M. C. Wheeler, B. Segee, M. Pereira da Cunha;* *University of Maine, Orono, ME.*	6E-5 High Performance and Miniature Surface Acoustic Wave Devices with Excellent Temperature Stability Using High Density Metal Electrodes (Invited) ***M. Kadota***; *Murata Mfg. Co., Ltd., Yasu-shi, Shiga Prefecture, JAPAN.*	Characterization of Fabrication Related Gap-Height Variation in Capacitive Micromachined Ultrasonic Transducers ***D. S. Lin***[1], *X. Zhuang*[1], *S. H. Wong*[1], *A. S. Ergun*[2], *M. Kupnik*[1], *B. T. Khuri-Yakub*[1]; [1]*Stanford University, Stanford, CA,* [2]*Siemens Corporate Research, Mountain View, CA.*
11:45 am	6A-5 Ultrasound-induced Antivascular Therapy of Mouse Tumors ***C. M. Sehgal***, *W. M. Lee, R. M. Bunte, A. K. Wood;* *University of Pennsylvania, Philadelphia, PA.*	6B-6 Transthoracic Cardiac ARFI: a Feasibility Study ***D. P. Bradway***[1], *S. J. Hsu*[1], *B. J. Fahey*[1], *J. J. Dahl*[1], *T. C. Nichols*[2], *G. E. Trahey*[1]; [1]*Duke University, Durham, NC,* [2]*The University of North Carolina at Chapel Hill, Chapel Hill, NC.*	6C-6 Qualitative Properties of an Entropy-Based Signal Detector ***M. S. Hughes***[1], *J. E. McCarthy*[2], *B. N. Maurizi*[2], *J. N. Marsh*[1], *K. D. Wallace*[1], *G. M. Lanza*[1], *S. A. Wickline*[1]; [1]*Washington University School of Medicine, St Louis, MO,* [2]*Washington University Department of Mathematics, St Louis, MO.*	6D-5 Modeling The Rf Acoustic Behavior Of Love-wave Sensors Loaded With Organic Layers ***L. EL FISSI***[1], *J. Friedt*[1], *S. Ballandras*[2]; [1]*Senseor, Sophia antipolis, FRANCE,* [2]*CNRS, Besançon, FRANCE.*		6F-6 A Novel Method for Fabricating Sonic Paper ***M. Chang***, *T. Deng, M. Chen;* *Industrial Technology Research Institute, Hsin Chu, TAIWAN.*

1:30 pm - 3:00 pm — ORAL SESSIONS - Tuesday, October 30, 2007

	Session 7A **Contrast Agents Imaging Methods** *Chair: M. Versluis; Physics of Fluids, University of Twente, Enschede, THE NETHERLANDS.*	*Session 7B* **Radiation Force / Shear Wave Imaging** *Chair: K. Nightingale; Department of Biomedical Engineering, Duke University, Durham, NC.*	*Session 7C* **Vascular Imaging** *Chair: J. F. Greenleaf; Physiology and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester, MN.*	*Session 7D* **Array Imaging and Beam Forming** *Chair: M. Pappalardo; Dipartimento di Ingegneria Elettronica, University di Roma TRE, Rome, ITALY.*	*Session 7E* **Bulk Acoustic Wave Devices I** *Chair: J. Kaitila; Infineon Technologies, Neubiberg, GERMANY.*	*Session: 7F* **Phonics I** *Chair: J. D. Larson; Avago Technologies, San Jose, CA.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
1:30 pm	7A-1 New Methods of Nonlinear Ultrasound Imaging (Invited) ***B. A. J. Angelsen****[1], R. Hansen[2]; [1]Norwegian University of Science and Technology, Trondheim, NORWAY, [2]SINTEF Health, Trondheim, NORWAY.*	7B-1 Elastography As A Tool To Diagnose Liver Fibrosis - A Comparison Between Supersonic Shear Imaging And 3D MR Elastography For A Rat Model *J. L. Gennisson[1], N. Salameh[2], T. Deffieux[1], B. Larrat[1], M. Tanter[1],* ***R. Sinkus****[1], B. van Beers[2], M. Fink[1]; [1]Laboratoire Ondes et Acoustique, ESPCI, Paris, FRANCE, [2]Diagnostic Radiology Unit, Université Catholique de Louvain, Brussels, BELGIUM.*	7C-1 Backscatter Spectral Analysis of Excised Human Carotid Endarterectomy Specimens using B-mode Ultrasound ***M. Sareen****[1], K. R. Waters[2], A. Nair[2,3], D. G. Vince[2,3]; [1]Case Western Reserve University, Cleveland, OH, [2]Volcano Corporation, Rancho Cordova, CA, [3]Cleveland Clinic, Cleveland, OH.*	7D-1 Computational Time Reversal Ultrasonic Array Imaging Of Multippoint Targets ***P. Simko****, J. Saniie; Illinois Institute of Technology, Chicago, IL.*	7E-1 An Air-Gap Type FBAR Filter Fabricated Using a Thin Sacrificed Layer on a Flat Substrate ***S. Taniguchi****, T. Yokoyama, M. Iwaki, T. Nishihara, M. Ueda, Y. Satoh; FUJITSU LABORATORIES LTD., Akashi, JAPAN.*	7F-1 Design of Band-stop Filters Using PZT Layer On Silicon Substrate Phononic Crystals ***A. Hladky-Hennion****[1], B. Dubus[1], F. Duval[1], J. Vasseur[1], C. Granger[1], Y. Pennec[1], B. Djafari-Rouhani[1], B. Morvan[2]; [1]IEMN, Lille, FRANCE, [2]LAUE, Le Havre, FRANCE.*
1:45 pm		7B-2 Non Linear Shear Elastic Moduli In Incompressible Soft Solids *m. rénier,* ***j. gennisson****, m. tanter, d. royer, m. fink; Laboratoire Ondes et Acoustique, Paris, FRANCE.*	7C-2 Non-Invasive In Vivo Measurements of Longitudinal Strain of the Arterial Wall ***M. Cinthio****[1], Å. Rydén Ahlgren[2], T. Jansson[1], H. W. Persson[1], K. Lindström[1]; [1]Lund Institute of Technology, Lund University, Lund, SWEDEN, [2]Malmö University Hospital, Lund University, Malmö, SWEDEN.*	7D-2 3D PSTD Simulations of NEWS-TR Method: Application to Nonclassical Nonlinearity Ultrasonic Imaging *T. Goursolle[1], S. Callé[1],* ***S. Dos Santos****[1], O. Bou Matar[2]; [1]Université F. Rabelais Tours, LUSSI CNRS FRE 2448, Blois, FRANCE, [2]European Associated Laboratory LEMAC / IEMN-DOAE-UMR CNRS 8520, Villeneuve d'Ascq, FRANCE.*	7E-2 A De-Coupled Stacked Bulk Acoustic Resoantor (DSBAR) Filter with >4% 2 dB Bandwidth Performance ***M. K. Small****, T. Jamneala, L. A. Callaghan, J. D. Larson, Fellow of IEEE, R. C. Ruby; Avago Technologies, San Jose, CA.*	7F-2 Analyses of Lamb Wave Dispersion and Band Gaps of Two-Dimensional Piezoelectric Phononic Crystal Plates ***J. Hsu****, T. Wu; Institute of Applied Mechanics, National Taiwan University, Taipei, TAIWAN.*

2:00 pm	7A-2 Surf Imaging - In Vivo Demonstration Of An Ultrasound Contrast Agent Detection Technique In Patients With Prostate Cancer And Thyroid Nodules ***S. MÅ¥sÅ¸y*** *Norwegian University of Science and Technology, Trondheim, NORWAY.*	7B-3 Direct Estimation of Shear Modulus using Spatially Modulated Acoustic Radiation Force Impulses ***S. A. McAleavey***, *M. Menon;* *University of Rochester, Rochester, NY.*	7C-3 In Vivo Assessment Method of Tissue-Engineered Vessel Wall Based on Quantitative Elastic Modulus Measurement ***N. Nitta***[1], *T. Tamane*[1], *T. Shin'oka*[2], *G. Matsumura*[2], *T. Shiina*[3]; *[1]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, JAPAN, [2]Department of Cardiovascular Surgery, Tokyo Women's Medical University, Tokyo, JAPAN, [3]Graduate School of Systems and Information Engineering, University of Tsukuba, Tsukuba, JAPAN.*	7D-3 Simulation of the Influence of Hydrophones used for the Characterization of Pressure Field Distribution in Low frequency, High Power Ultrasonic Reactor Vessels ***A. Gachagan***, *G. Harvey;* *University of Strathclyde, Glasgow, UNITED KINGDOM.*	7E-3 Fabrication of high stability oscillators using AlN/Si High Overtone Bulk Acoustic Resonators *J. Masson*[1], *A. Artieda*[2], *G. Martin*[1], *Y. Gruson*[1], *B. Belgacem*[3], *L. Chommeloux*[3], *P. Murali*[2], ***S. J. Ballandras***[1]; *[1]CNRS, Besançon, FRANCE, [2]EPFL, Lausanne, SWITZERLAND, [3]SENSeOR, Sophia Antipolis, FRANCE.*	7F-3 Phononic Crystal: a New Acoustic Material System (Invited) ***A. Khelif***; *Institut FEMTO-ST, Besançon, FRANCE.*
2:15 pm	7A-3 Optimal Pulse Sequences For The Suppression Of Memoryless Tissue Harmonics ***M. Mleczko***[1], *W. G. Wilkening2, G. Schmitz1;* *1Ruhr-Universität Bochum, Bochum, GERMANY, 2Krohne GmbH & Co. KG, Duisburg, GERMANY.*	7B-4 In Vivo Staging of Liver Fibrosis in a Rat Model Using Acoustic Radiation Force ***M. H. Wang***, *L. W. Hedlund, M. L. Palmeri, C. D. Guy, K. R. Nightingale;* *Duke University, Durham, NC.*	7C-4 A Novel Approach to Assess the Stiffness of Vessels by Means of Pulse Wave Analysis in Transcutaneous Ultrasound ***T. Neumann***, *C. Hansen, H. Ermert;* *Ruhr-University Bochum, Bochum, GERMANY.*	7D-4 NDE of CFR Plates Using Lamb Waves. A Comparison between Pitch-Catch Air Coupled Techniques and Sector Images Obtained with Embedded Piezoelectric Linear Arrays ***Y. Gomez-Ullate Ricon***, *F. Montero de Espinosa Freijo;* *Instituto de Acustica - CSIC, Madrid, SPAIN.*	7E-4 Enhanced Power Handling and Quality Factor in Thin-Film Piezoelectric-on-Substrate Resonators ***R. Abdolvand***, *F. Ayazi;* *Georgia Institute of Technology, Atlanta, GA.*	
2:30 pm	7A-4 A New Method for Enhancing Dynamic Vascular Patterns of Focal Liver Lesions in Contrast Ultrasound ***N. Rognin***[1], *P. Frinking1, T. Messager1, M. Arditi1, G. Perrenoud2, A. Guibal2, J. Y. Meuwly2;* *1Bracco Research SA, Geneva, SWITZERLAND, 2University Hospital, Lausanne, SWITZERLAND.*	7B-5 Complementarity and Synergy of Elastographic Methods ***A. Sarvazyan***[1], *V. Egorov*[1], *J. Bercoff*[2]; *[1]Artann Laboratories, Trenton, NJ, [2]Supersonic Imagine, Aix en Provence, FRANCE.*	7C-5 Spectroscopic Intravascular Photoacoustic Imaging ***S. Sethuraman***[1], *B. Wang*[1], *S. H. Litovsky*[2], *J. H. Amirian*[1], *R. W. Smalling*[1], *S. Y. Emelianov*[1]; *[1]The University of Texas at Austin, Austin, TX, [2]University of Alabama Birmingham, Birmingham, AL, [3]University of Texas Health Science Center, Houston, TX.*	7D-5 Detection and Sizing of Delaminations in Composites using Modally-Selective Lamb-Wave Transducers ***G. Petculescu***[1], *S. Krishnaswamy*[2], *J. D. Achenbach*[2]; *[1]University of Louisiana, Lafayette, LA, [2]Northwestern University, Evanston, IL.*	7E-5 Temperature Coefficients Measured By Picosecond Ultrasonics On Materials In Thin Films For Bulk Acoustic Wave Technology ***P. Emery***[1], *D. Petit*[1], *A. Devos*[2], *P. Ancey*[1]; *[1]STMicroelectronics, Grenoble, FRANCE, [2]CNRS, Lille, FRANCE.*	7F-4 Review of Phononic Crystals, Devices and Prospects (Invited) ***S. A. Nikitov***, *Y. V. Gulyaev, A. V. Grigorievskiy, I. V. Lisenkov, R. S. Popov, V. I. Grigorievskii;* *Institute of Radioengineering and Electronics, Moscow, RUSSIAN FEDERATION.*
2:45 pm	7A-5 Real-Time 3D Contrast-Enhanced Transcranial Ultrasound ***N. M. Ivancevich***[1], *H. A. Nicoletto2, M. Scism2, E. Bennett2, D. T. Laskowitz2, S. W. Smith1;* *1Duke University Department of Biomedical Engineering, Durham, NC, 2Duke University Division of Neurology, Durham, NC.*	7B-6 >Dependence Of In Vivo, Radiation Force Derived Hepatic Shear Modulus Estimates On Imaging Approach: Intercostal Vs. Subcostal ***M. L. Palmeri***, *M. H. Wang, K. D. Frinkley, K. R. Nightingale;* *Duke University, Durham, NC.*	7C-6 Motion Artifact Reduction by ECG Gating in Ultrasound Induced Thermal Strain Imaging (TSI) ***K. Kim***[1], *S. Huang*[1], *R. Olafsson*[1], *C. Jia*[1], *R. S. Witte*[1], *M. O'Donnell*[2]; *[1]University of Michigan, Ann Arbor, MI, [2]University of Washington, Seattle, WA.*	7D-6 Leaky-compressional Wave Dispersions And Attenuations In A Fluid-filled Borehole Embedded In Slow Formations ***Y. Zhou***, *X. Wang, H. Chen;* *Institute of Acoustics, Chinese Academy of Sciences, Beijing, CHINA.*	7E-6 Aluminum Nitride Bulk Acoustic Wave Devices with Iridium Bottom Electrodes *E. Iborra*[1], ***M. Clement***[1], *J. Olivares*[1], *J. Sangrador*[1], *N. Rimmer*[2], *A. Rastogi*[2]; *[1]Universidad Politécnica de Madrid, Madrid, SPAIN, [2]Aviza Technology Ltd., Newport, South Wales, UNITED KINGDOM.*	

TUES. ORAL

3:00 pm – 4:00 pm | **POSTER SESSIONS - Tuesday, October 30, 2007** | **East and South Corridors, Rhinelander Gallery**

P4A
Cardiac Strain / Elasticity

Chair: H. Kanai; Department of Electronic Engineering, Tohoku University, Sendai, JAPAN.

P4A-1
Automated Contour Tracking For High Frame-Rate, Full-View Myocardial Elastography In Vivo
J. Luo, *E. E. Konofagou; Columbia University, New York, NY.*

P4A-2
An In-Vivo Study Of Frame Rate Optimization For Myocardial Elastography
J. Luo, *W. Lee, S. Wang, E. E. Konofagou; Columbia University, New York, NY.*

P4A-3
3D Myocardial Strain Imaging: Improvement of Accuracy and Contrast by Dynamic Grid Interpolation
S. BU, Jr., *T. Shiina, Sr., M. Yamakawa, Sr., H. Takizawa, Sr.; University of Tsukuba, Tsukuba, JAPAN.*

P4B-2
Beamforming Techniques for Motion Estimation in Ultrasound Elastography
P. Gueth, *A. Basarab, H. Liebgott, P. Delachartre; CREATIS LRMN Univ UMR 5220 Inserm U 630, Villeurbanne, FRANCE.*

P4B-3
A New Displacement Estimator In Large Strains
L. Huang, *M. O'Donnell; University of Washington, Seattle, WA.*

P4B-4
Local Harmonic Motion for *In Vivo* Focused Ultrasound Surgery Monitoring
L. Curiel, *R. Chopra, K. Hynynen; Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*

P4B-5
The Role of Local Center Frequency Estimation in Doppler-Based Strain Imaging
H. Xie[1], *T. Gauthier*[2], *A. T. Fernandez*[2]; [1]*Philips Research North America, Briarcliff Manor, NY.* [2]*Philips Medical Systems, Bothell, WA.*

P4C-3
Dynamics Of Ultrasound Contrast Agents Within Rat Cecum Vessels
S. Qin, *C. F. Caskey, K. W. Ferrara; University of California, Davis, CA.*

P4C-4
In Vitro Investigation of Thrombosis Dissolution with Microbubble-induced Continuous Acoustic Activities
W. T. Shi[1], *J. E. Powers*[2], *A. L. Klibanov*[3], *C. S. Hall*[1]; [1]*Philips Research North America, Briarcliff Manor, NY.* [2]*Philips Medical Systems, Bothell, WA.* [3]*University of Virginia Health System, Charlottesville, VA.*

P4D
Microbubbles: Theory and Optimization

Chair: P. Dayton; Biomedical Engineering, University of California, Davis, Davis, CA.

P4D-1
Development of a Finite Element Model of Ultrasound Contrast Agents
M. C. Pauzin[1,2], *S. Mensah*[1], *J. P. Lefebvre*[1]; [1]*Laboratoire de Mécanique et d'Acoustique, Marseille, FRANCE.* [2]*Université de Provence, Marseille, FRANCE.*

P4D-6
Resonance Frequencies of Lipid-Shelled Microbubbles in the Regime of Nonlinear Oscillation
A. A. Doinikov[1], *P. A. Dayton*[2]; [1]*Belarus State University, Minsk, BELARUS.* [2]*University of California, Davis, CA.*

P4D-7
Nonlinear Propagation of Ultrasound Through Microbubble Clouds - a Novel Numerical Implementation
K. J. Hibbs[1], *R. J. Eckersley*[2], *M. Tang*[2]; [1]*University of Oxford, Oxford, UNITED KINGDOM.* [2]*Imperial College, London, UNITED KINGDOM.*

P4D-8
Modeling Contrast Microbubble Growth And Dissolution
K. Sarkar, *P. Jain; University of Delaware, Newark, DE.*

P4D-9
Numerical Model for the Dynamics of a Contrast Agent Bubble in an Ultrasound Field
A. V. Teterev, *L. V. Rudak, N. I. Misychenko, A. A. Doinikov; Belarus State University, Minsk, BELARUS.*

P4E-4
A Numerical Study Of Sonothrombolysis Effect On Ischemic Strokes : Safety Issue
C. Baron[1], *J. Aubry*[1], *M. Tanter*[1], *S. Meairs*[2], *M. Fink*[1]; [1]*Laboratoire Ondes et Acoustique - ESPCI CNRS Paris 7 INSERM, Paris, FRANCE.* [2]*Neurologische Klinik der Universität Heidelberg, Mannheim, GERMANY.*

P4E-5
Theoretical Analysis Of Oscillations Of Cells In The High Frequency Ultrasonic Field
P. V. Zinin, *J. S. Allen, III; University of Hawaii, Honolulu, HI.*

P4A-4
Evaluation of Cardiac dyssynchrony using Strain Imaging
H. Chen[1], *T. Varghese*[1], *P. S. Rahko*[2], *J. Zagzebski*[1]; *[1]University of Wisconsin-Madison, Madison, WI, [2]Cardiovascular Medicine, UW Hospital and Clinics, Madison, WI.*

P4A-5
3D Cardiac Strain Estimation Using Spatio-temporal Elastic Registration: In Silico Validation
A. Elen, *D. Loeckx, H. F. Choi, H. Gao, P. Claus, F. Maes, P. Suetens, J. D'hooge; K.U.Leuven, Leuven, BELGIUM.*

P4B
Motion / Strain Measurements
Chair: A. Hall; General Electric Medical Systems, Milwaukee, WI.

P4B-1
Characterization of a Multiscale Variational Optical Flow Method for Elastography
D. Sosa-Cabrera[1], *J. González-Fernández*[1], *L. Gómez-Déniz*[1], *J. Ruiz-Alzola*[2]; *[1]CTM - University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, SPAIN, [2]ITC - Technological Institute of Canary Islands, Las Palmas de Gran Canaria, SPAIN.*

P4B-6
Error Analysis of Axial Displacement Estimation in Elasticity Imaging
S. Huang[1], *J. M. Rubin*[1], *R. S. Witte*[1], *C. Jia*[1], *R. Olafsson*[1], *M. O'Donnell*[2]; *[1]University of Michigan, Ann Arbor, MI, [2]University of Washington, Seattle, WA.*

P4C
Contrast Agents: Applications
Chair: N. Kudo; Chicago, IL.

P4C-1
Tumor Selective Imaging and Treatment with Targeted Phase Change Nano-Particles
R. Asami, *T. Azuma, H. Yoshikawa, K. Kawabata; Central Research Laboratory, Hitachi, Ltd., Tokyo, JAPAN.*

P4C-2
Contrast Enhanced US for Monitoring the Effect of VEGF Trap on Melanoma Tumor Vascularity
R. J. Ro[1], **F. Forsberg**[1], *J. Liu*[1], *S. Chiou*[1,2], *D. A. Merton*[1], *K. J. Lipnack*[1], *M. Potoczek*[1], *A. P. Dicker*[1], *L. N. Nazarian*[1]; *[1]Thomas Jefferson University, Philadelphia, PA, [2]Taipei Veterans General Hospital, Taipei, TAIWAN.*

P4D-2
Novel Methods for Microbubble Preparation
U. Farook, K. Pancholi, R. Moaleji, **E. P. J. Stride**, *M. Edirisinghe; University College London, London, UNITED KINGDOM.*

P4D-3
The Effects of Needle Size and Injection Rate on Contrast Agent Population
E. Talu, *R. L. Powell, M. L. Longo, P. A. Dayton; University of California, Davis, Davis, CA.*

P4D-4
Image Reconstruction of Moderate-contrast Targets Using the Distorted Born Iterative Method
R. J. Lavarello, *M. L. Oelze; University of Illinois at Urbana-Champaign, Urbana, IL.*

P4D-5
Modeling Of The Effect Of Boundaries On Ultrasound Contrast Agent Microbubbles Response
B. Dollet[1], *L. van Wijngaarden*[1], *N. de Jong*[1,2], *M. Versluis*[1]; *[1]University of Twente, Enschede, THE NETHERLANDS, [2]Erasmus Medical Center, Rotterdam, THE NETHERLANDS.*

P4E
Bioeffects
Chair: W. O'Brien; Bioengineering, University of Illinois, Urbana-Champaign, Urbana-Champaign, IL.

P4E-1
The Dependence Of Sonoporation On Cell Cycle Phase: Enhanced Effect During G2 And S-phase
R. Karshafian[1,2], *S. Samac*[2], *P. Bevan*[1,2], *G. Czarnota*[1,2], *P. Burns*[1,2]; *[1]University of Toronto, Toronto, ON, CANADA, [2]Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*

P4E-2
On The Mechanisms Of Ultrasound Contrast Agents Induced Arrhythmias
T. A. Tran[1], *J. Y. LeGuennec*[2], *P. Bougnoux*[2], *F. Tranquart*[1], *A. Bouakaz*[1]; *[1]INSERM U619, TOURS Cedex, FRANCE, [2]INSERM E0211, TOURS Cedex, FRANCE.*

P4E-3
100 MHz Sub-millimeter Diameter Fiber Optic Pressure Sensors: Luxury or Necessity?
S. Umchid[1], *R. Gopinath*[1], *K. Srinivasan*[1], *P. A. Lewin*[1], *A. S. Daryoush*[1], *M. A. El-Sherif*[2]; *[1]Drexel University, Philadelphia, PA, [2]Photonics Laboratories, Inc., Philadelphia, PA.*

P4F
Viscosity / Elasticity Measurements

Chair: O. Basset;
CREATIS, Université Lyon I, Lyon, FRANCE.

P4F-1
Contrast-Transfer Improvement with Electrode Displacement Elastography
S. Bharat, *T. Varghese;*
University of Wisconsin - Madison, Madison, WI.

P4F-2
Ultrasonic Elastography and Plane Strain Inverse Algorithms for Polymer Gel Dosimetry
R. A. Crescenti[1], *J. C. Bamber*[1], *A. A. Oberai*[2], *P. E. Barbone*[3], *J. Richter*[4], *N. L. Bush*[1], *S. Webb*[5];
[1]*Joint Department of Physics, Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Sutton, Surrey, UNITED KINGDOM,* [2]*Department of Mechanical, Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute, Troy, NY,* [3]*Department of Aerospace and Mechanical Engineering, Boston University, Boston, MA.*

P4F-3
Comparing Optimization Algorithms For The Young's Modulus Reconstruction In Ultrasound Elastography
M. M. Sette[1], *J. F. Camino*[1], *J. D'hooge*[2], *H. Van Brussel*[1], *J. Vander Sloten*[1];
[1]*K.U.Leuven, Heverlee, BELGIUM,* [2]*Cardiovascular Imaging and Dynamics, Dept. of Cardiovascular Diseases, Leuven, BELGIUM.*

P4G
NDE Imaging

Chair: O. Keitmann-Curdes;
Flexim GmbH Berlin, Germany, Chicago, IL.

P4G-1
Inverse Scattering Analysis for Imaging Defects in Anisotropic Solid
S. Hirose, *A. T. Tan, K. Kimoto;*
Tokyo Institute of Technology, Tokyo, JAPAN.

P4G-2
Structural Cheese Analysis using Ultrasonic Phased Array System
J. J. Eskelinen, *A. Alavuotunki, E. Hæggström, T. Alatossava;*
University of Helsinki, Helsinki, FINLAND.

P4G-3
An Efficient Measurement Strategy for Plate Wave Diffraction Tomography
A. H. Rohde, *M. Veidt;*
The University of Queensland, Brisbane, AUSTRALIA.

P4G-8
The Contour of the Bonding Strength at an Interface Between Bonded Solid-bonding layer-Solid Structure By CAN Parameter
D. Zhang, *J. Chen, Y. Mao;*
The Key Laboratory of Modern Acoustics, Nanjing University, Nanjing, CHINA.

P4G-9
Evaluation of Functional Films by Ultrasonic Atomic Force Microscopy
K. Kobari, *T. Tomita, S. Ide, K. Imamaki, T. Tsuji, K. Yamanaka;*
Tohoku University, Sendai, JAPAN.

P4G-10
Nondestructive and Two-dimensional Evaluation of Plane Crack Tips by Low Power Laser Pulses
H. Fujii, *M. Matsukawa;*
Doshisha University, Kyoto, JAPAN.

P4H
Non-Linear Acoustics

Chair: R. G. Maev;
University of Windsor, Windsor, ON, CANADA.

P4I-1
Neutrally Bouyant Band Gap Material for Underwater Applications
P. D. Fox;
ISVR, University of Southampton, Southampton, UNITED KINGDOM.

P4I-2
Asymetrical Single-Barrier Resonant Tunneling Phononic Crystals
E. Nelin;
National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, UKRAINE.

P4I-3
A Magnified Lamb Wave Source Based on the Resonant Cavity of Phononic-Crystal Plates
J. Sun, *T. Wu;*
Institute of Applied Mechanics, National Taiwan University, Taipei, TAIWAN.

P4J
SAW Sensors

Chair: D. Malocha;
SEECS, Univ. of Central Florida, Orlando, FL.

P4K-1
Application of Slanted Finger Interdigital Transducer SAW Devices to Plural Ultraviolet Photodetectors
T. J. Huang, *C. C. Ma, J. M. Yu;*
National Taiwan University, Taipei, TAIWAN.

P4K-2
Theoretical and Experimental Results of Phase Linear•Flat Wide Band•Low Loss Filters using Up and Down Chirp Dispersive Unidirectional Inter Digital Transducers
Y. Satoh, *K. Yamanouchi;*
Tohoku Institute of Technology, Sendai, JAPAN.

P4K-3
Surface Acoustic Wave Transducer Design for the Improvement of 2D Droplet's Displacement
J. Bennès, *F. Chérioux, S. Ballandras, J. F. Manceau, F. Bastien;*
FEMTO-ST, Besançon, FRANCE.

P4K-4
Novel Layered SAW Structure for Droplet Multidirectional Actuating and Sensing
P. Nicolay, *F. Moreira, D. Beyssen, F. Sarry, L. Le Brizoual, O. Elmazria;*
LPMIA/UMR 7040, Vandoeuvre-les-Nancy, FRANCE.

P4F-4
Feasibility of Two-Dimensional Quantitative Sonoelastographic Imaging
K. Hoyt, *B. Castaneda, K. J. Parker;*
University of Rochester, Rochester, NY.

P4G-4
Airborne Ultrasonic Confocal Instrument for Parametric Imaging of Complex Samples
V. Kananen[1], *J. Eskelinen*[1], *E. Hæggström*[1,2];
[1]University of Helsinki, Helsinki, FINLAND, [2]Helsinki Institute of Physics, Helsinki, FINLAND.

P4H-1
Finite Amplitude Method for Measurement of Nonlinearity Parameter B/A Using Plane-Wave Tone Bursts
G. R. Harris[1], *Y. Liu*[1], *S. Maruvada*[1], *P. M. Gammell*[2];
[1]U.S. Food and Drug Administration, Silver Spring, MD, [2]Gammell Applied Technologies, LLC, Exmore, VA.

P4J-1
Design Parameters for SAW Multi-Tone Frequency Coded Reflectors
N. Saldanha, *D. C. Malocha;*
University of Central Florida, Orlando,, FL.

P4K-5
Increasing the Efficiency of Liquid Handling SAW Systems by Using Single Phase Uni-Directional Transducer
J. Bennès, *F. Chérioux, S. Ballandras, J. F. Manceau, F. Bastien;*
FEMTO-ST, Besançon, FRANCE.

P4F-5
Microscopic Measurement of Three-Dimensional Distribution of Tissue Viscoelasticity
T. Shiina[1], *M. Yoshida*[1], *M. Yamakawa*[1], *N. NItta*[2];
[1]University of Tsukuba, Tsukuba, JAPAN, [2]National Institute of Advanced Industrial Science and Technology, Tsukuba, JAPAN.

P4G-5
Flexible Subharmonic Phased Array for Crack Evaluation
S. Yamamoto, Y. Ohara, T. Mihara, **K. Yamanaka**;
Tohoku University, Sendai, JAPAN.

P4H-2
Explosion like Boiling of a Viscous Liquid in a High-Intensity Ultrasonic Beam.
S. N. Antonov, Sr., *V. V. Proklov, V. I. Mirgorodskii;*
IRE RAS, Moscow, RUSSIAN FEDERATION.

P4J-2
Analysis of Ball SAW Sensor Response to a Wide Variety of Gases Using Gas Chromatography
N. Iwata[1,2], *M. Sakuma*[1], *T. Tsuji*[1,2], *T. Mihara*[1,2], *S. Akao*[1,3], *K. Noguchi*[3], *N. Nakaso*[3], *D. Sim*[4], *N. Takeda*[4], *T. Fukiura*[3], *K. Yamanaka*[1,2];
[1]Tohoku University, Sendai, JAPAN, [2]JST CREST, Saitama, JAPAN, [3]Toppan Printing, Saitama, JAPAN, [4]BALL Semiconductor, Allen, TX, [5]YAMATAKE, kanagawa, JAPAN.

P4F-6
On the Potential of Combined ARFI and Elastography to Improve Differentiation of Material Structure in Viscoelastic Tissue
F. W. Mauldin, Jr.[1,2], *O. Davis*[1], *M. Haider*[3], *E. Loboa*[3], *W. Pfeiler*[3], *C. M. Gallippi*[1];
[1]University of North Carolina at Chapel Hill, Chapel Hill, NC, [2]University of Virginia, Charlottesville, VA, [3]North Carolina State University, Raleigh, NC.

P4G-6
A New Method for the Inspection of Tool Wear Based on the Dispersion of ASF Modes
C. Yang[1], *S. Du*[2];
[1]National Taipei University of Technology, Taipei, TAIWAN, [2]Chang Gung University, Taoyuan, TAIWAN.

P4H-3
Development of General Solution of Cumulative Second Harmonic by Lamb Wave Propagation
M. Deng[1], *J. Yang*[2];
[1]Department of Physics, Logistics Engineering University, Chongging, CHINA, [2]Institute of Acoustics, Chinese Academy of Science, Beijing, CHINA.

P4J-3
Dip-type Liquid-Phase Sensor Using SH-SAW
T. Kogai, *H. Yatsuda;*
Japan Radio Co.,Ltd., Fujimino-shi saitama, JAPAN.

P4F-7
Integration of a Pressure Sensor Array into Ultasound Elastography
L. M. Kiessel, *T. J. Hall;*
University of Wisconsin, Madison, WI.

P4G-7
Eigenvalue Imaging Method for Subsurface Defects vir A0-mode Lamb-waves
K. Teramoto;
Saga University, Saga-shi, JAPAN.

P4I
Phononics II
Chair: A. Khelif;
LPMO, Femto-st Institute, Besançon, FRANCE.

P4K
SAW Applications 2
Chair: R. Weigel;
University of Erlangen-Nuremberg, Erlangen, GERMANY.

TUES. POSTER

P4L

SAW Sensors and Other Applications

Chair: P. Smith;
McMaster University, Hamilton, ON, CANADA.

P4L-1
Enabling Very High Temperature Acoustic Wave Devices for Sensor and Frequency Control Applications
M. Pereira da Cunha, *T. Moonlight, R. Lad, G. Bernhardt, D. Frankel;*
University of Maine, Orono, ME.

P4L-2
Theoretical Analysis And Experimental Study Of Love Mode Surface Acoustic Wave Device As Cell-based Biosensor
F. Li, *J. H. Wang, Q. Wang;*
University of Pittsburgh, Pittsburgh, PA.

P4L-3
Anisotropic Wave-Surface Shaped Annular Interdigital Transducer
V. Laude[1], *N. Khelfaoui*[1], *D. Gérard*[1], *C. F. Jerez-Hanckes*[1,2], *H. Moubchir*[1], *S. Benchabane*[1,3], *A. Khelif*[1];
[1]*Institut FEMTO-ST, Besançon, FRANCE,* [2]*Centre de Mathématiques Appliquées, Ecole Polytechnique, Palaiseau, FRANCE,* [3]*Institut de Ciencies Fotoniques, Castelldefels (Barcelona), SPAIN.*

P4M-2
A Linear CMUT Air-coupled Array For NDE Based On MUMPS
A. Octavio Manzanares[1], *O. Martinez Graullera*[2], *C. J. Martin Arguedas*[2], *L. Gomez-Ullate Alvear*[2], *F. Montero de Espinosa Freijo*[1];
[1]*Instituto de Acustica - CSIC, Madrid, SPAIN,* [2]*Instituto de Automática Industrial - CSIC, Madrid, SPAIN.*

P4M-3
Experimental Characterization of Capacitive Micromachined Ultrasonic Transducers
S. Olcum, *A. Atalar;*
Bilkent University, Ankara, TURKEY.

P4M-4
Modal And Cross-coupling In Sealed Cmut Transducers For Immersion Applications
E. F. Campbell[1], *L. A. J. Davis*[2], *G. Hayward*[3], *D. A. Hutchins*[2], *R. A. Noble*[2];
[1]*University of Strathclyde, Glasgow, UNITED KINGDOM,* [2]*University of Warwick, Coventry, UNITED KINGDOM,* [3]*QinetiQ (Malvern), Great Malvern, UNITED KINGDOM.*

P4M-5
Accurate Assessment of CMUT Devices Through Precise Electrical Impedance Measurement in Air
C. Meynier, Jr.[1], *F. Teston*[2], *D. Certon*[2], *N. Felix*[1];
[1]*Vermon S.A., Tours, FRANCE,* [2]*Université Francois Rabelais, LUSSI CNRS FRE 2448, Tours, FRANCE.*

P4L-4
Etch Rate Dependence on Crystal Orientation for Lithium Niobate
A. B. Randles, *S. Tanaka, M. Esashi;*
Tohoku University, Sendai, JAPAN.

P4L-5
Evaluation of AlN Single Crystals by Means of the Ultrasonic Microspectroscopy Technology
Y. Ohashi[1], *M. Arakawa*[1], *J. Kushibiki*[1], *B. M. Epelbaum*[2], *A. Winnacker*[2];
[1]Tohoku University, Sendai, JAPAN, [2]University of Erlangen-Nuremberg, Erlangen, GERMANY.

P4M
CMUT

Chair: L. Degertekin;
Georgia Institute of Technology, Atlanta, GA.

P4M-1
Design, Fabrication And Characterisation Of Capacitive Micro-machined Ultrasonic Transducers Based On A 2d-like Architecture
S. Clatot[1], *P. Blind*[2], *V. Pétrini*[1], *L. Gauthier-Manuel*[1], *J. Jeannot*[1], *M. Wilm*[3], *R. Berriet*[3], *W. Daniau*[1], **S. J. Ballandras**[1];
[1]CNRS, Besançon, FRANCE, [2]Institut Pierre Vernier, Besançon, FRANCE, [3]IMASONIC, Besançon, FRANCE.

P4M-6
A Low Noise Capacitive Feedback Analog Front-end for CMUTs in Intra Vascular Ultrasound Imaging
L. R. Cenkeramaddi[1], *A. Bozkurt*[2], *F. Y. Yamaner*[2], *T. Ytterdal*[1];
[1]NTNU Trondheim, Trondheim, NORWAY, [2]Sabanci University, Istanbul, TURKEY.

P4M-7
Front-end IC Design For 2D cMUT Arrays: Modeling And Experimental Verification
Y. F. Yamaner, *A. Bozkurt;*
Sabanci University, Istanbul, TURKEY.

P4M-8
Interaction Between a cMUT cell and a High Acoustic Impedance Liquid Medium Around the Parallel Resonance Frequency
M. N. Senlik, *H. Köymen;*
Bilkent University, Ankara, TURKEY.

P4M-9
Reduction of Crosstalk in CMUT Arrays by Introducing Non-Regular Periodicities.
S. Berg, *A. Rønnekleiv;*
NTNU (Norwegian University of Science and Technology), Trondheim, NORWAY.

4:00 pm - 5:30 pm — **ORAL SESSIONS - Tuesday, October 30, 2007**

	Session 8A **Imaging Systems and Multi-modality Imaging** *Chair: M. O'Donnell; University of Washington, Seattle, WA.*	*Session 8B* **Novel Contrast Imaging Techniques** *Chair: D. Goertz; Medical Biophysics, University of Toronto, Toronto, ON, CANADA.*	*Session 8C* **Viscoelasticity** *Chair: A. Sarvazyan; Artann Laboratories, Lambervillle,, NJ.*	*Session 8D* **Wave Propagation and Material Characterization** *Chair: D. W. Greve; Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.*	*Session 8E* **FEM/BEM Simulation** *Chair: P. Smith; McMaster University, Hamilton, ON, CANADA.*	*Session: 8F* **Ultrasound Measurement and Device Characterization** *Chair: M. E. Schafer; Sonic Tech Inc., Fort Washington, PA.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
4:00 pm	8A-1 Portable Echo Imaging System (Invited) ***J. Hwang***: *SonoSite, Bothell, WA.*	8B-1 Polymer Contrast Particles For Cellular Imaging With Ultrasound And MRI ***R. Williamson***[1,2], *O. Aristizabal*[1,2], *T. M. Fahmy*[2], *J. A. Ketterling*[2], *D. H. Turnbull*[1,2]; *[1]NYU School of Medicine, New York, NY, [2]Skirball Institute of Biomolecular Medicine, New York, NY, [3]Yale University, Dept. of Biomedical Engineering, New Haven, CT, [4]Riverside Research Institute, Frederick L. Lizzi Center for Biomedical Engineering, New York, NY.*	8C-1 Kelvin-Voigt Fractional Derivative (KVFD) Model Reduces the Parameter Space for Elasticity Imaging ***C. Coussot***, *S. Kalyanam, M. F. Insana; University of Illinois at Urbana Champaign, Urbana, IL.*	8D-1 Comet Acoustic Surface Sounding Experiment within the European ROSETTA Mission ***W. Arnold***[1], *R. Wahl*[1], *M. Spies*[1], *K. Seidensticker*[2], *D. Möhlmann*[3], *K. Thiel*[4], *H. Fischer*[4], *S. Schieke*[2]; *[1]Fraunhofer-Institute for Non-Destructive Testing, Saarbruecken, GERMANY, [2]DLR, Institute of Space Simulation, Cologne, GERMANY, [3]DLR, Institute of Planetary Research, Berlin, GERMANY, [4]University of Cologne, Dept. of Nuclear Chemistry, Cologne, GERMANY.*	8E-1 A Technique for P-matrix Computation by Periodic FEM/BEM Analysis ***A. Fukuura***[1], *M. Kawaguchi*[2]; *[1]Kyocera Corp., Kyoto, JAPAN, [2]Kyocera Corp., Kagoshima, JAPAN.*	8F-1 A Broadband All-Optical Ultrasound Transducer ***Y. Hou***[1], *J. Kim*[1], *S. Ashkenazi*[1], *S. Huang*[1], *M. O'Donnell*[2], *J. Guo*[1]; *[1]University of Michigan, Ann Arbor, MI, [2]University of Washington, Seattle, WA.*
4:15 pm		8B-2 Imaging of Iron Oxide Nanocomposites using Magneto-motive Ultrasound *M. Mehrmohammadi*[2], *T. Larson*[1], *S. Mallidi*[1], *S. Park*[1], *J. Oh*[1], *T. Milner*[1], *K. Sokolov*[2], ***S. Emelianov***[1]; *[1]University of Texas at Austin, Austin, TX, [2]MD Anderson Cancer Center, Houston, TX.*	8C-2 Error Estimates in Shear Wave Speed and Tissue Material Properties in Shear Wave Dispersion Ultrasound Vibrometry ***M. W. Urban***, *S. Chen, J. F. Greenleaf; Mayo Clinic College of Medicine, Rochester, MN.*	8D-2 Vibration Characteristics of Complex Vibration Converters Using Different Velocity Metal Ring Pairs ***J. Tsujino***, *T. Ueoka, G. Kishimoto, Y. Kubodera, S. Tanaka; Kanagawa University, Yokohama, JAPAN.*	8E-2 Accurate FEM/BEM Modeling of SAW Devices with Dielectric Coating Layers ***M. Kawaguchi***[1], *A. Fukuura*[2]; *[1]Kyocera Corp., Kagoshima, JAPAN, [2]Kyocera Corp., Kyoto, JAPAN.*	8F-2 High-frequency Low-noise Ultrasonic Detection Arrays Based on Parallelly Probing an Etalon ***S. Huang***[1], *Y. Hou*[1], *S. Ashkenazi*[1], *M. O'Donnell*[2]; *[1]University of Michigan, Ann Arbor, MI, [2]University of Washington, Seattle, WA.*

4:30 pm	8A-2 ULA-OP: a Novel ULtrasound Advanced Open Platform for Experimental Research *L. Bassi, E. Boni, A. Dallai, F. Guidi, S. Ricci,* ***P. Tortoli****;* *Microelectronic Systems Design Laboratory, University of Florence, Firenze, ITALY.*	8B-3 Transmembrane Extraction of Fluorescent Proteins With Ultrasound And Microbubbles ***K. Kaddur****[1], T. Tran[1], P. Midoux[2], F. Tranquart[1], C. Pichon[3], A. Bouakaz[1];* *[1]INSERM 619, Tours, FRANCE, [2]CBM, Orleans, FRANCE.*	8C-3 Quantitative In Vivo Imaging Of Liver Stiffness Using The Supersonic Shear Imaging Technique *t. deffieux1, j. gennisson1, m. couade2, j. bercoff2,* ***m. tanter****1, m. fink1;* *1Laboratoire Ondes et Acoustique, Paris, FRANCE, 2Supersonic Imagine, Aix en Provence, FRANCE.*	8D-3 Study on the Effects of Crack Surface Contact on Ultrasonic Signals in Nondestructive Evaluation of Materials *C. Ng, X. Wang, H. Chen,* ***M. J. Zuo****; university of alberta, edmonton, AB, CANADA.*	8E-3 Three-dimensional FEM-BEM simulation of Solidly Mounted Resonators ***D. S. P. Ekeom****[1], A. Volatier[2], B. Dubus[3];* *[1]Microsonics, Lille, FRANCE;* *[2]STMicroelectronics, Crolles, FRANCE,* *[3]IEMN, Lille, FRANCE.*	8F-3 High Frequency Transducer Characterization With A Sagnac Interferometer *J. L. Bonnett,* ***T. Buma****;* *University of Delaware, Newark, DE.*
4:45 pm	8A-3 System Architecture of an Experimental Synthetic Aperture Real Time Ultrasound System ***J. A. Jensen****1, M. Hansen2, B. G. Tomov1, S. I. Nikolov1, H. Holten-Lund2;* *1Technical University of Denmark, Lyngby, DENMARK, 2Prevas A/S, Copenhagen, DENMARK.*	8B-4 Single Cell Epitaxy by Acoustic Picoliter Droplets *G. Montasano,* ***U. Demirci****;* *Harvard-MIT Health Sciences and Technology, Cambridge, MA.*	8C-4 Active And Passive Mechanical Muscle Properties Assessed By Ultrasound Techniques ***t. deffieux****, j. gennisson, m. tanter, m. fink;* *Laboratoire Ondes et Acoustique, Paris, FRANCE.*	8D-4 A New Wireless Thickness Shear Mode Resonator For Viscous Fluid Investigation ***S. Serfaty****, E. Caplain, J. Le Huérou, N. El Alami, M. Gindre;* *ECIME Universite de Cergy, CERGY-PONTOISE Cédex, FRANCE.*	8E-4 Perfectly Matched Layer Finite Element Simulation of Parasitic Acoustic Wave Radiation in Microacoustic Devices ***M. Mayer****[1], S. Zaglmayr[2], K. C. Wagner[1], J. Schöberl[2];* *[1]Epcos AG, Muenchen, GERMANY,* *[2]Johannes Kepler Universität, Linz, AUSTRIA, [1]RWTH, Aachen, GERMANY.*	8F-4 Ultrasound Phased Array for Airborne Applications based on Cellular Polymer ***C. Degel****[1], H. Schuck[1], T. Knoll[1], F. Bauerfeld[1], M. Heinz[1], F. J. Becker[1], W. Haberer[1], H. Fonfara[1], B. Elling[2], R. Danz[2], R. Lemor[1];* *[1]Fraunhofer Institut Biomedizinische Technik, St. Ingbert, GERMANY, [2]Fraunhofer Institut Angewandte Polymerforschung, Golm, GERMANY.*
5:00 pm	8A-4 Spatially Co-registering Magnetic Resonance and Ultrasound Images of the Prostate as a Basis for Multi-modality Tissue-type Imaging *E. Felepp1,* ***S. Dasgupta****1, S. Ramachandran1, J. Ketterling1, A. Kalisz1, C. Porter2, M. Lacrampe2, C. Isacson2, D. Sparks2, S. Haker3, C. Tempany3;* *1Riverside Research Institute, New York, NY, 2Virginia Mason Medical Center, Seattle, WA, 3Brigham and Women's Hospital, Boston, MA.*	8B-5 Monodisperse Microbubble Contrast Agents for Improved Ultrasound Contrast Imaging ***E. Talu****1, K. Hettiarachchi2, S. Zhao1, M. Kaya1, R. L. Powell1, A. P. Lee2, M. L. Longo1, P. A. Dayton1;* *1University of California, Davis, Davis, CA, 2University of California, Irvine, Irvine, CA.*	8C-5 Full 3d Inversion Of The Viscoelasticity Wave Propagation Problem For 3d Ultrasound Elastography In Breast Cancer Diagnosis ***m. muller****, j. gennisson, t. deffieux, r. sinkus, p. annic, g. montaldo, m. tanter, m. fink;* *Laboratoire Ondes et Acoustique, Paris, FRANCE.*	8D-5 Tracking Of Cracks In Fatigue Experiments Using Nonlinear Propagation Of Multi-sine Surface Acoustic Waves ***S. Vanlanduit, Jr.****[1], R. Longo, Jr.[1], P. Guillaume[1], R. Pintelon, Sr.[1], J. Dirckx, Jr.[2];* *[1]Vrije Universiteit Brussel, Brussels, BELGIUM, [2]Universiteit Antwerpen, Antwerpen, BELGIUM.*	8E-5 Full 3D SAW IDT Boudary Element Model For Massless Electrodes ***C. F. Jerez-Hanckes****[1,2], V. Laude[1], J. Nédélec[2], R. Lardat[1];* *[1]Institut Femto-ST, Besançon, FRANCE,* *[2]Centre de Mathématiques Appliquées, Ecole Polytechnique, Palaiseau, FRANCE, [1]Temex S.A., Sophia-Antipolis, FRANCE.*	8F-5 A Visualization Tool for High Intensity Focused Ultrasonic Field Using LEDs and Piezo-Elements ***K. Nakamura****[1], T. Sugimoto[2];* *[1]Tokyo Institute of Technology, Yokohama, JAPAN, [2]Toin Yokohama University, Yokohama, JAPAN.*
5:15 pm	8A-5 Simultaneous Contrast Ultrasound And Dynamic Contrast Magnetic Resonance Imaging For Breast Tumour Characterization: Demonstration Of Feasibility *.****R. Chopra****;* *Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*	8B-6 Semiautomatic Detection of Microbubble Ultrasound Contrast Agent Destruction Applied to Definity® using support Vector Machines ***A. Haak****[1], B. Castaneda[2], W. D. O'Brien, Jr.[1];* *[1]Bioacoustics Research Laboratory, Urbana, IL, [2]Rochester Center for Biomedical Ultrasound, Rochester, NY.*	8C-6 Anisotropic viscoelastic properties of the Corpus Callosum - Application of High-Resolution 3D Elastography to an Alzheimer Mouse Model *Q. C. Chan[1], B. Larrat[2], X. F. Yang[1], G. Li[1], E. S. Yang[1], M. Fink[2],* ***R. Sinkus****[2];* *[1]Jockey Club MRI Centre, The University of Hong Kong, Pokfulam, HONG KONG, [2]Laboratoire Ondes et Acoustique, ESPCI, Paris, FRANCE.*	8D-6 High Frequency Propagation in Structured Solids ***P. Harris****, A. Dawson, R. Young, F. Lecarpentier;* *Industrial Research Ltd, Lower Hutt, NEW ZEALAND.*	8E-6 Extended FEM/SDA Software for Characterising Surface Acoustic Wave Propagation in Multi-Layered Structures ***K. Hashimoto****, T. Omori, M. Yamaguchi;* *Chiba University, Chiba, JAPAN.*	8F-6 Inexpensive Acoustoelectric Hydrophone For Measuring High Intensity Ultrasound Fields ***R. S. Witte****[1], T. Hall[1], R. Olafsson[1], S. Huang[1], M. O'Donnell[2];* *[1]University of Michigan, Ann Arbor, MI,* *[2]University of Washington, Seattle, WA.*

TUES. ORAL

8:00 am - 9:30 am — ORAL SESSIONS - Wednesday, October 31, 2007

	Session 9A **Cardiac Imaging** *Chair: J. D'hooge;* *Cardiac Imaging Research - Cardiology, Catholic University Leuven, Leuven, BELGIUM.*	*Session 9B* **Contrast Agents: Bubble Physics and Therapeutics** *Chair: N. de Jong;* *Erasmus Medical Center and University of Twente, Rotterdam, THE NETHERLANDS.*	*Session 9C* **Medical Imaging** *Chair: A. Hall;* *General Electric Medical Systems, Milwaukee, WI.*	*Session 9D* **Acoustic Microscopy and Imaging** *Chair: B. R. Tittmann, Sr.;* *Eng. Science & Mechanics, Penn State University, University Park, PA.*	*Session 9E* **Optical Interactions I** *Chair: R. G. Maev;* *University of Windsor, Windsor, ON, CANADA.*	*Session: 9F* **Medical Applications: Therapy & Diagnosis** *Chair: C. Daft;* *Siemens Medical Systems, San Leandro, CA.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
8:00 am	9A-1 Experimental Assessment of Angle-Independent Myocardial Elastography Performance Using A Left-Ventricular Phantom Under Physiologic Motion ***V. Gamarnik**, J. Luo, W. Lee, E. E. Konofagou;* *Columbia University, New York, NY.*	9B-1 Coupled Dynamics of an Isolated UCA Microbubble Pair ***V. Garbin**[1]; B. Dollet[1], M. L. J. Overvelde[1], D. Cojoc[2], E. Di Fabrizio[2], N. de Jong[3,4], D. Lohse[4], M. Versluis[4];* *[1]University of Twente, Enschede, THE NETHERLANDS, [2]CNR-INFM,TASC, Trieste, ITALY, [3]Università Magna Graecia, Catanzaro, ITALY, [4]Erasmus MC, Rotterdam, THE NETHERLANDS.*	9C-1 Beam Steering Approach to Speckle Characterization and Out-of-Plane Motion Estimation in Real Tissue ***H. Rivaz**, E. Boctor, G. Fichtinger;* *Johns Hopkins University, Baltimore, MD.*	9D-1 Precise Calibration for Biological Acoustic Impedance Microscope ***N. Hozumi, II**[1]; S. Terauchi[2], M. Nagao[2], S. Yoshida[2], K. Kobayashi[2], Y. Saijo[2];* *[1]Aichi Institute of Technology, Toyota, JAPAN, [2]Toyohashi University of Technology, Toyohashi, JAPAN, [3]Honda Electronics Co. Ltd, Toyohashi, JAPAN, [4]Tohoku University, Sendai, JAPAN.*	9E-1 Performance Limitation and Improvement of Collinear Beam Acousto-Optic Tunable Filters I. C. Chang, Accord Optics, Sunnyvale, California 94087 ***I. Chang**;* *Accord Optics, Sunnyvale, CA.*	9F-1 Integrating Ultrasound Transducers With MRI For Therapeutic And Diagnostic Applications (Invited) ***R. Chopra**;* *Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*
8:15 am	9A-2 Controlled 2D Cardiac Elasticity Imaging on an Isolated Perfused Rabbit Heart ***C. Jia**1, R. Olafsson1, K. Kim1, R. S. Witte1, S. Huang1, T. J. Kolias1, J. M. Rubin1, W. F. Weitzel1, C. X. Deng1, M. O'Donnell2;* *1University of Michigan, Ann Arbor, MI, 2University of Washington, Seattle, WA.*	9B-2 Microbubble Interactions In High Mechanical Index Regimes ***P. Campbell**, A. Moore, J. Burns, P. Prentice;* *University of Dundee, Dundee, UNITED KINGDOM.*	9C-2 Reconstruction of Speed of Sound for a Correction of Transit Time in Full Angle Spatial Compounding ***C. Hansen**, A. Schasse, N. Hüttebräuker, M. Ashfaq, W. Wilkening, H. Ermert;* *Ruhr-Universität Bochum, Bochum, GERMANY.*	9D-2 Numerical Modeling of the cantilever-tip vibrations in Scanning Microdeformation Microscope ***B. Cavallier**[1], S. Thibaud[1], B. Cretin[1], P. Vairac[1];* *[1]FEMTO-ST, LPMO dept., Besancon, FRANCE, [2]FEMTO-ST, LMARC dept., Besancon, FRANCE.*	*9E-2 High Efficiency Multi-channel Acousto-optic Multiplexer on Anisotropic Light Diffraction by Multi-frequency Sound.* ***V. V. Proklov, Sr.**1, S. N. Antonov, Sr.1, A. V. Vainer, Jr.1, Y. G. Rezvov2;* *1IRE RAS, Moscow, RUSSIAN FEDERATION, 2NIRCHTU, Novomoskovsk of Tula Region, RUSSIAN FEDERATION.*	
8:30 am	9A-3 Clinical Validation of Angle-Independent Myocardial Elastography Using MRI Tagging ***W. Lee**1, Z. Qian2, D. N. Metaxas2, E. E. Konofagou1;* *1Columbia University, New York, NY, 2Rutgers University, Piscataway, NJ.*	9B-3 Non-spherical Vibrations of Microbubbles in Contact with a Wall, Observed through an Orthogonal Microscope ***H. J. Vos**[1], M. Versluis[2], N. De Jong[1,2];* *[1]Thorax Center, Erasmus MC, Rotterdam, THE NETHERLANDS, [2]Physics of Fluids, University of Twente, Enschede, THE NETHERLANDS.*	9C-3 Frequency Notched Waveforms for Medical Ultrasound Imaging ***M. J. Bennett**, T. Anderson, W. N. McDicken;* *Department of Medical Physics, University of Edinburgh, Edinburgh, UNITED KINGDOM.*	9D-3 Characterization of Adipogenic, Chondrogenic and Osteogenic Differentiation with Time-Resolved Acoustic Microscopy ***E. C. Weiss**, P. Anastasiadis, C. Hildebrandt, E. Gorjup, R. M. Lemor;* *Fraunhofer IBMT, Sankt Ingbert, GERMANY.*	9E-3 Dual Laser Beam Generation With Frequency Control And Alignment Via Birefringent Acoustooptic Diffraction* ***D. L. Hecht**;* *DLH Consulting, Palo Alto, CA.*	9F-2 Heat Conductive Array Transducer for Phase-Conversion Molecular Imaging ***T. Azuma**[1], S. Sonoda[1], K. Kawabata[1], S. Umemura[2];* *[1]Hitachi CRL, Tokyo, JAPAN, [2]Tohoku University, Sendai, JAPAN.*

8:45 am	9A-4 Ultrasonic Imaging of Propagation of Electric Excitation in Heart Wall ***H. Kanai***: *Tohoku University, Sendai, JAPAN.*	9B-4 Microbubbles in Ex Vivo Tissue Preparation Validate Proposed Mechanisms for Contrast-based Gene Delivery ***C. F. Caskey***, *S. M. Stieger, S. Qin, P. Dayton, K. Ferrara;* *University of California at Davis, Davis, CA.*	9C-4 A Novel Method for Designing and Fabricating Single Piston Transducers with Extended Depth of Field ***K. Owen***, *W. F. Walker;* *University of Virginia, Charlottesville, VA.*	9D-4 A Super-Precise Evaluation and Selection Method of EUVL-grade TiO_2-SiO_2 Ultra-Low-Expansion Glasses Using the Line-Focus-Beam Ultrasonic Material Characterization System ***M. Arakawa***, *Y. Ohashi, J. Kushibiki;* *Tohoku University, Sendai, JAPAN.*	9E-4 Acousto-optic Imaging In The Near Infrared Using The Photorefractive Effect ***P. Lai***, *R. A. Roy, T. W. Murray;* *Boston University, Boston, MA.*	9F-3 Forward Looking-IVUS Imaging Using a Dual-Annular-Ring CMUT Array: Experimental Results ***R. GULDIKEN***[1], *J. Zahorian*[1], *G. Gurun*[1], *S. Qureshi*[1], *M. Balantekin*[1], *P. Hasler*[1], *M. Karaman*[2], *S. Carlier*[3], *L. Degertekin*[1]; [1]*GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, GA,* [2]*Isik University, Istanbul, TURKEY,* [3]*Columbia University Medical Center, New York, NY.*
9:00 am	9A-5 Real-Time 3D Cardiac Imaging With 2D Array Transducers (Invited) ***K. Kristoffersen***: *GE Vingmed Ultrasound, Horten, NORWAY.* *Wednesday, October 31, 2007*	9B-5 Ultrasound Therapy with Drug Loaded Microcapsules ***W. T. Shi***[1], *M. Böhmer*[2], *A. van Wamel*[3,4], *M. Celebi*[3], *A. L. Klibanov*[3], *C. Chin*[1], *M. Emmer*[4], *K. Kooiman*[4], *N. de Jong*[4], *C. S. Hall*[1]; [1]*Philips Research North America, Briarcliff Manor, NY,* [2]*Philips Research Europe, Eindhoven, THE NETHERLANDS,* [3]*University of Virginia Health System, Charlottesville, VA,* [4]*ErasmusMC, Thoraxcentrer, Rotterdam, THE NETHERLANDS.*	9C-5 Acoustical Imaging of the Finger's Subsurface Structures in vivo ***E. Y. Bakulin***, *A. R. Maeva, F. M. Seviarin, R. G. Maev;* *Center for Imaging Research and Advanced Material Characterization, Faculty of Science, University of Windsor, Windsor, ON, CANADA.*	9D-5 Variation of the Sound Attenuation inside HeLa Cells during Cell Division Using High Frequency Time-Resolved Acoustic Microscope ***P. V. Zinin***[1], *E. C. Weiss*[2], *P. Anastasiadis*[2], *R. M. Lemor*[2]; [1]*University of Hawaii, Honolulu, HI,* [2]*Fraunhofer-Institut for Biomedical Engineering, St.Ingbert, GERMANY.*	9E-5 Ultrasound Fast Modulation Mode AOTFs for Differential Photoluminescence Spectroscopy ***V. E. Pozhar***, *V. I. Pustovoit, S. A. Beryozoa;* *Scientific Technological Center of Unique Instrumentation RAS, Moscow, RUSSIAN FEDERATION.*	9F-4 Rectangular Cymbal Arrays for Improved Transdermal Insulin Delivery *J. Luis,* ***E. Park***, *R. J. Meyer, Jr., N. B. Smith;* *The Pennsylvania State University, University Park, PA.*
9:15 am		9B-6 Inhibition of Smooth Muscle Proliferation by Ultrasound-Triggered Release of Rapamycin from Microbubbles ***L. C. Phillips***, *A. L. Klibanov, B. R. Wamhoff, J. A. Hossack;* *University of Virginia, Charlottesville, VA.*	9C-6 2D Simulation of The Amplitude-Modulated Harmonic Motion Imaging (AM-HMI) with Experimental Validation ***C. Maleke***, *J. Luo, E. E. Konofagou;* *Columbia University, New York, NY.*	9D-6 Signal Analysis in Scanning Acoustic Microscopy for non-destructive Detection of Connective Defects in Flip-chip Bga Devices ***S. Brand***[1], *P. Hoffrogge*[2], *P. Czuratis*[2], *K. Raum*[1]; [1]*University of Halle - Wittenberg, Q-BAM-group, Orthopaedics Dept., Halle., GERMANY,* [2]*SAM TEC GmbH, Aalen, GERMANY.*	9E-6 Acoustic Realigment of Nematic Liquid Crystals by Guided Waves *Y. Lee, W. Shih, Y. Su,* ***C. Yin***; *National Chiao Tung University, Hsinchu, TAIWAN.*	9F-5 Combined 2D Array Transducers/Deployment Kits for Real-Time 3D Ultrasound Guidance of Interventional Devices ***E. D. Light***, *S. W. Smith;* *Duke University, Durham, NC.*

WED. ORAL

9:30 am – 10:30 am | **POSTER SESSIONS - Wednesday, October 31, 2007** | **East and South Corridors, Rhinelander Gallery**

P5A
Bone

Chair: M. Matsukawa;
Department of Electronics, Doshisha University, Kyotanabe, JAPAN.

P5A-1
Improved Standardization of Calcaneal Speed-Of-Sound Measurements: Results in 73 Women
K. Wear;
US Food and Drug Administration, Silver Spring, MD.

P5A-2
An Experimental Study on the Ultrasonic Wave Propagation and Structural Anisotropy in Bovine Cancellous Bone
K. Mizuno[1], *M. Matsukawa*[1], *T. Otani*[1], *M. Takada*[2], *I. Mano*[3], *T. Tsujimoto*[4];
[1]Doshisha university, kyoto, JAPAN, [2]Shiga university of medical science, shiga, JAPAN, [3]Oyo Electronic Co. Ltd., kyoto, JAPAN, [4]Horiba, Ltd., kyoto, JAPAN.

P5A-3
Propagation Through Trabecular Bone Modelled As A Random Medium
F. PADILLA, *P. LAUGIER;*
CNRS. universite Paris 6, Paris, FRANCE.

P5A-8
Spatial Distribution of Acoustic Impedance and Microstructure Assessed by Scanning Acoustic Microscopy (50 MHz) in Human Radial Cortical Bone
A. Saied[1], *K. Raum*[2], *I. Leguerney*[1], **P. Laugier**[1];
[1]University Paris 6, Paris, FRANCE, [2]Martin Luther University of Halle-Wittenberg, Halle, GERMANY.

P5A-9
Depth Dependent High Frequency Backscatter Analysis of Degenerated Cartilage
K. Raum, M. Gottwald, D. Wohlrab, F. Göbel;
Martin Luther University of Halle-Wittenberg, Halle, GERMANY.

P5A-10
Assessment of Human Jawbone Using Ultrasonic Guided Waves In Vitro
A. M. Mahmoud1, D. H. Cortes1, A. A. Abaza2, H. H. Ammar2, M. Hazey3, P. Ngan3, R. Crout4, O. Mukdadi1;
1)Department of Mechanical and Aerospace Engineering, West Virginia University, Morgantown, WV, 2)Lane Department of Computer Science and Electrical Engineering, West Virginia University, Morgantown, WV, 3)Department of Orthodontics, West Virginia University, Morgantown, WV, 4)Department of Periodontics, West Virginia University, Morgantown, WV.

P5A-11
Poroelastic Media Approach Of Ultrasound Wave Propagation Applied To Disuse-induced Osteoporosis
L. Cardoso[1], *Y. Vengrenyuk*[1], *M. B. Schaffler*[2];
[1]The City College of New York, New York, NY, [2]The Mount Sinai School of Medicine, New York, NY.

P5B-4
Optimization Of Chirp Reversal For Ultrasound Contrast Imaging
A. Novell[1], *S. M. van der Meer*[2], *M. Versluis*[2], *N. de Jong*[1,2], *A. Bouakaz*[1];
[1]INSERM U619, Tours, FRANCE, [2]Physics of fluids, Twente, THE NETHERLANDS, [3]Erasmus MC, Rotterdam, THE NETHERLANDS.

P5B-5
Echogenic Liposomes in High Frequency Ultrasound Imaging
S. Lu1, C. Ho2, C. Yeh1;
1Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, TAIWAN, 2Department of Chemistry, National Tsing Hua University, Hsinchu, TAIWAN.

P5B-6
In Vitro Pressure Estimation Obtained from Subharmonic Contrast Microbubble Signals
L. M. Leodorel,2, F. Forsberg1, W. T. Shi1;
1Thomas Jefferson University, Philadelphia, PA, 2Drexel University, Philadelphia, PA.

P5B-7
Design of Quadratic Filters for Contrast-Assisted Ultrasonic Imaging
P. Phukpattaranont[1], *T. Nilmanee*[1], *E. S. Ebbini*[2];
[1]Prince of Songkla University, Hat Yai, Songkhla, THAILAND, [2]University of Minnesota, Minneapolis, MN.

P5B-12
How Do Conservation Laws Define A Motion Suppression Score In In-vivo Ivus Sequences?
A. Hernàndez, Jr.[1], *D. Gil, Sr.*[1], *P. Radeva, Sr.*[1], *A. Teis*[2];
[1]Computer Vision Center, Bellaterra, SPAIN, [2]Hospital Universitari Germans Trias i Pujol, Badalona, SPAIN.

P5C
Medical Imaging

Chair: W. F. Walker;
Biomedical Engineering, University of Virginia, Charlottesville, VA.

P5C-1
Real Time 3D Stereo Ultrasound
M. P. Fronheiser, *J. R. Noble, S. W. Smith;*
Duke University, Durham, NC.

P5C-6
Compact Ultrasound Scanner with Built-in Raw Data Acquisition Capabilities
L. Y. L. Mo[1], *D. DeBusschere*[1], *W. Bai*[1], *D. Napolitano*[1], *A. Irish*[1], *S. Marschall*[1], *G. W. McLaughlin*[1], *Z. Yang*[2], *P. L. Carson*[2], *J. B. Fowlkes*[2];
[1]ZONARE Medical Systems, Inc, Mountain View, CA, [2]University of Michigan Health System, Ann Arbor, MI.

P5D
Shear Wave / Shear Strain

Chair: M. L. Palmeri;
Biomedical Engineering, Duke University, Durham, NC.

P5D-1
Elasticity Estimation by Time Reversal of Shear Waves
N. Benech1, S. Catheline2, J. Brum1, C. Negreira1;
1Laboratorio de acústica ultrasonora, Facultad de Ciencias, Montevideo, URUGUAY, 2Laboratoire Ondes et Acoustique, ESPCI, Université Paris VII, Paris, FRANCE.

P5D-2
Propagation of Narrowband Shear Waves Induced by a Finite-Amplitude Radiation Force
A. Giannoula, *R. S. C. Cobbold;*
University of Toronto, Toronto, ON, CANADA.

P5A-4
Analytical Modeling Of Phase Velocity Dependence On Trabecular Bone Properties: Effect Of Multiple Scattering
G. Haïat[1], *F. Padilla*[2], *S. Lonne*[3], *A. Lhémery*[3], *P. Laugier*[2], *S. Naili*[1];
[1]*Université Paris 12, Créteil, FRANCE,* [2]*CNRS, Paris, FRANCE,* [3]*CEA-Saclay, Gif Sur Yvette, FRANCE.*

P5B
Contrast Agents and Imaging: Methods
Chair: S. Umemura; Electrical and Communication Engineering, Tohoku University, Sendai, JAPAN.

P5B-8
Self-trapping of Microbubbles to Surface of Target
Y. Yamakoshi, *T. Miwa;*
Gunma University, Kiryu-shi, JAPAN.

P5C-2
A New Convolution-based Methodology to Simulate Ultrasound Images in a 2D/3D Sector Format
H. Gao[1], *H. F. Choi*[1], *P. Claus*[1], *S. Boonen*[2], *G. Vanderperre*[3], *W. Lauriks*[4], *J. D'hooge*[1];
[1]*Cardiovascular Imaging and Dynamics, Dept. of Cardiovascular Diseases, Catholic University Leuven, Leuven, BELGIUM,* [2]*Dept. of Experimental Medicine, Catholic University Leuven, Leuven, BELGIUM,* [3]*Dept. of Mechanical Engineering, Catholic University Leuven, Leuven, BELGIUM,* [4]*Dep. of Physics and Astronomy, Catholic University Leuven, Leuven, BELGIUM.*

P5D-3
Technique for Visualization of Anisotropy of Biomedical Tissue by Shear Wave Acoustic Elastography
B. R. Tittmann, Sr.[1], *C. Miyasaka*[1], *R. G. Maev*[2];
[1]*Penn State University, University Park, PA,* [2]*University of Windsor, Windsor, ON, CANADA.*

P5A-5
3d Dependence Of Both Slow And Fast Wave Mode Properties On Bone Volume Fraction And Structural Anisotropy In Human Trabecular Bone: A 3d Simulation Study
G. Haïat[1], *F. Padilla*[2], *P. Laugier*[3], *P. Laugier*[2];
[1]*Université Paris 12, Créteil, FRANCE,* [2]*CNRS, Paris, FRANCE,* [3]*CNRS, Créteil, FRANCE.*

P5B-1
A Fast Method for Data Acquisition in Contrast Replenishment Analyses
C. Hansen, *N. Hüttebräuker, W. Wilkening, H. Ermert;*
Ruhr-Universität Bochum, Bochum, GERMANY.

P5B-9
Investigation of the Response of Attached biSphere® Microbubbles to Ultrasound over a Range of Acoustic Pressures and Frequencies
M. B. Butler[1], *V. Sboros*[1], *S. D. Pye*[2], *J. A. Ross*[1], *C. M. Moran*[1], *V. Koutsos*[1], *W. N. McDicken*[1];
[1]*University of Edinburgh, Edinburgh, UNITED KINGDOM,*
[2]*NHS Lothian, Edinburgh, UNITED KINGDOM.*

P5C-3
Field Simulation Parameters Design For Realistic Statistical Parameters Of Radio - Frequency Ultrasound Images
H. Liebgott, *O. Bernard, C. Cachard, D. Friboulet;*
CREATIS-LRMN, Université de Lyon, INSA-Lyon, Université Lyon1, CNRS UMR 5220, Inserm U630, Villeurbanne, FRANCE.

P5D-4
Advances In Liver Stiffness Measurements Using Transient Elastography
L. Sandrin, *V. Miette, S. Yon, C. Fournier;*
Echosens, Paris, FRANCE.

P5A-6
Application Of A Singular Value Decomposition-based Wave Extraction Algorithm To Cortical Bone Characterization: Correlation To Bone Parameters
M. Sasso[1], **G. Haïat**[1], *M. Talmant*[2], *P. Laugier*[2], *S. Naili*[1];
[1]*Université Paris 12, Créteil, FRANCE,* [2]*CNRS, Paris, FRANCE.*

P5B-2
Imaging Microbubble Destruction/ Replenishment with Nakagami Distribution
P. Tsui[1], *M. Li*[2], *C. Chang*[1], *C. Yeh*[3];
[1]*Division of Mechanics, Research Center for Applied Sciences, Academia Sinica, Taipei, TAIWAN,* [2]*Department of Electrical Engineering, National Tsing Hua University, Hsinchu, TAIWAN,* [3]*Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, TAIWAN.*

P5B-10
Single Microbubble Acoustics And Signal Processing: Initial Experience With Amplitude Modulated Pulse Sequences
D. H. Thomas, M. B. Butler, T. Anderson, W. N. McDicken,
V. Sboros;
University of Edinburgh, Edinburgh, UNITED KINGDOM.

P5C-4
Needle Guidance Using Camera and Ultrasound Images
S. Khosravi, *R. Rohling, P. D. Lawrence;*
University of British Columbia, Vancouver, BC, CANADA.

P5D-5
Principle Component Analysis of Shear Strain Effects
H. Chen, *T. Varghese;*
University of Wisconsin-Madison, Madison, WI.

P5A-7
Anisotropic Elasticity and Strength of in vitro Cortical Bone Samples Determined with a Combination of Mechanical and Ultrasonic Methods
Q. Grimal[1], *S. Haupert*[1], *D. Mitton*[2], *L. Vastel*[3], *R. Bardonnet*[4], *P. Laugier*[1];
[1]*Université Pierre et Marie Curie-Paris6; CNRS LIP, PARIS, FRANCE,* [2]*ENSAM, Laboratoire de Biomécanique; CNRS, PARIS, FRANCE,* [3]*Hôpital Cochin, Banque de tissus osseux, PARIS, FRANCE,* [4]*BIOBank®, Presles en Brie, FRANCE.*

P5B-3
High-Contrast Imaging with Microbubble by Accumulating Frames with Motion Compensation on Pulse-Inversion
H. Yoshikawa[1], *T. Azuma*[1], *K. Sasaki*[2], *K. Kawabata*[1], *S. Umemura*[2];
[1]*Hitachi Ltd., Central Research Laboratory, Tokyo, JAPAN,* [2]*Tokyo University of Agriculture and Technology, Tokyo, JAPAN,* [3]*Tohoku University, Sendai, JAPAN.*

P5B-11
Monitoring Device for Au Nano-particle Distribution in Living Body by Using Ultrasonic Velocity Change Imaging
N. Nakamura, *T. Mukaiyama, S. Kawakami, K. Wada, T. Matsuyama, T. Matsunaka, K. Kono, H. Horinaka;*
Department of Engineering, Osaka prefecture University, Sakai, JAPAN.

P5C-5
Design And Validation Of An Ultrasound Array Optimized For Epidural Needle Guidance
S. Cochran[1], *G. A. Corner*[2], *K. J. Kirk*[1], *D. I. A. Lines*[3], *M. J. Watson*[4];
[1]*University of Paisley, Paisley, UNITED KINGDOM,*
[2]*Ninewells Hospital, Dundee, UNITED KINGDOM,*
[3]*Diagnostic Sonar Ltd, Livingston, UNITED KINGDOM,*
[4]*Greater Glasgow Health Board, Glasgow, UNITED KINGDOM.*

P5D-6
Displacement Estimators using Angular Insonifications for Reconstructive Elastography to Determine the Shear Modulus of Tissue
W. Khaled, *P. Tait, S. Reichling, O. T. Bruhns, H. Ermert;*
Ruhr-University Bochum, Bochum, GERMANY.

P5E
Wave Propagation and Industrial Measurements

Chair: J. Kushibike;
Department of Electrical Engineering, Tohoku University, Sendai, JAPAN.

P5E-1 Motion Analysis of the Surface Particle of a Coiled Waveguide Due to the Flexural Wave
S. Xie, M. Tanabe, ***N. Tagawa****, T. Moriya;*
Tokyo Metropolitan University, Tokyo, JAPAN.

P5E-2 Response of Thermoacoustic Wave in Stressed Thin Plates
S. Hsu, ***C. Yin****;*
National Chiao Tung University, Hsinchu, TAIWAN.

P5E-3 Study on the Surface Wave Propagation in the Diamond Coated Silicon
S. J. Park1, ***J. Kim****1, S. H. Park1, M. Son1, Y. H. Kim1, T. Abe2, T. Takagi2;*
1Korea Science Academy, Pusan, REPUBLIC OF KOREA, 2Tohoku University, Sendai, JAPAN.

P5E-9 A Fast Field Simulation Method for Longitudinal Ultrasound Wave Propagation and Transmission in Homogeneous and Layered Media
X. Yin*, S. Zhou, J. Petruzzello;*
Philips Research North America, Briarcliff Manor, NY.

P5F
Optical Interactions II

Chair: I. Chang;
ACCORD OPTICS, SUNNYVALE, CA.

P5F-1 Recognition of Layer-Structured Optical Labels Using Collinear Acoustooptic Processor without Time Gating for Photonic Routing
N. Goto*[1], Y. Miyazaki[2];*
[1]The University of Tokushima, Tokushima, JAPAN, [2]Aichi University of Technology, Gamagori, JAPAN.

P5F-2 Improved Fiber Optic Hydrophone Sensors
R. Gopinath*1, K. Srinivasan1, S. Umchid1, L. Bansal2, A. S. Daryoush1, P. A. Lewin1, M. El-Sherif2;*
1Drexel University, Philadelphia, PA, 2Photonics Laboratories, Inc, Philadelphia, PA.

P5G-4 Separation of Small Particles by the Ultrasonic Pumping Effect
J. Hu*, Y. Liu;*
Nanyang Technological University, Singapore, SINGAPORE.

P5G-5 Dynamic Contact Effects of Ultrasonic Motors
M. Yang*;*
Shanghai Jiaotong University, Shanghai, CHINA.

P5G-6 A Multi-DOF Ultrasonic Motor Using In-plane Deformation of PZT Elements
Z. Minghui*, L. Mantian, S. Lining;*
Harbin Institute of Technology, Harbin, CHINA.

P5H
SAW Analysis

Chair: K. Hashimoto;
Dept, Elec. Mech. Eng., Chiba University, Chiba, JAPAN.

P5I-1 Multiple State Switching Operation of AlGaN /GaN Layer Mode Device
K. Hohkawa*[1], K. Koh[1], K. Nishimura[2], N. Shigekawa[2];*
[1]Kanagawa Institute of Technology, Atsugi, JAPAN, [2]NTT Photonics Laboratories, Atsugi, JAPAN.

P5I-2 Lower-loss Filters on Langasite
P. G. Ivanov*[1], V. M. Makarov[1], J. Dai[2];*
[1]Moscow Engineering-Physical institute, Moscow, RUSSIAN FEDERATION, [2]RF Monolithics Inc., Dallas, TX.

P5I-3 Improvement of Balance Performance in LSAW Filters Based on 5-IDT Multi-Mode Structure
A. S. Loseu*, J. Rao;*
RF MIcro Devices, Greensboro, NC.

P5I-4 Diamond Saw Resonators With SiO_2/ZnO/IDT/ZnO/Diamond Structure
S. Fujii*, S. Kawano, T. Umeda;*
Seiko Epson Corp., Suwa-gun Nagano, JAPAN.

P5J-5 Direct Attach of Planar-Based and Ribbon-Based Cables to Ultrasound Imaging Arrays
M. J. Zipparo1, C. G. Oakley1, J. Kuhnke2, M. Stollberg2;
1W.L. Gore and Associates, Inc., Englewood, CO, 2W.L. Gore and Associates, GmbH, Pleinfeld, GERMANY.

P5K
High Frequency Transducers II

Chair: K. K. Shung;
Bioengineering, University of Southern California, Los Angeles, CA.

P5K-1 Ultrasonic Properties of Bulk Piezoelectric Aluminum Nitride
D. A. Parks[1], ***B. R. Tittmann, Sr.****[1], T. Bettles[2];*
[1]Penn State University, University Park, PA, [2]Crystal I.S., Green Island, NY.

P5K-2 Optimization and Characterization of RF Sputtered Piezoelectric Zinc Oxide Thin Film for Transducer Applications
Y. Hsu, J. Lin, ***W. C. Tang****;*
University of California, Irvine, Irvine, CA.

P5E-4 3D Transient Analysis of Ultrasonic Propagation Using Finite Difference Time Domain Method and Its Experimental Verification

S. Takahashi, *K. Muramatsu, A. Kimoto;*
Saga University, Saga, JAPAN.

P5E-5 On the Propagation in a Waveguide with Gaussian Section Variation: Inverse Problem to Determine the Hiding Waveguide Profile and Separation of Converted Modes Contributions in the Case of Multi Incident Modes, Experimental and Numerical Studies

P. Marical[1], *M. Ech-Cherif El-Kettani1, M. Predoi2;*
1LAUE UMR CNRS 6068, University of Le Havre, LE HAVRE, FRANCE, 2University POLITECHNICA of Bucharest, Department of Mechanics, Bucharest, ROMANIA.

P5E-6 Laser Ultrasonic Technique for Visualizing Ultrasonic Waves Propagating On Three-dimensional Objects

j. takatsubo, *h. miyauchi, n. toyama, h. tsuda;*
AIST(National Institute of Advanced Industrial Science and Technology), Tsukuba, JAPAN.

P5E-7 Multi Resonances of the S0 Adiabatic Mode Propagating In A Linearly Varying Cross Section Waveguide, Experimental And Numerical Results.

Z. Hamitouche[1], *M. Ech-Cherif El-Kettani1, J. Izbicki1, H. Djelouah2;*
1LAUE UMR CNRS 6068, University of Le Havre, Le Havre, FRANCE, 2Faculty of Physics, University of Algiers, Algiers, ALGERIA.

P5E-8 The Method Of Reverberation-ray Matrix _ A New Matrix Analysis Of Waves In Piezoelectric Laminates

W. Chen, Y. Guo;
Zhejiang University, Hangzhou, CHINA.

P5F-3 Light Diffraction by IDT-Radiated Bulk Acoustic Waves in ZX-$LiNbO_3$

D. Ciplys[1,2], *R. Rimeika*[1], *P. Kazdailis*[1], *M. S. Shur*[2];
1Vilnius University, Vilnius, LITHUANIA, 2Rensselaer Polytechnic Institute, Troy, NY.

P5G
Ultrasonic Motors I

Chair: A. Lal;
Cornell University, Ithaca, NY.

P5G-1 Optimization of a Single Phase Ultrasonic Linear Motor

M. Flueckiger, *J. M. Fernandez, M. Gilyan, Y. Perriard;*
Ecole Polytechnique Fédérale de Lausanne, Lausanne, SWITZERLAND.

P5G-2 Acoustic Surface Wave Induced Propagation of Liquids in Open Channels

G. Lindner, *H. Faustmann, T. Fischer, S. Krempel, M. Münch, S. Rothballer, M. Schmitt;*
Hochschule Coburg - University of Applied Sciences, Coburg, GERMANY.

P5G-3 Two Dimensional Droplet's Displacement Using Acoustic Vibration Through a Thin Polymer Film

J. Bennès, J. F. Manceau, F. Bastien;
FEMTO-ST, Besançon, FRANCE.

P5H-1 Hybrid Finite Element Analysis of Leakey Surface Acoustic Waves in Periodic Waveguides of Finite Thickness

J. Yu[1], *S. Yoon*[1], *S. Kamal*[2], *M. Oshio*[2], *M. Tanaka*[2]; *1Epson R & D, Inc., San Jose, CA, 2Seiko Epson Corporation, Hirooka, JAPAN.*

P5H-2 Novel Rigorous SAW Network Model Parameter Extraction Technique

T. D. Kenny[1,2], *B. J. Meulendyk*[1,2], *M. Pereira da Cunha*[1,2]; *1University of Maine, Orono, ME, 2Laboratory for Surface Science and Technology, Orono, ME.*

P5H-3 A COM Analysis of SAW Tags Operating at Harmonic Frequencies

Y. Chen[1], *T. Wu*[2], *K. Chang*[2];
1Tatung University, Taipei, TAIWAN, 2National Taiwan University, Taipei, TAIWAN.

P5H-4 COM Parameters of Langasite Crystal

V. Cherednick, *M. Dvoesherstov;*
Nizhny Novgorod State University, Nizhny Novgorod, RUSSIAN FEDERATION.

P5I
SAW Filters

Chair: B. Potter;
Vectron International, Hudson, NH.

P5J
Medical Transducers

Chair: K. K. Shung;
Bioengineering, University of Southern California, Los Angeles, CA.

P5J-1 Dual-Layer Transducer Array for 3-D Imaging

J. Jeong, *C. Seo, J. T. Yen;*
University of Southern California, Los Angeles, CA.

P5J-2 Ultrasound Probe with Integrated ECG Lead

E. D. Light, *A. Ramireddy, S. W. Smith;*
Duke University, Durham, NC.

P5J-3 Design of a Piezocomposite Matrix Transducer Configuration for Multi-mode Operation in HIFU Applications

R. BERRIET, *G. FLEURY;*
IMASONIC, BESANCON, FRANCE.

P5J-4 256 × 256 2-d Array Transducer With Row-column Addressing For 3-d Imaging

C. Seo, *J. T. Yen;*
University of Southern California, Los Angeles, CA.

P5K-3 Novel Thick Film Transducers for High Frequency Ultrasonography

R. Lou-Moller[1], ***A. Nowicki***[2], *W. Wolny*[1], *E. Ringgaard*[3], *M. Lewandowski*[2], *W. Secomski*[2];
1InSensor, Kvistgaard, DENMARK, 2Institute of Fundamental Technological Research, Warsaw, POLAND, 3Ferroperm Piezoceramics A/S, Kvistgaard, DENMARK.

P5K-4 High-overtone Self-Focusing Acoustic Transducer for High Frequency Ultrasonic Imaging

H. Yu, *D. Wu, C. Lee, Q. Zhou, E. S. Kim, K. K. Shung; University of Southern California, Los Angeles, CA.*

P5K-5 Performance Estimation of Ultra-Miniature One Dimensional Array Ultrasound Probe with Hydrothermally Synthesized PZT Polycrystalline Film Transducers

S. TAKEUCHI1, A. Endo2, S. Irisawa1, N. Kawashima1, M. K. Kurosawa3; 1Tokyo University of Tokohama, 1614 Kurogane-cho, Aoba-ku, Tokohama, Kanagawa, JAPAN, 2National Institute of advanced indaustrial science and technology, 1-2-1, Namiki, Tsukuba, Ibaraki, 305-8564, JAPAN, 3Tokyo Institute of technology, 4259,Nagatsuta-machi, Midori-ku, Tokohama, Kanagaw, JAPAN.

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10:30 am - 12:00 pm — ORAL SESSIONS - Wednesday, October 31, 2007

	Session 10A **Photoacoustic Imaging** *Chair:* *S. Emelianov;* *Biomedical Engineering, University of Texas at Austin, Austin, TX.*	*Session 10B* **3D / Cardiovascular Imaging** *Chair:* *K. Wear;* *US Food and Drug Administration, Rockville, MD.*	*Session 10C* **High Frequency: Applications and Devices** *Chair:* *M. Kolios;* *Physics, Ryerson University, Toronto, ON, CANADA.*	*Session 10D* **NDE Transducers and Industrial Measurements** *Chair:* *J. Tsujino;* *Faculty of Engineering, Kanagawa University, Yokohama, JAPAN.*	*Session 10E* **SAW Device Design** *Chair:* *B. Potter;* *Vectron International, Hudson, NH.*	*Session: 10F* **Lead Free Piezoelectrics and Zinc Oxide** *Chair:* *A. Safari;* *Materials Scienec and Engneering, Rutgers University, Piscataway, NJ.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
10:30 am	10A-1 - High-Resolution Photoacoustic Tomography (Invited) ***L. V. Wang***; *Washington University in St. Louis, St. Louis, MO.*	10B-1 - Strain Imaging of Arterial Wall with Translational Motion Compensation and Error Correction ***H. Hasegawa***, *H. Kanai;* *Graduate School of Engineering, Tohoku University, Sendai, JAPAN.*	10C-1 - Modeling High Frequency Nonlinear Scattering from Lipid Encasulated Microbubble Contrast Agents ***D. E. Goertz***[1], *N. de Jong*[2], *A. F. W. van der Steen*[2]; [1]*University of Toronto, Toronto, ON, CANADA,* [2]*Erasmus MC, Rotterdam, THE NETHERLANDS.*	10D-1 - On-Line Ultrasonic Inspections at Elevated Temperatures ***S. P. Kelly***[1], *I. Atkinson*[2], *C. Gregory*[3], *K. Kirk*[4]; [1]*Doosan Babcock Energy Ltd, Renfrew, UNITED KINGDOM,* [2]*KANDE International Ltd, Knutsford, Cheshire, UNITED KINGDOM,* [3]*Phoenix Inspection Systems Ltd, Warrington, UNITED KINGDOM,* [4]*The University of Paisley, Paisley, UNITED KINGDOM.*	10E-1 - Improved Temperature Stability of One-Port SAW Resonators Achieved without Coils *G. Martin*[1], ***H. Schmidt***[1], *B. Wall*[2]; [1]*Leibniz Institute for Solid State and Materials Research Dresden, Dresden, GERMANY,* [2]*Vectron International Telefilter, Tellow, GERMANY.*	10F-1 - Structure and Properties of Li and Ta Modified (K,Na)NbO3 Ceramics and Crystals: An Update ***D. Damjanovic***[1], *N. Klein*[1], *M. Davis*[1], *Y. Wang*[1], *E. Hollenstein*[1], *N. Setter*[1], *H. J. Trodahl*[2], *M. Kuball*[2], *A. Grosz*[3], *V. Wesemann*[3], *S. Vernay*[3], *D. Rytz*[3]; [1]*Swiss Federal Institute of Technology - EPFL, Lausanne, SWITZERLAND,* [2]*University of Bristol, Bristol, UNITED KINGDOM,* [3]*FEE GmbH, Idar-Oberstein, GERMANY.*
10:45 am		10B-2 - Acoustic Radiation Force Impulse Imaging of Mechanical Stiffness Propagation within Myocardial Tissue *S. J. Hsu, J. L. Hubert, P. D. Wolf,* ***G. E. Trahey***; *Duke University, Durham, NC.*	10C-2 - High Frequency Ultrasound Characterization of Blood Clotting Process: Results Obtained with Plasma and Whole Blood ***C. Plag***[1,2], *R. Libgot*[1,2], *Y. Gruel*[3], *F. Patat*[1,3], *F. Ossant*[1,3]; [1]*Université Francois Rabelais Tours, Tours, FRANCE,* [2]*LUSSI CNRS FRE-2448, Tours, FRANCE,* [3]*University Hospital, Tours, FRANCE.*	10D-2 - Integrated Plate Acoustic Wave Transducers Using Mode Conversion ***K. Wu***[1], *M. Kobayashi*[2], *C. Jen*[2]; [1]*McGill University, Montreal, PQ, CANADA,* [2]*IMI, National Research Council Canada, Boucherville, PQ, CANADA.*	10E-2 - A New SPUDT Transducer Using Transverse Coupling Between Bidirectional Tracks ***M. Solal***, *R. E. Chang;* *TriQuint Semiconductor, Apopka, FL.*	10F-2 - Temperature Dependences of Piezoelectric Properties of Vanadium-modified and Grain-Oriented SrBi2Nb2O9 Ceramics ***T. Takenaka***, *S. Inai, Y. Hiruma, H. Nagata;* *Tokyo University of Science, Noda, JAPAN.*

11:00 am	10A-2 - Optoacoustic Technique for Thermal Lesion Detection and Temperature Monitoring during High Intensity Focused Ultrasound Treatment ***T. Khokhlova***, *I. Pelivanov, O. Sapozhnikov, A. Karabutov;* *Moscow State University, Moscow, RUSSIAN FEDERATION.*	10B-3 - Vibrating Interventional Device Detection Using 3D Color Doppler ***M. P. Fronheiser***[1], *S. F. Idriss*[2], *P. D. Wolf*[1], *S. W. Smith*[1]; *[1]Duke University, Durham, NC, [2]Duke University Medical Center, Durham, NC.*	10C-3 - Radial Modulation Imaging Of Microbubbles At High Frequency ***E. Chérin***, *J. Brown, S. F. Foster;* *Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*	10D-3 - Long Range Guided Wave Inspection of Pipelines by a New Local Magnetostrictive Transducer ***F. O. Turcu***[1], *G. Acciani*[2], *F. Bertoncini*[1], *G. Brunetti*[2], *G. Fornarelli*[2], *M. Raugi*[1]; *[1]Dipartimento di Sistemi Elettrici e Automazione - Università di Pisa, Pisa, ITALY, [2]Dipartimento di Elettrotecnica ed Elettronica - Politecnico di Bari, Bari, ITALY.*	10E-3 - A Topology to Ameliorate Insertion Loss and Large Signal Capture Effects in Tunable SAW Filters ***J. Kosinski***; *US Army, Fort Monmouth, NJ.*	10F-3 - Self-focused ZnO Transducers for Ultrasonic Biomicroscopy ***J. M. Cannata***, *J. A. Williams, Q. Zhou, H. Yu, E. S. Kim, K. K. Shung;* *University of Southern California, Los Angeles, CA.*
11:15 am	10A-3 - Intravascular Photoacoustic Imaging with Gold Nanoparticles ***B. Wang***[1], *E. Yantsen*[1], *T. Larson*[1], *S. Sethuraman*[1], *K. Sokolov*[1,2], *S. Emelianov*[1]; *[1]University of Texas at Austin, Austin, TX, [2]MD Anderson Cancer Center, Houston, TX.*	10B-4 - 4D Cardiac Strain Imaging: Methods and Initial In Vivo Results ***R. G. P. Lopata***[1], *M. M. Nillesen*[1], *I. H. Gerrits*[1], *J. M. Thijssen*[1], *L. Kapusta*[2], *C. L. de Korte*[1]; *[1]Clinical Physics Laboratory, Department of Pediatrics, Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS, [2]Children's Heart Centre, Radboud University Nijmegen Medical Centre, Nijmegen, THE NETHERLANDS.*	10C-4 - Improved Myocardial Motion Tracking in Mouse Echocardiography Using Large-Diameter, „Depo" Microbubbles ***Y. Li***, *C. D. Garson, Y. Xu, B. A. French, J. A. Hossack;* *University of Virginia, Charlottesville, VA.*	10D-4 - Waveguide Transducers With Limited Diffraction Beam For Ultrasonic Flow Measuring At High Temperature And Pressure ***V. K. HAMIDULLIN***[1], *R. N. Malakhanov*[2], *A. A. Gnedov*[1], *G. R. OSOKIN*[2], *S. V. NOGAEVSKIY*[1]; *[1]company VZLJOT, St. PETERSBURG, RUSSIAN FEDERATION, [2]State University of Aerospace Instrumentation, St. PETERSBURG, RUSSIAN FEDERATION.*	10E-4 - GPS SAW Filter Using A Wafer Level Technique ***F. Shiba***, *M. Yamazaki, O. Iijima, H. Tatsuda;* *Japan Radio Co, fujimino-city SAITAMA, JAPAN.*	10F-4 - Self-Focused 1-3 Composite LiNbO3 Single Element Transducers for High Frequency HIFU Applications ***R. Liu***, *H. Kim, J. Cannata, G. Chen, K. Shung;* *University of Southern California, Los Angeles, CA.*
11:30 am	10A-4 - In vitro Bood Flow Mean Velocity Estimaion Using a Fast Photoacostic Imaging System ***C. Liao***, *C. Wei, S. Huang, P. Li;* *National Taiwan University, Taipei, TAIWAN.*	10B-5 - 4D Elasticity Imaging of PVA LV Phantom Integrated with Pulsatile Circulation System Using 2D Phased Array ***C. Jia***[1], *K. Kim*[1], *T. J. Kolias*[1], *J. M. Rubin*[1], *W. F. Weitzel*[1], *P. Yan*[2], *D. Dione*[2], *A. J. Sinusas*[2], *J. S. DUNCAN*[2], *M. O'Donnell*[3]; *[1]University of Michigan, Ann Arbor, MI, [2]Yale University, New Haven, CT, [3]University of Washington, Seattle, WA.*	10C-5 - Identification of Hepatocellular Carcinomas with Contrast Enhanced 40 MHz Ultrasound in Hepatitis B Virus X Protein Transgenic Mice ***A. Liao***, *Y. Cheng, S. Yeh, P. Li;* *National Taiwan University, Taipei, TAIWAN.*	10D-5 - Response Characteristics Of Temperature Stable TeO2/ LiNbO3 SAW NOX Sensor ***N. Dewan***, *S. Shandilya, K. Sreenivas, V. Gupta;* *University of Delhi, Delhi, INDIA.*	10E-5 - Modeling and Design of a Wirebonded Low Loss Single Ended DMS Filter having broadband rejection of -45 dB ***J. J. Rao***, *A. S. Loseu, K. Gamble;* *R F Micro Devices Inc., Greensboro, NC.*	10F-5 - Integrated Ultrasonic Transducers above 500°C ***M. Kobayashi***[1], *H. Nagata*[2], *Y. Hirwma*[2], *T. Tokutsu*[2], *T. Takenaka*[2], *C. Jen*[1]; *[1]Industrial Materials Institute, Boucherville, PQ, CANADA, [2]Tokyo University of Science, Noda, JAPAN.*
11:45 am	10A-5 - Beamforming Approaches In Photoacoustic Imaging Using Linear Array Transducer ***S. PARK***, *S. R. AGLYAMOV, S. Y. EMELIANOV;* *UNIVERSITY OF TEXAS AT AUSTIN, AUSTIN, TX.*	10B-6 - An Ecg Gated Clinical Ultrasound System For High Frame-rate Cardiovascular Ultrasound And Elastography Imaging ***S. Wang***; *Columbia University, New York, NY.*	10C-6 - Fully Integrated CMUT-Based Forward-Looking Intracardiac Imaging for Electrophysiology ***A. Nikoozadeh***[1], *I. O. Wygant*[1], *D. T. Yeh*[1], *O. Oralkan*[1], *D. N. Stephens*[2], *D. Sahn*[3], *P. T. Khuri-Yakub*[1]; *[1]Stanford University, Stanford, CA, [2]University of California, Davis, Davis, CA, [3]Oregon Health and Sciences University, Portland, OR.*	10D-6 - A PZT/Si Composite Transducer for Resonant Ultrasound Spectroscopy *Z. Zhang, T. Zhang,* ***H. Guo***; *Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen, Fujian, CHINA..*	10E-6 - Inline SAW RFID Tag Using Time Position and Phase Encoding ***S. Harma***[1], *W. G. Arthur*[2], *C. S. Hartmann*[3], *R. G. Maev*[1], *V. P. Plessky*[4]; *[1]Helsinki University of Technology, Espoo, FINLAND, [2]University of Windsor, Windsor, ON, CANADA, [3]RF SAW Inc., Richardson, TX, [4]GVR Trade SA, Bevaix, SWITZERLAND.*	10F-6 - Temperature Insensitive High Tunability and Piezoelectric Response from Ferroelectric Multilayers ***S. Zhong***[1], *S. Alpay*[1], *R. Nath*[1], *B. D. Huey*[1], *M. W. Cole*[2], *E. Ngo*[2], *S. Hirsch*[2], *J. D. Demaree*[2]; *[1]University of Connecticut, Storrs, CT, [2]U.S. Army Research Laboratory, Aberdeen Proving Ground, MD.*

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1:30 pm - 3:00 pm ORAL SESSIONS - Wednesday, October 31, 2007

	Session 11A **Targeted & Molecular Imaging** *Chair:* *K. Ferrara;* *Department of Biomedical Engineering, University of California Davis, Davis, CA.*	*Session 11B* **Small Animal Imaging** *Chair:* *J. Hossack;* *University of Virginia, Charlottesville, VA.*	*Session 11C* **Velocity & Motion Estimators** *Chair:* *M. Kolios;* *P. Li;* *Electrical Engineering, National Taiwan University, Taipei, TAIWAN.*	*Session 11D* **Array Imaging** *Chair:* *R. C. Addison;* *Rockwell Science Center, Thousand Oaks, CA.*	*Session 11E* **Bulk Acoustic Wave Devices 2** *Chair:* *G. Fattinger;* *TriQuint Semiconductor, Orlando, FL..*	*Session: 11F* **PMUTs** *Chair:* *R. Lerch;* *Freidrich-Alexander-Universitat, Erlangen, GERMANY.Piscataway, NJ.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center/South**	**Sutton Parlor North**	**Beekman Parlor**
1:30 pm	11A-1 - Ultrasound Contrast Agents: Biodistribution and Targeted Delivery ***M. S. Tartis**, D. E. Kruse, H. Zheng, H. Zhang, J. Marik, A. Kheirolomoom, K. Ferrara;* *University of California at Davis, Davis, CA.*	11B-1 - Conduction Velocity Estimation In Electromechanical Wave Imaging With Varying Pacing Origins In Vivo ***E. Konofagou**, J. Luo, D. Saluja, D. Cervantes, K. Fujikura, J. Coromilas;* *Columbia University, New York, NY..*	11C-1 - Fast Spectral Velocity Estimation Using Adaptive Techniques: In-vivo Results ***F. Gran**[1], A. Jakobsson[2], J. Udesen[3], J. A. Jensen[1];* *[1]Technical University of Denmark, Copenhagen, DENMARK, [2]Karlstad University, Karlstad, SWEDEN, [3]University Hospital of Copenhagen, Copenhagen, DENMARK.*	11D-1 Ultrasonic Arrays for NDE - Historical Perspective and Future Concepts (Invited) ***P. D. Wilcox**, B. W. Drinkwater;* *University of Bristol, Bristol, UNITED KINGDOM.*	11E-1 - Improve MBVD Model to Consider Frequency Dependent Loss For BAW Filter Design ***F. Z. Bi**, B. P. Barber;* *Skyworks Solutions Inc, Woburn, MA.*	11F-1 - A Flexion Mode Piezoelectric Micro-Transformer Processed by Aerosol Deposition Method ***X. Wang**[1], W. Wu[1], P. Chang[1], D. Vasic[2], F. Costa[2];* *[1]National Taiwan University, Taipei, TAIWAN, [2]Ecole Normale Sup'erieure de Cachan, Cachan, FRANCE.*
1:45 pm	11A-2 - Selective Imaging of Adherent Targeted Microbubbles ***S. Zhao**, D. E. Kruse, K. W. Ferrara, P. A. Dayton;* *UC Davis, Davis, CA.*	11B-2 - Temporal, Spectral And Spatial Analysis Of Cardiac Contractile Dyssynchrony In The Murine Left Ventricle Post Myocardial Infarction Using High Resolution Ultrasound ***Y. Li**, C. D. Garson, Y. Xu, B. A. French, J. A. Hossack;* *University of Virginia, Charlottesville, VA..*	11C-2 - Minute Roughness Measurement Using Phase Tracking for Arterial Wall Diagnosis Non-Invasively in vivo ***M. Cinthio**[1,2], H. Hasegawa[2], H. Kanai[2];* *[1]Lund Institute of Technology, Lund University, Lund, SWEDEN, [2]Graduate School of Engineering, Tohoku University, Sendai, JAPAN.*		11E-2 Temperature Compensated Bulk Acoustic Wave Resonator and its Predictive 1D Acoustic Tool for RF Filtering ***R D. Petit**[1,2], N. Abelé[1], A. Volatier[1], A. Lefevre[1], P. Ancey[1], J. F. Carpentier[1];* *[1]STMicroelectronics, Crolles, FRANCE, [2]INSA, Lyon, FRANCE, [3]LETI, Grenoble, FRANCE.*	11F-2 - Characteristics of Micromachined Ultrasonic Transducers Constructed with FBAR Technology ***S. Fazzio**, T. Lamers, A. Goel, O. Buccafusca, J. D. Larson, Fellow of IEEE;* *Avago Technologies, Fort Collins, CO.*

2:00 pm	11A-3 - A Novel Sensitive Targeted Imaging Technique for Ultrasonic Molecular Imaging ***H. Zheng***[1], *D. E. Kruse*[1], *P. Sutcliffe*[2], *E. Gardner*[2], *D. N. Stephens*[1], *K. W. Ferrara*[1]; *[1]University of California, Davis, CA, [2]Siemens Medical Solutions, Mountain View, CA.*	11B-3 - A Unified Transmission/ Reflection Acoustic Tomography Scheme For Small Animal Tissue Characterization *M. Ashfaq, H. Ermert; Institute of High Frequency Engineering, Ruhr-University Bochum, Bochum, GERMANY.*	11C-3 - Sonorheometry: A New Method For Assessing Coagulation Potential ***F. Viola***, *S. P. Tropello, B. G. Macik, M. B. Lawrence, W. F. Walker;* *University of Virginia, Charlottesville, VA..*	11D-2 - Total Focussing Method for Volumetric Imaging In Immersion Non Destructive Evaluation *G. Harvey[1], A. Tweedie[2], C. Holmes[1], P. D. Wilcox[2],* ***R. L. O'Leary***, *A. Gachagan[1];* *[1]Centre for Ultrasonic Engineering, University of Strathclyde, Glasgow, UNITED KINGDOM, [2]Alba Ultrasound Ltd., Glasgow, UNITED KINGDOM, [3]Department of Mechanical Engineering, University of Bristol, Bristol, UNITED KINGDOM..*	11E-3 - Review and Comparison of Bulk Acoustic Wave FBAR and SMR Technology (Invited) ***R. Ruby***; *Avago Technologies, San Jose, CA.*	11F-3 - Performance of 2D Flexure-Mode pMUT Arrays ***D. E. Dausch***[1], *J. B. Castellucci*[2], *D. R. Chou*[3], *O. T. von Ramm*[2]; *[1]RTI International, Research Triangle Park, NC, [2]Duke University, Durham, NC.*
2:15 pm	11A-4 - Molecular Imaging with Targeted Contrast Agents and High Frequency Ultrasound ***A. van Wamel***[1], *M. Celebi*[1], *J. A. Hossack*[2], *J. M. Backer*[3], *M. V. Backer*[3], *K. Ley*[4,1], *N. de Jong*[5,1], *A. L. Klibanov*[6,1]; *[1]Biomedical Engineering, Erasmus MC, Rotterdam, THE NETHERLANDS, [2]Cardiovascular Division, University of Virginia, Charlottesville, VA, [3]Biomedical Engineering, University of Virginia, Charlottesville, VA, [4]Sibtech Inc, Newington, CT, [5]Robert M. Berne Cardiovascular Research Center, University of Virginia, Charlottesville, VA, [6]Physics of Fluids, University of Twente, Enschede, THE NETHERLANDS.*	11B-4 - Quantitative Ultrasound Assessment of Breast Cancer Using a Multiparameter Approach ***M. L. Oelze***, *W. D. O'Brien, Jr., J. F. Zachary;* *University of Illinois at Urbana-Champaign, Urbana, IL.*	11C-4 - Fast Blood Vector Velocity Imaging: Simulations and Preliminary in vivo Results *J. Udesen1, F. Gran2, K. L. Hansen1, J. A. Jensen2, M. B. Nielsen1;* *1University Hospital of Copenhagen, Copenhagen, DENMARK, 2Technical University of Denmark, Copenhagen, DENMARK.*	11D-3 - Mosaic: An Integrated Ultrasonic 2D Array System ***S. Triger***[1], *J. Wallace*[1], *L. Wang*[2], *S. Cochran*[3], *J. Saillant*[4], *F. Afroukh*[3], *D. R. S. Cumming*[1]; *[1]University of Glasgow, Glasgow, UNITED KINGDOM, [2]Formerly of University of Glasgow, now at Imperial College, London, UNITED KINGDOM, [3]University of Paisley, Paisley, UNITED KINGDOM.*		11F-4 - 100 MHz Micro Machined Linear Array Based On ZnO Membranes ***E. C. Weiss***, *A. Jakob, S. Tretbar, W. Haberer, T. Knoll, F. Bauerfeld, J. Hermann, R. M. Lemor;* *Fraunhofer IBMT, Sankt Ingbert, GERMANY.*
2:30 pm	11A-5 - Interrogation Of The Targeting Mechanisms Of Ultrasound Contrast Agent Microbubbles Using Atomic Force Microscopy ***V. Sboros***[1], *E. Glynos[1], S. D. Pye[2], C. M. Moran[1], M. Butler[1], J. A. Ross[1], W. N. McDicken[1], V. Koutsos[2];* *[1]University of Edinburgh, Edinburgh, UNITED KINGDOM, [2]Royal Infirmary of Edinburgh, Edinburgh, UNITED KINGDOM.*	11B-5 - Pulse Wave Imaging Of Abdominal Aortic Aneurysm Using High-Resolution Ultrasound: Comparison Between Control And Angiotensin II-Treated Mice In Vivo ***J. Luo***[1], *K. Fujikura[1], L. S. Tyrie[2], M. D. Tilson, III[1,2], E. E. Konofagou[1];* *[1]Columbia University, New York, NY, [2]Luke's-Roosevelt Hospital Center, New York, NY, [3]St. Luke's-Roosevelt Hospital Center, New York, NY..*	11C-5 - Characterization of Time-Varying Mechanical Viscoelastic Parameters of Mimicking Deep Vein Thrombi with 2D Dynamic Elastography ***C. Schmitt, Jr.***, *A. Hadj Henni, Jr., G. Cloutier, III;* *Laboratory of Biorheology and Medical Ultrasonics, Montreal, PQ, CANADA.*	11D-4 - Automated Ultrasonic Disbond Inspection of Metal Matrix Composite Tank Track Shoes ***D. Xiang***[1], *X. Zhao*[1], *Z. Ren*[1], *B. Raju*[2]; *[1]Intelligent Automation Inc., Rockville, MD, [2]US Army, Rdecom/tardec, MI.*	11E-4 - A Zero Drift Colpitts Oscillator Using Temperature Compensated FBAR ***W. Pang***[1], *R. C. Ruby*[2], *P. W. Fisher*[1], *K. J. Gramen*[1], *J. D. Larson*[3], *L. Callaghan*[2]; *[1]Avago Technologies, Fort Collins, CO, [2]Avago Technologies, San Jose, CA, [3]Avago Technologies, Palo Alto, CA.*	11F-5 - High Frequency Piezoelectric PZT Films Micromachined Ultrasonic Transducers ***Q. Zhou***[1], *D. Wu*[1], *F. Djuth*[2], *K. Shung*[1]; *[1]University of Southern Califorlia, Department of Biomedical Engineering, Los Angeles, CA, [2]Geospace Research, Inc.., El Segundo, CA 90245, CA..*
2:45 pm	11A-6 - Focused Adhesion with Reduced Immunogenicity Using Stimulus-Responsive Ultrasound Contrast Agents ***M. A. Borden***[1], *P. A. Dayton*[2], *K. W. Ferrara*[2]; *[1]Columbia University, New York, NY, [2]University of California, Davis, CA.*	11B-6 - Detection of Electrical Current in a Rabbit Heart using Ultrasound ***R. Olafsson***[1], *R. S. Witte*[1], *S. Huang*[1], *C. Jia*[1], *M. O'Donnell*[2]; *[1]University of Michigan, Ann Arbor, MI, [2]University of Washington, Seattle, WA.*	11C-6 - New Observations on the Anisotropy of Ultrasound Blood Backscatter as a function of Frequency ***C. Guilbert***, *F. Yu, G. Cloutier;* *Laboratory of Biorheology and Medical Ultrasonics (LBMU), University of Montreal Hospital Research Center, Montreal, PQ, CANADA.*	11D-5 - High Voltage Pulser for Air-coupled Ultrasonic Arrays ***M. Garcia-Rodriguez***, *Y. Yanez, M. J. Garcia-Hernandez, J. Salazar, A. Turo, J. A. Chavez;* *Technical University of Catalonia, Barcelona, SPAIN.*	11E-5 - Application of Vibrating Membrane Model to BAW Resonators ***A. Jansman***[1], *T. Pensala*[2], *M. Ylilammi*[2], *R. Strijbos*[1], *J. Lobeek*[1], *F. Vanhelmont*[1], *J. Ruigrok*[1]; *[1]NXP Research, Eindhoven, THE NETHERLANDS, [2]VTT Technical Research Centre Finland, Helsinki, FINLAND, [3]NXP Semiconductors, Nijmegen, THE NETHERLANDS.*	11F-6 - Electrical and Electromechanical Properties of Piezoelectric Thin Films for MEMS Application: Influence of Structure and Mechanical Stress ***K. Prume***[1], *P. Muralt*[2], *T. Schmitz-Kempen*[1], *S. Tiedke*[1]; *[1]aixACCT Systems GmbH, Aachen, GERMANY, [2]Laboratoire de Céramique, EPFL, Lausanne, SWITZERLAND.*

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3:00 pm – 4:00 pm	POSTER SESSIONS - Wednesday, October 31, 2007			East and South Corridors, Rhinelander Gallery
Session: P6A **Optoacoustics / Photoacoustics** *Chair: R. Esenaliev;* *University of Texas Medical Branch, Galveston, TX.*	P6B-2 Quantitative Assessment of Flow Velocity through Transverse Dual-beam Analysis *S. Ricci, S. Diciotti, A. Dallai,* ***P. Tortoli****;* *Università di Firenze, Firenze, ITALY.*	P6B-10 Improved Investigation of Maternal/Fetal Vessels Through Multigate Spectral Doppler **S. Ricci**[1]*, G. Urban*[2]*, P. Vergani*[2]*, M. J. Paidas*[3]*, P. Tortoli*[1]*;* *[1]University of Florence, Florence, ITALY, [2]Bicocca University, Monza, ITALY, [3]Yale University, New Haven, CT.*	P6C-3 Quantitative Ultrasonography Of Choroidal Melanoma Following Proton-beam Radiotherapy *M. Boudinet*[1]*, O. Berges*[2]*, J. Le Hueron*[1]*, L. Lumbroso - Le Rouic*[3]*, L. Desjardins*[3]*,* ***P. Laugier***[1]*;* *[1]University Paris 6, Paris, FRANCE, [2]Fondation Ophtalmologique Adolphe de Rothschild, Paris, FRANCE, [3]Institut Curie, Paris, FRANCE.*	P6C-11 Cyclic Changes In Blood Echogenicity Under Pulsatile Flow Are Frequency Dependent ***L. Nguyen****, F. Yu, G. Cloutier;* *Laboratory of Biorheology and Medical Ultrasonics, Montreal, PQ, CANADA..*
P6A-1 Photoacoustic Imaging of Fibrosarcoma using RGD-Cy 3 as a Targeted Contrast Agent **M. P. Mienkina**[1]*, N. C. Gerhardt*[2]*, J. Waldeck*[1]*, K. Hensel*[1]*, M. Breede*[1]*, C. Bremer*[3]*, M. Hofmann*[1]*, G. Schmitz*[1]*;* *[1]Ruhr-University Bochum, Bochum, GERMANY, [2]photonIQ GbR, Bochum, GERMANY, [3]University of Muenster, Muenster, GERMANY.* *University, Kingston, ON, CANADA.*	P6B-3 A *In-vivo* Investigation Of Filter Order Influence In Eigen-based Clutter Filtering For Color Flow Imaging ***L. Lovstakken***[1]*, A. C. H. Yu*[2]*, H. Torp*[1]*;* *[1]Norwegian University of Science and Technology, Trondheim, NORWAY, [2]The University of Hong Kong, Pokfulam, Hong Kong, CHINA..*	P6B-11 How Fat Layers Effect the Clinical Diagnosis Obtained from Doppler Ultrasound Data ? **D. M. King**[1]*, C. M. Moran*[2]*, J. E. Browne*[1]*, M. Hussey*[1]*;* *[1]Dublin Institute of Technology, Dublin 8, IRELAND, [2]University of Edinburgh, Edinburgh, UNITED KINGDOM..*	P6C-4 Extended System Transfer Compensation for Parametric Imaging in Ultrasonic Response Assessment of anti-cancer Therapies ***S. Brand***[1]*, G. J. Czarnota*[2]*, M. C. Kolios*[3]*;* *[1]University of Halle-Wittenberg, Q-BAM group, Orthopaedics Department, Halle, GERMANY, [2]University of Toronto, Dept. of Radiation Oncology, Toronto, ON, CANADA, [3]Ryerson University, Physics Department, Toronto, ON, CANADA.*	P6C-12 Angular Dependence of Ultrasonic Echo from Surface with Minute Roughness. ***H. Hasegawa****, K. Kudo, H. Kanai;* *Tohoku University, Sendai, JAPAN.*
P6A-2 An Integrated Photo-acoustic (pa) Signal Modeling And Simulation Method ***X. N. N. Wang****;* *The University of Michigan, Ann Arbor, MI.* *y of Texas Health Science Center, Houston, TX.*	P6B-4 Multi-Dimensional Spectrum Analysis for 2-D Vector Velocity Estimation ***N. Oddershede***[1]*, L. Lovstakken*[2]*, H. Torp*[2]*, J. A. Jensen*[1]*;* *[1]Technical University of Denmark, Kgs. Lyngby, DENMARK, [2]Norwegian University of Science and Technology, Trondheim, NORWAY.*	P6B-12 Blood Velocity Estimation Based On 3D Spatiotemporal Filtering Of Sequences Of Ultrasound Images **A. MARION**[1]*, A. NEEDLES*[2]*, D. VRAY*[1]*;* *[1]CREATIS, CNRS, UMR5220, INSERM, U630, Villeurbanne, FRANCE, [2]VisualSonics Inc., Toronto, ON, CANADA.*	P6C-5 Designing Ultrasonic Systems Specifically for Breast Cancer Imaging ***M. F. Insana***[1]*, C. K. Abbey*[2]*;* *[1]University of Illinois at Urbana-Champaign, Urbana, IL, [2]University of California, Santa Barbara, CA.*	P6C-13 Characterization of Human Vocal Fold Tissues by High Frequency Ultrasound *C. Huang*[1]*, L. Sun*[2]*, S. H. Dailey*[3]*,* ***S. Wang***[1]*, K. K. Shung*[2]*;* *[1]Department of Biomedical Engineering, Chung Yuan Christian University, Chung Li, TAIWAN, [2]NIH Resource on Medical Ultrasonic Transducer Technology, Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, [3]Department of Surgery, University of Wisconsin-Madison, Madison, WI.*
P6A-3 Optoacoustic Imaging, Sensing, and Monitoring ***R. Esenaliev****, Y. Petrov, I. Petrova, I. Patrikeev, D. Deyo, D. Prough;* *University of Texas Medical Branch, Galveston, TX.*	P6B-5 In Vivo Vector Flow Imaging Using Improved Directional Beamforming ***L. Henze****, J. Kortbek, I. K. Holfort, J. A. Jensen;* *Technical University of Denmark, Lyngby, DENMARK.*	P6B-13 *In Vivo* Blood Flow Imaging of Achilles Tendon in Mice with High Frequency Ultrasound ***M. Li***[1]*, J. Luh*[2]*, J. Chen*[3]*, C. Yeh*[2]*;* *[1]Department of Electrical Engineering, National Tsing Hua University, Hsinchu, TAIWAN, [2]School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, TAIWAN, [3]Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, TAIWAN.*	P6C-6 Breast Ultrasound Computer-Aided Diagnosis Using Both Acoustic and Texture Features ***H. Yang***[1]*, C. Chang*[1]*, Y. Chou*[2]*, P. Li*[1]*;* *[1]National Taiwan University, Taipei, TAIWAN, [2]Taipei Veterans General Hospital, Taipei, TAIWAN..*	*Session: P6D* **Bone and Imaging** *Chair: H. Hasegawa;* *Graduate School of Engineering, Tohoku University, Sendai, JAPAN..*

P6A-4 A Co-axial Scanning Photoacoustic and Acoustic Microscope
S. Vaithilingam, *T. Ma, Y. Furukawa, A. De la Zerda, O. Oralkan, S. Keren, S. S. Gambhir, B. T. Khuri-Yakub; Stanford University, Stanford, CA.*

P6A-5 Real-time Optoacoustic Imaging Using Near Infrared Absorbing Gold Nanoshells For Contrast Enhancement
M. Fournelle, *K. Maas, H. Fonfara, H. J. Welsch, H. J. Hewener, C. Günther, R. Lemor; Fraunhofer IBMT, Sankt Ingbert, GERMANY..*

Session: P6B
Blow Flow Meaurements

Chair: P. Tortoli; Electronics and Telecommunications, Università di Firenze, Firenze, ITALY.

PB-1 Error Analysis of Autocorrelation-Based Velocity Vector Estimation in the Aperture Domain
G. Jeng[1], *P. Li*[2]; [1]*Industrial Technology Research Institute, Tainan City, TAIWAN,* [2]*Dept. of Electrical Engineering, National Taiwan University, Taipei, TAIWAN.*

P6B-6 Investigation Of Doppler Ultrasound Measures Of Turbulence Intensity For Carotid Plaque Ulceration Geometry Using In Vitro Flow Models
E. Y. Wong[1], *M. L. Thorne*[1], *H. N. Nikolov*[1], *T. L. Poepping*[2], *R. N. Rankin*[2], *D. W. Holdsworth*[1]; [1]*Robarts Research Institute, London, ON, CANADA,* [2]*University of Western Ontario, London, ON, CANADA..*

P6B-7 The Initial Doppler Flow Measurement Using an Implantable CMUT Array
m. wang; *university of new mexico, abq, NM.*

P6B-8 Utility of Template-based Filtering Methods to Improve Accuracy of Echo PIV for Multi-Component Blood Velocity Measurements
F. Zhang[1], *R. Shandas*[1,2]; [1]*Dept. of Mechanical Engineering, University of Colorado at Boulder, Boulder, CO,* [2]*Dept. of Pediatric Cardiology, The Children's Hospital, Denver, CO.*

PB-9 Clutter Suppression in Doppler Ultrasound using Wiener Filtering
R. K. Warriner, *R. S. Adve, R. S. C. Cobbold; University of Toronto, Toronto, ON, CANADA..*

P6B-14 A 3D Ultrasound System for Image Guided Modelling of Patient-Specific Artery Geometries
S. J. Hammer[1], *A. D. Jeavs*[2], *W. T. Lee*[1], *D. C. Barber*[2], *D. R. Hose*[2], *W. J. Easson*[1], ***P. R. Hoskins***[1]; [1]*The University of Edinburgh, Edinburgh, UNITED KINGDOM;* [2]*The University of Sheffield, Sheffield, UNITED KINGDOM.*

Session: P6C
Tissue Characterization

Chair: H. Hasegawa; Graduate School of Engineering, Tohoku University, Sendai, JAPAN..

P6C-2 Image Texture Clustering for Prostate Ultrasound Diagnosis
M. A. Sheppard, ***L. Shih***; *U of Houston - Clear Lake, Houston, TX..*

P6C-1 Computer-aided Ultrasound Diagnosis of Hepatic Steatosis
G. Weijers[1], *J. M. Thijssen*[1], *A. Starke*[2], *A. Haudum*[2], *K. Herzog*[2], *J. Rehage*[2], *C. L. De Korte*[1]; [1]*University Medical Centre Nijmegen, Nijmegen, THE NETHERLANDS,* [2]*University of Veterinary Medicine, Hannover, GERMANY.*

P6C-7 Tissue Classification Using Time Series of RF Ultrasound Signals
M. Moradi, *P. Mousavi, D. R. Siemens, E. E. Sauerbrei, P. Isotalo, A. Boag, P. Abolmaesumi; Queen's University, Kingston, ON, CANADA..*

P6C-8 Correcting for Focusing when Estimating Attenuation for Tissue Characterization based on Gaussian Approximations of the Beam Profile
T. A. Bigelow[1], *B. L. McFarlin*[2], *W. D. O'Brien, Jr.*[3]; [1]*University of North Dakota, Grand Forks, ND,* [2]*University of Illinois at Chicago, Chicago, IL,* [3]*University of Illinois at Urbana, Urbana, IL.*

P6C-9 An Ultrasound Phantom With Long-term Stability Using A New Biomimic Soft Gel Material
K. Yasukawa[1], *T. Kunisue*[1], *K. Tsuta*[1], *Y. Shikinami*[1], *T. Kondo*[2]; [1]*Takiron Co.,Ltd., Kobe, JAPAN,* [2]*Tokushima Bunri University, Sanuki, JAPAN.*

P6C-10 Evaluation of the Structure Factor Size Estimator from Simulated Ultrasonic Backscattered Signals from Blood
E. Franceschini, *F. T. H. Yu, M. Fenech, G. Cloutier; Laboratory of Biorheology and Medical Ultrasonics, Montreal, PQ, CANADA.*

P6D-1 3D/4D Ultrasound Registration of Bone
J. Schers[1,2], *J. Troccaz*[1], *V. Daanen*[3], *C. Fouard*[4], *C. Plaskos*[2], *P. Kilian*[2]; [1]*TIMC-IMAG, La Tronche, FRANCE,* [2]*PRAXIM, La Tronche, FRANCE,* [3]*KOELIS, La Tronche, FRANCE.*

P6D-2 Ultrasound Bone Segmentation Using Dynamic Programming
P. Foroughi, *E. Boctor, R. H. Taylor, M. Swartz, G. Fichtinger; Johns Hopkins University, Baltimore, MD.*

P6D-3 3-D Ultrasound Guidance of Surgical Robotics Using Catheter Transducers
M. P. Fronheiser, *J. Whitman, S. W. Smith; Duke University, Durham, NC..*

P6D-4 Analysis Of Ultrasound Images Based On Local Statistics. Application To The Diagnosis Of Developmental Dysplasia Of The Hip
R. de Luis-Garcia[1], *S. Aja-Fernández*[1,2], *R. Cárdenes-Almeida*[1], *C. Alberola-López*[1]; [1]*Universidad de Valladolid, Valladolid, SPAIN,* [2]*Brigham and Women's Hospital, Harvard Medical School, Boston, MA.*

WED. POSTER

P6D-5 Enhancement of Bone Surface Visualization Using Ultrasound Radio Frequency Signals ***X. Wen***, *S. E. Salcudean;* *University of British Columbia, Vancouver, BC, CANADA.*	P6E-7 Design and Analysis of A Piezoelectric Hexagonal Vibratory Gyroscope ***Y. TING***, *S. Chen, B. Hou;* *Chung Yuan Christian University, Taiwan, TAIWAN.*	*Session P6G* **SAW Device Synthesis** *Chair:C. Ruppel;* *EPCOS AG, Munich, GERMANY.*	P6H-3 Lead Free Piezoelectrics for Transducer Applications ***A. Safari***, *M. Abazari, N. M. Hagh, E. K. Akdogan, B. Jadidian;* *Rutgers University, Piscataway, NJ..*	
Session P6E **Ultrasonic Motors II** *Chair: J. Bennès;* *LPMO, FEMTO-ST, Besançon, FRANCE.*	P6E-8 A Study on the New Type Linear Ultrasonic Motor (LUSM) ***J. Jou***; *Department of Mechanical Engineering of Cheng-Shiu University, Kaoshiung County, TAIWAN..*	P6G-1 Building Block Concept In Quasi-slanted SPUDT Synthesi ***E. Bausk***; *Institute of Semiconductor Physics, Novosibirsk, RUSSIAN FEDERATION.*	P6H-4 Development of Multilayer Actuators with PMN-PT Piezoelectric Single Crystals for an Implantable Hearing Aid ***Y. Roh***, *I. Yun;* *Kyungpook National University, Daegu, REPUBLIC OF KOREA.*	
P6E-1 Optimization Methodology for Piezoelectric Transformers Design ***J. M. Fernandez***, *Y. Perriard;* *EPFL, Lausanne, SWITZERLAND.*	P6E-9 Low Speed Control of Traveling-wave Ultrasonic Motor Based on Modal Analysis ***W. Xin-jian***, *H. Min-qiang, J. Long, X. Zhi-ke;* *southeast university, nan jing, CHINA.*	P6G-2 Synthesis of Frequency Response for Wideband SAW Ladder Type Filters ***T. Omori***, *Y. Tanaka, K. Hashimoto, M. Yamaguchi;* *Chiba University, Chiba, JAPAN..*	P6H-5 Development of “PMN-PZT” Single Crystals for Medical Ultrasound Probes ***H. Lee***, *S. Lee, D. Kim;* *Ceracomp Co., Ltd., Asan, REPUBLIC OF KOREA.*	
P6E-2 Driving a Coiled-Stator Ultrasonic Motor using a Single Crystal PZN-PT ***M. Tanabe***, *S. Xie, N. Tagawa, T. Moriya;* *Tokyo Metropolitan University, Tokyo, JAPAN.*	*Session P6F* **Bulk Wave Devices I** *Chair: J. D. Larson* *AvagoTechnologies, San Jose, CA.*	P6G-3 10 Channel Low Loss Switchable SAW Filter Bank ***J. Liu***, *S. He, S. Li, Y. Liang;* *Institute of Acoustics, Chinese Academy of Sciences, Beijing, CHINA.*	P6H-6 Lead-free Piezoelectric Ceramic for High Frequency Ultrasound Transducers ***D. Wu***[1], *R. Chen*[1], *Q. Zhou*[1], *D. Lin*[2], *H. Chan*[2], *K. Shung*[1]; *[1]Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, [2]Department of Applied Physics, The Hong Kong Polytechnic University, Kowloon, HONG KONG..*	

P6E-3 Surface Acoustic Wave Linear Motor Using Segment-Structured Diamond-Like Carbon Films on Contact Surface
Y. Fujii[1], *H. Kotani*[1], *Y. Aoki*[2], *Y. Adachi*[2], *M. Takasaki*[3], *N. Otake*[1,2], *T. Mizuno*[1];
[1]Saitama University, Saitama, JAPAN, [2]Tokyo Institute of Technology, Megro-ku, JAPAN, [3]Nagoya University, Nagoya, JAPAN.

P6F-1 Equivalent Network Representation for Length-Extensional Vibration Modes in Side-Plated Bar with Varying Piezoelectric Parameter
K. Yamada;
Tohoku Gakuin University, Tagajo, JAPAN.

P6G-4 Design of Non-synchronous One-port STW-resonators On AT Cut of Quartz
C. U. Kim[1], *V. Plessky*[2], *W. Wang*[2], ***V. Grigorievski***[3];
[1]Ulsan University, Ulsan, REPUBLIC OF KOREA, [2]GVR Trade SA, Bevaix, SWITZERLAND, [3]Institute of Acoustics, Nanjing University, Nanjing, CHINA, [4]IRE RAS, Fryazino, Moscow Region, RUSSIAN FEDERATION.

P6H-7 Investigation of Morphotropic Phase Boundary $PbTiO_3$-$Bi(MgZr)O_3$ Based Complex Perovskite Ceramics
S. Sharma[1], *D. A. Hall*[2];
[1]Ferroelectrics Research Laboratory,A N College, Patna 800013, INDIA, [2]Materials Science Center,School of Materials,Manchester University, Manchester, UNITED KINGDOM

P6E-4 Glass Substrate Surface Acoustic Wave Linear Motor
H. Kotani, *M. Takasaki, T. Mizuno;*
Saitama University, Saitama, JAPAN..

P6F-2 Piezoelectric Generator as Power Supply for RFID-Tags and an Application
M. Takeuchi, *S. Matsuzawa, K. Tairaku, C. Takatsu;*
Tamagawa University, Machida Tokyo, JAPAN.

Session: P6H
Piezoelectric Materials

Chair: A. Safari;
Materials Scienec and Engneering, Rutgers University, Piscataway, NJ.

P6H-8 Design of a Bulk-Micromachined Piezoelectric Accelerometer
H. Yang, ***H. Guo***;
Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen, Fujian, CHINA..

P6E-5 Analysis of PZT Layer Thickness in Traveling Wave Ultrasonic Motor Performance
G. G. Kuhn, Sr., *C. R. Rodrigues, Sr., R. S. Pippi, Sr.;*
Universidade Federal de Santa Maria, Santa Maria - RS, BRAZIL.

P6F-3 A Study on the Wedge-Shaped Piezoelectric Transformer (WSPT)
J. Jou;
Department of Mechanical Engineering of Cheng-Shiu University, Kaoshiung County, TAIWAN.

P6H-1 Electrochemical Etching of Quartz
E. Rodrigue, *V. Kaajakari;*
Louisiana Tech University, Ruston, LA.

P6H-9 Discerning the Quality of ZnO Films from Their Etch Properties
T. S. Hickernell[1], ***F. S. Hickernell***[2];
[1]Tempe Preparatory Academy, Tempe, AZ, [2]University of Arizona, Phoenix, AZ..

P6E-6 Piezoelectric Power Generation using Bimorph Actuator
J. Paik, *Y. Lee, C. Kim;*
Korea Institute of Ceramic Eng. & Tech., Seoul, REPUBLIC OF KOREA.

P6F-4 A Theoretical Time-Course Study of Acoustic Tweezers
H. Ting, *C. Yeh;*
Department of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, TAIWAN.

P6H-2 Bridgman Growth and Property Characterization of Lead Indium Niobate-Lead Magnesium Niobate-Lead Titanate Single Crystals
J. Tian, *P. Han, X. Huang, H. Pan;*
H. C. Materials Corp., Bolingbrook, IL.

P6H-10 High Piezoelectric Responses in Poly(vinylidene fluoride - hexafluoropropylene) Copolymers and Its Nanocomposites
Y. WANG[1], *B. NEESE*[1], *Q. ZHANG*[1], *C. HUANG*[2], *J. WEST*[2];
[1]PENN STATE UNIVERSITY, University park, PA, [2]Johns Hopkins University, Baltimore, MD.

4:00 pm – 5:30 pm — ORAL SESSIONS – Wednesday, October 31, 2007

	Session 12A **Contrast Agents: High Frequency Studies** *Chair:* *S. Foster;* *Department of Medical Biophysics, University of Toronto, Toronto, ON, CANADA.*	*Session 12B* **Blood Flow** *Chair:* *T. Thomas;* *Boston Scientific, CA.*	*Session 12C* **Bone** *Chair:* *J. G. Miller;* *Physics, Washginton University, St. Louis, MO.*	*Session 12D* **NDE Wave Propagation** *Chair:* *W. Arnold;* *Fraunhofer Institute for Nondestructive Testing, Saarbrucken, GERMANY.*	*Session 12E* **Bulk Acoustic Wave Devices 3** *Chair:* *R. Ruby;* *Avagotech, Palo Alto, CA.*	*Session: 12F* **Bulk Wave Devices II** *Chair:* *B. Sinha;* *Schlumberger-Doll Research, Ridgefield, CT.*
	Gramercy Suite	**Murray Hill Suite**	**Regent Parlor**	**Sutton Parlor Center**	**Sutton Parlor North**	**Beekman Parlor**
4:00 pm	12A-1 - Concentration Requirements for Quantitative Subharmonic Contrast Enhanced High Frequency Ultrasound Microvascular Flow Studies ***S. Stapleton***[1], *A. Needles*[2], *E. Cherin*[3], *S. Foster*[3]; [1]*University of Toronto, Toronto, ON, CANADA,* [2]*VisualSonics, Toronto, ON, CANADA,* [3]*Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.*	12B-1 - Detectability of Small Vessels Using High-Frequency Power Doppler Ultrasound ***S. Z. Pinter***[1,2], *J. C. Lacefield*[1,2]; [1]*University of Western Ontario, London, ON, CANADA,* [2]*Robarts Research Institute, London, ON, CANADA.*	12C-1 - High Resolution Acoustic Microscopy : a New Method to Investigate Remodelling Process of Trabecular Bone ***F. Rupin***[1], *A. Saied*[1], *V. David*[2], *K. Raum*[3], *L. Vico*[2], *P. Laugier*[1]; [1]*Université Pierre et Marie Curie-Paris6/ CNRS, Paris, FRANCE,* [2]*INSERM E0366-LBTO, Saint-Etienne, FRANCE,* [3]*Q-BAM Group, Halle, GERMANY.*	12D-1 -Excitation of Longitudinal and Lamb waves in Plates by Edge-mounted Transducers ***D. W. Greve***, *P. Zheng, I. J. Oppenheim;* *Carnegie Mellon University, Pittsburgh, PA.*	12E-1 - 2X Size and Cost Reduction of Film Bulk Acoustic Resonator (FBAR) Chips with Tungsten Electrodes for PCS/GPS/800 MHz Multiplexers ***P. D. Bradley***[1], *J. Kim*[1], *S. Ye*[1], *P. Nikkel*[2], *S. Bader*[2], *C. Feng*[2]; [1]*Avago Technologies, San Jose, CA,* [2]*Avago Technologies, Fort Collins, CO.*	12F-1 - Highly Oriented c-axis 23° Tilted ZnO Films with High Quasi-Shear Mode Electromechanical Coupling Coefficients ***T. Matsuo***[1], *T. Yanagitani*[2], *M. Matsukawa*[1], *Y. Watanabe*[1]; [1]*Doshisha University, Kyoto, JAPAN,* [2]*Tohoku University, Miyagi, JAPAN.*
4:15 pm	12A-2 - Subharmonic Contrast Intravascular Ultrasound for Vasa Vasorum Imaging A. ***Needles***[1], *J. Grabba*[1], *D. E. Goertz*[2], *S. Stapleton*[2], *C. Placintescu*[1], *T. Coulthard*[2], *D. Hirson*[1], *F. S. Foster*[2]; [1]*VisualSonics Inc., Toronto, ON, CANADA,* [2]*Sunnybrook Health Sciences Centre, Toronto, ON, CANADA*	12B-2 - Functional Doppler Imaging: A Feasibility Study *S. J. Hsu, J. L. Hubert, P. D. Wolf,* ***G. E. Trahey***; *Duke University, Durham, NC.*	12C-2 - Improved Accuracy of Broadband Ultrasound Attenuation Measurement Using Phase Insensitive Detection: Results in 73 Women ***K. Wear***; *US Food and Drug Administration, Silver Spring, MD.*	12D-2 - Rate-Dependent Micromechanical Model Applied to Wave Propagation through Rough Interfaces ***A. Misra***, *O. Marangos;* *University of Missouri-Kansas City, Kansas City, MO.*	12E-2 - Accelerometer based on Thin-film Bulk Acoustic Wave Resonators (FBAR) ***H. Campanella***[1], *J. Plaza*[1], *A. Uranga*[2], *N. Barniol*[2], *J. Esteve*[1]; [1]*Centro Nacional de Microelectrônica, Bellaterra (Barcelona), SPAIN,* [2]*Universitat Autònoma de Barcelona, Bellaterra (Barcelona), SPAIN.*	12F-2 - Characterization of ZnO Single Crystals by the Ultrasonic Microspectroscopy Technology ***J. Kushibiki***, *Y. Ohashi, M. Arakawa, T. Tanaka;* *Tohoku University, Sendai, JAPAN.*

4:30 pm	12A-3 - A New Real-Time High-Frequency Subharmonic Contrast Mode for Mouse Imaging ***A. Needles***[1], J. Grabba[1], D. E. Goertz[2], S. Stapleton[2], C. Placintescu[1], T. Coulthard[1], D. Hirson[1], F. S. Foster[2]; [1]VisualSonics Inc., Toronto, ON, CANADA, [2]Sunnybrook Health Sciences Centre, Toronto, ON, CANADA.	12B-3 - Validation Of The 2-D Blood Vector Velocity Method Transverse Oscillation With MRI Phase Contrast Angiography ***K. L. Hansen***[1], J. Udesen[1], C. Thomsen[1], J. A. Jensen[2], M. B. Nielsen[1]; [1]University Hospital of Denmark, Copenhagen, DENMARK, [2]Technical University of Denmark, Copenhagen, DENMARK.	12C-3 - Modelling the Impact of Soft Tissue on Axial Transmission of Guided Waves on Long Bones ***P. Moilanen***[1], M. Talmant[2], P. H. F. Nicholson[1], S. Cheng[1], P. Laugier[2], J. Timonen[1]; [1]Department of Physics, University of Jyvaskylä, Jyväskylä, FINLAND, [2]Laboratoire d'Imagerie Paramétrique, UMR CNRS 7623, Université Paris 6, Paris, FRANCE, [3]Department of Health Sciences, University of Jyvaskylä, Jyvaskylä, FINLAND.	12D-3 - Validity of Born Approximation for Plate Wave Scattering Problems ***A. H. Rohde***, M. Veidt; The University of Queensland, Brisbane, AUSTRALIA .	12E-3 - X-Band Filters Utilizing AlN Thin Film Bulk Acoustic Resonators ***M. Hara***, T. Yokoyama, M. Ueda, Y. Satoh; Fujitsu LTD, Akashi, JAPAN.	12F-3 - A Pitch/Catch UHF Piezoelectric Transformer Fabricated with Sol-Gel Thin-Film PZT Transducers ***J. D. Larson, Fellow***, S. R. Gilbert, M. L. Frank; AvagoTechnologies, San Jose, CA.
4:45 pm	12A-4 - 3D Contrast-Enhanced Imaging of the Embryonic Mouse Vasculature ***O. Aristizábal***[1,2], R. Williamson[1,2], D. H. Turnbull[1,2]; [1]Skirball Institute of Biomolecular Medicine, New York, NY, [2]NYU School of Medicine, New York, NY.	12B-4 - Real-time Multi-component Hemodynamic Measurement in Vascular Aneurysms using Echo Particle Image Velocimetry: Comparison of in vitro and Computational Results ***L. Liu***[1], F. Zhang[1], R. Wang[1], R. Shandas[1,2]; [1]University of Colorado, Boulder, CO, [2]The Children's Hospital, Denver, CO.	12C-4 - A Minute Bone Bending Angle Measuring Method using Echo-Tracking for Assessment Bone Strength ***R. Sakai***[1], K. Miyasaka[1], H. Suzuki[1], T. Ohtsuka[1], A. Harada[1], Y. Yoshikawa[1], J. Matsuyama[2], K. Nakamura[2], I. Ohnishi[2]; [1]Aloka co.,ltd., Tokyo, JAPAN, [2]Department of Orthopaedic Surgery, Faculty of Medicine, University of Tokyo, Tokyo, JAPAN.	12D-4 - Welding Characteristics of a 27 kHz Ultrasonic Complex Vibration Welding System with Six Transducers of 40 mm Diameter ***J. Tsujino***, T. Ueoka, T. Aoyama, R. Karatsu, T. Kyuzen; Kanagawa University, Yokohama, JAPAN.	12E-4 - Channel-Select RF MEMS Filters Based On Self-Coupled AlN Contour-Mode Piezoelectric Resonators ***C. Zuo***, N. Sinha, M. B. Pisani, C. R. Perez, R. Mahameed, G. Piazza; University of Pennsylvania, Philadelphia, PA.	12F-4 - Investigation of Efficient Ultrasonic Array Focusing in Attenuative Solids ***A. Ganguli***[1], R. Gao[1], K. Liang[2], J. Jundt[2]; [1]University of Massachusetts Amherst, Amherst, MA, [2]Schlumberger-Doll Research, Boston, MA.
5:00 pm	12A-5 - Sub-harmonic Response From Polymer Shelled Contrast Agents ***J. Ketterling***, J. Mamou; Riverside Research Institute, New York, NY.	12B-5 - Eigen-Based Clutter Filters for Color Flow Imaging: Single-Ensemble vs. Multi-Ensemble Approaches ***A. C. H. Yu***[1], L. Lovstakken[2]; [1]The University of Hong Kong, Pokfulam, HONG KONG, [2]The Norwegian University of Science and Technology, Trondheim, NORWAY.	12C-5 - In-Vivo Assessment Of Progressive And Adaptive Bone Quality Change Using Scanning Confocal Ultrasound Imaging ***Y. Qin***, Y. Xia, W. Lin, B. Gruber, C. Rubin; Stony Brook University, Stony Brook, NY.	12D-5 - N.D.E Of Adhesive Joints Using V(x,t) Data ***J. Sadler***, S. Titov, R. G. Maev; University of Windsor, Windsor, ON, CANADA.	12E-5 - Low Phase Noise, Low Power Consuming 3.7 GHz Oscillator Based on High-overtone Bulk Acoustic Resonator ***H. Yu***[1], C. Lee[1], W. Pang[2], H. Zhang[3], E. S. Kim[1]; [1]University of Southern California, Los Angeles, CA, [2]Avago Technologies, Fort Collins, CO, [3]Skyworks Solutions, Inc., Woburn, MS.	12F-5 - Transmission Of Acoustic Plane Waves Through Multilayered Piezoelectric Plates ***M. Lam***, E. Le Clézio, G. Feuillard; Laboratoire UltraSons Signaux et Instrumentation FRE CNRS 2448, Blois, FRANCE.
5:15 pm	12A-6 - Shadowing Artefacts Correction for Improvement of Contrast Agent Microbubble Detection in Small Animal Studies ***S. MULE***[1], A. DE CESARE[1], O. LUCIDARME[2], F. FROUIN[1], A. HERMENT[1]; [1]INSERM / UPMC, PARIS, FRANCE, [2]PITIE-SALPETRIERE HOSPITAL, PARIS, FRANCE.		12C-6 - FBroadband Ultrasonic Attenuation In Femoral Bovine Cortical Bone Is An Indicator Of Bone Properties M. Sasso[1], ***G. Haïat***[1], Y. Yamato[2], S. Naili[1], M. Matsukawa[2]; [1]Université Paris 12, Créteil, FRANCE, [2]Hamamatsu University School of Medicine, Shizuoka, JAPAN, [3]Doshisha University, Kyoto-fu, JAPAN.	12D-6 - A Study on the Dispersion Behaviors of Antisymmetric Flexural Modes Propagating Along Wedges Tips with Coatings ***C. Yang***, S. Tang; National Taipei University of Technology, Taipei, TAIWAN.		12F-6 - Size Dependent Acoustical Behaviour of Nanocrystalline Metals ***R. K. Singh***, R. Singh, M. K. Singh; Physics Department, Banaras Hindu University, Varanasi, INDIA.D. Demaree[2]; [1]University of Connecticut, Storrs, CT, [2]U.S. Army Research Laboratory, Aberdeen Proving Ground, MD.

WED. ORAL

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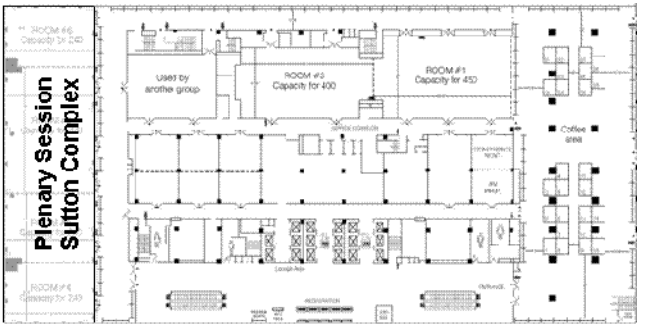
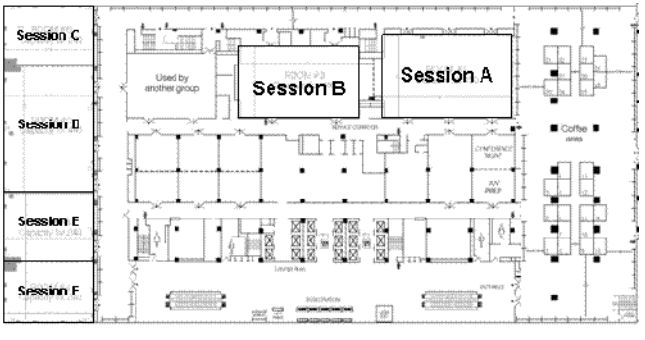
FLOOR PLANS

Plenary Session
Monday 8:00 AM – 9:30 AM
Sutton Complex



Oral Sessions
Session A – Gramercy Suite
Session B – Murray Hill Suite
Session C – Regent Parlor
Session D – Sutton Parlor Center/South
Session E – Sutton Parlor North
Session F – Beekman Parlor



POSTERS LAYOUT AND COLOR CODE

The Student Poster Competition will be on display in the East Corridor for the duration of the Symposium. The contributed poster papers will be displayed along the south wall of the South Corridor and around the periphery of the Rhinelander Gallery. The posters will be organized in Sessions beginning with "A" at the intersection of the East and South Corridors, then proceeding along the South Corridor, into and clockwise around the Rhinelander Gallery. The Poster Sessions are color-coded on the poster board labels. The colors generally follow the spectrum of the rainbow to enable easy navigation:

Session P0 – Student Paper Competition color is Gold

Other sessions as below:

Session	P1	P2	P3	P4	P5	P6	**Color**
A	13	11	6	5	11	5	**Red**
B	14	17	8	6	13	14	**Rose**
C	9	3	12	4	6	13	**Orange**
D	6	6	6	9	6	5	**Yellow**
E	6	7	7	5	9	9	**Light Green**
F	5	10	6	7	3	4	**Bright Green**
G	5	5	5	10	6	4	**Light Turquoise**
H	6	5	4	3	4	10	**Turquoise**
I	4	9	5	3	4	-	**Lavender**
J	6	-	4	3	5	-	**Plum**
K	-	-	5	5	5	-	**Tan**
L	-	-	-	5	-	-	**Brown**
M	-	-	-	9	-	-	**Gray**